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DISCONTINUED OPERATIONS UNDER IFRS - INTERPRETATION AND MANAGEMENT

CHRISTOPH FRANK

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Abstract

This thesis investigates the interpretation and management of discontinued operations under IFRS. The empirical work is divided into three parts. The first part examines the interpretation of the term 'major line of business'. The second part examines whether firms engage in classification shifting by classifying expenses from the continuing part of the income statement to the discontinued part. Finally, the disclosure analysis investigates to what extent firms comply with mandatory disclosures and their main determinants of compliance.

Past research on discontinued operations is broadly limited to expert opinions and a few earnings management studies based on US GAAP. This thesis aims to address this gap in knowledge by looking at a European IFRS financial setting. It focuses primarily on the Swiss market, as well as on Germany as a control market and the UK as a comparison market during the observation period from 2009 to 2018.

Using different multivariate and logistic regression models throughout the thesis, the data is gathered from publicly available information on a cross-sectional basis and includes more than 8,800 observations in terms of classification shifting and over 600 analysed annual reports for disclosures between 2009 and 2018.

The study reveals that firms executing relatively small deals opportunistically use their discretion to apply discontinued operations to benefit from increased core earnings (continuing earnings), which potentially leads to higher equity valuation and impairs the comparability between IFRS adopters. The smallest group applying discontinued operations represents more than 20 per cent of the sample which is questionable in terms of IFRS compliance. Motivated by underperforming discontinued businesses, the study provides evidence that discontinued reporting firms misclassify expenses vertically down from the continuing area to discontinued operations within the income statement. This is particularly prevalent in order to meet or beat analysts' forecasts, or to comply with lenders' contracts to avoid violations of debt covenants. In terms of mandatory disclosures, the study provides evidence that firms are reluctant to comply with IFRS mandatory items where items are proprietary, due to the potential for commercial harm. Further, the models reveal that the presence of a Big Four auditor and the size of the company are the main positive driving factors of compliance.

The findings of this thesis could have implications for the IASB in view of a future post-implementation review, but also for auditors, lenders and shareholders by alerting them to the potential use of classification shifting as an earnings management technique. Further, the IASB and the audit profession may take note of the conditions under which managers are more likely to initially apply discontinued operations as a result of extensive management discretion. The study also reveals the ineffective role played by non-Big Four auditors in terms of mandatory disclosures which suggests that regulators and the audit profession should step up efforts to enhance their effectiveness in curbing disclosure deficiencies.

Key words: IFRS 5, disposal of businesses, classification shifting, professional judgemental areas, mandatory disclosures

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List of abbreviations

BoD	Board of Directors
CAGR	Compound Annual Growth Rate
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CODM	Chief Operating Decision Maker
CTA	Cumulative Translation Adjustments
DCF	Discounted Cash Flow
DAX	Deutscher Aktienindex (German stock index)
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest, Taxes, Depreciation and Amortisation
EPS	Earnings per Share
GDP	Gross Domestic Product
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
FASB	Financial Accounting Standards Board
FCF	Free Cash Flow
FV	Fair Value
FVOCI	Fair Value through other comprehensive income
FVTPL	Fair Value through profit and loss
M&A	Mergers and Acquisitions
PPE	Property, Plant and Equipment

OCF   Operating Cash Flow

OLS   Ordinary least squares

OCI   Other comprehensive income

ROS   Return on Sales

S&P   Standard & Poor

SPI   Swiss Performance Index

US GAAP United States Generally Accepted Accounting Principles

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1 Introduction

1.1 Synopsis

A firm's corporate strategy swings between diversification and focusing, as Porter (1989) and Ravenscraft and Scherer (2011) show. Accordingly, when a new strategic direction is set, the allocation of resources, capital expenditure and funding follow. A focusing strategy often concentrates on growth markets where firms have sustainable competitive advantages and are able to deliver attractive returns (OC Oerlikon Group, 2015). Eliminating overdiversification by executing a discontinued operation transaction is a strategic option to sharpen corporate focus and to mould the business portfolio to the new target structure. The proceeds may be used to further fund value-creating acquisitions, to pay down existing debts or to retransfer to shareholders. Along with the reduction of overdiversification, past studies show that firms might reduce managerial and operational inefficiencies (Gertner, Powers and Scharfstein, 2002; Lord and Saito, 2017) and improve capital allocation efficiency McNeil and Moore (2005). At the same time, firms are frequently able to exit from underperforming businesses as past studies show that widely diversified firms tend to perform poorly (Comment and Jarrell, 1995; John and Ofek, 1995; Daley, Mehrotra and Sivakumar, 1997). Accounting must mirror the changes in corporate strategy in financial statements as it is a reflection of the economic reality and the decision made by the management. To reflect major strategic disposals of businesses in the financial statements, firms are required to follow the rules under IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*.

This IFRS 5 standard requires firms to disclose separately the discontinued operations in their income statement and cash flow statement to assist investors in assessing the firm's future income and cash flow potential. In other words, the disclosure requirements under IFRS facilitate investors to distinguish between recurring and non-recurring businesses to make better business decisions. However, the application of the standard has several application issues, some of which are addressed in this thesis. They are initial classification, the classification of expenses within the income statement and mandatory disclosures.

The standard leaves room for interpretation and therefore gives managers many opportunities to manage earnings which likewise restricts the comparability between IFRS adopters. Lüdenbach and Hoffmann (2013, p.1865) argue that IFRS 5 Standard involves contradictions in the basic definitions and uncertainties in the application requirements. As a consequence, the current standard provides a wide range of opportunities for creative accounting. It leaves room for interpretation, and firms need to exercise judgement in the application. Although

judgement plays a vital role in the preparation of consolidated financial statements, this thesis aims to explore three topics where such decisions have a material effect on the financial statements. In this sense, the thesis aims to contribute to the analysis of how firms interpret the criteria of the initial classification of discontinued operations (Curtis, McVay and Wolfe, 2014). Second, the thesis aims to explore whether firms misclassify expenses within the income statement while applying discontinued operations (Barua, Lin and Sbaraglia, 2010; Chagnaadorj, 2018; Ji, Potepa and Rozenbaum, 2019) and finally, the analysis of the IFRS disclosures aims to provide new insights into how firms interpret the mandatory disclosures around discontinued operations (Tsalavoutas, 2011; Glaum et al., 2013a; Boshnak, 2017; Mazzi, Slack and Tsalavoutas, 2018; Tsalavoutas, Tsoligkas and Evans, 2020).

The literature review of this study reveals that past research on discontinued operations is limited to expert opinions and a few earnings management studies based on US GAAP. Besides the existing uncertainties in applying discontinued operations, this thesis aims to address this gap in knowledge by looking at a European IFRS financial setting. It will focus on firms listed at the Swiss, German and UK stock exchanges. Switzerland has been chosen as a market of primary interest as this market offers industry-specific differences and indicates more firms concerned with future growth potential compared to Germany (control country) and UK (comparison country).

1.2 Research background / problem statement

1.2.1 Initial classification of discontinued operations

First, from a strategic and corporate finance literature viewpoint, there has been a good deal of research indicating the reasons why firms do intend to divest (Berger and Ofek, 1999; Lord and Saito, 2019). Firms that aim to undertake major divestiture projects are normally under pressure from shareholders or lenders to react and to change a current unsatisfactory situation. Previous studies show that divestitures are likely occur to eliminate an underperforming business that is regularly known for over-diversification, or for the resolution of financial distress (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998; Berger and Ofek, 1999) (Desai and Jain, 1999; Dranikoff, Koller and Schneider, 2002; Shin, 2008; Lord and Saito, 2019). Other motivations to divest are due to high leverage and pressure faced from lenders (Lang, Poulsen and Stulz, 1995; Lasfer, Sudarsanam and Taffler, 1996; Dranikoff, Koller and Schneider, 2002; Veld and Veld-Merkoulova, 2008; Otsubo, 2013; Lord and Saito, 2019). Past research also reveals that a change in management is likely to occur prior to the announcement of a divestiture (Berger and Ofek, 1999; Dranikoff, Koller and Schneider, 2002).

Second, turning to accounting research on divestitures and specifically to discontinued operations, it appears that limited research is available (Lord and Saito, 2017). A divestiture in financial statements under IFRS can be recognised as an ordinary sales transaction by derecognising the assets and liabilities at closing date, or by classifying a business as a discontinued operation. In the latter case, IFRS 5.32 and expert opinions (Lüdenbach and Hoffmann, 2013; Pellens et al., 2014; Albrecht, 2016) emphasise the importance of a strategic shift in a transaction that triggers a fundamental change of reporting the current financial performance. At initial classification, and according to IFRS 5.33, it includes the separation of all revenues and cost components of the discontinued operations, and presenting them in an aggregated single line item. This new income statement presentation puts the company in a completely different and usually improved spotlight, as only the continuing businesses are visible in detail. This implies that businesses are distinguished between recurring and non-recurring businesses. In this context, past research demonstrates that investors weight recurring earnings more than transitory earnings when valuing firms, as recurring earnings are more persistent and informative about the future (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014). This means that past accounting research provides evidence that the classification of line items within the income statement in a divestiture project may matter in terms of company valuation. The initial application of

discontinued operation facilitates the increase of recurring earnings, and there is a risk that firms opportunistically use the IFRS 5 standard to benefit from higher continuing earnings, and thus equity incentives.

However, looking at the IFRS criteria triggering the constitution of a discontinued operation that allows a strict distinction between recurring and non-recurring items, it appears to be a largely overlooked topic limited to expert opinions (Küting and Wirth, 2006; Lüdenbach and Hoffmann, 2013; Pellens et al., 2014; Albrecht, 2016; KPMG, 2017/18; Deloitte, 2018a). This might be because of the specific information requirements needed of such an analysis, which are not readily available from financial providers.

Besides potential valuation implications, different interpretations among preparers might lead to different disclosures, offering opportunities to preparers, and might impair the comparability between IFRS adopters across industries.

In this context, the initial classification of discontinued operations is driven by one important term stated under IFRS 5.32, where a discontinued operation needs to be a "major line of business" or geographical area of operations (Lüdenbach and Hoffmann, 2013; Pellens et al., 2014; Albrecht, 2016). Depending on the preparers interpretation and exercised professional judgement, this term mainly determines what is considered a discontinued operation. Not only the preparers but also the auditors need to critically review and approve the judgmental considerations. Motivated by this lack of clarity and the fact that the IASB Interpretations Committee has not established any conclusions on this issue in their 2016 meeting (IFRIC, 2016), this dissertation in particular aims to investigate this critical classification criterion and to explore what motivates firms to apply discontinued operations, and whether management uses discretion in applying discontinued operations when selling at different sizes of deals.

1.2.2 Classification shifting while applying discontinued operations

Further uncertainties and room for interpretation exist in the area of classifying expenses to the discontinued area of the income statement, as IFRS does not give clear guidance under IFRS 5. Although the bottom line of a firm's income statement is not affected by classifying expenses, misclassifying costs can impact the presented continuing and discontinued result by overstating the continuing recurring result and understating the discontinued operations. Thus, it violates the usefulness theory, as recurring and non-recurring items are not properly

allocated [1]. It, therefore, changes how information is perceived by investors. Previous studies reveal that earnings management can be carried out through real earnings management (Graham, Harvey and Rajgopal, 2005; Roychowdhury, 2006), earnings management using accruals (Dechow, Sloan and Sweeney, 1995; DuCharme, Malatesta and Sefcik, 2004) and classification shifting expenses from core expenses to special items (McVay, 2006; Athanasakou, Strong and Walker, 2009; Fan et al., 2010; Haw, Ho and Li, 2011; Abernathy, Beyer and Rapley, 2014; Nagar and Sen, 2016; Fan and Liu, 2017; Noh, Moon and Parte, 2017; Malikov, Manson and Coakley, 2018) [2].

While earnings management through real activities and accrual management reduce net income in future reporting events, classification shifting does not affect net result. However, classification shifting in the context of discontinued operations, and specifically in the area of IFRS, is rather unexplored in extant literature. Apart from two studies in the US (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019) and an Australian study (Chagnaadorj, 2018) no specific study has been found focusing on a European IFRS financial setting with different institutional factors, in contrast to the previous US GAAP-based results. Motivated by this lack of literature and the uncertainty in the practical allocation of costs between continuing and discontinued operations, the present research aims to contribute to the area of earnings management. First, the study specifically investigates classification shifting to meet and beat analysts' forecasts similar to (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019). Second, the study further extends the literature on discontinued classification shifting in potentially managing earnings to avoid covenant violations in a lending contract. Third, present research also extends current literature by looking at corporate governance factors (i.e. audit firm, internal monitoring structure) that might help to mitigate the presence of classification shifting while applying discontinued operations.

1.2.3 Mandatory disclosures and discontinued operations

Mandatory disclosures are an essential part of communicating the accounting policy and financial performance of a company to the investors, lenders and the wider community (Hope, 2003; Financial Reporting Council, 2012). Particularly, disclosures of discontinued operations

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[1] Decision usefulness theory can be seen as the ability of financial information to help users in making good decisions (Scott and O'Brien, 2009, p.72). This theory is an integral element of the IFRS conceptual framework (IFRS OB2 and IFRS OB3).
[2] In most studies 'core expenses' are defined as cost of goods sold and selling, general, and administrative expenses, whereas 'special items' are usually defined as non-recurring items ranging from one-time gains/losses to expenses associated with restructurings, plant closings and asset impairments

require firms to divulge important information such as sale price and the net assets sold of the disposal group, which allows investors (principal) to monitor the activities of the management (agent) that potentially helps to reduce agency costs (Jensen and Meckling, 1976).

Previous studies performed on the mandatory IFRS disclosures can distinguish between studies that analyse the whole set of disclosures and others focusing on a specific area, for example goodwill and goodwill impairment. Studies including all disclosures (Abd-Elsalam and Weetman, 2003; Glaum and Street, 2003; Al-Shammari, Brown and Tarca, 2008; Hodgdon et al., 2008; Al Mutawaa and Hewaidy, 2010; Al-Akra, Eddie and Ali, 2010; Galani, Alexandridis and Stavropoulos, 2011; Tsalavoutas, 2011; Glaum et al., 2013a; Boshnak, 2017) refer to IFRS 5 mandatory compliance. However, IFRS 5 does not only include discontinued operations, but also covers non-current assets as held for sale that do not form a discontinued operation, for example the sale of a building. Therefore, the comparability of the results of these studies with regard to discontinued operations is limited. In addition, focusing on discontinued operations mandatory IFRS disclosures also impacts other related standards (e.g. IAS 8 *Statement of Cash Flow,* IFRS 13 *Fair Value Measurement or* IAS 33 *Earnings per Share)* as these standards are frequently intertwined with the application of discontinued operations. The present study aims to tackle these shortcomings by covering all related mandatory items around discontinued operations. Furthermore, the study also discusses the potential impact of materiality [3] on the disclosures, and includes validity and reliability tests that are considered to improve future disclosure research according to Tsalavoutas, Tsoligkas and Evans (2020).

Besides studies focusing on all mandatory disclosures other studies investigating partial elements are available e.g. goodwill and goodwill impairment mandatory compliance (D'Alauro, 2013; Hartwig, 2013; Baboukardos and Rimmel, 2014; Florio, Lionzo and Corbella, 2018; Mazzi, Slack and Tsalavoutas, 2018). Furthermore, studies can be found in the field of share-based payments (Goh, Joos and Soonawalla, 2016) provisions (Acar and Ozkan, 2017) decommission costs (Abdo et al., 2018) or income taxes (Lopes, 2014). However, no specific study of mandatory disclosures that specifically focuses on discontinued operations has been found so far.

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[3] Likewise, material misstatements arising from numbers presented in financial statements (e.g. overstated fair value of inventories, understated provision) misleading disclosure might also be material if omitting it or misstating it could influence decisions that users make on the basis of financial information (Conceptual Framework QC11). More specifically, IAS 1.31 *Presentation of Financial Statements* specifies that firms do not need to provide disclosures required by an IFRS if the information resulting from that disclosure is not material.

1.3 Research questions

1.3.1 Research questions on classification of a discontinued operation

To assess whether all criteria are met at initial classification of a discontinued operation, the criteria set out in IFRS 5.6 to IFRS 5.8 in combination with IFRS 5.32 need to be considered. Some of the criteria have more formalistic [4] characteristics, whereas others have substantial [5] attributes. A substantial criterion is set out in IFRS 5.32 and requires that a discontinued operation needs to represent a separate major line of business or geographical area. Improper interpretation of a major line of business due to excessive management discretion leads to a misleading financial position. This might result in a transaction that is not accounted for as a discontinued operation, or a discontinued operation is constituted although it would be more appropriate to account it as an ordinary sale transaction [6] which is out of the scope of IFRS 5. The potential consequences are that investors might be unable to properly estimate and assess the future operating performance of a firm, which could lead to improper market valuation.

In contrast to ordinary sales transactions, the application of discontinued operations triggers a new measurement concept at initial application that is based on the disposal group as a whole. This concept requires the cease of depreciation of non-current assets that are part of the disposal group, and puts the expected sales price (fair value less costs to sell) of the entire disposal group at the forefront of valuation considerations. According to IFRS 5.15 the disposal group is required to be measured at the lower of its carrying amount, and fair value less costs to sell. This is relevant at the initial classification, but also at subsequent reporting events before a sale occurs. The measurement of a disposal group might be difficult for some firms at the beginning of a sales process, as usually no binding bids of potential buyers are available. It also might trigger impairment losses if the expected carrying value does not exceed the prospective sales price.

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[4] Formalistic criteria refer to e.g. IFRS 5.8, where the appropriate level of management must be committed to a plan to sell the disposal group or the initiation of an active programme to locate a buyer.
[5] Substantial criteria are e.g. the availability for immediate sale of the disposal group in its present condition (IFRS 5.7) or the requirement that a discontinued operation must represent a separate major line of business or geographical area of operations (IFRS 5.32).
[6] Ordinary sales transaction is meant as non-current asset sales or disposal groups that do not qualify as accounting of a discontinued operation. Such sales transactions follow the individual IFRS standards derecognition regulations.

In addition, also in contrast to ordinary sales transactions, comparative income statement and cash flow figures need to be restated in the initial reporting period in order to have comparable numbers. However, balance sheet numbers are not required to be restated, which leads to a disconnect between the statement of financial position and cash flow statement. These far-reaching consequences depend largely on the interpretation of what determines a significant major business line.

The term "major line of business" indicates that transactions to be classified as discontinued operations should have a certain size. In absence of a clear definition, and in light of the major consequences, the question arises how firms interpret the term "major line of business" and what is the motivation to initially classify a component of a business as a discontinued operation.

Research question on classification

Q1: What is the motivation that drives firms listed on the British, German and Swiss stock exchanges to initially classify components as discontinued operations under judgemental uncertainties?

Q2: How do firms interpret the size feature in the term "separate major line of business or geographical area" at initial classification?

1.3.2   Research question on classification shifting

The split of the income statement into a continuing and discontinued part changes the information content presented to the investors. From that point onwards firms turn the focus more on the continuing businesses rather than the discontinued businesses (Lonza Group, 2019; Reckitt Benckiser Group, 2020; Smith Group, 2020). Discontinued businesses are seen as non-recurring due to their defined exit strategy. Usually, at initial classification, the firm gives guidance on future key performance indicators such as earnings per share (EPS), earnings before interest, taxes, depreciation and amortisation (EBITDA), sales are updated and communicated to the outside world (Lonza Group, 2019).

The classification of discontinued operations offers preparers of financial statements new opportunities to classify expenses from the continuing area to discontinued operations by increasing continuing earnings. This might be the case where other earnings' management tools (i.e. accrual management, real earnings management) are limited. The expenses classified vertically down as discontinued operations, however, need to be related to

discontinued operations. However, the range of the kinds of costs which can be linked to discontinued operations is large. Similar to the classification topic in this area, preparers need to exercise significant judgement. This is mainly because IFRS has no clear definition or guidance in place regarding what is generally accepted (e.g. to which extent are M&A costs, legal expenses, CEO, CFO compensation or hedging costs attributable to discontinued operations). However, unlike the accrual management, this potential earnings management tool is limited in time as 81 per cent [7] of firms close a transaction in one and two year-end reporting events.

Extant accounting literature reveals three types of earnings management, namely accrual-based earnings management, earnings management through real activities and classification shifting. All three types involve the alteration of the financial statements that present an overly positive view. McVay (2006, p.501) defines classification shifting as "the deliberate misclassification of items within the income statement". While accrual management (e.g. understatement of warranty provision) and the manipulation of real activities (e.g. higher rebates at year end to boost revenues) influence the financial performance of future earnings, the classification shifting does not. Understated accruals or provisions due in part to judgement, lead to higher net income in year t but have an opposite effect at some future point due to its reversal. Real activities, for instance the overproduction to report lower cost of goods sold, or the reduction of expenditures to improve profit margins, also have negative impacts on future earnings. This is because the capitalised items on stock need to be recognised through income statements, and temporary cost-cutting programmes may lead to higher expenses in the future. Furthermore, real activities and accrual management are likely to impact key figures such as total assets, net income or equity. As a consequence, auditors focus on those positions and obtain evidence to conclude on existence, measurement and completeness of capitalised assets and recognised liabilities.

This is in contrast to classification shifting, where expenses are merely shifted vertically down within the income statement, which has no influence on future earnings and does not affect total income, assets and equity. As a consequence, classification shifting as an earnings management tool is less scrutinised by auditors (Nelson, Elliott and Tarpley, 2002). On the other hand, the classification shifting instrument as an earnings management tool is limited, as

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[7] Calculated as a percentage of total firms (N=339) that close a transaction within one or two year-end reporting events over a four-year reporting period from 2015 to 2018. The scope of firms included in the calculation are listed on the British, German, and Swiss stock exchanges (refer to appendix I).

the more material the amounts that are misclassified, the greater the probability that auditors would question the accurate classification.

The combination of both less attention by auditors and no impact on future earnings are considered as a less costly option to manipulate earnings than the use of accrual management or the manipulation of real activities (McVay, 2006; Barua, Lin and Sbaraglia, 2010; Haw, Ho and Li, 2011). However, McVay (2006) argues that all three types raise expectations of future performance. This is because of the overstated financial position in year *t* that raises higher financial expectation in the future. However, shifting expenses between continuing and discontinued operations equally impacts both the continuing (recurring items) area and discontinued (non-recurring items) area. Therefore, focusing on the net earnings while engaging in classification shifting would not make any difference. Similar to the initial classification topic in the context of classification shifting, investors value recurring items higher than non-recurring items leading to higher equity valuation (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014). This might motivate firms to engage in classification shifting.

As a further aspect it seems unclear how IFRS 8 *Segment reporting* interacts with IFRS 5. Particularly, it seems unclear whether discontinued operations need to be disclosed separately in the same manner as other continuing reportable segments after initial classification. IFRS 8 *Operating Segments* requires firms to disclose reportable segments through the eyes of the management. This management approach offers information on how the management (CODM) receives and monitors financial information. If a firm does not disclose discontinued financial information after its initial classification, in a subsequent reporting event it would indicate a lack of internal monitoring of discontinued operations. No disclosure after initial classification would result in the CFO receiving fewer questions from CODM on the discontinued operations, and middle managers fewer from CFO. This could support classification shifting.

In light of the unclear definition in allocating expenses to discontinued operations, and motivated by the opportunity to increase the financial performance of the continuing area, the following research question is defined:

Research question on classification shifting

Q3: Do firms listed on the British, German and Swiss stock exchanges engage in classification shifting?

1.3.3 Research question on IFRS mandatory disclosures

Disclosures are an important factor in communicating a discontinued transaction to stakeholders. Without knowing any information around an executed discontinued transaction, an investor would for example interpret a potential decrease in revenues as an organic decrease, and not driven by a sale transaction. Therefore, disclosures help to reduce information asymmetries between investors and management to potentially reduce agency costs (Jensen and Meckling, 1976). In this thesis, the focus is on the mandatory disclosures. In the literature, there is a distinction between voluntarily given information in an annual report and mandatory disclosure items. In this regard the signalling theory (Akerlof, 1970) may play a role in indicating the "good quality" reports by disclosing more information to stand out from their competitors to avoid a wrong assessment of their performance (Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008).

According to IFRS 5.30 the ultimate aim of disclosures is to give information to the readers that enables users of the financial statements to evaluate the financial effects of discontinued operations. IFRS 5.31 to IFRS 5.42 requires specific mandatory disclosure items that need to be presented. In addition, other IFRS standards include mandatory disclosure items (i.e. *IAS 7 Statement of Cash Flow or IFRS 13 Fair Value Measurement)* that are linked to discontinued operations. Unlike other studies (Santos, Ponte and Mapurunga, 2014; Boshnak, 2017; Dawd, 2018) that include IFRS 5 and focus on a standard-by-standard basis, this thesis includes all related standards around the application of discontinued operations to provide a complete and comprehensive picture of the compliance of discontinued operations.

Assessing the compliance of mandatory disclosures also involves the consideration of materiality. Only material disclosure items are required to be presented in the notes to the financial statements. However, this is a judgemental area and influenced by what preparers and auditors deem to be material. IAS 1.31 *Presentation of Financial Statements* specifies that an entity need not provide a specific disclosure required by an IFRS if the information resulting from that disclosure is not material. In this respect cost theories might also influence the degree of information given in financial reports. Direct costs arise from the preparation (e.g. ambitious timeline for publication, need of valuation reports) or indirectly from the disclosure of information that can commercially harm, referred as to proprietary costs (Verrecchia, 2001) that can reduce the valuation of a firm (Dye, 1986). However, as IFRS 5.32 indicates, a discontinued operation has to be a major line of business disclosures of discontinued

operations that are less exposed to materiality judgement, as inherently all information is deemed to be material due to the significance of the transaction.

In light of the different disclosure theories that might be relevant for discontinued operations, the interrelation of the topic with several IFRS standards [8], and the limited studies in the field of discontinued operations the following research question is formulated:

Research question on disclosures

Q4: To what extent do firms listed on the British, German and Swiss stock exchanges comply with mandatory disclosure items while applying discontinued operations and what are the determinants of compliance?

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[8] E.g. IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* as a core standard, as well as standards with interaction with discontinued operations IFRS 13 *Fair Value Measurement*, IAS 7 *Statement of Cash Flows*, IAS 1 *Presentation of Financial Statements*, IAS 12 *Income Taxes*, IAS 33 *Earnings per Share*. In addition, other standards with table requirements include IAS 16 *Property, Plant and Equipment*, IAS 38 *Intangible Assets*, IAS 40 *Investment property* and IAS 41 *Agriculture*.

1.4 Methodology

1.4.1 Methodology for initial classification of discontinued operations

Model: To test the hypotheses and to address the research questions, a logistic regression model is used to explain whether an association exists between the dependent variables that proxy the incentive to initially apply discontinued operations and the specific size-related factors. A logistic model is used, as the dependent variables are determined by a binary variable.

Data and sample: The sample consists of firms reporting discontinued operations listed on the British, German and Swiss stock exchanges in the period from 2015 to 2018, but excludes financial institutions, insurance companies and firms reporting less than CHF 10 million (further discussed in Section 4.3). It further excludes all observations that have reported discontinued operations in a previous year-end reporting event. That leaves the final sample with 342 observations.

Dependent variable: The dependent variable consists of two factors. First, the difference between the operating Return on Sales (ROS) of the discontinued operations and continuing operations. Second, the presence of an impairment loss as part of the discontinued result. Both factors are deemed to be incentives to initially apply discontinued operations which account for 73 per cent of the sample.

Independent variables: Different size categories based on the relative revenues of discontinued operations to continuing operations, and relative discontinued reported assets in relation to the continuing assets, have been selected to test the association of size with the dependent variable. As the sample size is relatively low only a selected number of control variables are considered, to avoid bias in the probability-based model.

1.4.2 Methodology for classification shifting

Model: To address the research questions and hypotheses testing, the study follows a methodology similar to that employed by Barua, Lin and Sbaraglia (2010) which builds on McVay (2006) and decomposes core earnings (continuing earnings) into their expected and unexpected components. The estimates (coefficients) of this Ordinary Least Squares (OLS) based model are taken from a total of 164 years of industry-specific regressions that estimates a cross-sectionally expected level of continuing earnings in year *t* and an expected change in continuing earnings in year *t+1*. The estimates are used in a second step to model the unexpected continuing earnings against discontinued operations, to examine the presence of classification shifting. Different models A to G are developed to explore the different motives of classification shifting.

Data and selection: To test the hypotheses, restated data are obtained from the Bloomberg database from 2009 to 2017 of firms that are listed on the British, German and Swiss Stock exchanges. The estimates for each year require one year lagged and one year future information. In total, the sample includes more than 8,800 year-end observations. Consistent with the initial classification model, the sample excludes financial institutions, insurance companies as well as firms reporting revenue less than CHF 10 million (further discussed in Section 4.3).

Dependent variables: The dependent variables of the two regressions in the main OLS models A – G represent the difference between the expected continuing earnings in year *t* and the reported values in year *t* and the expected change from the year *t* to *t+1* minus the actual change in year *t+1*. The dependent values represent the level of unexpected continuing earnings in year *t* and the change in unexpected continuing earnings in year *t+1*.

Independent variables: The inclusion of specific discontinued operations variables in the main models A – G aims to test whether the model provides evidence of classification shifting. Along with the variables of interest several control variables are integrated, similar to Barua, Lin and Sbaraglia (2010). In addition, fixed effects on industry and country-level have been included in line with Ji, Potepa and Rozenbaum (2019), and sensitivity tests are reported for models A – G, where the models are clustered at firm level to control for cross-sectional dependence and heteroskedastic and auto-correlated residuals.

1.4.3 Methodology on mandatory disclosures

Model: To investigate the hypotheses, a simple multivariate OLS analysis is used to model the disclosure compliance (dependent variable) against several independent variables. Different models are employed to vary the model with countries, industries and discontinued disclosure types.

Sample and data: Consistent with the previous major research areas, the sample includes firms listed on the British, German and Swiss stock exchanges, excluding financial institutions, insurance companies and firms reporting less than CHF 10 million (further discussed in Section 4.3). This results in a total sample of N=607 year-end observations in the period from 2015 to 2018.

Dependent variable: For each firm, a compliance score is calculated ranging from zero to 1 using the Cooke method. This approach, which assigns 1 point if the item is relevant and disclosed, and zero otherwise, has been widely used in previous studies, particularly with studies concentrating on single standards, e.g. (Lopes, 2014; Mazzi, Slack and Tsalavoutas, 2018; Agyei-Mensah Ben, 2019). Using a self-constructed research instrument 30 mandatory items are found to be relevant to the disclosure compliance of discontinued operations. Considering the maximum individual mandatory disclosure item per company, this translates into approximately 9,900 analysed items.

Independent variables: To investigate the association to mandatory disclosures, different independent variables are selected specifically to address the hypotheses. These variables have continuous characteristics (e.g. natural logarithm of total assets, leverage) or are binary (e.g. Big Four audit yes or no, discontinued operation represents a reportable segment yes or no).

1.5 Main Findings

Initial classification: In terms of research question Q1 the analysis of potential incentive factors has revealed two main factors. First, firms with reporting discontinued operations tend to perform poorly compared to firms without reporting discontinued operations. In addition, and consistent with the refocusing hypotheses, diversified groups appeared to be most affected by the application of discontinued operation. Therefore, firms applying discontinued operations and separating financially weaker businesses benefit from an improved continuing performance. In contrast, ordinary sales transactions do not have this possibility of introducing a systematic continuing/discontinued approach unless they provide extensive voluntary disclosures [9]. Higher core earnings are related to higher equity valuation, and potentially lead to higher stock price (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014). Second, present research also shows that the frequency of impairment losses recognised in discontinued operations is significantly greater than with firms without reporting discontinued operations. An impairment loss is part of the discontinued operations and does not impact the current continuing EBIT number, which is in contrast to the ordinary sales scenario that would lower the reported EBIT. This is relevant, as Hirschey and Richardson (2002) argue that impairment losses lead to negative valuation effects. Similarly, Bens, Heltzer and Segal (2011) and Li et al. (2011) document that analysts revise their expectations downwards following an impairment loss announcement. To address the research question (Q2) a logistic regression model was selected that aimed to explain if an association between the incentive to initially apply discontinued operations and specific size-related variables of discontinued operation exists. First, the results show that the relative size of discontinued transactions is significantly negatively associated with the incentive of applying discontinued operations. This provides evidence that the lower the transaction, the more managers have an incentive to apply discontinued operations. Second, along with decreasing transaction size, the level of management discretion increases as firms classify transactions below 5 per cent discontinued revenues relative to continuing revenues are deemed to have more discretion to opportunistically classify such transactions as discontinued operations. As the IFRS 5 criteria are neutral for both groups, such a result underlines the increased management discretion. As a result, this potentially impairs the comparability between IFRS

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[9] The alternative approach does not allow a firm to divide its income statement into continuing and discontinued operations. Furthermore, the alternative approach is usually only visible at the time of transferring the assets / liabilities, whereas a discontinued operation might be constituted much earlier in the evolution of a divestiture process which is advantageous in exiting a loss-making business. Further information is provided in Section 6.1.3.

adopters across industries. Third, the smallest transactions in the category < 2 per cent discontinued revenues relative to continuing revenues have the strongest incentive to apply discontinued operations. Firms in this category that have a strong incentive to apply discontinued operations are 2.5 times more likely to classify discontinued operations than firms having no incentive sitting in this category (the highest category >10% is the reference category). This lowest size category represents 20 per cent of all firms. Classifying discontinued operations at this size implies that 50 businesses would represent a strategic shift. In addition, this magnitude is already in the range of commonly known audit materiality thresholds (i.e., judging revenue recognition errors, overstatement of accounts receivables). Therefore, it seems questionable whether these firms comply with IFRS 5, or if an ordinary sales transaction would be more appropriate.

Classification shifting: Consistent with the research question Q3 the study provides evidence similar to Barua, Lin and Sbaraglia (2010); Ji, Potepa and Rozenbaum (2019), that firms engage in classification shifting, particularly when they are reporting loss-making discontinued operations. This finding supports the hypotheses of Kaplan, Kenchington and Wenzel (2019), who argue that valuation considerations explain the asymmetric presence of classification shifting, as potential acquirers value the earnings of profit-reporting discontinued operations more highly than loss-making discontinued operations. Second, present research shows, similarly to Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), that firms engage in classification shifting in order to meet or beat the analysts' forecast. In contrast to the studies of Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), that build on the approach of Matsumoto (2002) by selecting all firms that have positive analysts' forecast errors, this study applies a narrower approach similar to McVay (2006), focusing on firms that would have otherwise missed the investors' expectations without the help of classification shifting 10. Third, this study extends the investigation of Barua, Lin and Sbaraglia (2010) and shows that firms applying discontinued operations are likely to misclassify expenses to discontinued operations to potentially avoid debt covenant violations. The result shows that firms engage in classification shifting, particularly if they report net debt-to-EBITDA ratios between two and three. This finding corroborates and adds to the US-based study of Yun, Wayne and Xiaoou (2019), which found evidence of classification shifting to avoid

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[10] Similar to McVay (2006, p.522) a comparison has been made between the estimated shifting effect on continuing net earnings in year *t* and the corresponding analyst forecast error (pre-tax adjusted) in year t. All firms are deemed to have used classification shifting if the estimated classification effects exceed the positive analyst forecast error.

covenant breaches by misclassifying core expenses as income-decreasing special items. Fourth, present research shows that Big Four audit firms cannot generally prevent firms from misclassifying expenses to discontinued operations. In particular, PwC appears to interpret this topic differently (further discussed in Section 6.5.10). Even by selecting potential classification-shifting items greater than plus/minus 2 per cent of the reported revenues, which is generally deemed to be material in terms of audit materiality, the presence of classification shifting persists. Fifth, based on a sub-sample, the study finds, that internal monitoring activities, by disclosing the discontinued business as part of the segment reporting, might help to avoid the presence of classification shifting.

Mandatory disclosures: First, the study provides evidence that firms comply on average 77.5 per cent with mandatory disclosures of discontinued operations (Switzerland scored 83.0 per cent, followed by the UK with 78.1 per cent and Germany with 75.0 per cent). Although it appears that compliance is high considering the complexity of the standard and the results of the structured literature review of Tsalavoutas, Tsoligkas and Evans (2020), the study also shows that the compliance per mandatory item varies significantly. Fair value measurement information of firms in the process of selling a discontinued operation is often not provided in annual reports, and reveals a compliance between 15 per cent and 24 per cent. Obviously, firms are reluctant to disclose such information as it could cause commercial harm and put them in an unfavourable negotiation position with potential buyers. This finding contributes to the proprietary cost theory according to Verrecchia (2001), and similarly observed in previous studies (Al-Shammari, Brown and Tarca, 2008; Tsalavoutas, 2011; André, Dionysiou and Tsalavoutas, 2018). Second, the multivariate models show an adjusted R^2 in the range of 22.6% to 52.4%, which implies that a substantial part of the variations can be explained by the model. In light of other disclosure studies this appears at the upper level. Third, looking at the determinants that drive the compliance level it becomes obvious that company size is an important factor. Consistent with the agency theory of Jensen and Meckling (1976), larger-sized firms tend to have higher agency costs, which can be reduced by providing extra information (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008). This finding is in line with previous studies of e.g. (Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016). Not surprisingly, the Big Four auditors appear to be an important factor in compliance. In all models, the proxy variable for the presence of a Big Four is statistically positively associated with reporting compliance. As the standard is not frequently used by preparers (on average firms apply discontinued operations after eight years) it appears

that Big Four firms can make a difference in compliance due to their in-depth knowledge and expertise. This finding is consistent and contributes to existing studies that also show a positive association e.g. (Amiraslani, Latridis and Pope, 2013; Glaum et al., 2013b; Demir and Bahadir, 2014; Lopes, 2014; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018). On the other hand, non-Big Four auditors do not positively contribute to the compliance of mandatory disclosures. Therefore, non-Big Four auditors should be aware of the results and take action, enabling them to introduce mechanisms to improve their audit quality. Fourth, other governance factors that proxy the internal monitoring activities, for example, separate disclosures of discontinued operations as of the segment reporting, are statistically positively associated with the compliance of disclosures. It appears that this disclosure not only helps to mitigate classification shifting but also leads to better disclosure compliance. On the other hand, the influence of the audit committee appears to have no significant impact. Finally, the incentive to apply discontinued operations as defined under the initial classification topic is negatively associated with mandatory disclosures. This finding might also contribute to the proprietary cost theory (Verrecchia, 2001) as firms do not want to disclose potentially bad deals negotiated, or provide transparent information around the initial application where such an application is questionable.

1.6   Research structure

Chapter 1 of this thesis outlines the research problem, gap in the literature and four central research questions and the structure of the whole thesis. In addition, it highlights the research methodology and findings of each research topic.

Chapter 2 starts by outlining the main purpose of the IFRS 5 standard and shows the main historical milestones of the discontinued operation standard. Further, it highlights the potential implications and impact on financial statements arising from the application with the help of illustrative examples.

Subsequently, **Chapter 3** focuses on the literature available and theoretical concepts related to the thesis. This chapter forms the basis for the determination of research gaps and the development of the hypotheses. The literature review contains up-to-date relevant pieces of literature that can be linked to the research questions and the broader research area.

Chapter 4 can be seen as a methodology chapter that introduces the conceptual framework including the research philosophy and discusses the methodology framework consisting of the overall study sample, the selection of countries and the data collecting process.

Chapter 5 contains the categorisation of different discontinued types. The typology helps to understand the different characteristics of the reporting events and overall allows conducting a more detailed study in all major research areas. It further analyses the financial and industry-specific characteristics of discontinued operations.

In **Chapter 6** the research design and results are together provided for each major research area (i) classification of a discontinued operation, (ii) classification shifting and (iii) disclosure analysis. In terms of the initial classification of a discontinued operation a logistic model is used whereas for the other two major topics multiple regression models are utilised. The chapter consists of various model analyses, robustness tests and outlines the limitations of the study. Finally, it concludes with a discussion and summary of the research findings for each research area.

Chapter 7 then provides further analysis on impairment losses as well as an overview of the consideration received that can be linked to the first research question Q1 and reinforces the considerations made under the main research chapter. In addition, the chapter includes further disclosure-related analysis (i.e. reporting cash flow statements while reporting discontinued

operations, analysis of Type C reporting events) that can be broadly linked to Q4. It is found that the incorporation into the main research chapters would distract readers from the actual research objectives (hypotheses testing) due to its supplemental nature.

Finally, **Chapter 8** draws the conclusions for this research based on the research findings, summarises the contribution and offers a number of recommendations for practice. The chapter ends with a list of future research areas.
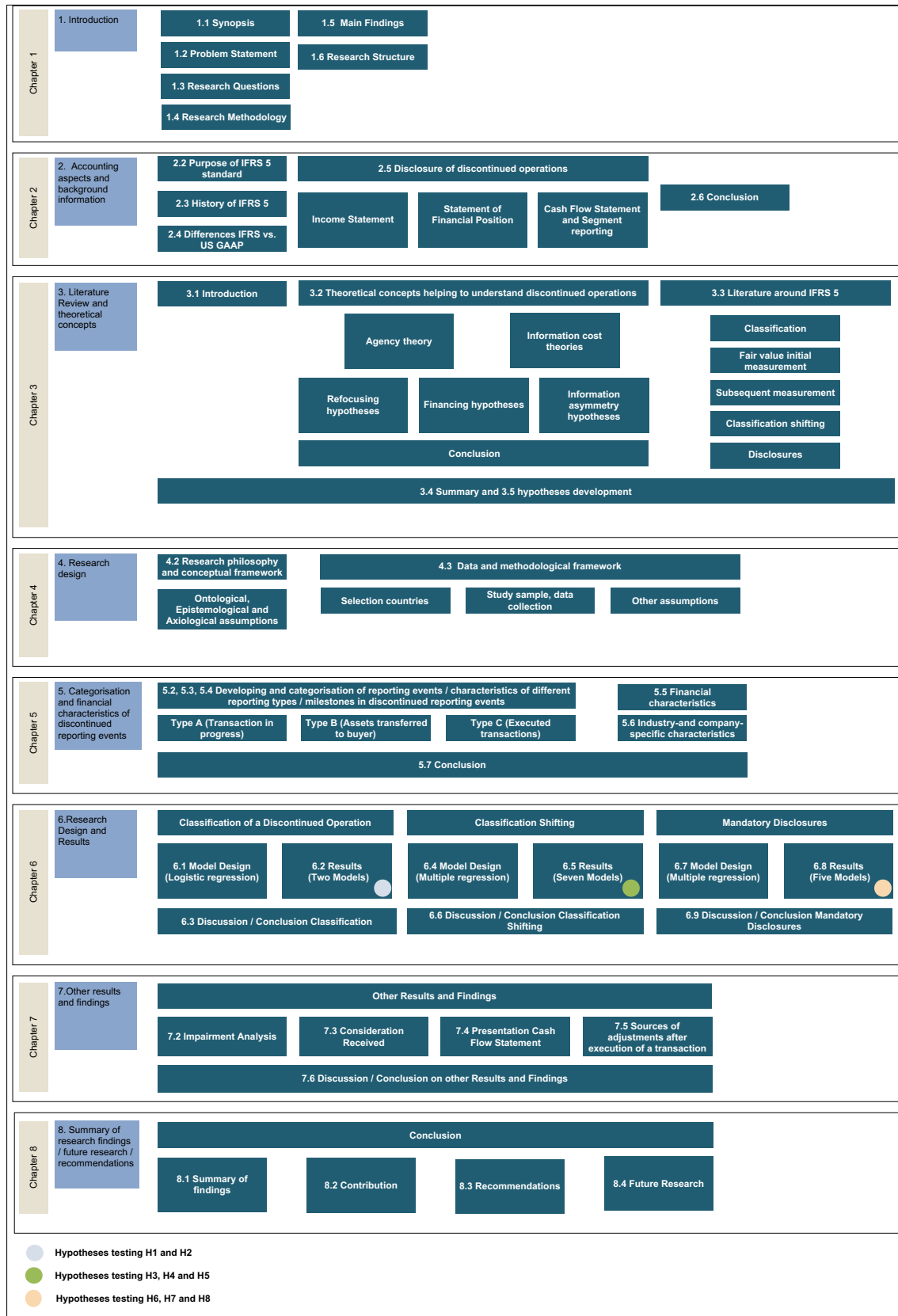
Figure 1: Research structure

2   Accounting aspects and background information discontinued operations

2.1   Introduction

The following chapter includes the history of IFRS 5 and investigates the difference between IFRS and US GAAP. It further discusses how discontinued operations typically impact the primary statements, i.e. Income Statement, Statement of Financial Position, Cash Flow and Statement of Changes in Equity, and exhibits how firms should disclose discontinued operations in the notes to the financial statements to fully comply with IFRS. In addition, it also illuminates the interaction of segment reporting and discontinued operations.

2.2   Purpose of the IFRS 5 Standard

The accounting and presentation of discontinued operations are based on a concrete sales plan. If a company decides to sell a part of their business the question arise whether investors, lenders, or the wider public are interested in such information. The decision to communicate a sales transaction to the public essentially is likely to depend on the magnitude of the sale. Stock exchanges have ad hoc rules in place which include sales transactions, but they do not specifically determine when a transaction needs to be announced. Investors or analysts are interested in such information if the transaction materially affects the level of future cash flows, profitability and financial situation to determine a buy, sell or hold case. Lenders have similar interests but are limited to the question of whether the company under the new constellation is still able to service the debts, or whether changes in collateral are required. The wider public might be interested if the transaction is well known or associated with a strong brand.

The decision to communicate material transactions parallels the application of such transactions under IFRS. Smaller sized transactions are likely to be less interesting to the public, and similarly the application of such transactions under IFRS is less complex than for larger-sized transactions. IFRS 5 *(Non-current Assets Held for Sale and Discontinued Operations)* sets out rules when a company's assets are principally recovered through a sales transaction rather than through continuing use.

The objective set out in IFRS 5.1 and at the centre of the considerations is the separation of the assets and liabilities into those that will continue to be used and those that will be sold in the near future. In the case of a material transaction, it is also necessary to split the income statement and cash flow statement into a continuing and discontinued part, which makes the implementation difficult, especially for multinational firms, because of their global presence,

which may include various production sites, different legal and tax environment and complex external and internal financing structures that may need to be superseded.

However, these efforts coupled with effective communication help investors, banks and the wider audience to determine the future financial implications of the group. Therefore, the usefulness of the information provided to readers of financial statements to make better decisions can be seen as the main purpose of the IFRS 5 Standard [11].

2.3 History of IFRS 5

The IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* Standard was issued in March 2004 and became effective on or after 1 January 2005. The standard replaced the former standard IAS 35 *Discontinuing Operations* and has arisen from the convergence project between FASB and IASB. The objective of this project was to eliminate a variety of differences between IFRS and US GAAP.

The project, which was carried out jointly by FASB and IASB, grew out of an agreement reached by the two boards in October 2002 (the 'Norwalk Agreement') (Deloitte, 2017). The IFRS 5 standard was the first standard developed under the new convergence regime between FASB and IASB to reduce differences between IFRS and US GAAP that can be solved in a relatively short time (EFRAG, 2004).

In 2008 IAS attempted to improve the Standard by issuing an exposure draft to maximise convergence with FASB and to eliminate practical issues that have arisen in its application since the version of IFRS 5 in 2004. At this stage, they made an important step towards convergence in the definition of discontinued operations, as the definition of IFRS 5 was similarly adopted by the FASB. However, due to contrary opinion during the deliberations period many of the proposed changes were finally not implemented.

Since then the Standard was only slightly amended as part of the annual improvement projects by IASB. Currently, there is no project on the IASB's work plan to improve discontinued operations under IFRS.

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[11] Decision usefulness theory can be seen as the ability of financial information to help users in making decisions. This theory is an integral element of the IFRS conceptual framework (IFRS OB2 and IFRS OB3).

Figure 2 illustrates the key milestones and changes made to IFRS 5:
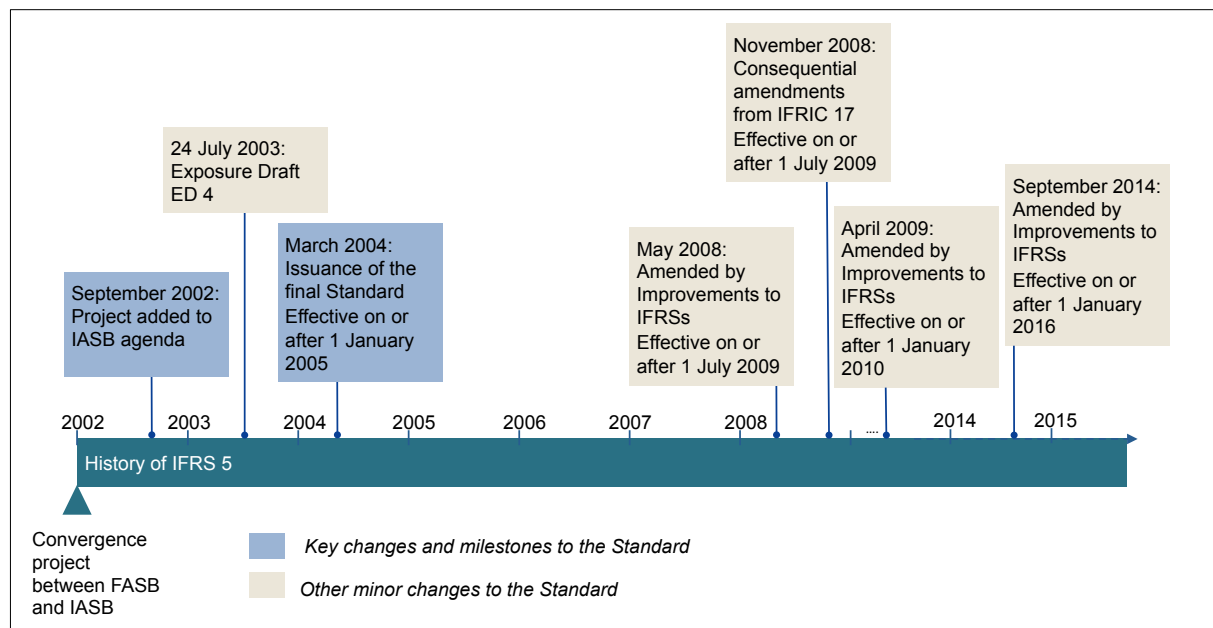
Figure 2: History of IFRS 5   Source: (Deloitte, 2020).

The current IFRS 5 standard includes three major accounting areas, namely (i) the classification of non-current assets as held for sale, (ii) measurement of non-current assets classified as held for sale and (iii) the presentation and disclosure. An essential feature of the IFRS 5 standard is that a firm aims to realise its non-current asset principally through a sales transaction rather than through continuing use (IFRS 5.6).

Looking at the current status in comparison with the US counterpart it becomes obvious that convergence has been reached in almost all material aspects. Most importantly, the classification criteria are now very similar, and the measurement concept is equal in both standards. In terms of classification the US GAAP speaks about a strategic shift, whereas IFRS states that only in the case of a separate major line of business or geographical area might a discontinued operation be constituted. Although the US requirements differ from the IFRS, KPMG (2020) is of the opinion that both definitions may not lead to significant differences in practice. However, the element of judgement still persists in both standards.

2.4 Differences between IFRS and US GAAP

Under IFRS the comparative figures on the Statement of Financial Position do not need to be restated, unlike the comparative figures of the cash flow statement that need to be restated. This can be seen as a conceptual error. As a result, the current version under IFRS does not allow a proper comparability of key financial metrics and represents a disconnect between Statement of Financial Position and Cash Flow Statement. For example, continuing cash flow information of the prior year cannot be linked to the corresponding continuing net assets of the prior year, which might distort financial analysis. This is in contrast to US GAAP, where such a restatement of the Statement of Financial Position is required.

In addition, IFRS does not currently provide guidance on the allocation of overhead costs, in contrast to US GAAP where the allocation of overhead costs to discontinued operation is not allowed. This underlines the uncertainties under IFRS where the classification-shifting topic in this thesis aims to shed light on whether firms allocate overheads (refer to research question Q3) and other costs to discontinued operations, and engage in classification shifting. In this respect, US GAAP also requires the allocation of interest costs to discontinued operations.

Furthermore, IFRS does not require explicitly disclosures on divestitures, other than those qualified as discontinued operations. The inclusion of information about the one-off nature of such transactions would further support the basic principle of the usefulness of information. It seems apparent that investors would benefit from this information, as they would be better able to differentiate between recurring and non-recurring items.

In addition, it seems apparent that US GAAP does not have requirements regarding assets held for distribution. In this sense, IFRS is advantageous, especially in the structuring of transactions under common control, where assets and liabilities are usually not sold but transferred by offsetting with the corresponding internal investments. Differences arising from such transactions are normally recognised as transactions with owners, and appear as a separate line within the Statement of Changes in Equity. The following table summarises the most important differences:

Major differences between US GAAP and IFRS on discontinued operations		
	IFRS: IFRS 5	**US GAAP: Subtopic 205-20 and 360-10**
Classification	A 'discontinued operation' is a component of an entity that either has been disposed of or is classified as held-for-sale. Discontinued operations are limited to those operations that are a separate major line of business or geographic area, and subsidiaries acquired exclusively with a view to resale.	Unlike IFRS Standards, a discontinued operation is either (1) a component of an entity that has been disposed of, meets the criteria to be classified as held- for-sale, or has been abandoned/spun-off; and represents a strategic shift that has (or will have) a major effect on an entity's operations and financial results; or (2) a business or non-profit activity that, on acquisition, meets the criteria to be classified as held-for-sale.
Balance sheet presentation	The comparative statement of financial position is *not* re-presented when a non-current asset or disposal group is classified as held-for-sale.	Unlike IFRS, the comparative statement of financial position is re-presented for discontinued operations.
Allocation overhead costs	IFRS Standards do not provide guidance on allocating general corporate overheads to a discontinued operation.	US GAAP prohibits the allocation of general corporate overheads to discontinued operations.
Disclosures of divestments other than discontinued operations [1]	No specific requirements	Unlike IFRS Standards, US GAAP has additional disclosure requirements for an individually significant component that is not a discontinued operation, but either has been disposed of or is classified as held-for-sale.
Assets held-for-distribution	Non-current assets and some groups of assets and liabilities ('disposal groups') are classified as held-for-distribution when the entity is committed to distributing the asset or disposal group to its owners.	Unlike IFRS Standards, there is no special designation for assets held for distribution.

[1] Refers to smaller transactions that not meet the requirements for classification as discontinued operations.

Table 1: Differences between IFRS and US GAAP   Source: (KPMG, 2020)

2.5 Disclosure of discontinued operations

Purpose

The following section analyses the impact of a discontinued operation on the required disclosures under IFRS. The focus of this section is to give background information and critically review the primary statements and segment reporting that are mainly affected by a discontinued operation. Potential implications and impact on the financial statements arising from the application are highlighted.

a) Income statement

Overall, the income statement consists of three components: (1) the current trading profit or loss, (2) the gain/loss from disposal which includes a potential recycling of cumulative translation adjustments (CTA) and (3) the tax effects.

The total of all effects is reported in a single line item "Profit/Loss after tax from discontinued operations". As a consequence, all revenue and cost components are required to be separated out from the current income statement. This is visible in the illustrative income statement below, on which a loss from discontinued operations amounting to GBP 10 million is disclosed in year 20X2 and GBP 16 million in 20X1 respectively.

Illustrative example presentation - income statement

Year ended 31 December		20X2 (£m)	20X1 (£m)
Revenue		1'000	980
...		-950	-940
Profit for the period from continuing operations		**50**	**40**
Profit for the period from discontinued operations [1]	IFRS 5.33	-10	-16
Profit for the period		**40**	**24**
Attributable to			
- Owners of the parent		37	22
- Non-controlling interests		3	2
Basic/diluted Earnings per Share (EPS)			
- Profit for the period from continuing operations		0.37	0.22
- Profit for the period from discontinued operations	IAS 33.68	0.03	0.02

[1] Analysis of IFRS 5.33 given in the notes to the financial statements

Table 2: Illustrative Example Income Statement

In other words, all revenues and expenses presented on the face of the income statement are associated with the continuing businesses except one line item that contains the whole discontinued area. In both periods the top line of GBP 1,000 million and GBP 980 million does not include any revenues from discontinued operations. This form of presentation supports the primary objective, allowing better future projections as the non-sustainable businesses are distinguished. In addition, IFRS 5 BC76 states that it is sufficient to show a single net figure for discontinued operations on the face of the income statement, because of the limited future cash flows expected to arise from the operations. On the other hand, the information content presented to the readers does change significantly as several cost components and a potential underperforming sales growth development of discontinued operations largely disappears from the face of the income statement and is netted off in one single line item.

Along with the separation of the discontinued businesses in the current reporting period, the financial information of the comparative period needs to be restated. The restatement takes place in the period of the initial classification. The income statement of the illustrative example

does not disclose a "restated" comparative period, which indicates that the initial classification did not take place in 20X2.

In IFRS 5.33 companies are required to disclose further details of the recognised amounts in the income statement. According to IFRS 5.33 the analysis as shown in Table 3 can be presented in the notes to the financial statements, or as a separate column in the statement of comprehensive income.

Illustrative example presentation - Notes to the financial statements

Year ended 31 December		20X2 (£m)	20X1 (£m)
Revenue	IFRS 5.33 (b) (i)	74	98
Expenses	IFRS 5.33 (b) (i)	-76	-110
Profit before taxes (operating activities)	**IFRS 5.33 (b) (i)**	**-2**	**-12**
Income tax expenses	IFRS 5.33 (b) (ii)	0	0
Profit from discontinued operations (operating activities)	**IFRS 5.33 (a) (i)**	**-2**	**-12**
Loss recognised on the measurement to fair value less costs to sell	IFRS 5.33 (b) (iii)	0	-4
Gain on disposal of discontinued operations before reclassification of translation differences and other items of other comprehensive income	IFRS 5.33 (b) (iii)	2	0
Reclassification of translation differences and other items of other comprehensive income	IFRS 5.38	-9	0
Income tax on sale of discontinued operations	IFRS 5.33 (b) (iv)	-1	0
Gain on sale of discontinued operations, net of income taxes	**IFRS 5.33 (a) (ii)**	**-8**	**-4**
Result from discontinued operations, net of income taxes	**IFRS 5.33**	**-10**	**-16**
Attributable to:			
Shareholders of the parent		**-10**	**-16**

Table 3: Illustrative Example Notes Discontinued Operations

In the illustrative example, the restatement took place in the period 20X1, when the firm also recognised a loss from the measurement to fair value less costs, to sell in the amount of GBP 4 million. In the year 20X2 the closing took place, and the transfer of the assets to the buyer. As a result, the company recognised a small gain on the sale amounting to GBP 2 million. The result on sale should generally not show a material loss, particularly if interim reporting events are in between initial classification and closing reporting period, because firms are required to

periodically update their assessment on the final outcome of the sale. A substantial loss on disposal before OCI items would indicate an improper assessment or the presence of unforeseen events arising from the negotiations. On the other hand, a substantial gain from sale is possible. The breakdown of the operating activities of discontinued operations show that only two items are required. It evidences that it does not follow the general line items from the income statement and therefore exhibits less transparency. In addition, IFRS 5 does not specify to disclose unusual items that are likely to occur in discontinued operations (i.e. costs related to a potential restructuring, internal staff expenses, advisory costs, costs from early termination of contracts etc.). This lack of transparency might be used for misclassifying expenses from the continuing section to the discontinued area. Similarly, Barua, Lin and Sbaraglia (2010) state that it is difficult for investors to detect this type of earnings management because discontinued operations are not usually disclosed in detail in financial statements.

b) Statement of Financial position

According to IFRS 5.38 and IAS 1.54 (j) assets and liabilities held for sale need to be disclosed separately and shall not be offset and presented as a single amount. Those firms presenting assets and liabilities held for sale have in common that they are in the process of a sales transaction (Type A firms). As the sales transaction is usually expected to be completed within one year after initial classification, both assets and liabilities held for sale are presented under current assets and short-term liabilities, respectively.

Assets and liabilities held for sale may, besides non-current assets also contain current assets and current liabilities. Therefore, IFRS 5.38 requires disclosing a breakdown of the major classes of assets in the notes to the financial statements. Similarly, in the reporting period when the sale transaction is closed (Type B reporting event) a firm is required in IAS 7.40 (d) *Statement of Cash Flows* to disclose the amount of the assets and liabilities other than cash or cash equivalents in subsidiaries or other businesses over which control is lost, summarised by each major category.

According to IFRS 5.40 a firm is not required to restate the prior year's Statement of Financial Position figures, which is inconsistent with the requirement to restate the cash flow statement. However, this must be put in the context of the overall objective, which is to provide an improved basis to users of financial statements to assess the future cash flows situation and assets used in an organisation. In this sense, a restatement of the prior year's Statement of Financial Position figures would not add substantially more value to investors. On the other hand, reporting the "correct" prior year's primary statement would not make more work for

preparers, as an opening and closing Statement of Financial Position is anyhow required to generate restated cash flow information.

c) Statement of changes in equity

The equity is affected by the profit from the operating activities, but also the gain or measurement of the discontinued operation. In addition, if a subsidiary is involved, a recycling of previously recognised OCI effects associated with the discontinued operation can only take place at the disposal of a discontinued operation, and not at the time of initial classification of a discontinued operation (IFRS 5.38 and IFRS 5BC38). This applies in particular to the recycling of any exchange differences arising from a functional currency that is different from the presentation currency of a discontinued component. This also includes potential equity-like loans, where historical exchange differences need to be recycled through the income statement.

Firms with a strong historical presentation currency in relation to the functional currencies of the major operations of the group are more exposed to translation losses than others. For example, major currencies like EUR, GBP and USD have weakened between 16% and 26% against the Swiss Franc over the last ten years. As a result, the net assets of groups having a presentation currency in Swiss Francs, and major subsidiaries in functional currencies denominated in EUR, GBP and USD, have decreased over the previous reporting years. The reduction in net assets is reflected in a separate cumulative translation adjustment column within the statement of changes in equity that represents the historical currency movement. Upon sale, such accumulated negative adjustments allocated to a discontinued operation need to be recycled. Although such a recycling is a non-cash transaction and does not affect equity it might have a significant impact on the net result of the firms.

Firms are required to disclose any cumulative income or expense recognised in other comprehensive income relating to a non-current asset (or disposal group) classified as held for sale (IFRS 5.38) but also upon closing that is stated in the individual IFRSs. For example, in IAS 21.48 *(The effects of changes in foreign exchange rates)* firms are required to recognise the exchange differences to other comprehensive income on disposal of a foreign operation.

<u>d) Cash flow statement</u>

In IFRS 5.33 a firm is required to disclose the net cash flows attributable to the operating, investing and financing activities of discontinued operations. Preparers have the choice to present this information in the notes to the financial statement or directly as part of the cash flow statement. In cases where the information is provided in the notes, firms tend to present a "full" cash flow statement including both the continuing and discontinued cash flows in one single cash flow statement. In this case the operating, investing and financing cash flows include also the discontinued part. On the other hand, firms that split up the cash flow statement into continuing and discontinued might apply a more consistent forward-looking approach. A further approach might be to split up the cash flow statement into three columns (total, continuing, discontinued). The requirement to disclose the cash flows from discontinued operations also means that in one reporting event up to six cash flow statements need to be prepared: One full cash flow statement covering continuing and discontinued, one continuing only cash flow statement and one discontinued only cash flow statement. The same applies to the comparative period. Theoretically, the discontinued cash flow can be derived from the full cash flow statement minus the continuing cash flow statement. In this case only four cash flow statements are used.

The results in Chapter 7.4 reveal firms larger in size prefer the disclosure of discontinued cash flows as a separate line item within the cash flow statement, whereas smaller sized groups report this information as part of the notes to the financial statements.

<u>e) Reportable segment</u>

A reportable segment is by definition a major part of the business. Sometimes such a major component of the business represents a separate reportable segment or a significant part of a reportable segment according to IFRS 8 *Operating Segments.* It seems likely that with the sale of a substantial part of the business, the internal structure changes, and thus the external segment reporting also changes. In cases where a significant part of a reportable segment is going to be sold, the remaining part might be merged into another reportable segment. Therefore, not only one reportable segment is affected.

In general, the question is how the firm provides information to the Chief Operating Decision Maker (CODM) after the initial classification of a discontinued operation. IFRS 8 *Operating Segments* does not specify the disclosure requirements for a discontinued operation. IFRS 5.5B states that other IFRSs do not apply unless required by other IFRSs. From that

perspective, no separate disclosure would be needed anymore. However, KPMG (2017b) states that if management reviews the financial results of the discontinued operation until the discontinuance is completed, then an entity is not prohibited from disclosing such information. This would follow the management approach stipulated under IFRS 8 *Operating Segments.* In this case it seems unclear how IFRS 5 interacts with IFRS 8, which concurs with Lüdenbach and Hoffmann (2013).

Regardless of whether a reportable segment is disclosed separately, the reportable segment of the prior year needs to be restated to ensure comparability, consistent with the income statement and cash flow statement. In practice this could lead to excessive work in a big sales transaction, as many reporting units may need to be re-arranged within the group. In addition, the internal management reports (not only at CODM level) need to be reconciled.

In addition, according to IFRS 5.41 (d) a firm needs to disclose the reportable segment in which the non-current asset (or disposal group) is presented. This may only be applicable for Type A reporting events (categorisation of reporting Types is discussed in Section 5.2). Furthermore, according to IFRS 8.28 the segment results that in this case may contain revenues and other reportable segments' measures of profit or loss need to be reconciled to the company's total numbers. As a result, revenue from discontinued operations and profit or loss before taxes need to be deducted from the reportable numbers to arrive the figures presented in the annual report.

2.6 Conclusion

As convergence is reached in all material aspects on discontinued operations between IFRS and US GAAP project of IFRS 5, it appears that both financial reporting frameworks are similar. Particularly, similarities have been found in the area of measurement, where disposal groups have to be measured at the lower of its carrying amount, and fair value less costs to sell, but also with initial classification where both frameworks require a substantial strategic shift to constitute a discontinued operation.

Furthermore, it has been found that the requirements of the current IFRS 5 standard supports the notion that non-recurring elements need to be separated allowing for better future projections. However, a critical review of the standard reveals deficiencies:

- First, the term "major line of business" according to IFRS 5.32 is not defined, which might lead to management discretion in classifying discontinued operations. In addition, it seems unclear how the term "costs to sell" needs to be interpreted, as a definition in Appendix A does not limit "directly attributable" to the disposal group.

- Second, the disclosures of the income statement of the discontinued operations represent a condensed version of the primary income statement. Thus, this might support the presence of potential earnings management techniques such as classification shifting. In addition, and unlike to US GAAP, IFRS permits classifying overhead costs as discontinued operations which further support classification shifting.

- Third, in IFRS 5.40 a firm is not required to restate the prior year's Statement of Financial Position figures, which is inconsistent with the requirement to restate the cash flow statement. Although the focus is likely to be on forecasting ability and therefore income statement, not restating the historical balance sheets bears the risk that key performance indicators are not comparable. In addition, this is also not consistent with US GAAP, which requires restatement.

- Fourth, it seems unclear how IFRS 5.5B interacts with IFRS 8 in terms of disclosure of discontinued operations in the segment reporting after the initial classification. IFRS 8 *Operating Segments* does not specify the disclosure requirements for a discontinued operation but requires that a firm should report segment information consistent with information provided internally to the CODM (management approach). This conflicts with IFRS 5.5B, which states that disclosures in other IFRSs do not apply.

3 Literature Review and theoretical concepts

3.1 Introduction

The purpose of this chapter is to describe and review relevant extant literature, which can be linked to discontinued operations, in particular to the interpretation and management of discontinued operations. This chapter incorporates a section about literature search strategy, outlining the types of literature used, period under review and other inclusion or exclusion criteria.

The literature review is organised thematically, dividing the literature into different sections. First, literature that has been found regarding the theoretical foundations (e.g. agency theory, cost theories, refocusing hypotheses) and second, literature with an emphasis on classification, measurement, classification shifting and mandatory disclosure of discontinued operations.

Further in this sub-section are described the observable research gaps and findings from the literature review which form the basis for the hypotheses setting. Table 4 summarises the formulated hypotheses that are linked to the research questions, and related past literature.

3.2 Theoretical concepts helping to understand discontinued operations

The purpose of this section is to describe the theoretical foundation and considerations helping to understand (i) why firms/managers initiate discontinued operations projects, (ii) why firms engage in classification shifting and lastly (iii) what influences the degree of mandatory disclosures given in annual reports.

The agency theory, information costs theories, refocusing and financing hypotheses are identified as suitable theoretical concepts in the context of this thesis. These concepts are discussed in detail below.

3.2.1 Agency theory

The agency theory applies to specific situations where duties and tasks are delegated from a principal to an agent (Jensen and Meckling, 1976, p.308-309). The problem stems from the separation of ownership and management. According to its definition the agency theory deals with contractual problems in cases where the principals (owners of a firm) assign tasks and duties to other people (the agent or management) to fulfil specific services on their behalf,

which involves the delegation of some decision-making authority to the agent (Jensen and Meckling, 1976, p.308). However, complete contracts between the owners and the managers specifying exactly what the manager does in all states and how the profits are allocated are infeasible (Shleifer and Vishny, 1997, p.741). As a result, managers and owners have to allocate residual control rights [12] which remain with the agent (Shleifer and Vishny, 1997, p.741). The theory assumes that these control rights are opportunistically used by managers not acting in the very best interests of the principals, who rather use their discretionary power to maximise their individual utility. Agency costs can arise from the efforts of the owner to control the behaviour of the agent, such as budget restrictions, compensation policies or operating rules (Jensen and Meckling, 1976, p.308).

<u>Compensation and debt contracts</u>

The use of accounting results/indicators in bonus plans help to minimise agency costs, as the utility function of the management can be aligned with the interests of the owners (Watts and Zimmerman, 1990, p.133). Compensation contracts of managers typically consist of a base salary and performance-based compensation. Fields, Lys and Vincent (2001, p.266) argue that short-term bonus contracts are often tied to reported accounting performance measures such as net income, return on assets, return on equity, whereas longer-term incentive compensation is often tied to stock performance. In practice contracts can use a combination of both short- and long-term bonus characteristics.

Whether managers have an incentive to manage gain/loss items will depend in part on the measure of profitability used in specifying the performance goals. It depends on whether the compensation includes special items, discontinued operations, and gain/loss on property, plant, and equipment (Holthausen, Larcker and Sloan, 1995, p.43).

In cases where the management compensation is linked to accounting-based ratios, the question arises whether or not the result from discontinued operations is part of the individual management compensation. If the management compensation excludes non-recurring items, the application of discontinued operations would potentially lead to a higher compensation, as most of the discontinued transactions are underperforming compared to the continuing businesses.

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[12] Allocating control rights to the manager means that the manager could make use of private benefits at the cost of the firm, and thus reduces the compensation of the investors.

As a consequence, compensation schemes might have an impact on the decision of applying discontinued operations, or on the allocation of costs between continuing and discontinued operations which might help to maintain the public earnings guidance. This might be one reason why firms initiate discontinued operations projects or engage in classification shifting to increase the continuing results.

Another aspect of agency contracting concerns is debt contracts that are linked to underlying accounting performance. Holthausen and Leftwich (1983) and Leftwich (1983) document that one way of reducing costs of monitoring and agency conflicts is to include accounting indicators in lending contracts. The issue is that the choice of accounting methods [13] could influence agreed covenants in a lending contract. Fields, Lys and Vincent (2001, p.272) refer to the debt hypothesis, meaning that researchers propose that managers select or change accounting methods to avoid covenant violations. Watts and Zimmerman (1990, p.139) state that the higher a firm's debt/equity ratio, the more likely it is for the managers to use accounting methods that increase income. The tighter the covenant constraints, the greater the probability of a covenant violation and incurring costs from technical default, i.e. higher interest (DeAngelo, DeAngelo and Wruck, 2002; Dichev and Skinner, 2002; Sufi, 2009; Butt, 2015), higher cost of new debt (Butt, 2019), decline in capital spending (Chava and Roberts, 2008) or introduction of capital spending restrictions (Nini, Smith and Sufi, 2009). Siggelkow and Zülch (2013) document that the majority of credit agreements include debt covenants. Such covenants often include performance measurement indicators (e.g. net debt/EBITDA) that exclude infrequent and unusual items. As discontinued operations are determined as non-recurring or unusual items, the management might be motivated to classify expenses from the continuing businesses to discontinued operations to comply with the agreed covenants.

Furthermore, Siggelkow and Zülch (2013, p.6) state that the breach of a given covenant can also lead to an immediate repayment claim from the creditor, which would result in extensive liquidity problems for most companies. As a result, the going concern assumption would be at risk with adverse consequences such as damage to the company's reputation, loss of jobs, restriction of managers' freedom of action.

Therefore, debt contracts under the agency theory might be another aspect in a discontinued operations financial setting that helps to understand why firms initiate discontinued operation

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[13] For example, under IFRS a group has the choice to present the results from the joint venture as part of the operating income or as part of the financial result. Although operating vs. financial characteristics of the investment drive this decision, it appears that firms have a certain level of discretion. As result of this decision or change in method the operating number might be different or change.

projects or engage in classification shifting to increase continuing earnings.

Agency theory and disclosure of information

The agency theory also influences the disclosure of information in external financial reports. According to Watts and Zimmerman (1983) and Gallego Álvarez, María García Sánchez and Rodríguez Domínguez (2008) the disclosure of information in financial reports may reduce agency costs. This is because with that information shareholders will be able to monitor managers more closely. In this context, Cooke (1989) argues that large firms tend to disclose more information because of the higher agency costs due to their widespread shareholder base. Extant literature confirms this notion (Al-Shammari, Brown and Tarca, 2008; Hodgdon et al., 2008; Al Mutawaa and Hewaidy, 2010; Al-Akra, Eddie and Ali, 2010; Galani, Alexandridis and Stavropoulos, 2011; Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016) and shows a significantly positive association between firm size and the extent of disclosures. Agency theory might also play a role in terms of leverage. Higher leverage is associated with higher debt/shareholder conflicts and thus higher agency costs. Transparent disclosures of information might alleviate this issue. However, extant literature is mixed on the association of mandatory disclosure and leverage. Some researchers (Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Boshnak, 2017; Agyei-Mensah Ben, 2019) report a positive association, while others (Demir and Bahadir, 2014; Lopes, 2014; Appiah et al., 2016) report the opposite. Al Mutawaa and Hewaidy (2010) and Mazzi et al. (2017) find no association. The different results might be driven by different institutional factors in the countries under review.

Closely related to the agency theory in connection with disclosures is the signalling theory that stems from Akerlof (1970), where firms may wish to draw the attention of investors by disclosing more voluntary information to signal their "good quality". According to Gallego Álvarez, María García Sánchez and Rodríguez Domínguez (2008) firms have a strong incentive to disclose information to stand out from their competitors and avoid a wrong assessment of their performance. Firms want to signal markets with additional information about the economic reality so that investors' expectations can be confirmed or changed. This is relevant in the context of discontinued operation, as firms might want to disclose "good deals" more prominently to investors and thus have a better disclosure score, whereas firms that closed "bad deals" may be reluctant to disclose the circumstances and therefore have a lower disclosure score. This theory is supported by Petersen and Plenborg (2006), who advocate that disclosures are negatively associated with proxies for information asymmetry, and Craven

and Marston (1999) and Marston and Polei (2004) who both find a statistically significant positive association between the size of a company and the use and extent of disclosure on the internet, which is consistent with the agency theory.

In sum, prior studies and theories find that disclosing more information and being transparent in financial reports reduces asymmetries between firm managers, debtholders and shareholders. This is particularly relevant as under IFRS 5.30 firms are required to disclose information that enables users of the financial statement to evaluate the financial effects of discontinued operations.

On the other hand, disclosing information also comes at a price. This will be explained in the following theories.

3.2.2 Information cost theories (direct and indirect costs)

A distinction can be made between direct costs associated with the preparation of financial reports and costs that are incurred indirectly from disclosing of items.

Direct costs can arise from the preparation, particularly if the company wish to report a comprehensive set of financial statements and to provide an extensive amount of information to reduce information asymmetries, but also due to IFRS regulatory changes such as new IFRS 15 *Revenue from Contracts with Customers*, IFRS 16 *Leases*, where extra costs regarding staff training, advisory support might occur. A further direct cost driver in the preparation are independent valuation reports, for example IAS 19 *Employee Benefits* actuary reports or property valuation reports. All these costs are quantifiable, and the question arises whether the benefit of enhanced transparency offsets the costs. Tsalavoutas, Tsoligkas and Evans (2020) show that out of 70 collated studies with IFRS mandatory disclosure requirements after 2005, not a single empirical study reports 100 per cent compliance with mandatory IFRS. According to Tsalavoutas, Tsoligkas and Evans (2020, p.26) 75 per cent is deemed to be low/high reporting if below/above compliance is reported. This suggests that full compliance is costly and not deemed optimal. At the same time, it also reveals that audit firms do not force firms to fully comply with IFRS, and highlights that materiality and judgemental decisions influence the preparation and audit practice of financial statements.

On the other hand, indirect cost might also occur. Full compliance with IFRS mandatory disclosures does also mean that firms have to disclose not only good news but also bad news or disadvantageous information to the public (Verrecchia, 2001). Disclosing such items is also associated with costs, and can be referred to as proprietary costs. According to Dye (1986)

disclosure of this sort of information would lower the value of a firm. This is relevant for firms reporting discontinued operations, as these firms are for example required to disclose fair value information on transactions that are not yet executed at year end. The disclosure of such information would weaken their on-going negotiating position with potential buyers and possibly lower the selling price. Where proprietary costs are high, it appears that the compliance level is low. This can be observed in mandatory disclosure, as some of the standards are more proprietary in nature than others, which partially explains the variation of compliance between them, for example IAS 1 *Presentation of Financial Statements* compared to the former IAS 18 *Revenue Standard* (Al-Shammari, Brown and Tarca, 2008; Tsalavoutas, 2011; André, Dionysiou and Tsalavoutas, 2018). On the other hand, Skinner (1994) finds that managers disclose information to avoid litigation costs. In this case, firms disclose information to comply with IFRS in order to avoid litigation costs.

In sum, there exists a trade-off between compliance with IFRS providing relevant disclosures according to IFRSs and the presentation of disclosures that could commercially harm a firm by reducing a firm's value.

3.2.3   Diversification versus Refocusing

The purpose of this sub-section is to find a general pattern to why firms engage in divestitures.

Prior to undertaking a divestiture project, the question arises as to what motivates firms in the first place to engage in such transactions. It seems obvious that refocusing strategies must be preceded by prior diversification strategies. Firms might, for example, benefit in diversification strategies from economies of scope (Teece, 1980; Matsusaka, 2001). However, not all investment decisions increase shareholder value, and the management might not always have acted in the very best interests of the shareholders (Jensen and Meckling, 1976) in past decisions. On the other hand, investment decisions also entail the risk that future cash flows cannot be realised as planned. However, these risks should be factored into the decision-making process (i.e. higher capital costs, lower projected cash flows). A lack of internal governance mechanisms, for example, the Board of Directors does not approve significant investments decisions and review the assumptions of the management, and the overconfidence of CEOs (Andreou et al., 2019), might lead to unfavourable investment decisions motivated by managers to benefit from higher compensation (Jensen and Murphy, 1990), power and prestige (Jensen, 1986; Villalonga, 2000), and better career opportunities (Shleifer and Vishny, 1989). As a result, managers overinvest, and a firm exceeds an optimal

size (Aggarwal and Samwick, 2003). At this point companies are interested in correcting this over-diversification by implementing divestitures (Brauer, 2006).

Extant studies show that the share price of a firm that announces a divestiture project increases on average on the day surrounding the announcement [14] (Lang, Poulsen and Stulz, 1995) (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998; Berger and Ofek, 1999) (Lasfer, Sudarsanam and Taffler, 1996; Desai and Jain, 1999; Dittmar and Shivdasani, 2003) (McNeil and Moore, 2005; Shin, 2008; Veld and Veld-Merkoulova, 2008; Otsubo, 2013).

However, the factors and sources related to this capital market reaction are different. The different sources help to understand why a positive market reaction occurs, and thus why firms might engage in discontinued transactions. A review of the literature in this field reveals, in agreement with Brauer and Schimmer (2010), that three patterns or hypotheses exists that are relevant for discontinued transactions: refocusing hypothesis, financing hypothesis and asymmetry hypothesis.

3.2.4 Refocusing hypothesis

The refocusing hypothesis is based on the notion that firms receive a positive capital market reaction because over-diversification can be eliminated (Brauer, 2006).

Enhancing shareholder value appears to be a main reason to discontinue businesses, as Berger and Ofek (1999) state that the presence of unprofitable segments and larger central overhead expenses increase refocusing likelihood. Similarly, Desai and Jain (1999) provides evidence that an increase in focus is an explanation for the improved long-run stock market which in turn increases shareholder value. The study of Veld and Veld-Merkoulova (2008) generally confirms these results, showing that increased focus via spinoffs results in the creation of overall value for both stock- and bondholders. Dranikoff, Koller and Schneider (2002) adds that companies that actively manage their business portfolio through acquisitions and divestitures create substantially more shareholder value. Generally, Lord and Saito (2017) find that highly diversified firms are more likely to dispose of assets. In addition, (Berger and Ofek, 1999) argue that firms for which the valuation effect of diversification is negative refocus twice as frequently, aiming to enhance shareholder value.

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[14] The positive reaction is usually measured by using an event study that observes cumulative abnormal returns (market model methodology) over a short event window before and after the announcement.

Apparently, refocusing reduces managerial and operational inefficiencies, as for example Gertner, Powers and Scharfstein (2002) indicate that the way firms spend on capital expenditure changes after spin offs. Similarly, the study of Dittmar and Shivdasani (2003) provides evidence that changes in organisational structure have a significant impact on the investment policies of the retained segments, and that corporate focus leads to more efficient investment policies. They further illustrate that firms experience a reduction in diversification discount after the divestiture. Further, McNeil and Moore (2005) investigate the linkage between changes in firm value and changes in capital allocation efficiency resulting from dismantling internal capital markets via spinoffs. They document that the excess value increases following spinoffs, and that the changes in excess value are positively linked to changes in capital allocational efficiency following spinoff. Lord and Saito (2017) add that over-diversification can lead to managerial inefficiency and misallocation of internal resources.

From a timing aspect, Dranikoff, Koller and Schneider (2002) find that when companies do divest, they almost always do so reactively, in response to some kind of pressure, namely suffering of heavy losses of the divested business, or suffocating parent company debt burden.

In addition, refocusing businesses might also impact top management positions, as Berger and Ofek (1999) argue that a change in top management often occurs in the period before restructuring. Similarly, Dranikoff, Koller and Schneider (2002) show that over 50 per cent of all significant divestitures take place within two years of the appointment of a new CEO.

3.2.5 Financing hypothesis

The study of Lang, Poulsen and Stulz (1995) indicates a positive capital market reaction at the time of announcing when firms intend to pay out the proceeds to repay debt. They argue that proceeds are discounted when retained by the selling firm because of agency costs of managerial discretion. Similarly, Shin (2008) provides evidence that firms subject to higher agency costs [15] observe a positive significant market reaction when they announce debt reduction following fixed assets sales.

Lang, Poulsen and Stulz (1995) also reveal that firms paying out the proceeds are typically poorer performers [16] and have higher leverage than firms reinvesting the proceeds. Similarly, Allen and McConnell (1998) find that the average stock price response at the announcement of carve-outs is significantly greater when funds raised are paid out to creditors or shareholders

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[15] Measured by high cash holdings, low leverage
[16] Measured by operating income, or cumulative net market return before sale

than when funds are retained for investment purposes. This finding is confirmed by the study of Shin (2008) documenting that only firms that intend to pay out the proceeds experience abnormal positive returns, whereas those retaining the proceeds show no abnormal returns.

Lasfer, Sudarsanam and Taffler (1996) indicate that a statistically significant difference in market reaction exists between divestments by financially healthy and financially distressed firms. They conclude that in the UK the main benefit from divestitures comes from the resolution of financial distress. Allen and McConnell (1998) provide evidence that companies before they undertake equity carve-outs companies have lower profit ratios, higher leverage ratios and lower interest coverage ratios than their industry peers.

In terms of leverage level Veld and Veld-Merkoulova (2008) find that higher pre-spinoff leverage is a significant positive determinant for stockholders, by looking at the abnormal returns. Similarly, Otsubo (2013) shows that investors also react positively to a carve-out, particularly when the company is highly leveraged and lowers their leverage by using the proceeds. The study of Lord and Saito (2019) documents that firms that discontinue operations are more diverse, with weak operating performance, higher financial constraints and they perform poorly in financial markets. The unavailability of funds might also play a role when alternative funding is too expensive, as Lang, Poulsen and Stulz (1995) document that in this case management tend to sell assets to obtain funds.

Overall it appears that market returns are more positive if the proceeds are used to repay debt instead of retaining, which is associated with higher agency costs. In addition, there is evidence that firms engage in divestitures to repay debt when they are in a financially poor situation and highly leveraged.

3.2.6 Information asymmetry hypothesis

This hypothesis aims to explain that the way in which a transaction is structured (i.e. sell-off, equity carve-out or spin off) influences the abnormal returns at the announcement. It is based on the notion that rational managers have private information that their stock is likely to be overvalued. This was first discussed by Majluf and Myers (1984), based on the notion that management is assumed to know more about the firm's value than potential investors. In this context, the study of Nanda (1991) confirms the considerations of Majluf and Myers (1984), who claim that the choice of financing decision may provide information not just about the subsidiary's assets in place but also about the value of the assets in place of the rest of the corporation.

3.3   Overview of the literature around IFRS 5

3.3.1   Literature search strategy

In addition to conventional academic literature, the literature under review includes systematic reviews, qualitative studies, expert opinions, case reports and media coverage focusing on IFRS 5, in particular in the field of interpretation and management of discontinued operations. The period for the literature research is mainly from 2004 onwards, as the IFRS 5 standard became effective in 2004. However, older papers that might include the predecessor standard IAS 35 Discontinued Operation are also used if the paper is considered to be relevant to the thesis. In addition, the literature is not only limited to IFRS but also includes US GAAP-based papers, as both standards have largely reached convergence since 2005. The literature under review is either in English or German. This can be justified as the literature evolved over the last decades in these languages, covering a majority of companies applying IFRS around the globe. Nonetheless most academic and practitioners' works are published in English. As the author is also a German speaker, this has been used to explore if further insights/confirmation could be found in non-English publications.

Several internet databases were used to conduct online examinations for relevant material. Accounting, Economics, Finance and Management databases were utilised to gather research for the study. The key terms and words used to search for information were IFRS 5, Discontinued Operations, Divestiture, Assets Held for Sale, Fair Value, Classification Shifting, mandatory IFRS disclosure.

In addition, index searches of research journals were perused to identify other relevant evidence that were not found in the electronic search.

Alternative searching strategies were taken into account, such as a physical search of journals, mainly for Swiss and German literature, and contacting established authors in the field of IFRS 5 to ensure that no significant information was missed out.

3.3.2   Literature hierarchy

The literature ranges from newspaper articles and expert opinions to academic papers including a comprehensive investigation (e.g. in terms of classification shifting, mandatory IFRS disclosures). Due to this wide range of sources, it is possible that some published evidence might be more conclusive than others in relation to the interpretation and management of discontinued operations. The goal is to incorporate only the most relevant

information in the review. In general, the evidence supported by an empirical study is given greater weight than that which does not contain systematic data collection and results description.

The hierarchy of the literature under review consists of the standard and its interpretation as the highest level (level 0), followed by research literature (level I), followed by practical literature (level II) and lastly, all remaining articles linked to discontinued operations (level III). Research literature typically contains a systematic investigation in response to a specific research question that is peer-reviewed, while practical literature is written by practitioners and leading academics and involves expert opinions. Normally such papers do not include an analysis of data in response to a research question, but offer insights from a practical point of view or give suggestions to current issues. Due to the practical implications, the lack of empirical literature, and the fact that difficulties arise from trying to apply the standard, it is important to take into account expert opinions even if they might not have the same level of academic rigour, but they convey what the practices are and where the difficulties lie in applying the standard. Policy literature in this context is defined as the current IFRS Standards and its interpretations.

Newsletters from IASB and professional accounting firms ("Big Four") were considered, to keep up with the latest development of IFRS 5.

3.3.3 Literature on classification of a discontinued operation

According to IFRS 5.32, a discontinued operation is a "component of an entity that either has been disposed of or is classified as held for sale and represents (i) a separate major line of business or geographic area of operations, (ii) is part of a co-ordinated plan to dispose of a separate major line of business or geographic area of operations or (iii) is a subsidiary acquired exclusively with a view to resale."

The classification is key for whether a transaction will qualify for reporting it as discontinued operations or as a divestiture without separation of the income statement into continuing and discontinued operations. Any result arising from the sale of a divestiture is recognised in the income statement and cash flow statement under operating earnings, without labelling as discontinued result and cash flows from continuing operations, respectively, and thus can provide misleading information in forecasting future sustainable earnings. The question is how the critical terms "component of an entity", "a separate major line of business" and "geographical area" are interpreted in the literature and translated into practice. In addition, the

word 'major' indicates a certain materiality threshold, and how the literature defines materiality in the context of a discontinued operation must also be considered.

Under IFRS 5 Appendix A, a component of an entity is defined as operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the entity. IFRS 5.31 further states that a component of an entity will have been a cash-generating unit or a group of cash-generating units while being held for use. Further, IFRS 5.32 describes that a component of an entity has to represent a separate major line of business or geographic area of operations, is part of a co-ordinated single plan to dispose of a separate major line of business or geographic area of operations, or is a subsidiary acquired exclusively with a view to resale. Under US GAAP and unlike IFRS, a discontinued operation is defined as either a component of an entity that has been disposed of, meets the criteria to be classified as held for sale or has been abandoned or spun off; and represents a strategic shift that has (or will have) a major effect on an entity's operations and financial results; or a business or non-profit activity that, on acquisition, meets the criteria to be classified as held for sale. Although the definition under US GAAP describes a strategic shift, it does not represent a substantial difference in classification. Thus, US GAAP and IFRS are almost equal in respect of classification (refer to Section 2.4).

In general, KPMG (2015/16) believes that an operating segment as defined by IFRS 8 *Operating Segments* would normally represent a separate major line of business or geographic area of operation. This is consistent with the views of Lüdenbach and Hoffmann (2013) and Albrecht (2016). Hence, the operating segment can be interpreted as the upper level of a combination of assets to be disposed of. As a consequence, an operating segment that passes the quantitative tests to be disclosed separately as a reportable segment would automatically qualify for potential discontinued operations.

According to Küting and Wirth (2006), "component of an entity" is the main term for answering the question of which part of an entity qualifies as a discontinued operation. A component of entity comprises operations and cash flows that can be clearly distinguished from the rest of the entity. They are of the opinion that the interpretation of the IASB is based on the concept and definition of cash-generating units. They document that such cash-generating units are used for impairment testing under IAS 36 *Impairment of Assets* and constructed on the internal financial reporting/management approach. They conclude that a component of an entity is equal or minimum to one cash-generating unit or a group of cash-generating units. In the view of Deloitte (2018a) a component of entity cannot be smaller than a cash-generating unit, which

is consistent with Küting and Wirth (2006).

Confirming Küting and Wirth (2006) and Deloitte (2018a), (Pellens et al., 2014) document that a group applying IFRS consists of at least one operating segment. Each operating segment consists of at least one cash-generating unit, and a cash-generating unit is the minimum size of a component of an entity. In addition, they state that a disposal group can, but does not have to, be equal to a discontinued operation.

Hence, a cash-generating unit can be interpreted as the lower level of a combination of assets to be disposed of, and the size of a discontinued operations transaction needs to be in the range of a single cash-generating unit and an operational segment, which is consistent with the views of Mazars (2009) and Albrecht (2016).

A further complexity is added to defining discontinued operations by the fact that some of the transactions meet the definition of a component of an entity, but this is by nature more a streamlining of processes rather than a discontinued operation.

KPMG (2015/16) outlines that abandoning or discontinuing products in a product line or replacing them with newer products is a part of the normal evolution of a business, and does not constitute a discontinued operation. Even though this results in a closure of facilities resulting from productivity or other cost reasons, this does not necessarily meet the definition of a discontinued operation either. This view is consistent with Lüdenbach and Hoffmann (2013), while Deloitte (2008) adds that certain entities (for example, real estate investment trusts, retailers) routinely dispose of asset groups that meet the definition of a component of an entity in IFRS 5.31. However, such routine disposals of components generally do not represent a separate major line of business or geographical area of operations, as required by IFRS 5.32a. Therefore, many routine disposals of components will not be classified as discontinued operations. Furthermore, in the view of KPMG (2015/16), the sale of a brand also does not meet the definition of a discontinued operation. A brand on its own, or an individual piece of real estate, are unlikely to constitute a discontinued operation. However, it depends on the nature and circumstances of the proposed sale. If other assets along with the brand are sold, or if the sale consists of several buildings in a certain region, then it might be possible to constitute a discontinued operation.

The relative size of a potential discontinued operations transaction in relation to a group as a whole is another factor in determining whether or not a transaction qualifies for reporting as a discontinued operation. According to Lüdenbach and Hoffmann (2013), the size and

entire diversity of fields of a company's activities needs to be considered. They are of the opinion that abandoning and creating new businesses in a horizontal- or conglomerate-organised large company is a common aspect of the business cycle. They postulate that only material transactions should be treated as discontinued operations. On the other hand, they also note that subjectivity is involved with the terms "major line of business or geographical area" along with an unclear definition of materiality that is consistent with the view of Albrecht (2016).

Albrecht (2016) further states that in defining whether a major line of business exists, quantitative and qualitative factors need to be considered. He is of the opinion that the internal structure is a significant determinant, since both a cash-generating unit and an operating segment are based on internal management structures.

The meaning of the term "separate major line of business or geographical area" was among other IFRS 5 topics also raised with the IFRS Interpretations Committee in January 2016 (IFRIC, 2016). The Interpretations Committee could not reach a decision, but concluded that a broad-scope project might be warranted.

Besides definitions and interpretations of the term "materiality", other smaller issues around the definition can be found in the literature. Looking at the individual entity level versus a consolidated point of view, KPMG (2015/16) finds that the presentation of a discontinued operation may differ in the subsidiary's presentation from the consolidated parent presentation, as a component of an entity might define a separate major line of business from an individual company's perspective but not from a consolidated standpoint.

Furthermore, it is stated that it is not clear whether a business that will be disposed of by distribution to owners could be classified as a discontinued operation before its disposal, even though amendments were implemented to extend the requirements in respect of non-current assets or disposal groups held for sale to such items held for distribution to owners. However, KPMG (2015/16) finds that the classification is appropriate if the remaining criteria of IFRS 5 are met.

Nevertheless, KPMG (2015/16) clarifies IFRS 5.31, saying that the disposal of a business that was previously part of an entity considered to be a single cash-generating unit does not qualify as a component of an entity, and therefore should not be classified as a discontinued operation if it is disposed of. In this case the disposal group would be smaller than a cash generating unit which supports the view of (Küting and Wirth, 2006; Pellens et al., 2014; Deloitte, 2018a) as

they find that the lowest possible level of a discontinued operations is equal to a cash-generating unit.

3.3.4 Literature on determining fair value and initial measurement

IFRS 13 *Fair Value Measurement* defines fair value as the price that would be received to sell an asset in an orderly transaction between market participants at the measurement. A discontinued operations transaction needs to be measured at fair value less cost to sell after initial classification. The question is how such a fair value can be determined, and to what extent observable prices or inputs are available. In this context, a reliable purchase/selling price from independent buyers at initial classification is often not available. At this stage, uncertainty of a realistic fair value arises and exists until the first bids from potential buyers are known. At initial classification, companies are required to assess a potential selling price with only little knowledge of parties interested in buying the business, what the potential outcome of negotiations will be, or by when the sale will be completed. Due to the inherent unique shape and associated characteristics of the business held for sale, an active market of such businesses is almost never observable in practice. Instead of using traded prices from an active market, companies are often forced to apply valuation techniques to determine a fair value until a clearer picture of the selling price exists.

The following literature gives first an overview of IFRS 13 requirements, followed by the relevant pieces around the determination of fair values using a valuation technique.

Literature on IFRS 13: *Fair value measurement*

The general aim of IFRS 13 is to outline a framework for measuring fair value and related disclosure requirements. The standard forms a single source of authoritative guidance on how to measure fair value. Under IFRS 5.15, an entity measures a non-current asset or disposal group classified as held for sale at the lower of its carrying amount and fair value less costs to sell. That means that for fair valuation under IFRS 5 the scope of IFRS 13 standard is applicable and the valuation procedures outlined in IFRS 13 need to be followed.

Under IFRS 13.9 it is expressed that the fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value takes into account characteristics of the asset or liability that would be considered by market participants, and is not based on the entity's specific use or plans. In a discontinued operations transaction certain characteristics can be seen such as the

economic attractiveness of the disposal group and its future cash generating potential, age of the operating assets, or the number of potential buyers.

According to IFRS 13 market participants are independent of each other, they are knowledgeable and have a reasonable understanding of the asset or liability, and they are willing and able to transact. Fair value measurement assumes that a transaction takes place in the principal market (i.e. the market with the greatest volume and level of activity) for the asset or liability, or the most advantageous market.

For discontinued operations, there is usually no market, as only a few transactions occur and those transactions have individual characteristics and attributes. Therefore fair value measurement will remain an area of significant judgement, where the valuation should be calculated from a market participant's view.

The most reliable evidence of fair value is a quoted price in an active market (KPMG, 2011). However, the standard acknowledges that not in all cases is a quoted price available for measuring fair value, particularly in the case of less fungible assets that are not actively traded and standardised. In this case a company is required to apply other valuation techniques aiming to minimise the use of unobservable inputs and maximise the observable inputs. The standard outlines in IFRS 13.B5 to IFRS 13.B30 three main valuation techniques:

Market approach	Income approach	Cost approach
Valuation techniques		
Market multiples ● Revenue multiples, EBITDA multiples ● Selection of appropriate multiple within range requires judgement **Matrix pricing** ● Used to value some types of financial instruments	**Present value techniques** ● Used to link future cash flows to a present amount using a discount rate **Option pricing models** ● Incorporates present value techniques and reflect both time value and the intrinsic value of an option **Multi-period excess earnings method** ● Used to measure fair value of intangible assets	**Current replacement cost** ● Cost to acquire or construct a substitute asset ● Adjusted for obsolescence ● Is often used to measure the fair value of tangible assets

Figure 3: Valuation techniques IFRS 13

A discontinued operation is likely to be valued by using the income approach as a discontinued operation contains in its nature a combination of several assets generating future cash flows.

The present value techniques can be seen as a best-practice method to value discontinued operations in absence of similar past market transactions.

It seems apparent that a fair value valuation including a lot of unobservable inputs is exposed to more judgements by the preparer than a valuation purely derived from market data.

Therefore, the standard categorises financial assets and liabilities based upon the level of judgement associated with the inputs used to measure their fair value:

- Level I: Inputs based on quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date (e.g. shares or debt instruments that are actively traded on a stock exchange).
- Level II: Inputs other than quoted prices included within Level I that are observable for the asset or liability, either directly or indirectly (e.g. quoted prices for similiar assets, inputs that are observable for the asset or liability such as interest rates and yield curves, implied volatilities or credit spreads).
- Level III: Unobservable inputs for the asset or liability (e.g. financial forecast of cash flows developed using the entity's own data, using of historical shares volatility to price an option that is not actively traded).

The amount of subjectivity increases with each level. The preparer of the financial statements has no or very limited influence on the reported consolidated result in the case when all financial asset / liabilities are categorised in Level I. On the other hand, Level III financial assets / liabilities require more judgement in measuring a fair value, and therefore the consolidated result is impacted by the assumptions taken by the preparer.

According to IFRS 13.29 the fair value of a non-financial asset is based on the perspectives of market participants of its highest and best use. An entity's current use of a non-financial asset is presumed to be its highest and best use unless market or other factors suggest that a different use by market participants would maximise the value of the asset. For measuring assets and liabilities held for sale as part of a discontinued operations transaction it means that the preparer must consider the potential individual circumstances of a potential buyer. In some practical cases this might be difficult for preparers, as there is an inherent uncertainty about the price that would occur in a hypothetical transaction that is assumed in a fair value measurement. This assumption influences significantly the net result of the consolidated financial statements. However, as it is presumed by the standard that the use of a non-financial asset is the highest and best use, a company might use the internal projections of a

discontinued operation as a starting point for the initial measurement. This would be consistent with the current firm valuation practice, as in a due diligence process (financial due diligence) the potential buyers often use the approved projections by the board of directors to value a potential range of the business.

In terms of disclosures, the aim of the standard is to help readers to understand and assess the valuation techniques and inputs used in fair value measurements. Not surprisingly the standard requires extensive disclosures for asset/liabilities categorised in Level III, as there is more judgement involved. Furthermore, the IFRS 13 distinguishes between recurring and non-recurring fair value measurements. A discontinued operations transaction can be clearly seen as a non-recurring fair value measurement transaction, and likely to be categorised in Level III. This is the case in the event that no contract is signed with the buyer. According to IFRS 13.93 the standard requires disclosing the following after initial recognition:

- The fair value measurement at the end of the reporting period
- The level of the fair value hierarchy within which the fair value measurements are categorised in their entirety (Level I, II or III)
- A description of the valuation techniques and the inputs used in the fair value measurement including any change in valuation technique (Level II and III)
- A description of the valuation processes used by the entity. This includes how an entity decides its valuation policies and procedures and analyses changes in fair value measurements from period to period
- The reason why the highest and best use of a non-financial asset differs from its current use

Literature on the determination of fair values using a valuation technique

In general, KPMG (2015/16) finds that fair value is a market-based measurement rather than a company-specific measurement, and is measured using assumptions that market participants would use in pricing the asset, including assumptions about risk. They find that a company's intention to hold an asset is not relevant in measuring fair value. Furthermore, they document that fair value measurement is made up of one or more inputs, which are the assumptions that market participants would make in valuing the asset. The most reliable evidence of fair value is a quoted price in an active market. When this is not available, companies use another valuation technique to measure for disclosure purposes.

More specifically, Rogler, Tettenborn and Veit Straub (2012) find that the determination of a fair value of a component of an entity involving a discontinued operations transaction is problematic. They claim that a market approach is in most cases not appropriate due to a lack of trading and prices of comparable transactions. In addition, they find that a cost approach is not practical. As a result, only the method based on net present value (income approach) remains. Rogler, Tettenborn and Veit Straub (2012) question whether existing company-internal cash flow projections can be used at initial measurement as the going concern principle becomes obsolete. As a consequence, individual advantages associated with the selling businesses should be excluded, for example licences, business-specific know-how and synergies. The exclusion should be done in cases where market participants cannot realise those individual advantages. This is consistent with the view of PWC (2017a). Other key parameters of the valuation model such as risk-free rate, risk-adjusted premium, growth rate and tax rate should be considered in light of the market participants' expectation.

More generally, KPMG (2011, p.23) explains that valuation techniques that fall under the income approach convert future amounts such as cash flows or income streams to a current amount on the measurement date. The fair value measurement reflects current market expectations about those future amounts, discounted to their present value. KPMG (2011, p.24) outlines that common valuation techniques falling under the income approach include present value techniques, option pricing models or the multi-period excess earnings method, which is in line with IFRS 13.B10 and IFRS 13.B11.

3.3.5 Literature on impairment of a disposal group and subsequent measurement

After initial classification, a company is required to assess the value of the assets and liabilities held for sale at each reporting date until the divestiture takes place. IFRS requires a two-step approach where, in step 1, all specific assets not in the scope of IFRS 5 but part of the assets and liabilities held for sale are measured in accordance with their individual IFRSs. The second step is to reassess the fair value less cost to sell, and to compare it with the carrying amounts of the disposal group. If the carrying amount is higher than the fair value less cost to sell an impairment charge of the difference needs to be recognised. A potential impairment charge needs to decrease the assets within the scope of IFRS 5 and follows the order of allocation according to IAS 36 Impairment of Assets.

If subsequently the opposite occurs, a company is required to account for a gain for the increase in fair value less costs to sell off the asset, but not in excess of the cumulative

impairment loss that has been recognised. In addition, a company is required to cease the depreciation after its initial classification, which is controversially discussed among experts. The following literature offers an overview of the above-mentioned areas.

Rogler, Tettenborn and Veit Straub (2012) are of the opinion that the requirement to cease the depreciation after initial classification is problematic, as the asset is still in active use and it contradicts the basic accounting principle to recognise the costs associated with an asset over the useful life. This is consistent with the view of EFRAG (2003). Rogler, Tettenborn and Veit Straub (2012) suggest that even though depreciation is not permitted any longer after the initial classification, there is a likelihood of a company being forced to recognise an impairment charge if the value of a disposal group does not increase due to positive market conditions.

Zülch and Lienau (2004) find that the requirement to cease the depreciation of assets leads to a comparability issue. A comparison between an identical continuing business and a discontinued business is no longer possible. However, they support the approach of no depreciation after classification, as the assets will be recovered through a sales transaction rather than continuing use. In addition, they find that IFRS 5 follows the imparity principle, in the sense that a fair value in the subsequent measurement only increases to the extent of prior impairment losses, and a further revaluation higher than the historical costs is not possible. On the other hand, an impairment charge must be fully recognised if historical values decrease.

The fact that the assets are not depreciated after initial classification as assets held for sale can also influence the KPIs (key performance indicators) of a firm. These KPIs might not be comparable anymore with the prior year, but also with other businesses. The impact is even higher in cases where the period from initial classification to sale is long. On the other hand IFRS 5 requires only presenting a condensed income statement of the discontinued business and does not include gross margin and EBIT margin or other critical key performance indicators of the discontinued business. However, all KPIs that include the net result of the total group are affected by the cease of depreciations, as well as in cases where firms still continue reporting the discontinued business after classification as held for sale to the CODM. In this case the companies are required to present the existing internal structure including key performance indicators in the external consolidated financial statements as part of the segment reporting according to IFRS 8 *Operating Segments*. These numbers do not include any depreciations and are therefore not comparable anymore. Furthermore, a higher total result might lead to a higher dividend payout ratio.

The paper of Blom and Bauer (2006) shows that in a particular situation where the discontinued operation is in a loss-making situation, the financial information provided to investors can be misleading. Under these circumstances, a potential buyer might only agree to the sale if the selling party makes a compensation payment to the buyer. The paper outlines that in such a case, IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* is applicable, and thus the triggering event of creating a provision is only possible based on a binding agreement. In this case it is therefore likely that the financial information in various subsequent reporting events does not include such costs and provisions, as those elements are likely to be included at the signing date, which might be close to date of divestiture (closing date).

Similarly, Blom and Bauer (2006) and Dobler and Dobler (2010) show that losses in value might be recognised twice and reversed later on under certain circumstances. Their examples show that the fair value less costs to sell is clearly determinable in a situation where the buyer agrees with the seller as part of a signed purchase agreement to reduce the purchase price due to expected losses of financial instruments in the foreseeable future. In this case, losses between the initial classification and the divestiture (loss of control) are already reflected in the purchase price. Moreover, if the signing of the contract takes place at year end, but the closing of the deal is in the following year, the company is required to revaluate the financial instruments as a first step, and once again the disposal group as a whole containing a lower agreed fair value. At the time of divestiture in the new period, the lowered financial assets will be realised while the purchase price remains constant. Thus, the revaluation in the previous year will be reversed. Dobler and Dobler (2010) find that such a situation needs to be disclosed to investors in the notes to the financial statements.

Rogler, Tettenborn and Veit Straub (2012) find that the amount of work for calculating a fair value at initial and subsequent measurement can be considerably reduced if goodwill from a prior acquisition was allocated to the disposal group. In this scenario, a company can use the existing models under IAS 36, which requires testing goodwill annually based on a cash-generating unit to determine a fair value.

Kessler and Leinen (2006) identify a lack of clarity in terms of an impairment charge involving non-controlling interests. In the absence of any clear regulations under IFRS 5, they are of the opinion that any loss arising from an impairment charge should be proportionally attributed to both the controlling interest part and the non-controlling interest part. They argue that this approach follows that of IAS 36 (Impairment of Assets).

3.3.6   Literature on classification shifting

Many studies in the earnings management literature focus on two types of earnings management: accrual-based earnings management e.g. (Dechow, Sloan and Sweeney, 1995; DuCharme, Malatesta and Sefcik, 2004) and the manipulation of real economic activities e.g. (Graham, Harvey and Rajgopal, 2005; Roychowdhury, 2006). Classification shifting as a third possibility has been given less attention, particularly in the field of discontinued operations (Barua, Lin and Sbraglia, 2010; Chagnaadorj, 2018; Ji, Potepa and Rozenbaum, 2019).

Unlike other earnings management possibilities (for example accrual-based, or through manipulation of real activities) the bottom line of the financial statement where firms engage in classification shifting remains unchanged for the reporting period as well as for future reporting periods. However, the results from continuing operations and discontinued operations will be impacted by a potential shift. The underlying mechanics for this potential misrepresentation lies in the inappropriate classification of expenses that might not be clear-cut to auditors, readers or even preparers of the financial statements.

Classification shifting can occur in many different ways, ranging from allocating expenses within income statements, shifting expenses within operating segments, reclassifying cash positions within the cash flow statement or regrouping elements from continuing to discontinuing operations. This thesis does only addresses the vertical classification within the income statement.

The following articles are important pieces of literature in the field of classification shifting and are divided into studies that are directly linked to discontinued operations and studies without involving discontinued operations:

a) Classification studies other than discontinued operations

McVay (2006) investigates whether classification shifting is involved by reclassifying operating expenses to income-decreasing special items within the income statement. She uses an expectation model by decomposing core earnings into expected and unexpected components. The unexpected core earnings, defined as operating income before depreciation and amortisation minus actual reported earnings, are expected to be increasing in the reporting year and reversing in the following year to provide evidence of classification shifting. The model excludes any economic improvement associated with the expected earnings in the following year in order to calculate a pure shifting impact. The study provides evidence that managers classify core expenses as special items, increasing both core earnings and income-decreasing

special items. In particular, companies where special items contain amendable positions for classification shifting are likely to shift earnings. In addition, the study documents evidence of stronger classification shifting in companies under pressure to meet or beat publicly available forecasts. The sample of the study comprises 76,901 US firm-year observations from 1989 to 2003, but one weakness/bias of the paper is the inclusion of accruals in the expectation model for firm performance.

However, this potential bias is not applicable by focusing exclusively on discontinued operations, as all accruals need to be included as part of the assets/liabilities held for sale. A further study conducted by Barua, Lin and Sbaraglia (2010) that specifically focuses on discontinued operation and applies the research method of McVay (2006) concluded that her paper does not suffer from this potential design bias.

Athanasakou, Strong and Walker (2009) find that UK companies are more likely to engage in earnings forecast guidance or, for a subset of larger companies, in classification shifting rather than in accruals management to meet analyst expectations. However, the evidence of classification shifting should be treated with caution, as it belongs only to a narrow subset of firms. In addition, the study documents that companies particularly tend to shift small recurring expenses to operating exceptional items, as those items have lower visibility from readers of the financial statements. The investigation comprises results over the period 1994 - 2002 and consists of 5,117 UK firm observations.

A further investigation by Fan et al. (2010) extends the study conducted by (McVay, 2006) and provides evidence that classification shifting of core expenses to special items is more prevalent in the fourth quarter than in interim quarters. The study reveals that classification shifting is more prominent in cases where accrual-based earnings management is more constrained, and where companies are exposed to meet or beat analysts' forecasts. The findings are primarily based on the expectation model by (McVay, 2006), although the model was slightly amended by dropping current period accruals and including additional controls for performance. The data sample consists of 132,393 US companies for the years 1988 to 2007.

An investigation conducted by Haw, Ho and Li (2011) examines the prevalence of classification shifting in East Asian countries. The study builds on (McVay, 2006)'s study and extends her work to an international setting in the light of existing governance mechanisms. The investigation shows that expense misclassification is a pervasive and economically significant issue in East Asia. The study demonstrates that preparers opportunistically shift core expenses to special items to increase core earnings, particularly when they need to meet or beat analyst

earnings forecasts, which is consistent with (McVay, 2006). They find that classification shifting can be interpreted as a low-cost mechanism for earnings management, as preparers of the financial statements are more likely to shift core expenses to special items than manage accruals to inflate core earnings. The investigation shows that well-functioning legal institutions and the existence of a quality external auditor mitigate misclassification behaviour. In addition, the study confirms the validity of (McVay, 2006)'s methodology by providing evidence that the model is not driven by bias. The investigation contains 3,992 observations from eight East Asian economies from 2001 to 2004. The majority of the companies under review are located in Hong-Kong. The Hong-Kong Stock Exchange requires a company to apply Hong-Kong Financial Reporting Standards that are virtually identical to IFRS.

The investigation of Lian Fen (2012) examines whether companies manage their operating cash flows if incentives are in place to do so. The study shows that companies engage in classification shifting and adjusting working capital (time aspect) in cases where the incentives are particularly high. As an incentive to managing operating cash flow is the presence of financial distress, long-term credit rating near the investment grade/non-investments grade cut-off, the existence of analyst cash flow forecasts and higher associations between stock returns and operating cash flows. Furthermore, the study documents that restatements due to classification errors are more likely to occur in cases where incentives are in place and where preparers of financial statements have more discretion over the classification of items. In addition, the study documents a shorter industry-adjusted cash cycle in the fourth quarter compared to the first quarter after year end, indicating that preparers are engaged in shifting operating cash flow from the reporting period to another. The results are even stronger for non-year-ending companies. The sample size contains over 2,600 firms for the period between 1988 and 2008, focusing on US-listed firms.

The aim of the study of Abernathy, Beyer and Rapley (2014) is to examine the costs, constraints and timing associated with the three main forms of earnings manipulation: real earnings management, accrual earnings management and classification shifting. This extends the study of Zang (2012), which investigates the trade-off decision between real earnings management and accrual earnings management. The study shows that in cases where real earnings management is constrained by poor financial performance, high institutional ownership and low industry market share preparers of financial statements are more likely to use classification shifting. Furthermore, the study shows a positive relationship between classification shifting and specific costs of accrual earnings management, including accounting system flexibility and analyst issuance of cash flow forecasts. The study shows that if the

sample includes only companies that are most likely to manipulate earnings (this is a subset of the total sample that have met analyst annual earnings, IBES reported earnings or prior year IBES earnings per share by 2 cents or less) further constraints of both real earnings management and accrual earnings management can be identified, leading to a greater use of classification shifting. Classification shifting can be seen as a substitute for both earnings management and accrual earnings management. The data sample consists of 33,619 US companies for the years 1988 to 2011.

The investigation carried out by Lail, Thomas and Winterbotham (2014) provides evidence on the shifting of core segment expenses to (or from) the corporate/other segment. The study documents that the motivation in doing segment shifting lies in the attention given to segment disclosures by financial statement users. Similar to the study results of (McVay, 2006) and Fan et al. (2010) regarding vertical shifting of expenses to special items within the income statement, the investigation shows that preparers of the financial statement opportunistically shift expenses between the core operating segments and the corporate/other segment. The investigation consists of 3,990 US firm years for the period 1998 to 2010.

The study of Alfonso, Cheng and Pan (2015) investigates classification shifting from a capital market perspective. They categorise firms as classification shifters if they have positive unexpected core earnings and income-decreasing special items that include discontinued operations. They find that market expectation of core earnings persistence is higher than the actual reported earnings persistence of firms that have shifted their core earnings. Their investigation shows that core earnings are more negatively associated with future returns for shifters than for non-shifters. The authors use the Mishkin test to examine whether investors correctly price core earnings for classification shifters relative to non-shifters. The study is based on the expectation model of (McVay, 2006) and consist of 94,221 firm-year observations from 1988 to 2010.

The investigation conducted by Nagar and Sen (2016) reveals that large Indian firms inflate core income by netting of income-increasing special items against core expenses. Furthermore, they find that companies in financial distress (using Altman's Z-Score) are likely to be more exposed to classification shifting than companies in a sound financial position, which is consistent with their formulated hypothesis. The study includes a final sample of 14,386 firm years from March 1996 to March 2011 listed on the Bombay Stock Exchange. To be listed in India it is required to apply Indian GAAP or Ind AS, which can be seen as similar standards as IFRS, including a true-and-fair approach.

The study conducted by Fan and Liu (2017) extends the knowledge of prior investigations by (McVay, 2006) and Fan et al. (2010) in a sense that expenses shifting is separated by elements of cost of goods sold (COGS) and selling, general, and administrative expenses (SGA). The study provides evidence that if incentives are available to inflate gross margin, only COGS are misclassified to special items. In comparison, companies make use of both SGA and COGS misclassification if companies report small positive core earnings or small changes of positive core earnings, or in cases where actual results just meet or beat analyst forecast in the fourth fiscal quarter. The final sample consists of 319,518 US firm-quarter observations from the sample period 1988 - 2012.

The study of Gordon et al. (2017) finds that under IFRS a greater flexibility exists in classifying interest paid or received, and dividends received transactions, compared to US GAAP. As a result, the investigation reveals that in 13 European countries the operating cash flow can vary significantly within companies. The determinants of reporting a greater operating cash flow are capital market incentives, financial distress, higher leverage and accessing equity markets more frequently. Furthermore, the study documents that the results of certain operating cash prediction flow models can be affected by the choice of classification under IFRS. The study contains 798 firms in the final sample and covers the period from 2005 to 2012.

The investigation of Noh, Moon and Parte (2017) found that firms use both revenues and expenses to manage core earnings at the time of transition by shifting other income as a common tactic to improve their operating performance. They use the expectation model by (McVay, 2006) that was later slightly amended by Fan et al. (2010). They also report that firms use classification to narrowly beat earnings benchmarks, whereas misclassification of other operating income occurred as a general shifting tool, not just for achieving earnings targets. The study comprises 1,230 Korean companies in 2011.

The study of Malikov, Manson and Coakley (2018) shows that UK listed firms engage in classification shifting by misclassifying revenues from non-operating activities to operating activities. They find that firms in the period following mandatory IFRS adoption are associated with an increase in this practice. In addition, they report that classification shifting of revenues is more pervasive for firms that report operating losses or have low growth. They adopt the approach taken by (McVay, 2006). The study consists of 1,786 firms and 12,804 firm-year observations from 1995 to 2014.

b) Classification shifting studies of discontinued operations

Based on McVay (2006)'s expectation model, Barua, Lin and Sbaraglia (2010) investigate whether companies are engaged in classification shifting while applying discontinued operations. The study shows that companies engage in classification shifting to increase their continuing results, particularly in situations where companies report losses from discontinued operations. However, the study provides no evidence that companies do the opposite to increase their discontinued result. The study documents that the motivation to report higher continuing results using classification shifting is due to meeting or outperforming the analysts' forecast. In addition, they argue that the magnitude of classification shifting has declined after the introduction of SFAS 144, as the new component of entity concept under SFAS 144 allows qualifying smaller transactions as discontinued operations. The empirical analyses comprise 6,262 US companies reporting discontinuing operations from 1989 to 2005.

The study by Anthonius and Murwaningsari (2018) provides evidence that firms listed on the Indonesian stock exchange engage in classification shifting, which is consistent with the findings of Barua, Lin and Sbaraglia (2010). They reach this conclusion by applying the expectation model of McVay (2006). However, the study only includes 63 companies between 2013 and 2015, which can be seen as a limitation.

A study conducted by Chagnaadorj (2018) provides further evidence that classification is prevalent while applying discontinued operations. In particular, firms engage in classification shifting where the discontinued operation is loss-making, as the study reveals that unexpected operating earnings are strongly associated with losses from discontinued operations under IFRS. The study is based on the method developed by McVay (2006) and includes around 1,600 discontinued reporting observations of Australian listed companies during the years 2008 to 2016. Furthermore, the study investigates the usefulness of separate reporting of discontinued operations by examining predictive ability. Chagnaadorj (2018) concludes that discontinued operations are useful to predict a company's future performance.

The US-based study of Ji, Potepa and Rozenbaum (2019) confirms the evidence of Barua, Lin and Sbaraglia (2010) that firms engage in classification shifting while reporting negative discontinued operations, and to meet or beat investors' expectations. The study is based on the expectation model (McVay, 2006). They investigate whether the regulatory changes under US GAAP in 2014 had effects on the persistence of classification shifting while applying discontinued operations. They conclude that classification shifting is still present, but declined significantly following the changes in the definition of classifying discontinued operations and

extended footnote disclosures. They also report that the frequency and persistence have dropped after the introduction of the new rules. The study consists of more than 15,000 firm-year observations from 2012 to 2016.

The study of Kaplan, Kenchington and Wenzel (2019) provides evidence that valuation considerations have effects on decisions of misclassifying expenses from continuing operations to discontinued operations. They argue that positive reporting discontinued operations are less exposed in shifting expenses to discontinued operations, as otherwise those discontinued operations would have disadvantages in maximising their purchase price. The results support the findings of Barua, Lin and Sbaraglia (2010), which suggests that only negative reporting discontinued operations engage in classification shifting. The US-based study consists of firms from 1993 to 2013 and includes a sample of 1,110 observations.

3.3.7 Literature on disclosures

Disclosures in the notes to the financial statements add essential information to understand the results presented and to analyse and interpret the financial performance. The IASB (Conceptual framework QC6) outlines that information is relevant if it is capable of making a difference in the decisions by users. If no disclosures are given related to discontinued operations, then the readers would potentially assume that the reduction in revenues and other key figures is related to an organic drop, whereas in a business combination according to IFRS 3 *Business Combinations* the opposite might be the case.

In this context materiality also plays an important role, as relevant information is generally considered to be material information. Information is material according to the IASB (Conceptual Framework 2017, QC11) if omitting it or misstating it could influence decisions that users make based on financial information about an entity. This implies that in preparing financial disclosures a certain degree of discretion is involved, and thus might influence the reported financial information significantly.

Further, the faithful representation of information requires that information provided is complete, neutral and free from error. In respect to this requirement (under IASB Conceptual Framework, QC12-18), the information requirements in IFRS 5.30 to IFRS 5.42 serve as a basis for complying with the faithful information of disclosing discontinued operations.

In addition, it seems obvious that for example cash, and cash equivalents are more understandable for investors than pension accounting, share-based payment transactions or

hyperinflationary accounting issues. As a consequence, the information required to disclose depends on the specific IFRSs applied, as well.

A further aspect that drives the degree of disclosures presented in a financial report is the agency theory outlined by Jensen and Meckling (1976), as the management might not always act in the best interests of the shareholders, or debt holder's agency costs might occur. While optimal structured contracts such as compensation agreements (Watts and Zimmerman, 1990, p.133), debt contracts (Holthausen and Leftwich, 1983; Leftwich, 1983) or the presence of an audit committee (Collier, 1993, p.423) help to reduce agency costs, transparent IFRS disclosures are a further element to reduce agency costs, as the shareholders and/or debt holders have better monitoring possibilities (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008).

On the other hand, firms might be reluctant to disclose information even though they are required to do so, because it can cause significant commercial harm or can damage their competitive position, which can be interpreted as the proprietary costs hypotheses (Healy and Palepu, 2001; Al-Shammari, Brown and Tarca, 2008; Tsalavoutas, 2011; André, Dionysiou and Tsalavoutas, 2018). In addition, a high level of mandatory disclosures helps in predicting future earnings (Hodgdon et al., 2008; Glaum et al., 2013a; Tsalavoutas and Dionysiou, 2014).

The following articles provide an overview of the relevant pieces, and divide the literature into works that are (i) directly linked to discontinued operations including IFRS 5, (ii) pieces that do not specifically include IFRS 5 and (iii) pieces focused on one particular IFRS standard:

a) Multiple disclosure topics (specifically reporting IFRS 5 mandatory disclosures)

The first newer relevant paper that has been found is by Tsalavoutas (2011), which documents the compliance levels with IFRS mandatory disclosures in 2005 in a sample size of 153 Greek listed companies. The study provides strong evidence that those companies with a Big Four auditor are most compliant with IFRS mandatory disclosures. In addition, Tsalavoutas (2011) finds that a significant change in fundamental financial measures, because of the change in the accounting regime, may also explain compliance. From a methodological point of view the findings provide evidence that using only one method for measuring compliance with mandatory disclosures may generate misleading perceptions about the extent to which companies comply with the levels of compliance identified. The study suggests using the commonly used dichotomous approach (Cooke's method) and the partial compliance (PC) method, as they were applied in this study. The investigation shows that an average

compliance score of 83 per cent was achieved using the dichotomous method, whereas the partial compliance method shows 79 per cent. Further, the investigation documents that a mean compliance score of only 61 per cent of IFRS 5 mandatory disclosures was achieved.

The same sample was further used in a study by Tsalavoutas and Dionysiou (2014) which documents that firms with high disclosure will be of higher value relevance. This study provides evidence that the compliance score is significantly and positively related to market values, which indicates that mandatory disclosures do convey relevant information to the market participants and affect their investing decisions. Neither study includes materiality considerations with regard to the materiality of the disclosure of individual standards.

Santos, Ponte and Mapurunga (2014) investigate the mandatory disclosures of 366 listed Brazilian non-financial firms in the first mandatory adoption year, 2010. The average compliance score achieved was 24 per cent, where company size and Big Four audit firms are significantly positively associated. They further report a mean compliance score with IFRS 5 of 33 per cent. In line with Tsalavoutas (2011), the study applies both the PC and Cooke's scoring methodology, and makes no reference in terms of materiality of the disclosure of the individual standards.

The study of Boshnak (2017) examines the extent of mandatory disclosures with IFRS and the level of voluntary disclosures by firms in the Gulf region over the period from 2010 to 2013 by looking at the financial statements of 120 listed firms. The average level of mandatory disclosure requirements with 24 IFRS standards across firms and years was 73 per cent, based on Cook's method, where the compliance with IFRS 5 indicates a value of 65 per cent. The study reveals that the extent of mandatory disclosure increases among other factors with firm size, international presence, group firms, firm age, the proportion of state share ownership and educational level. Conversely, the level of mandatory disclosures is negatively associated with firm profitability, the proportion of institutional share ownership, board size and level of voluntary disclosure. The study does not consider the materiality of the disclosure items and the relative disclosure items of each standard (partial method).

Dawd (2018) investigates the mandatory disclosure level of Kuwaiti non-financial listed firms in 2010. The study documents that on average a disclosure level of 44 per cent is achieved, of which 41 per cent of disclosure level is specifically attributable to the IFRS 5 standard. Applying Cooke's method, the investigation provides evidence that profitability is negatively associated with the disclosure level, whereas size, Big Four auditors and leverage exhibit a positive but insignificant association. There is no reference made to materiality thresholds.

Furthermore, the structured literature review by Tsalavoutas, Tsoligkas and Evans (2020) found an average 75 per cent compliance score in 70 studies in the field of mandatory disclosures. However, looking at the studies above it becomes apparent that only 50 per cent compliance is achieved when specifically focusing on the IFRS 5 Standard. This indicates that this standard is relatively difficult for companies to comply with, as it includes more complicated requirements and has relatively more proprietary elements. In addition, it also shows that the degree of compliance varies considerably among the different countries, indicating that cultural and institutional factors affect how accounting is practised (Ball, 2006; Nobes, 2006; Soderstrom and Sun, 2007).

b) Multiple disclosure topics (not specifically reporting IFRS 5 mandatory disclosures)

Al-Shammari, Brown and Tarca (2008) provide evidence of mandatory IAS disclosure compliance with 14 IAS standards across countries and over six years in the Gulf region, namely Bahrain, Oman, Kuwait, Saudi Arabia, Qatar, and the United Arab Emirates. For the period 1996 - 2002 the investigation documents an average combined compliance level of 75%, increasing from 68% in 1996 to 82% 2002. The highest compliance level for all years was reached in the UAE (80%) and the lowest was noted in Qatar (70%). Despite economic and cultural ties between the countries under review there are significant variations in compliance based on size, leverage, internationality and industry. From a methodology point of view the study applies an unweighted Cooke's scoring method. The sample size is 137 companies, includes 436 company-years, and makes no reference to materiality of disclosure items.

The study by Hodgdon et al. (2008) suggests that compliance with IFRS disclosures is negatively associated with individual analysts' earnings forecast errors. They document that financial analysts are better able to predict the earnings per share of firms that provide all or most of the financial disclosures required by IFRS. A limitation to the study is the relatively small sample size of 89 firms in the period from 1999 to 2000 compared to the huge number of companies applying IFRS. The study focused on European countries, mainly Germany and Switzerland, representing 70% of the sample by using an unweighted disclosure index score that follows the methodology of Cooke's.

Al-Akra, Eddie and Ali (2010) examine the impact of privatisation and its key company attributes on mandatory disclosure compliance with IFRS of Jordanian listed companies. The study uses a sample of 80 non-financial companies for the years 1996 and 2004. The investigation documents a significant increase in compliance level through the time period of

the study. While in 1996 long-term leverage and leverage appeared to be the significant variables to influence disclosure compliance, in 2004 auditor type (Big Six or Big Four auditors vs. non-Big Six or Big Four auditors), the presence of an audit committee, size of the board, liquidity and gearing ratio are determined as significant factors of mandatory disclosure quality. In 1996 a vast majority of the companies reached a disclosure index score in the range of 50% - 60%, whereas in 2004 most of the companies were rated in the range of 80% - 90%. The study uses a sample of 80 non-financial companies for the years 1996 and 2004. The study is based on an unweighted Mandatory Disclosure Index that follows the Cooke's method and does not consider materiality in assessing mandatory disclosure items.

The study by Galani, Alexandridis and Stavropoulos (2011) finds that based on annual reports in 2009 from a sample size of 43 listed Greek companies, 86% report the mandatory information. Furthermore, the study shows a significant positive relation between size and disclosure level, whereas firm age and profitability, liquidity and board composition seem not to be associated with the quality of disclosure. The study suggests that the Commission of Stock Exchange should improve their monitoring activities to ensure increased compliance. The limitations of the study are the inclusion of only one year's data, and the fact that only 50% of the Greek listed companies are included in the study. The investigation uses an unweighted approach to calculate the disclosure index that follows Cooke's method. No reference is made in terms of materiality of disclosure items.

According to the study conducted by Glaum et al. (2013a) the introduction of international GAAP (IFRS or US GAAP) has significantly increased the accuracy of financial analysts' forecasts. The study provides evidence of an improvement in the quality of disclosure as a result of the transition from German GAAP to international standards, and this contributed to an increase in analysts' forecasting accuracy. However, the disclosure effect explains only a small portion of the overall improvement in forecast accuracy, as other possible effects such as improvements in the quality of earnings, improvement in companies' investor relations and changes in analysts' behaviour appear to have done more to improve the analysts' forecasts. The study is based on 1,908 German non-financial companies from 1997 to 2005.

A further study by Demir and Bahadir (2014) reveals that the compliance levels in IFRS annual reports of 168 companies listed on the Turkish Stock Exchange in 2011 range from 64 per cent to 92 per cent, with an average of 79 per cent. The study shows that the most positive significant determinant to compliance is the presence of a Big Four audit firm, whereas a significant negative contributor to compliance appears to be the leverage of a firm. Other

company characteristics such as profitability, company size and age, however, are not significant in explaining the level of disclosure compliance with IFRSs. The study applies the Cooke's method in calculating the disclosure score index and does not report the application of any materiality thresholds in assessing disclosure items.

The study by Devalle, Rizzato and Busso (2016) focuses on mandatory disclosures of intangible assets of 189 Italian listed companies. The study provides evidence that on average a mandatory disclosure score of 67.3 per cent (Cooke's unweighted method) is achieved for the year 2010. The study applies a materiality threshold and does not consider any observations below 5 per cent of intangible assets to total assets. They state that non-compliance might be due to the fact that too many mandatory disclosure requirements in the current versions of IFRSs allow companies too much subjectivity in deciding whether they are relevant or not. The study indicates that the financial costs on financial liabilities are a strong positive contributor to mandatory compliance. Furthermore, they apply different methods in calculating the mandatory disclosure score (PC method weighted and unweighted, Cooke's method weighted and unweighted) and as a result report differences in the significance of the contributors depending on the method applied.

The investigation by Appiah et al. (2016) shows that size and Big Four audit firms are positive key determinants of compliance with IFRS financial statements. Conversely, the study exhibits a significant negative association with leverage and firm age. The study employs the PC method as a scoring methodology and comprises 31 firms listed on the Ghana Stock Exchange from 2008 to 2012. The study does not make any reference in terms of materiality.

The study by André, Dionysiou and Tsalavoutas (2018) investigates the mandatory compliance with IAS 36 and IAS 38 *Intangible Assets* for a sample of 373 listed companies from European countries in 2010 -- 2011. Particularly, they explore the value relevance of the disclosure levels and their effects on analysts' forecast accuracy. They document that firms with higher compliance exhibit higher market values due to the fact that they provide proprietary information. As a consequence, they observe that analysts make less dispersed forecasts and these are more accurate. Furthermore, the study provides evidence that the compliance score is 83.9 per cent on average, using Cooke's and PC scoring methods to calculate the mandatory compliance of the standards. There is no reference in terms of materiality of mandatory items.

c) Specific disclosure topics

Besides studies covering multiple mandatory disclosures there are also studies available that only focus on one particular standard, exhibiting similar scoring methods and key determinants as the studies including multiple standards. The review of the existing literature shows that studies focusing on goodwill and goodwill impairment dominate (Camodeca , Almici and Bernardi, 2013; D'Alauro, 2013; Hartwig, 2013; Baboukardos and Rimmel, 2014; Florio, Lionzo and Corbella, 2018; Mazzi, Slack and Tsalavoutas, 2018). Furthermore, studies can be found in the field of share-based payments (Goh, Joos and Soonawalla, 2016), provisions (Acar and Ozkan, 2017), decommission costs (Abdo et al., 2018) or income taxes (Lopes, 2014).

3.4 Summary, observable research gaps

This literature review aimed to identify relevant information which can be linked to IFRS 5, and to demonstrate a gap in the literature to justify that further research in the interpretation and management of discontinued operations under IFRS is valuable.

Literature on the classification of a discontinued operation is limited to expert opinions. From the literature it is apparent that different opinions exist, and the classification involves a certain degree of judgement, as the IFRS 5 Standard does not give clear guidance on the materiality and the scope of a major line of business or geographic area. If a company, for example, intends to dispose of all operations of a defined reportable segment it seems obvious that in such a situation a discontinued operation can be most likely constituted (Lüdenbach and Hoffmann, 2013; KPMG, 2015/16; Albrecht, 2016). However, if the component of an entity is smaller and represents a part of a reportable segment the situation is not clear. Here the preparer needs to exercise more judgement and might also consider the internal reporting structure in assessing this fundamental question.

The literature on the determination of fair values using a valuation technique in a specific discontinued operations environment is also limited to expert opinions. The prevailing opinion among experts (Rogler, Tettenborn and Veit Straub, 2012; KPMG, 2015/16) is that fair value is a market-based measurement rather than a company-specific measurement, and is measured using assumptions that market participants would use. This can lead to practical issues in the early stages after the classification of a discontinued operation, since no binding bids from potential buyers are available. Dobler and Dobler (2010) have expressed practical issues on subsequent measurement such as potential double income effects due to unclear definitions of terms. For EFRAG (2003) and Rogler, Tettenborn and Veit Straub (2012) it seems problematic to cease the depreciation charge after initial classification, as this can be interpreted as a violation of the basic accounting principles, while others support the view of the IASB. Furthermore, Zülch and Lienau (2004) noted that ceasing depreciation can lead to a comparability issue. This view is in line with the dissent note of Harry K Schmid under IFRS 5 BC DO9. Other experts are concerned about the subsequent valuation requirements that can cause undesired volatility in discontinued earnings (Blom and Bauer, 2006; Dobler and Dobler, 2010). Rogler, Tettenborn and Veit Straub (2012) find that the existing company-internal goodwill impairment model might be used for determining a fair value. On the other hand, as the assets and liabilities to be sold are realised in a discontinued transaction,

valuation issues are limited to those year-end reporting events when the transaction is in progress.

The literature review on classification shifting has shown that several investigations have been carried out on classification of core expenses to special income-decreasing (Fan et al., 2010; Haw, Ho and Li, 2011; Nagar and Sen, 2016; Fan and Liu, 2017; Noh, Moon and Parte, 2017; Malikov, Manson and Coakley, 2018); however, limited studies are available while applying discontinued operations (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019). A first pioneering study was conducted by McVay (2006) in the field of classification shifting. The US-based study found that managers classify core expenses as special to increase core earnings. This study introduced an expectation model to estimate core earnings which is widely used in subsequent classification shifting studies. Building on the McVay (2006) expectation model, the US-based study of Barua, Lin and Sbaraglia (2010) examined the presence of classification shifting while applying discontinued operations, and reveals that companies engage in classification shifting to increase continuing financial performance, particularly in situations where companies report losses from discontinued operations. Later, the study of Kaplan, Kenchington and Wenzel (2019) found that valuation considerations explain the asymmetric finding (only loss-making discontinued operations engage in classification shifting) of Barua, Lin and Sbaraglia (2010). Furthermore, the study by Barua, Lin and Sbaraglia (2010) provides evidence that firms engage in classification shifting to meet and beat, analysts' forecasts, which is consistent with a newer US-based study by Ji, Potepa and Rozenbaum (2019). Further, Anthonius and Murwaningsari (2018) and Chagnaadorj (2018), based on an Australian sample, also reveal the presence of classification shifting while applying discontinued operations.

On the IFRS mandatory disclosure topic, numerous investigations have been carried out in recent years (Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; André, Dionysiou and Tsalavoutas, 2018). However, a specific study focusing on discontinued operation disclosures has not been found. There are only some older, broader studies available, consisting of the former IAS 35 standard or partially including IFRS 5. The standard preceding IFRS 5 was IAS 35 *Discontinued Operations*, which was in force from July 1999 to February 2004. In general, the studies show a low IFRS compliance level, with mandatory IFRS disclosures. However, the studies are not always comparable, as differences in the results are driven by different methodologies to evaluate the IFRS mandatory disclosure level. It is evident that Cooke's and the PC method dominate as a scoring method in extant disclosure literature. Furthermore, the studies have shown significant compliance differences among countries. The factors driving

positively the mandatory quality and compliance of disclosures are mainly the size (Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016) and the presence of a Big Four auditor (Amiraslani, Latridis and Pope, 2013; Glaum et al., 2013b; Demir and Bahadir, 2014; Lopes, 2014; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018), whereas extant studies provide mixed results for leverage, both positive association (Hartwig, 2013; Lucas and Lourenço, 2014; Agyei-Mensah Ben, 2019) and negative association (Lopes, 2014; Appiah et al., 2016).

In sum, the literature review shows that no specific study has been found that exclusively focuses on the formulated research questions Q1 to Q4. In terms of the first research area, initial classification of a discontinued operation, the existing literature appears to be limited to Big Four proclamations and expert opinions of academics, while no specific empirical study has been identified. Regarding classification shifting as a second research area, the bulk of the studies are based on US data, hence the US GAAP and not IFRS. In terms of mandatory IFRS disclosures it seems that a sizeable number of studies has been carried out covering all IFRS standards (including partially IFRS 5) but also on specific IFRS standards (e.g. IFRS 3 *Business Combinations* and IAS 38 *Intangible Assets* or IAS 36 *Impairment of Assets*). However, no study has been identified that focuses exclusively on discontinued operation of IFRS 5 including related standards (e.g. IFRS 13 *Fair Value Measurement*, IAS 7 *Statement of Cash Flows*). Hence, there is a need of further investigation which can contribute to all major research areas.

3.5 Hypotheses development

This section aims to formulate the specific hypotheses on the three major research areas: i. initial classification of a discontinued operations, ii. classification shifting and iii. disclosures of discontinued operations. The hypotheses are derived from the overall research questions as outlined in Section 1.3.

The theoretical underpinnings of this study are largely driven by the agency theory as it influences all three main areas in several ways:

First, failed diversification strategies from poor past investment decisions (Andreou et al., 2019) that might be driven by managers' personal incentives such as higher compensation (Jensen and Murphy, 1990), power and prestige (Jensen, 1986; Villalonga, 2000), and better career opportunities (Shleifer and Vishny, 1989) reactively calls for concentrating on core competencies. As a result of such over-diversification (possibly arising from manager – shareholder conflict), extant research shows that firms are financially underperforming e.g. (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998; Berger and Ofek, 1999) (Desai and Jain, 1999; Dranikoff, Koller and Schneider, 2002; Shin, 2008; Lord and Saito, 2019) and/or are highly leveraged (Lang, Poulsen and Stulz, 1995; Lasfer, Sudarsanam and Taffler, 1996; Dranikoff, Koller and Schneider, 2002; Veld and Veld-Merkoulova, 2008) (Otsubo, 2013; Lord and Saito, 2019). Thus, firms need to take corrective action to bring the business back on track, enhance shareholder value and thus engage in divestiture projects to sharpen corporate focus (refocusing hypotheses) or to reduce leverage (financing hypotheses). The capital market reaction at the announcement of such projects is generally positive because it allows better capital allocation (Gertner, Powers and Scharfstein, 2002; McNeil and Moore, 2005) and a reduction of agency costs if proceeds are paid out (Lang, Poulsen and Stulz, 1995; Allen and McConnell, 1998; Shin, 2008). Therefore, the refocusing and financing hypotheses might provide an explanation for why firms initiate discontinued operations projects.

Second, classification shifting is also driven by agency conflict as managers are able to opportunistically alter the continuing earnings by misclassifying expenses from continuing to discontinued operations. Fields, Lys and Vincent (2001, p.266) argue that short-term bonus contracts are often tied to reported accounting performance measures. In cases where the management compensation is dependent on continuing earnings, managers might benefit from higher compensation, which results in a management - shareholder conflict. Similarly, the compliance with covenants could also be influenced by the presence of the agency theory, as

firms might be tempted to opportunistically increase continuing earnings to comply with a lending contract.

Third, larger firms tend to have higher agency costs, for example through budget restrictions, compensation policies or operating rules, and therefore large firms tend to disclose more information (Cooke, 1989), which helps to reduce such costs (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008). This is relevant in respect of the reporting quality of mandatory disclosures of discontinued operations. Similarly, transparent disclosures might also be useful for lenders to accommodate their information needs. Furthermore, cost theories might explain why firms are reluctant to fully comply with IFRS mandatory disclosures or proprietary costs (Verrecchia, 2001) as these might commercially harm a firm, leading to a reduction in firm value (Dye, 1986).

The strategic decision to initiate a discontinued operation stems from the need to refocus the existing businesses or to exit from a highly leveraged financial situation (Lang, Poulsen and Stulz, 1995; Lasfer, Sudarsanam and Taffler, 1996; Dranikoff, Koller and Schneider, 2002) (Veld and Veld-Merkoulova, 2008; Otsubo, 2013; Lord and Saito, 2019). It seems apparent that the businesses to be sold are underperforming (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998; Berger and Ofek, 1999; Desai and Jain, 1999; Dranikoff, Koller and Schneider, 2002; Shin, 2008; Lord and Saito, 2019). By exiting from an underperforming business, firms might be able to generate higher FCF, benefit from increased Return on Assets (ROA) and liquidity, and ultimately enhance shareholder value. As a consequence, firms might increase their core performance, as the exit of a loss-making business potentially increases continuing earnings. In turn, a higher core performance is valued more highly by investors (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014) which can be seen as an incentive to initiate a discontinued operation project.

Once this strategic decision is taken by the board, the second decision is how such a decision is going to be reflected in financial statements. This is an accounting decision where the CFO, audit committee and auditors play an important role in decision making. One possibility is to apply discontinued operations according to IFRS 5, or secondly, applying an ordinary sales transaction if the criteria to constitute a discontinued operation are not met (technically it follows the derecognition criteria of the individual IFRSs, e.g. IAS 38 *Intangible Assets* or IAS 16 *Property, Plant and Equipment* in combination with IFRS 15 *Revenue from Contracts with Customers*).

Due to the clear separation between continuing and discontinued operations and the potential increase of core earnings (continuing earnings) it is hypothesised that the application of discontinued operations better facilitates the communication of the new strategic direction, compared to the alternative scenario of applying an ordinary sales transaction. In an underperforming discontinued business, the potential increase in continuing earnings, and thus higher equity valuation, can be seen as an advantage.

On the other hand, applying discontinued operations is not a free accounting choice. The application requires a series of criteria, some of which have formalistic characteristics, for example commitment to a plan to sell the disposal group or initiation of an active programme to locate a buyer according to IFRS 5.8, while others are of a more substantial nature. A critical substantial requirement is defined under IFRS 5.32: discontinued operations need to "represent a *major* line of business or geographical area". However, IFRS does not give any guidance on that term but it indicates that a transaction must have a certain size. Lüdenbach and Hoffmann (2013) and Albrecht (2016) argue that materiality and individual circumstances such as size of the group, diversity or organisational structure can considerably influence this accounting decision.

Due to this lack of clarity in terms of the size feature of discontinued operation companies may be tempted under specific circumstances to opportunistically classify a discontinued operation by applying extensive management discretion to benefit from increased continuing earnings.

This leads to the first two hypotheses:

H1: *The vast majority of groups define a discontinued operation under IFRS in terms of size, as a transaction that is greater than the commonly known audit materiality benchmarks.*

H2: *The relative size of a discontinued transaction in relation to the continuing businesses does not have an influence on the incentive to apply discontinued operations.*

Once a business is classified as discontinued, the management of a firm could still come under pressure, particularly if the continuing business is underperforming and/or if the firm does not deliver what they have promised to the capital market, or in cases when the firm is close to violating an EBITDA-related lending covenant. In such a situation, classification shifting could potentially play a role in increasing continuing earnings.

With a discontinued operation, many internal and external parties are involved. While the external costs in most cases can be clearly attributed to either the continuing or discontinued businesses, the internal costs are subject to more judgement, for example internal mergers and acquisitions team, strategy team, lawyers. Moreover, the transparency requirements in connection with the discontinued operations are rather limited, as a company is only required to present a condensed income statement in the notes to the consolidated financial statements according to IFRS 5.33. The combination of both less attention by auditors and no impact on future earnings are considered (McVay, 2006; Barua, Lin and Sbaraglia, 2010; Haw, Ho and Li, 2011) as a less costly option to manipulate earnings compared to other earning management techniques such as use of accrual management or the manipulation of real activities. However, (McVay, 2006) argues that all earnings management techniques raise expectations of future performance which is based on a similar notion as initially applying discontinued operations, since investors value recurring items higher than non-recurring items positively impacting equity valuation (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014). Therefore, it can be concluded that the management has an opportunity to be opportunistically involved in classification shifting by increasing continuing earnings if there is an incentive to do so. This leads to the following general classification shifting hypotheses:

H3: Companies engage in classification shifting to increase continuing earnings

The pressure from the external investors or the overconfidence of the economic environment or simply an optimistic view on revenue and net income projections may have forced the management to previously issue rather ambitious earnings guidance to the capital market. Those companies applying discontinued operations can potentially make use of this classification earnings management instrument. In particular and similarly to Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), it is expected that companies that would report their actual earnings slightly below the target would be more tempted to shift expenses from the continuing earnings to discontinued operations. This leads to the second hypothesis in the classification shifting area:

H4: *Companies engage in classification shifting to increase continuing earnings in order to meet or beat analysts' forecasts*

Previous studies have shown that net debt/EBITDA ratio is widely used to comply with the covenants in a lending contract (Li, 2016; Yun, Wayne and Xiaoou, 2019). If a company fails

to comply with the lending contract covenants the lenders might experience higher interest (DeAngelo, DeAngelo and Wruck, 2002; Dichev and Skinner, 2002; Sufi, 2009; Butt, 2015), higher cost of new debt (Butt, 2019), decline in capital spending (Chava and Roberts, 2008) or introduction of capital spending restrictions (Nini, Smith and Sufi, 2009). In this context, discontinued operations are usually treated as non-recurring or one-off events that are excluded from the ratio calculation. By engaging in classification shifting a firm might comply with the lending-specific ratio. Therefore, firms might particularly engage in classification shifting in situations where the net debt/EBITDA ratio is tight in relation to the agreed target (Franz, HassabElnaby and Lobo, 2014; Yun, Wayne and Xiaoou, 2019).

H5: *Companies engage in classification shifting to increase continuing earnings in situations where the net debt/EBITDA ratio is tight in relation to common target benchmarks.*

A discontinued operation can be seen as a very complex transaction in the life of a group. As the presented financial information significantly changes from the previous continuing state, there is a need for additional information to interpret the discontinued numbers given in the primary statements. The aim of the preparers should be to give only meaningful and relevant information to allow for a transparent view on the future earnings potential of a group. The mandatory disclosure requirement outlined in IFRS 5 helps readers to interpret the numbers and plays an important role in presenting a transparent picture of the whole transaction.

Previous studies have shown that a positive correlation between size and compliance level exists (Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016). This is mainly because firms greater in size experience higher agency costs (Jensen and Meckling, 1976) due to their broad shareholder base and public interest, and thus providing extra information helps to reduce such costs (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008). Further, the size of a company is relevant in terms of experts involved in the preparation of consolidated financial statements, as more qualified and experienced people are likely to be employed in a large multinational company. The larger the company, the more public attention it receives, and the more the readers are interested in the financial statements. Therefore, a positive association is expected between the natural logarithm of total assets and the compliance of mandatory disclosures.

H6: *The size of a company is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations*

The audit firm is a key factor of quality in producing a company's annual report. Audit firms support their clients with valuable insights and can significantly improve the quality of financial statements. All Big Four companies have an IFRS desk where people specialising in IFRS compliance review the financial statements on behalf of the audit team. Such a specialised team is only present in the Big Four audit firms, as it is not feasible for smaller audit firms. In addition, previous studies (Amiraslani, Latridis and Pope, 2013; Glaum et al., 2013b; Demir and Bahadir, 2014; Lopes, 2014; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018) confirm a positive relationship between the level of compliance with mandatory disclosure and auditor type. This leads to the following hypothesis:

H7: *The auditor type is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations*

The financing structure influences the reporting to the investors. The external reporting requirements for a full equity-financed firm is likely to be simpler compared to a firm comprising a complex financing structure containing several external banks. A financing structure involving many banks is more exposed to questions from lenders and therefore tends to have higher agency costs (Jensen and Meckling, 1976). It is in the interests of the company to be transparent and compliant with IFRS disclosure requirements to reduce this information asymmetry. Although extant literature shows mixed results on the association between leverage and mandatory disclosures, both positive association (Hartwig, 2013; Lucas and Lourenço, 2014; Agyei-Mensah Ben, 2019) and negative association (Lopes, 2014; Appiah et al., 2016) it is expected that the compliance level positively correlates with the leverage ratio of a company reporting discontinued operations.

H8: *The leverage ratio (total debt divided by total reported assets) is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations*

Before entering into research design aspects, Table 4 summarises the research questions, hypotheses, main theoretical aspects and a relevant selection of past literature in all three research areas:

Summary Research Area, Research Questions, Theoretical Foundations, and Hypotheses

Research Area	Research Question	Hypotheses	Main Theoretical Aspects / Foundations	Most relevant past literature
Interpretation of a major line of business at the initial classification	**Q1:** What is the motivation that drives firms listed on the British, German and Swiss stock exchanges to initially classify components as discontinued operations under judgemental uncertainties? **Q2:** How do firms interpret the size feature in the term "separate major line of business or geographical area" at initial classification?	**H1:** The vast majority of groups define a discontinued operation under IFRS in terms of size as a transaction that is greater than the commonly known audit materiality benchmarks. **H2:** The relative size of a discontinued transaction in relation to the continuing businesses does not have an influence on the incentive to apply discontinued operations.	**Refocusing hypothesis** (Dranikoff, Koller and Schneider, 2002; Lord and Saito, 2017; Lord and Saito, 2019) **Financing hypothesis** (Lasfer, Sudarsanam and Taffler, 1996; Otsubo, 2013; Lord and Saito, 2019), **information asymmetry hpothesis** (Majluf and Myers, 1984; Nanda, 1991)	**Standard setter:** IFRS 5 standard and (IFRIC, 2016) / **Big four proclamations:** (KPMG, 2015/16; PWC, 2017a; Deloitte, 2018a) / **Expert opinions** of (Rogler, Tettenborn and Veit Straub, 2012; Rogler, Tettenborn and Veit Straub, 2012; Lüdenbach and Hoffmann, 2013; Pellens et al., 2014; Albrecht, 2016).
Classification shifting	**Q3:** Do firms listed on the British, German and Swiss stock exchanges engage in classification shifting?	**H3:** Companies engage in classification shifting to increase continuing earnings. **H4:** Companies engage in classification shifting to increase continuing earnings in order to meet or beat analysts' forecast. **H5:** Companies engage in classification shifting to increase continuing earnings in situations where the Net debt/EBITDA ratio is tight in relation to common target benchmarks.	**Agency theory** (Jensen and Meckling, 1976; Shleifer and Vishny, 1997; Holthausen and Leftwich, 1983) and (Leftwich, 1983)	**Model design:** (McVay, 2006) / **Specific discontinued classification shifting studies:** (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019) / **Valuation aspects:** (Kaplan, Kenchington and Wenzel, 2019).
Mandatory IFRS discontinued disclosures	**Q4:** To what extent do firms listed on the British, German and Swiss stock exchanges comply with mandatory disclosure items while applying discontinued operations and what are the determinants of compliance?	**H6:** The size of a company is positively associated with the level of mandatory compliance with disclosures arising from discontinued **H7:** The auditor type is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations. **H8:** The leverage ratio (total debt divided by total reported assets) is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations.	**Agency theory** (Jensen and Meckling, 1976; Watts and Zimmerman, 1983), **information cost theories** (Dye, 1986; Verrecchia, 2001)	**IFRS 5 Standard / related comprehensive disclosure studies including IFRS 5** e.g. (Tsalavoutas, 2011; Tsalavoutas and Dionysiou, 2014; Boshnak, 2017; Dawd, 2018) / **Specific studies focusing on Goodwill and goodwill impairment** e.g. (D'Alauro, 2013; Florio, Lionzo and Corbella, 2018) and (Mazzi, Slack and Tsalavoutas, 2018) / **Structured literature review** of (Tsalavoutas, Tsoligkas and Evans, 2020).

Table 4: Summary Research Area, Questions, Theoretical Foundations, Hypotheses

4 Research design

4.1 Introduction

The purpose of this chapter is to describe the general research design considerations applicable for all three major areas of research: (i) classification of a discontinue operation, (ii) classification shifting analysis and (iii) mandatory disclosure analysis. The chapter discusses the conceptual background to the research followed by a discussion about the choice of countries and differences in regulation practices and the data selection. The individual research methods used for all three major topics are presented in Chapter 6 along with the test results.

4.2 Research philosophy and conceptual framework

Research philosophy deals with the views and assumptions that underlie the research topic. The author's philosophical assumptions about a research topic influence the research questions and the interpretation of the results (Deetz, 1996; Burrell and Morgan, 2017). Philosophical assumptions and beliefs are deemed the foundation in social research, where Burrell and Morgan (2017) argue that four sets of assumptions, namely ontology, epistemology, human nature, and methodology can be identified in social science. Ontology contains assumptions which concern "the very essence of the phenomena under investigation" Burrell and Morgan (2017, p.1) while epistemology refers to the assumptions on the grounds of knowledge (Burrell and Morgan, 2017, p.1). Further, human nature is seen as the relationship between human beings and their environment. According to Burrell and Morgan (2017) these three assumptions have direct implications for the choice of methodology, including quantitative versus qualitative approach. Similarly, Chua (1986) describes

- beliefs about knowledge (epistemology)
- beliefs about physical and social reality (ontology)
- and the relationship between theory and practice (axiology)

as common assumptions in accounting research. Bryman (2001) points to two ontological positions, positivism and interpretivism. Positivism is interpreted as the empirical evidence representing the only firm foundation for knowledge, whereas interpretivism stands for the notion that the truth can only be interpreted and not measured.

4.2.1   Ontological assumptions

Ontology is defined as "claims and assumptions that are made about the nature of social reality" (Blaikie, 2010). Ontology or inventory refers to what sort of things exist in the social world, and the way a researcher views the world and what they consider to be real (Bisman, 2010). Dilts and DeLozier (2000) argue that there is no right or wrong answer, as different people view topics differently depending on their role, values set or background: "the map is not the territory" and each researcher filters for preferences in his world. A positivist view might be that there is only one observable reality. From an interpretivist perspective there must be multiple realities constructed by individuals together, and where the social meanings are continually being changed and revised through social interaction (Bryman, 2001). With regard to the present study, mandatory disclosures of discontinued operations can be observed, and the extent to which firms comply with IFRS regulations can be measured. In this example the reality is not to capture meanings and experience of the firms. Similarly, the presence of potential earnings management is based on a measurable expectation and not on the individual's perceptions. Thus, this thesis adopts a positivist view.

4.2.2   Epistemological assumptions

Epistemological assumptions include the theory of knowledge, its nature and limits and how people acquire and accept knowledge (Bisman, 2010). The question arises as to what kind of information counts as acceptable knowledge and how it should be acquired and interpreted (Chua, 1986, p.604). From a positivist standpoint and as a basic belief, the knowledge is gained through objective and quantifiable research and is value free (Easterby, Thorpe and Lowe, 1991). Interpretivism is dominated by an empathic understanding, where the world is socially constructed and subjective (Easterby, Thorpe and Lowe, 1991). The research content of this study tends to be more on objectivity rather than the understandings from the participants.

4.2.3   Axiological and methodological consideration

The role of values is dominated by objectivity, and values are free in a positivist setting, whereas in an interpretivist context the values tend to rely more on subjectivity and the intuition of the researcher (Easterby, Thorpe and Lowe, 1991). In view of the formulated research questions of this thesis, both pure forms of positivism and interpretivism are not suitable in defining an appropriate research method. On the one hand, the research questions contain few interpretivist characteristics, and thus an appropriate research method should lie more on

the side of the positivism paradigm. This is supported by the fact that the research topic involves the analysis of historical data, involves a sufficient sample size to allow generalisation (Easterby, Thorpe and Lowe, 1991) and tends to use a structured approach to investigate causalities by hypothesising first, and then proving or disproving the hypothesis (Easterby, Thorpe and Lowe, 1991). On the other hand, behavioural elements might also influence the study, as different opinions and potential management discretion of CFOs and finance professionals is included in the financial information. This should be taken into account when interpreting the results.

In addition, the research philosophy and its derived research strategy is also driven by extant accounting literature that tends to be of a positivist nature, and usually makes use of quantitative rather than qualitative research methods (Barua, Lin and Sbaraglia, 2010; Curtis, McVay and Wolfe, 2014; Mazzi, Slack and Tsalavoutas, 2018; Ji, Potepa and Rozenbaum, 2019).

A further distinction inherently associated with methodology is the question of whether the study aims to test a theory (deductive approach) or build a new theory (inductive approach). The deductive approach comprised developing an assumption based on the existing theories and forming a research plan to test this assumption (Wilson, 2014), whereas under a inductive approach no theory is applied at the beginning of the research, and the researcher enjoys complete freedom in determining the course of the research (Zalaghi and Khazaei, 2016, p.25). As this study is obviously on the positivist side, the present study employs a deductive approach in developing and testing all hypotheses.

In consideration of the philosophical assumptions and extant accounting literature, a quantitative research approach appears to be more suitable to address the formulated research questions.

4.3 Data and methodological framework

4.3.1 Introduction

Having discussed and concluded that a quantitative research approach is more appropriate in view of the research questions and formulated hypotheses, the question arises as to which country/region, or even several countries, should be in the scope of the study, and how the data collection process can be structured. The inclusion of several countries is associated with different institutional factors such as laws or enforcement controls that might affect the findings. In this context a decision also needs to be taken as to whether all or only specific industries should be included, and if and at which level a potential size threshold should be introduced to limit the number of observations. Thus, the selection of countries including regulation practices and the data selection process is discussed in the following sub-sections.

4.3.2 Selection of the countries and differences in regulation practices

This study aims to focus on a European IFRS setting, as previous studies, for example (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019), particularly in the field of classification shifting, are performed in the US and based on US GAAP. Further, Tsalavoutas, Tsoligkas and Evans (2020) confirm in their structured literature review that multi-country studies about mandatory IFRS disclosures are few, or not available. Thus, it appears that the inclusion of several countries seems more appropriate than solely focusing on one particular European country. The inclusion of different countries allows the observation of country-specific variations in all models, and provides a better understanding of potential country-specific diversities.

The inclusion of all European countries does not seem to be feasible due to resource implications of manual data collection, mainly in the field of mandatory disclosures. As a result, the selection in this thesis is reduced to a few countries which tend to report strong GDP (Gross Domestic Product) numbers and thus have a functioning capital market, as the study relies on publicly disclosed annual reports. Therefore, three geographical regions are selected: the UK, Germany and Switzerland. However, this selection encompasses different institutional settings. In this context, La Porta et al. (1998) argue that commercial laws come from two traditions: common law, which is of English origin, and civil law which derives from Roman law. As a consequence, the UK is known as a common law country, while Germany and Switzerland are both civil law countries (La Porta et al., 1998, p.1115; Leuz, Nanda and Wysocki, 2003, p.516). Theory shows that investors in civil law countries experience weaker legal rights than

in common law countries (La Porta et al., 1998) [17]. Weaker legal rights in turn might have an impact on the extent to which firms use earnings management techniques, as Leuz, Nanda and Wysocki (2003) document that economies with relatively dispersed ownership, strong investor protection, and large stock markets exhibit lower levels of earnings management. These attributes are mostly related to cluster one, which includes the UK, whereas Switzerland and Germany are ranked in cluster two. As a consequence, different institutional factors might influence the presence of earnings management.

Similarly, in a later study Leuz (2010) confirms differences in countries' reporting regulations and practices based on different institutional characteristics [18]. The analysis of Leuz (2010, p.244) shows that the UK is ranked higher than Germany and Switzerland, which supports the notion that common law countries experience stronger legal rights.

On the other hand, Kaufmann, Kraay and Mastruzzi (2004) show no material differences between the UK, Germany and Switzerland under regulatory quality [19]. Furthermore, Brown, Preiato and Tarca (2014) explicitly focus on accounting and audit enforcement by using a self-constructed score. In their study they assess factors like power of the enforcement body to set accounting/auditing standards, reviewing activities by the enforcement body, level of resourcing or enforcement action taken by the body. Their test results reveal that UK scored best followed by Switzerland and Germany, which underlines different accounting enforcement systems between the countries in scope.

As a result, it seems obvious that institutional differences, particularly between common law (UK) and civil law countries (Germany/Switzerland) might impact the results of the study. On the other hand, IFRS regulations are equal for all financial preparers in all three countries, and audit firms are required to issue an audit opinion as to whether firms report the financial statements in conformity with IFRS.

Furthermore, the analysis of the frequencies in applying discontinued transactions between firms listed on the Swiss, German and British stock exchanges in Figure 6 shows an upward trend from 2012 to 2017 for UK and German listed firms, whereas for Swiss firms the opposite

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[17] La Porta shows that laws vary across countries partly due to the different legal origin. Differences are observed in legal rules pertaining to rights of investors and the quality of enforcement of these rules.
[18] According to (Leuz, 2010) the clusters include a set of institutional variables and regulatory variables plus two variables that capture firms' reporting practices, and an updated earnings management and opacity score. UK as a common law country is ranked in the highest cluster, one out of three, whereas Germany and Switzerland as civil law countries are placed in the second cluster.
[19] The regulatory quality refers to the years 2015 to 2018 as the study has been subsequently updated.

is seen. In particular in the years 2010 to 2015, Switzerland shows a higher relative frequency in the application of discontinued operations. The difference in frequencies could have been affected by several factors, such as new investors entering in the Swiss market, buying opportunities, or simply a concentration of loss-making and diversified groups aiming to refocus their businesses. Overall, the Swiss market shows that industrial groups in particular are more prominent within the sample and that Swiss firms might be more concerned with the future value and cash flow generation than their German and UK peers (for a discussion refer to 5.6). Given this development, the thesis primarily focuses on Swiss firms where Germany as a further civil law country is selected as a control country. Firms listed on the British stock exchange deemed as a common law country is selected as a comparison market.

4.3.3   Study sample, data collection and time period

This thesis contains solely the collection of secondary data. Secondary data is used from past publicly available annual reports, investor relations presentations and data retrieved from databases provided by Bloomberg as a financial provider. This secondary data is used to examine the classification of discontinued operations, to investigate the determinants of disclosure compliance and the analysis of the presence of classification shifting.

The study sample consists of companies listed on the British, German and Swiss stock exchange. The compilation of secondary information is the collection of year-end annual reports of firms applying discontinued operations.

The study sample is divided into two parts: a primary sample consisting of companies and reporting events between 2015 and 2018 for analysing the initial classification of discontinued operations as well as the disclosure analysis. The second main sample includes reported year-end data from 2009 to 2017 and is used for the classification shifting model.

The reason for the shorter primary sample is that a considerable amount of data and information used for disclosure (Q4) and initial classification of discontinued operations (Q1 and Q2) is not retrievable from the Bloomberg database. Instead, this information was manually collected from publicly available annual reports, investor presentations and company websites. In terms of classification shifting (Q-3), the maximum available historical time period was used.

The following Table 5 outlines the observations used in this thesis. Columns A and C represent the total number of observations used for the descriptive analysis between firms with and

without applying discontinued operations. Columns B and D represent the total sample size used for the classification shifting topic, while the total number of assessed annual reports for the disclosure analysis is displayed under Column E. Finally, Column F includes all year-end observations that are used to investigate on the relative size impact at the initial classification of discontinued operations.

	Composition of the samples							
	Sample: IFRS adopters listed on the UK, German and Swiss stock exchange, > CHF 10 million reported year-end revenue, and without industry specific firms [1]							
Year	Firms/observations without reporting discontinued operations		Firms/observations with reporting discontinued operations				Ratios	
	Description/ characteristics Discop	Classification shifting	Description / Characteristics Discop	Classification Shifting	Disclosure analysis	Initial classification discontinued operation	Firms with reporting discontinued operations / total observations	Firms with reporting discontinued operations / total observations
	A	B	C	D	E	F	G G=C/(A+C)	H H=D/(B+D)
2018 [2]	1'115	n/a [3]	164	n/a [3]	160	95	12.8%	n/a
2017	1'128	836	212	161	169	94	15.8%	16.1%
2016	1'140	849	203	149	163	91	15.1%	14.9%
2015	1'217	853	146	123	115	62	10.7%	12.6%
2014	1'231	865	153	133	n/a [4]	n/a [4]	11.1%	13.3%
2013	1'229	898	148	120	n/a [4]	n/a [4]	10.7%	11.8%
2012	1'227	914	153	132	n/a [4]	n/a [4]	11.1%	12.6%
2011	1'252	892	173	147	n/a [4]	n/a [4]	12.1%	14.1%
2010	1'221	768	174	121	n/a [4]	n/a [4]	12.5%	13.6%
2009	1'275	744	175	102	n/a [4]	n/a [4]	12.1%	12.1%
TOTAL	**12'035**	**7'619**	**1'701**	**1'188**	**607**	**342**	**12.4%**	**13.5%**
UK	64.4%	65.8%	60.6%	60.9%	65.6%	68.7%	48.5%	48.1%
Germany	29.0%	27.8%	31.5%	30.3%	27.8%	24.6%	52.1%	52.2%
Switzerland	6.1%	6.4%	7.9%	8.8%	6.6%	6.7%	56.4%	57.9%
Firms	**2'129**	**1'535**	**561**	**412**	**339**	**268**	**20.9%**	**21.2%**

[1] Financial institution, funds and insurance companies are excluded. A detailed list of the specific industry subgroup is given in appendix IV
[2] 1st October 2019 marks the cut off date for retrieving 2018 data from Bloomberg
[3] Firms reporting year-end 2018 are not in scope of classification shifting as one lead and lag year is required for inclusion to the sample
[4] Reporting years 2009 - 2014 are not in scope of the IFRS disclosure analysis and the analysis of initial classification of a discontinued operation

Table 5: Overview composition of the samples used

The data used in this study is collected as follows:

- As a first step, all firms listed on the UK, German and Swiss Stock exchanges were selected between 2008 and 2018 [20]. This includes all firms listed at the main segment but also at the secondary segment in all countries under review.
- Second, firms following other GAAP than IFRS were excluded.
- Third, observations in the insurance business as well as banks and other financial institutions have also been excluded from the sample due to their different nature of doing business, high leverage and different characteristics in reporting financial information [21]. Further, these firms are subject to different regulations. The exclusion of these firms is consistent with prior literature in classification shifting and mandatory disclosures (Haw, Ho and Li, 2011; Mazzi et al., 2017; André, Dionysiou and Tsalavoutas, 2018) (a detailed overview of the exclusion of industry subgroups is given in Appendix IV).
- Fourth, and similar to other classification shifting studies (McVay, 2006; Barua, Lin and Sbaraglia, 2010; Haw, Ho and Li, 2011), small sized listed firms have also been excluded. 'Small-sized' in the context of this study is defined as firms with an annual turnover below CHF 10 million. This is similar to European Commission (2020, p.11) where small enterprises are defined as those whose annual turnover does not exceed EUR 10 million.
- Finally, to be included in the final sample of Table 5 all information related to the variables used in the models must be available. In terms of the disclosures analysis the company's annual report was collected from the company's webpage.

From Table 5 it can be noted that on average each firm is exposed in reporting discontinued operations after 7 to 8 years, which corresponds to 12.4% and 13.5% respectively. These percentages are consistent with the prior study consisting of Australian listed firms (Chagnaadorj, 2018) that reveals a ratio of 14.3% for the sample used between 2005 and 2016.

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[20] The year 2008 is also selected as the classification shifting analysis requires one year of lag financial information.

[21] Financial institutions, funds and insurance firms are regulated by financial-markets regulators which influences the nature and extent of reporting financial statements under IFRS. In addition, the inclusion of financial firms would also distort many key financial metrics as financial firms operate on a high leverage that is normal for these firms which is in contrast to non-financial firms where high leverage is associated with distress (Fama and French, 1992, p.429).

Throughout the study, all amounts presented are in Swiss Francs (CHF) as Switzerland is selected as the country of primary interest (base country). The corresponding assets and liabilities and income statement numbers denominated in currencies other than CHF (GBP, EUR) are translated using period-end or average foreign exchange rates as provided from Bloomberg.

4.3.4   Other assumptions

With reference to the first hypotheses (H1) it is assumed that the vast majority of firms define a discontinued operation under IFRS in terms of size: as a transaction that is greater than the commonly known audit materiality benchmarks. Due to the lack of past empirical literature on the initial classification of discontinued operations, it is assumed that over 90% of all firms initially applying discontinued operations classify transactions that are greater than 2% of their relative discontinued revenues to continuing revenues.

5 Categorisation and financial characteristics of discontinued reporting events

5.1 Introduction

Having collected the different samples and concluded on a quantitative research approach to address the research questions and related hypotheses, the question arises whether the discontinued observations could be further divided into homogenous groups of reporting events, and whether differences in financial characteristics exist between firms reporting with or without discontinued operations.

A categorisation into different types would allow a more in-depth analysis of the applied models in this thesis and provide the opportunity to challenge the statistical outcome in sensitivity analyses. Furthermore, an understanding of potential differences between firms with and without reporting discontinued operations on key financial metrics (e.g. sales growth, return on asset, liquidity quick ratio or equity as percentage of total assets) challenges the existing literature on refocusing discussed under 3.2.4, and financing hypotheses discussed under 3.2.5.

Besides an understanding of the financial characteristics, the purpose of this chapter is further to find a pattern of discontinued reporting events and to develop such a typing that can be used as a basis for answering H1 and H2 in terms of initial classification of discontinued operations, but also to verify the test results of the presence of classification shifting under H3. Further, the typing would allow different disclosure models to be built, helping to understand whether H6 to H8 change if the structure of reporting events changes.

5.2 Developing categorisation of reporting events

The IFRS standards or other literature does not discuss and does not set out a terminology for reporting events of discontinued operations. However, the review of the manually collected annual reports of discontinued reporting events between 2015 to 2018 reveals that different types of reporting events exist. Differences are identified in characteristics (i.e. timing of occurrence, the number of mandatory IFRS disclosures involved, restatement of comparative figures, initial vs. subsequent application of the standard). Therefore, a categorisation of discontinued reporting events appears to be appropriate, which allows a broad division into three main categories:

- Type A contains firms/reporting events that are in process of selling their assets and liabilities that are held for sale.
- Type B consists of firms/reporting events, which are sold during this reporting period whereas
- Type C includes firms that report adjustments to assets/liabilities relating to a transaction that was completed in a previous reporting period.

Two additional subgroups B1 (cases where a substantial part of the business is to be abandoned) and B2 (firms that have acquired a subsidiary exclusively with a view to resale) are also considered in the typology. However, the number of such cases is not material in relation to the main groups, and these reporting events are either treated as type B events or otherwise stated.

5.3 Characteristics of the different reporting types

This sub-section describes the characteristics of each reporting type in further detail:

In general, in a type A reporting event, the firm typically reports assets and liabilities held for sale if the criteria for presenting a discontinued operation under IFRS 5 are met. Prior to the classification of the assets and liabilities held for sale, the company usually announces publicly the intention to dispose of an operating segment or a major business line in the foreseeable future (refer to Figure 4 to the point of the potential announcement). From an accounting and IFRS reporting perspective, the most critical aspect and first judgemental area is to determine whether all criteria are met for the initial classification. A proper assessment is critical at this point, as the signing and closing date of the deal might still be far away. If the criteria for classifying the assets/liabilities as a discontinued operation are met, a comparison of the carrying value of the disposal group with a prospective realisable fair value less costs to sell needs to be performed. This is a second major judgemental area, where the company often has no binding offers from potential buyers at this time. Furthermore, the prior year income statement in year 20_X0, including possible segment reporting, needs to be restated to reflect the new business segmentation. In the reporting event of a type A company, the firm still has control over their assets and liabilities.

Type B year-end reporting firms do not report assets and liabilities held for sale anymore. Instead of this, they are required to report the classes of assets/liabilities that were sold during the reporting period. At the closing date of a type B firm, the control over the assets and liabilities is gone, as normally, the closing of the deal marks the date of losing control over the

assets. Prior to the closing of the deal, the signing takes place. This could have happened in the same reporting period or in the prior year's reporting period. In between the two dates (signing and closing), usually certain deal-related requirements need to be met, for example calculation of normalised working capital or the final approval of the competition authorities. Type B firms are required to recognise the gain or loss from disposal. If a sale of a subsidiary is involved in a discontinued transaction, then all amounts previously recognised in other comprehensive income in relation to that subsidiary need to be accounted for. This mainly affects the so-called CTA (cumulative translation differences) that might need to be reclassified from equity to the income statement.

Type C firms have already sold their assets and liabilities in a previous reporting period. However, type C firms still need to report the effects of discontinued operations in the income statement, as for example, the conditions of a previously recognised deal-related warranty/indemnity provision may need to be adjusted in this subsequent period. This could have a positive or negative impact on the income statement, and could result in income statement effects many years post completion of the deal. Another typical case is the remeasurement of an agreed contingent sales price as part of the previous sale and purchase agreement (SPA).

Type B1 year-end reporting firms have made the decision to abandon a component of their business that represents a major line of business. A key feature of these reporting events is that they do not classify assets as held for sale, because its carrying amount will be recovered principally through continuing use. As a result, those firms do not cease the depreciation upon initial classification. Typically, these firms are not able to find a buyer and thus it appears to be cheaper to liquidate/cease the operations. This type of reporting event is rare compared to the sale of a business.

Type B2 reporting events include discontinued transactions with a view to resale. Typically, this might be the case in an event where a firm has made an acquisition of which a part is unwanted. As a result, firms classify this undesired business as discontinued operations, usually at the same time as the closing of the acquisition. This might be the case if the acquisition would not have happened without buying this "undesired" part. Another reason might be that competition authorities impose conditions for an acquisition. For example, subject to the sale of parts of acquired assets, an acquisition can be closed in order to avoid a dominant market position. Important is that in IFRS5.32(c) the word "major" does not apply to those

unwanted businesses. This allows firms to classify rather small components to discontinued operations. As with type B1, these reporting events are rarely observed in practice.

5.4 Milestones in discontinued reporting events

Having set and discussed the different reporting types A, B and C, the following section outlines the milestones throughout a generic discontinued operations project. Figure 4 depicts a generic reporting cycle of a discontinued operation along a timeline.
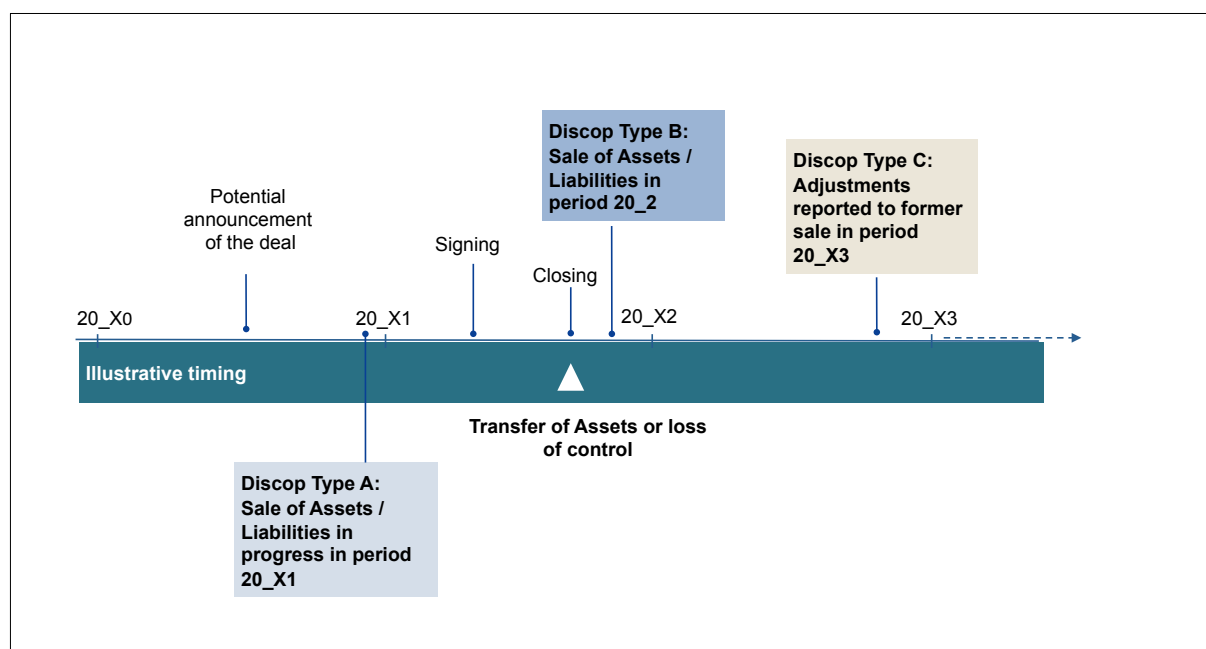
Figure 4: Illustrative timing and type of reporting events

Closing date of a transaction

At the closing date the seller usually passes the control of the shares of a subsidiary (share deal) or the company's assets/liabilities (asset deal) to the buyer. As such, all assets/liabilities or shares associated with the sale are derecognised at this date. According to IFRS 10.6 and IFRS 10.7 *Consolidated Financial Statements* a firm loses control of a subsidiary from the date when it is not exposed anymore to variable returns from its involvement with the investee and no longer has the ability to affect those returns through its power over the investee. The timing of the transfer of assets other than in a share deal is set out in IFRS 15 *Revenue from Contracts with Customers*. IFRS 15.31 states that an asset is transferred when the customer obtains control of that asset. Subject to the individual agreement between the seller and buyer,

normally all significant risks and rewards of ownership are transferred at the closing date. This date usually also marks the date where the customer has the legal title of the assets transferred. In practice the share deal dominates, as it provides a simplified legal transfer of the assets involved, and usually tax advantages for the seller.

<u>Timing aspects between announcing, signing and closing a deal</u>

The period of time between the public announcement and the closing date of discontinued operations can vary considerably from company to company. The main driver for this might be in the number of interested buyers present in such a process. If the management expects that various buyers are interested to buy the disposal group, it could be advisable to communicate its intention at an early stage of the process. This allows the company to collect multiple bids and potentially maximise the purchase price. On the other hand, if only one or two potential interested parties are located, and the management is not clearly committed to a plan to sell the disposal group then it would make more sense to just communicate the signing of the contract.

In the first case it seems likely that at the time of communication the company intends (and is able to) initially apply a discontinued operation, provided all criteria are met. As for the second case, the transaction would probably not qualify as a discontinued operation before the signing date.

Therefore, the individual action taken by the management in this period influences the timing of the initial classification of a disposal group to discontinued operation, provided that the sale transaction is regarded as highly probable [22].

Furthermore, only transactions that form a component of an entity and represent a major line of business are entitled to constitute a discontinued operation. In IFRS 5.32 it states that a discontinued operation is a component for an entity that either has been disposed of, or is classified as held for sale, and represents a separate major line of business or geographical area of operations, is part of a single co-ordinated plan to dispose of a separate major line of business or geographical area or operations, or is a subsidiary acquired exclusively with a view to resale.

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[22] According to IFRS 5.8 a sale is highly probable, if the appropriate level of management is committed to a plan to sell the asset and an active programme to locate a buyer and complete the plan is initiated. Whilst these criteria the assets must be actively marketed for sale at a price that is reasonable in relation to its current fair value. In addition, the sale should be expected to qualify for recognition as a completed sale within one year from the date of classification.

Each case is individual and there is judgement involved regarding whether and when a transaction qualifies for a discontinued operation. Major judgemental aspects can be seen of what is deemed to be sufficient evidence of management's commitment to sell, or the availability of the disposal group for immediate sale in its present condition, marketed at a reasonable price, or an assessment of the likelihood of obtaining shareholder approval when required. In addition, there might be significant judgement involved in determining whether there is a single co-ordinated plan in place to sell a separate *major* line of business or geographical area of operations.

5.5   Financial characteristics of discontinued firms vs. non-discontinued firms

The following Table 6 shows the descriptive statistics of firms with and without applying discontinued operations from 2009 to 2018. Panel A displays all year-end reporting events of firms not applying discontinued operations, whereas Panel B shows all firms applying discontinued operations. As discussed under Table 5 the following analysis in this section includes 1,701 year-end firm observations with reporting discontinued operations and 12,035 without reporting discontinued operations. This corresponds to 561 discontinued reporting firms and 2,129 firms without reporting discontinued operations.

The leading firms in terms of size (revenue as proxy) of selling a business segment in a discontinued operation transaction for the analysed period, are E.ON. (sale of Uniper) followed by Bayer AG (sale of material science segment) and Novartis (vaccines division).

As discontinued operations are usually reported in series over several reporting events and years it might be possible that the same firm is included multiple times in the below descriptive statistics.

The different variables are classified into size indicators, financial performance indicators, liquidity indicators and financing indicators, which are described as below, and where fundamental differences are visible between continuing and discontinued reporting events.

N=12'035	T-test	Wilcox.	Indicator	Mean	Median	Std. Deviation	Percentiles	
							25	75
SALES t	***	***	Size	2'303	180	8'046	50	924
△SALES t	***	***	Financial performance	0.089	0.029	0.388	-0.069	0.135
△ SALES t+1 [1]	***	***	Financial performance	0.067	0.033	0.263	-0.056	0.132
EBITDA t	***	***	Size	359	23	1393	4	137
EBITDA_Margin t	***	***	Financial performance	0.158	0.121	0.268	0.055	0.223
DO t	n/a	n/a	n/a	0.000	0.000	0.000	0.000	0.000
%DO t	n/a	n/a	n/a	0.000	0.000	0.000	0.000	0.000
%DO_Pos t	n/a	n/a	n/a	0.000	0.000	0.000	0.000	0.000
%DO_Neg t	n/a	n/a	n/a	0.000	0.000	0.000	0.000	0.000
TOTAL_ASSETS t	***	***	Size	3'102	255	11'071	73	1'322
NOA t	***	***	Size	1'793	119	6'709	30	644
EQUITY t	***	***	Size	1'172	112	4'125	32	522
EQUITY_Ratio t	***	***	Financing	0.477	0.488	0.221	0.330	0.637
BM t			Other	2.366	1.537	2.878	0.893	2.847
OCF t	***	***	Financial performance	0.078	0.075	0.105	0.025	0.129
OPERATING_CF_Margin t	**	**	Financial performance	0.093	0.084	0.191	0.026	0.168
ROS t	**	***	Financial performance	0.040	0.043	0.328	0.003	0.104
ROA t	***	***	Financial performance	0.043	0.053	0.112	0.017	0.091
EMPLOYEES t [2]	***	***	Other	7'596	806	22'162	216	4'034
EBITDA per Employee t [2]	**	***	Financial performance	0.490	0.245	0.791	0.154	0.443
QUICK_Ratio t	***	***	Liquidity	1.208	0.883	1.161	0.548	1.412

[1] Total available observations for the variable △ SALES t+1 are 9'909.
[2] Total available observations for the variables EMPLOYEES t and EBITDA per Employee t are 10'998.
*, **, *** Indicate significant differences between Panel A and Panel B using a one tailed t-test at the 10%, 5%, and 1% levels, respectively.
All variables are winsorized at 1 percent and 99 percent (except discontinued variables).

Table 6: Descriptive Statistics firms without reporting discontinued operations

The following table provides additional discontinued specific attributes of typical firms reporting discontinued operations:

Panel B: Firms reporting discontinued operations

N=1'701	T-test	Wilcox.		Mean	Median	Std. Deviation	Percentiles 25	75
SALES t	***	***	Size	5'028	773	11'676	169	3'501
△SALES t	***	***	Financial performance	-0.009	-0.026	0.316	-0.137	0.067
△ SALES t+1 [1]	***	***	Financial performance	0.018	0.002	0.220	-0.080	0.090
EBITDA t	***	***	Size	681	87	1835	11	446
EBITDA_Margin t	***	***	Financial performance	0.126	0.111	0.232	0.044	0.191
DO t	n/a	n/a	Discop	-74	0	1'922	-10	6
%DO t	n/a	n/a	Discop	0.003	0.000	0.333	-0.010	0.010
%DO_Pos t	n/a	n/a	Discop	-0.038	0.000	0.209	-0.010	0.000
%DO_Neg t	n/a	n/a	Discop	0.041	0.000	0.253	0.000	0.010
TOTAL_ASSETS t	***	***	Size	7'049	981	17'402	220	4'692
NOA t	***	***	Size	3'744	475	9'774	90	2'293
EQUITY t	***	***	Size	2'422	354	6'108	88	1'580
EQUITY_Ratio t	***	***	Financing	0.402	0.410	0.219	0.272	0.542
BM t		***	Other	2.344	1.696	2.809	0.965	2.776
OCF t	***	***	Financial performance	0.064	0.064	0.087	0.025	0.104
OPERATING_CF_Margin t	**	***	Financial performance	0.084	0.076	0.168	0.026	0.147
ROS t	***	***	Financial performance	0.017	0.034	0.327	-0.018	0.097
ROA t	***	***	Financial performance	0.025	0.044	0.122	-0.003	0.082
EMPLOYEES t [2]	***	***	Other	16'681	3'511	33'191	742	15'404
EBITDA per Employee t [2]	***	**	Financial performance	0.413	0.244	0.638	0.153	0.399
QUICK_Ratio t	***	***	Liquidity	0.965	0.758	0.820	0.527	1.143

[1] Total available observations for the variable △ SALES t+1 are 1'419.
[2] Total available observations for the variables EMPLOYEES t and EBITDA per Employee t are 1'622.
*, **, *** Indicate significant differences between Panel A and Panel B using a one tailed t-test at the 10%, 5%, and 1% levels, respectively.
All variables are winsorized at 1 percent and 99 percent (except discontinued variables).

Table 7: Descriptive Statistics Discontinued Reporting Firms

The following table documents the variables definition used in panel A and B.

Definition variables analysis firms with and without reporting discontinued operations

Variable	Variable label	Definition
Sales	SALES t	Reported revenues in CHF millions
Change in Sales	△SALES t	Percentage change in sales; (SALESt – SALESt-1)/SALESt-1
EBITDA	EBITDA t	Reported EBITDA in CHF millions
EBITDA Margin	EBITDA_Margin t	EBITDA t divided by SALES t
Discontinued operations	DO t	Reported discontinued operations in CHF millions
Discontinued operations as a percentage of sales	%DO t	Reported discontinued operation result divided by SALES t
Positive discontinued result as a percentage of sales	%DO_Pos t	Reported positive result scaled by SALES t and multiplied by (-1)
Negative discontinued result as a percentage of sales	%DO_Neg t	Reported negative result scaled by SALES t and multiplied by (-1)
Total assets	TOTAL_ASSETS t	Total assets reported assets in CHF millions
Net operating assets	NOA t	NOA t = (Total Assets-Cash-Short Term Investments)-(Total Assets-Total Debt-Equity)
Total equity	EQUITY t	Reported equity in CHF millions
Equity ratio	EQUITY_RATIO t	EQUITY t as a percentage of TOTAL_ASSETS t
Market value to book value	BM t	Ratio of market value to book value
Operating Cash Flow scaled by assets	OCF t	Operating cash flow scaled by lagged reported total assets
Operating Cash Flow Margin	OPERATING_CF_Margin t	Operating Cash Flow as a percentage of SALES t
Return on Sales	ROS t	Reported net income as a percentage of SALES t
Return on Assets	ROA t	(Net income + Interest) divided by average total assets
Total Employees	Employees t	Reported number of employees at reporting year-end
EBITDA per Employee	EBITDA_per_Employee t	EBITDA t divided by Employees t
Quick ratio	QUICK_RATIO t	Cash and cash equivalents + short term receivables divided by short term liabilities

Table 8: Variable definition descriptive statistics

<u>Size indicators</u>

All size indicators on a mean basis show that discontinued firms are between 1.9x and 2.2x greater in size than companies not reporting discontinued operations. The corresponding median reveals even higher spreads. From Table 7 it is evident that for key size figures (i.e. total TOTAL_ASSETS t, NOA t, SALES t, EBITDA t, EQUITY t, EMPLOYEES t,) the differences are statistically significant at the 1% levels using a one-tailed t-test as well as using Wilcoxon Rank Sum test.

An option to become greater in size might be to acquire companies through business combinations or to expand the company's business activities through organic growth. Both growing options need time and cannot be achieved immediately. This implies that discontinued operation firms tend to be established earlier in history than their non-discontinued reporting peers. This seems to be obvious, as for instances, start-up firms are almost never affected by reporting discontinued operations because their core strategy is to grow and gain market share. Therefore, discontinued firms can be seen as more mature firms.

According to Barua, Lin and Sbaraglia (2010) the mean / median revenue of firms reporting discontinued operations is approximately (mean 1.25x), (median 1.26x) whereas the study of Chagnaadorj (2018) reports lower total assets of discontinued reporting events (mean 0.77x) compared to all firms with and without reporting discontinued operations but in median terms (median 1.62x) an opposite effect. In this study in terms of Sales the ratio between firms applying discontinued operations compared to all firms amounts to (mean 2.20x), and (median 4.3x) and in terms of total Assets (mean 2.3x) and median (3.8x). Therefore, it appears that firms applying discontinued operations in the UK, Germany and Switzerland tend to be larger in size than those in the US and Australia.

<u>Financial performance indicators</u>

Discontinued firms have left clear traces in respect of financial performance in their annual results compared to their non-discontinued peers. Looking at the above descriptive numbers of firms applying discontinued operations, the mean value of (ROS t) and Operating Cash Flow Margin (OPERATING_CF-Margin t) shows 0.017 and 0.084 respectively for firms applying discontinued operations and 0.040 and 0.093 for non-discontinued adopters. For the discontinued group, these numbers include the result of the continuing businesses and the results of the discontinued businesses. The results provide evidence that the discontinued

firms are more in a loss-making situation than continuing firms. The negative reported discontinued result of CHF 74 million in mean terms confirms the lower ratios.

The ROS ratio might also include a potential impairment charge or an adjustment to write down the disposal group to the expected fair value less costs to sell. On the other hand, in some cases a compensating gain on disposal might occur.

Looking at the EBITDA margin, which excludes the effects from discontinued operations and only focuses in both panels on the "continuing" businesses, it appears that firms without reporting discontinued operations report higher margins (mean 15.8%) than those with reporting discontinued operations. It appears that the source of the lower total ROS margin does not only arise from the discontinued businesses which tend to be loss-making. It seems that those firms are in an overall weaker financial position, and also struggle with their continuing businesses as a result of potential structural difficulties in which the company operates. This notion is confirmed by looking at the changes in sales t-1 and t+1. Both variables (ΔSALES t, and ΔSALES t+1) exhibit in Panel B (Mean -0.009 / 0.018) lower growth ratios than in Panel A (0.089 / 0.067). The lower sales performance is also consistent by focusing on the median numbers. The (ROA t) confirms the overall weak financial development, which exhibits a mean value of 0.025 in mean terms for discontinued reporting firms and 0.043 for non-discontinued reporting firms. The study by Barua, Lin and Sbaraglia (2010) based on US firms provides evidence that the ROA of the discontinued firms amounts to -0.031 in mean terms and 0.014 of median terms, which is similar to the results of this study.

All financial performance-related variables indicate a statistically significant difference between Panel A and B at either 5% or 1% levels using a one-tailed t-test and Wilcoxon Rank Sum test.

However, both panels include effects from acquisitions and also foreign exchange-related effects from the individual functional currency of each reporting entity to the reporting currency. This might have an influence on presented figures and ratios in both panels.

Overall, the results of the financial performance indicators and the differences between firms with and without reporting discontinued operations are consistent with prior studies indicating that firms divest businesses for the resolution of financial distress (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998; Berger and Ofek, 1999; Desai and Jain, 1999), (Dranikoff, Koller and Schneider, 2002; Shin, 2008; Lord and Saito, 2019).

<u>Liquidity indicators</u>

Not surprisingly the quick ratio (QUICK_Ratio t) is 1.25x lower with discontinued operation firms compared to non-discontinued reporting. Discontinued firms report a ratio of 0.965 in means and 0.758 in median terms, which is below the common accepted benchmark of 1.0, which indicates problems of liquidity. However, this measure does not reflect any potential unused credit lines. The difference of variable QUICK_Ratio *t* is statistically significant at the 1% level using a one-tailed t-test and Wilcoxon Rank Sum test.

Many firms try to get things corrected as early as possible in case a substantial business segment is in financial distress facing liquidity issues and might decide to initiate a restructuring plan. However, the measures to be taken in such situations, such as reorganisation of the organisation, development of new products/services, or new management, take time and are often costly. Such restructuring activities are likely to be financed by the continuing businesses, and thus the group as a whole is affected by this cash burn situation. In some cases, it might be needed to raise additional external financing if the company does not have the required funds available within the company. However, after such a restructuring process, a firm might come to the conclusion that the sale or closure of the suffering business is the last resort and therefore less expensive than its continuation.

With the settlement of the sale, further liquidity problems may arise, for example, if internal loans were previously granted from the discontinued part to the parent company that were invested in other group-wide projects (cross funding). This might have arisen as the part to be discontinued was profitable in the past, and internal loans were granted to the parent company without using internal dividends to pay down these internal debts. As a consequence, these loans must usually to be repaid on sale, as the buyer acquires the target without any financing elements.

<u>Financing indicators</u>

In mean terms the equity ratio variable (EQUITY_Ratio t) of companies not applying discontinued operations is approximately 20% higher than companies applying discontinued operations. While companies reporting discontinued operations have a 40.2% equity ratio, non-discontinued reporting peers report a considerable higher ratio of 47.7%. This difference is statistically significant at the 1% level using a one-tailed t-test and Wilcoxon Rank Sum test.

The business to be discontinued often negatively impacts the equity of the group due to its past recurring loss-making situation. As a result, the equity ratio decreases. The impact on

equity is not only limited to ordinary business transactions of the suffering business segment, but also from one-off items, for example impairment and restructuring expenses. In some cases additional external funds need to be raised to finance the restructuring activities, or for the settlement of the internal debts of the continuing business with the discontinued business. This could trigger severe liquidity issues as well.

The recycling of the translation differences (CTA) might substantially affect the profit (e.g Blancco Technology Group (2016, p.65) report a negative impact of 11 per cent of total revenue, Management Consulting Group PLC (2018, p.92) a 17 per cent impact and Caspian Sunrise Group (2018, p.56) shows even an negative impact of 77 per cent) at the date of deconsolidation. However, the decrease in profit does not affect the group's equity as it represents only a shift within equity.

5.6   Industry-and company-specific characteristics of discontinued firms

This sub-section aims to highlight the industry-specific characteristics of firms applying discontinued operations during the period from 2009 to 2018. It appears from Figure 5 below that not all industries are evenly affected by the application of discontinued operations. Figure 5 displays the relative frequency of firms reporting discontinued operations by sector, visible on the y-axis. It means that Communications, Consumer and Industrial firms report above average frequency discontinued operations. On the x-axis the relative frequency in reporting discontinued operations to *all* firms is displayed and reveals that Industrial and Utilitiy related firms apply the most discontinued operations relative to all companies [23].
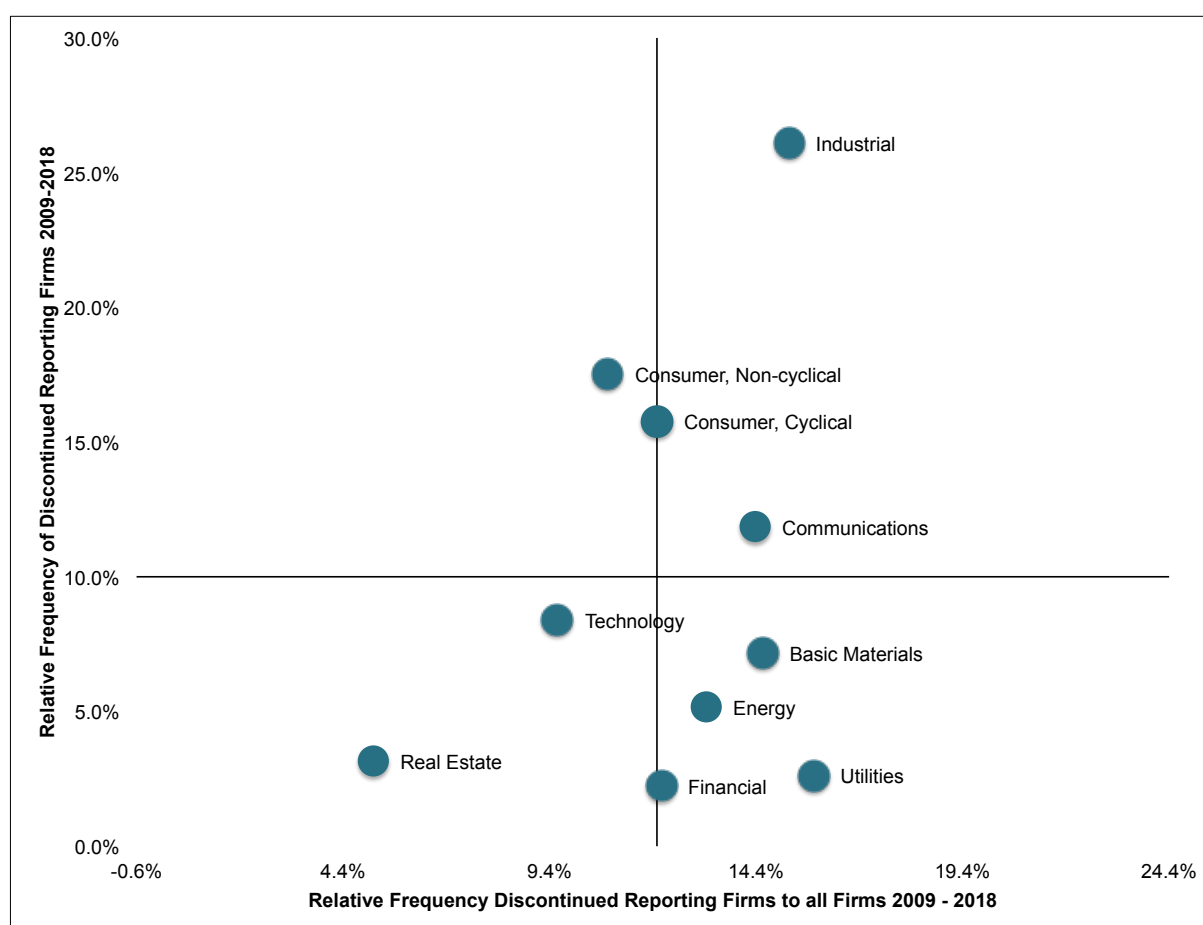
Figure 5: Breakdown and exposure of firms by industry

The breakdown by industry shows that industrial groups represent most firms in the machinery production, and diversified manufacturing companies contribute most in reporting discontinued

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[23] The analysis includes all year-end reporting events based on restated figures. No distinction has been made between types A, B and C.

operations, followed by transport operating firms. In the field of non-cyclical consumer products it becomes visible that firms operating in the food industry and consulting firms account for most of the discontinued operations. Both industrial and non-cyclical firms contribute nearly half of the reporting events of discontinued operations. On the other side of the scale are the real estate companies and financial firms other than banks and insurance companies. It appears that those firms are not often affected by reporting discontinued operations. A possible explanation might be that in the real estate sector individual properties are more likely to be sold than a major geographical area or a segment including several properties.

A closer look at the relative representation of discontinued firms (x-axis) of Figure 5 compared to non-discontinued adopters reveals that certain sectors are more exposed in reporting discontinued operations. In particular, the utilities sector was relatively affected most by disposing of a major business area or geographical part. Looking into the details it becomes evident that firms dealing in electric generation, water and gas distribution are most affected. A possible explanation for this historically increased exposure to discontinued operations can be seen in the change in the energy environment, and regulatory changes in Europe in the utilities sector.

Looking at the details of industrial industry as displayed in Figure 5, the untabulated information reveals that diversified industry groups do have a relative ratio of over 70 per cent. This means that more than two thirds of all firms that have diversified industrial products, have applied discontinued operations over the last years. An explanation for this might be that those firms simply do not benefit enough from the synergies between the different operations. In addition, they usually face pressure from the investors to split up such groups to unleash their full potential and increase shareholder value. This finding is consistent with Lord and Saito (2019), who find that highly diversified firms are more likely to dispose of assets.

On the other hand, software firms in the technology sectors seem to be not much affected by applying discontinued operations, since only 7 per cent of all software firms apply discontinued operations. A possible explanation may be the high speed of product life cycles in those firms. In some firms the technology is out-dated within three months. As a result, it simply does not make sense to initiate a major sale project, as such a process takes too long time from the time of initiation to the closing, and it seems more difficult to find a new owner for an old technology. However, the relative number of technology firms applying discontinued operations has increased over the last years.

Overall, it can be stated that product lifecycles are getting shorter, which requires firms to adapt more quickly to the new business environment. This can be evidenced by Figure 6, which shows an increasing number of discontinuing reporting firms from 2015 onwards.
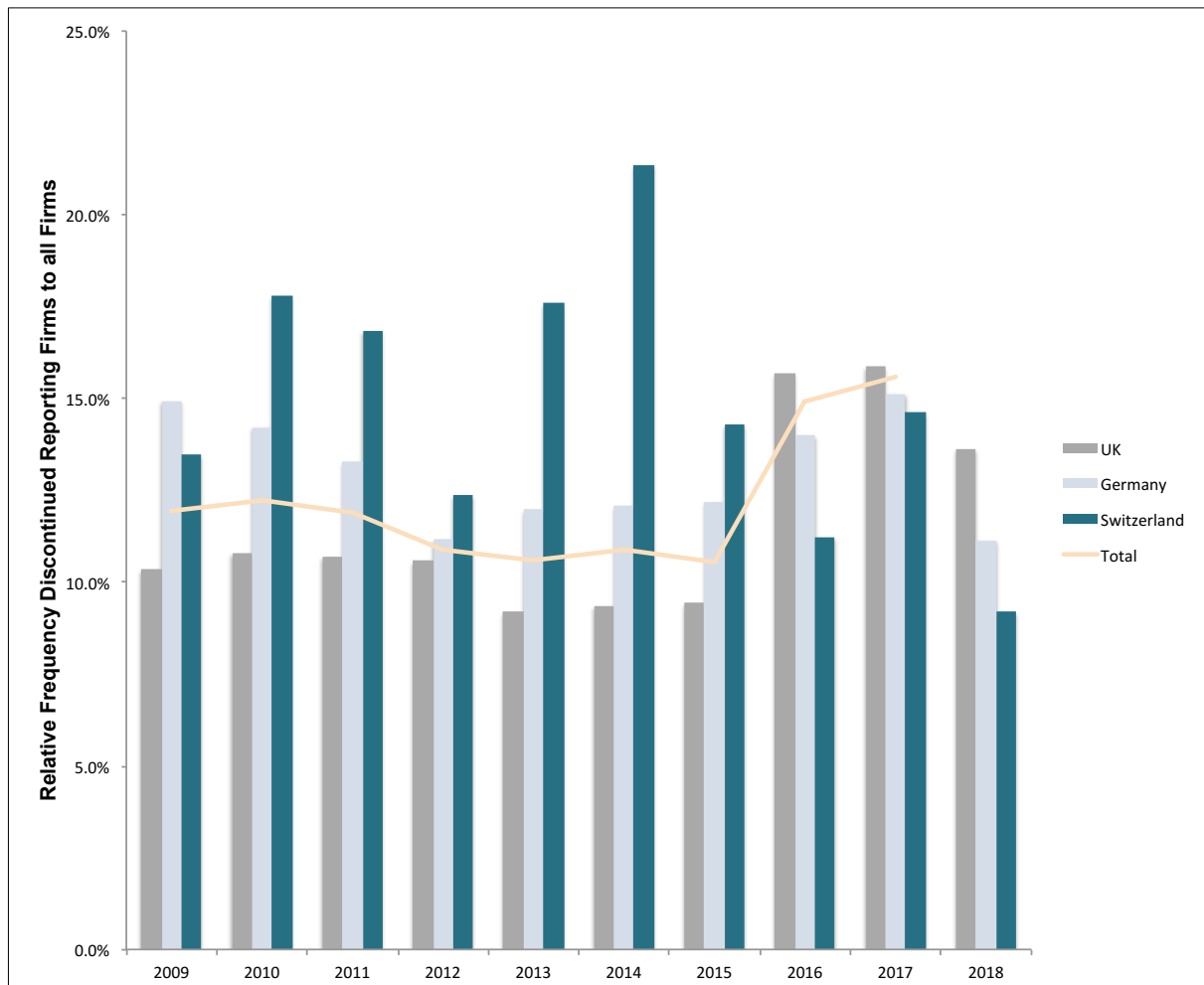
Figure 6: Breakdown per year and country

In 2015, 11% of all firms were reporting discontinued operations whereas in 2017 nearly 17% applied discontinued operations [24]. However, Switzerland does not follow the same pattern as Germany and UK based firms, showing the greatest relative frequency of firms applying discontinued operations particularly in 2013 and 2014. Looking at the different industries over the observation period from 2009 to 2018 it becomes evident that industrial groups are

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[24] The year 2018 is not displayed, as at the time of writing this thesis there are a number of firms which have not yet published their 2019 financial statements. It is therefore expected that additional firms have applied discontinued operations in 2019, and thus there is a need to restate 2018 published numbers.

disproportionately more represented in the Swiss sample (34% versus 25% of Germany/UK which is statistically significant at the 5% levels using a t-test $t(154) = 2.073$, $p<0.05$). Furthermore, 60% of all Swiss firms are positive-valued discontinued operations, which is in contrast to the German and UK based firms that exhibit 49% of positive-valued discontinued operations (this difference is also statistically significant at the 5% levels using a t test $t(159) = 2.481$, $p<0.05$). This might suggest that Swiss firms execute deals less often in a fire sale mode to ensure the company's liquidity and solvency but are more concerned with the future growth and cash flow generation of the existing product portfolio. This can be evidenced by comparing the price-to-book ratio which indicates a value of 1.87 for Swiss firms and 2.39 for UK and German companies (t-test shows significance at the 1% levels $t(293) = -4.005$, $p<0.01$).

Besides these country-specific reasons Figure 7 shows the development over the last years of the five main industries reporting discontinued operations. It becomes visible that only firms operating in the consumer cyclical industry experience a downward trend. All other main industries are increasing, particularly technology-driven firms and industry groups, which confirms the notion of shorter lifecycles.
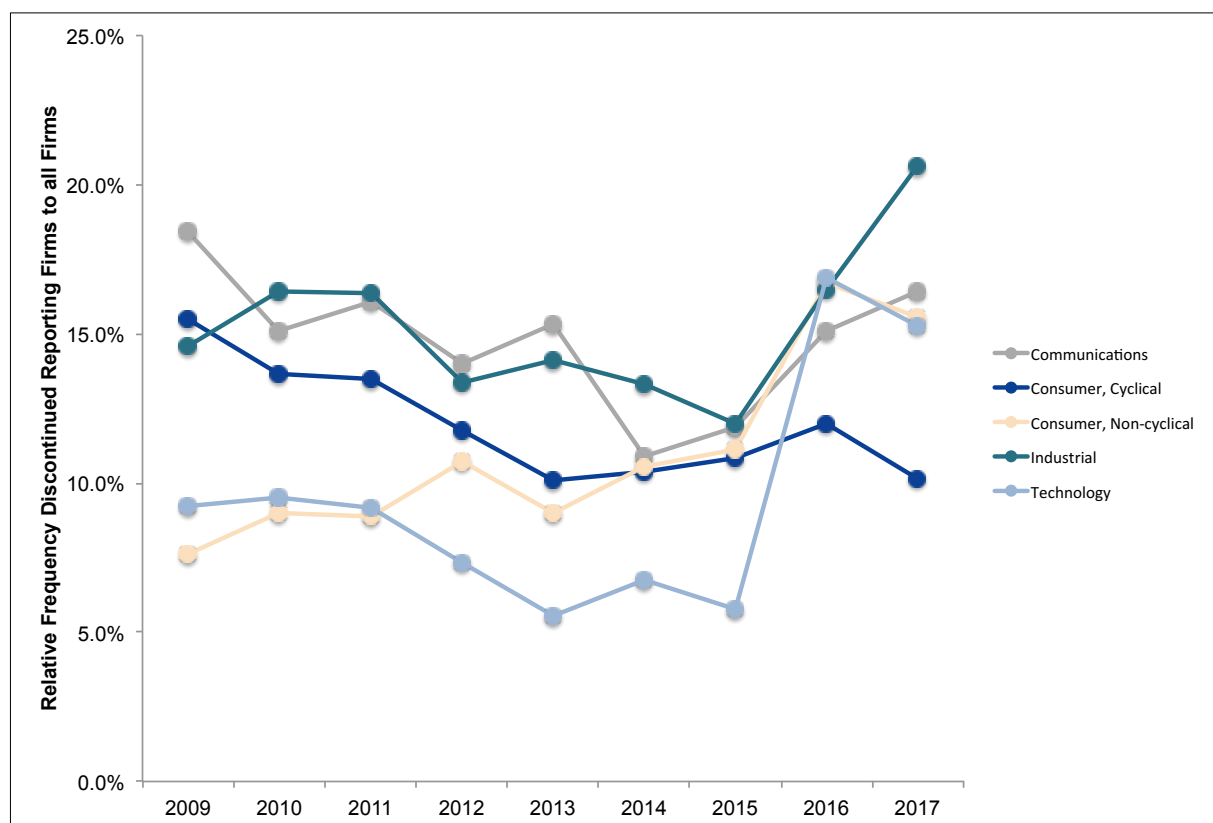
Figure 7: Development by five major Industries

5.7   Conclusion

The aim of this chapter was to find a pattern of different discontinued reporting types that can be used as a starting point for testing the hypotheses H1, H2 and H6 to H8, and for additional robustness tests on H3 to challenge subsequent statistical outcomes and to analyse the financial characteristics between firms with and without reporting discontinued operations.

Based on the review of the annual reports between 2015 and 2018, three reporting types A, B, and C were identified, which have different characteristics in terms of the number and extent of mandatory IFRS disclosures, timing of reporting, and restatement requirements. Type A reporting events are referred to as firms that have not yet completed a discontinued transaction in the year-end reporting and are in the process of selling a discontinued operation. Type B companies have completed the transaction in the reporting period and report a gain or loss on the transaction, while Type C firms have completed the transaction in a prior period but are still required to report financial data and information relating to the prior transaction. Furthermore, critical milestones (announcing and closing dates) in the life of a discontinued operations were discussed as they influence the categorisation of reporting events.

The results from the discontinued descriptive statistics between firms with and without applying discontinued operations show that discontinued reporting firms are generally in a weaker financial position. This is measured by the critical performance indicators like Return on Assets, Return on Sales or Operating Cash Flow margin, where statistically significant differences exist. The results show that the loss-making discontinued operation partially contributes to that lower performance. Insufficient profitability often calls for action by the management to the benefit of their investors, and could result in the reorganisation of the businesses including the announcement of a restructuring plan, impairment of goodwill and ultimately the sale of the business. Lower liquidity-related ratios and lower equity ratios are the consequences of the underperforming discontinued businesses. Overall, the results are consistent with the refocusing and financing hypotheses discussed under Section 3.2.

Furthermore, the firms reporting discontinued operations are greater in size measured by total reported Assets, Sales and net operating Assets. This suggests that those firms are older and have reached a certain size before discontinued projects are executed.

Generally, the number of firms applying discontinued operations as well as the relative ratio between discontinued and non-discontinued reporting firms has significantly increased since 2015. This suggests that the life cycle of many products is becoming shorter, triggering

discontinued operation projects. In industry terms, companies operating in the industrial and utility field are most affected by discontinued operations over the last years. Specifically, diversified industrial groups are heavily affected by discontinued operations, which confirms the refocusing hypotheses. On the other side of the scale are the real estate groups, fewer of which apply discontinued operations.

The results provide evidence that an underperforming discontinued operation is one of the main factors driving a company to discontinue an operation, and that some industries are more likely to apply discontinued operations than others.

Motivated by the underperforming financial performance of discontinued operations, the next chapter explores how this motivation/incentive to apply discontinued operations is associated with the relative size of a discontinued operation.

6 Main research: Research design and results

6.1 Model design on classification of a discontinued operation (Q1, Q2 – H1, H2)

6.1.1 Introduction

Besides other criteria, the relative size of a discontinued operation is critical in terms of applying discontinued operations, as the standard in IFRS 5.32 stipulates that only major transactions can constitute a discontinued operation. If the size of a discontinued transaction is within a judgemental range, it is expected that firms would only apply and implement a discontinued transaction if the application provides more benefits than costs. Extant literature (Lipe, 1986; Kormendi and Lipe, 1987; Bartov and Mohanram, 2014) provides evidence that investors value recurring earnings more than non-recurring.

In line with the usefulness theory of the IFRS conceptual framework, the standard explicitly requires a distinction between recurring items (continuing businesses) and non-recurring items (discontinued operations) at initial classification. This specific financial setting might offer an opportunity to apply extensive discretion and to apply discontinued operations for the benefit of a higher company valuation.

The purpose of this chapter is to test whether the vast majority (defined as over 90 per cent) of groups define a discontinued operation under IFRS in terms of size as a transaction that is greater than the commonly known audit materiality benchmarks (H1) and to develop and test a model on how the individual transaction size is associated with the motivation/incentive of applying discontinued operations (H2).

The illustration of the differences between ordinary divestitures and discontinued operations, as well as the development of possible materiality boundaries, is seen as an integral part of the research design related to H1 and H2, which is the reason why it is discussed below.

6.1.2 Definitions

In this context and at the centre of the considerations several question arise: (i) how such an incentive/motivation to classify discontinued operations can be operationalised, (ii) what a critical size threshold would be, assuming that all other criteria to classify discontinued operations are met, (iii) how the relative size of a transaction can be appropriately measured.

In terms of other criteria under (ii) IFRS 5.32 (b) defines that a discontinued operation is part of a single co-ordinated plan, and IFRS 5.7 requires that the disposal group must be available for immediate sale and that the sale must be highly probable. Furthermore, IFRS 5.8 requires an appropriate level of management must be committed to a plan to sell the disposal group, and an active programme to locate a buyer and complete the plan must have been initiated at a price that is reasonable in relation to its current fair value. IFRS 5.8 goes on to say that the sale should be expected to qualify for recognition as a completed sale within one year from the date of classification. As all information is taken from audited financial statements it is assumed that all these criteria were properly assessed and met the requirements of the standard.

To test hypothesis H2, all UK, German and Swiss-listed firms that have initially reported discontinued operations between 2015 and 2018 are examined. Initial reporting is defined as the first year-end reporting period, where the company apply discontinued operations. In this period the firm is required to restate its prior annual income statement, cash flow statement and notes in accordance with IFRS 5.34.

6.1.3   Ordinary divestitures versus discontinued operations

IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* does not give any guidance on a relative size cut-off question, but states under IFRS 5.32 that a discontinued operation is a component of an entity that has been disposed of, or it is classified as held for sale. Furthermore, IFRS 5.32 continues that discontinued operations have to represent a separate *major* line of business or geographical area of operations and are part of a single co-ordinated plan to dispose of a separate *major* line of business or geographical area of operations. The wording clearly indicates that a major line of business would constitute a discontinued operation only at a certain size.

This means that a distinction must be made in sale transactions depending on the size and nature of such transactions, between

a) Ordinary divestiture that does not meet the IFRS 5.32 criteria and

b) Discontinued transactions that specifically meet the IFRS 5.32 requirements.

Theoretically, in both scenarios, the bottom line of the income statement is equal if the cease of depreciation (IFRS 5.25) in discontinued operation transactions is ignored. However, the content of information given to the investors is fundamentally different in discontinued transactions, as the income statement needs to be restated and split up into continuing and

discontinued parts, but not for ordinary divestitures. As a result, the line items of the consolidated income statement are different depending on the approach chosen. In this context McVay (2006, p.528) argues that individual line times have different information content for future earnings. Similarly, Lipe (1986) and Bradshaw and Sloan (2002) document that investors weight individual line items differently within the income statement.

Applying this reasoning to discontinued operations could be favourable in the communication of this strategic decision to investors, if the firm is able to separate out a loss-making discontinued operation. The following example illustrates both approaches:

Illustrative example ordinary sales vs. discontinued operations

Year ended 31 December	Sold Business as at 31 December	Ordinary Sales transaction	Discontinued Operations
Revenue	20	1'000	980
...	-35	-950	-915
Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA)	**-15**	**50**	**65**
Impairment loss	-30	-30	0
Earnings before Interest and Tax (EBIT)	**-45**	**20**	**65**
Financial result (Recycling CTA)	-5	-5	0
Profit for the period from continuing operations			**65**
Loss for the period from discontinued operations	-50		-50
Profit for the period		**15**	**15**
EBIT Margin		2.00%	6.63%
EBITDA Margin		5.00%	6.63%
ROS Margin		1.50%	1.53%

Table 9: Income statement: ordinary sales vs. discontinued operations

It is assumed that no gain or loss on sale occurs and that the impairment loss is used to depreciate the disposal group to the fair value, less costs to sell at year end. This simple illustrative example shows that firms classifying discontinued operations of a lower operating financial performance compared to the continuing businesses are able to report higher EBIT and EBITDA margins (EBIT 6.6% vs. -2.0% and EBITDA 5.0% vs. 6.6%). This provides a certain flexibility to discontinued operation adopters, as of the business which are not performing well could be reclassified into a discontinued section of the income statement and labelled as non-recurring parts together with other effects such as loss on sale or impairment charges. In contrast, the trading results of ordinary sale transactions are always part of total

EBIT and EBITDA numbers, as no distinction between continuing and discontinued operations takes place. As a result, different placement of components within the income statement obviously leads to different performance measures.

In this context Lipe (1986) argues that the components within the income statement explain more of the variation in returns than is explained by total earnings. This is similar to Bradshaw and Sloan (2002), who document the value relevance in making the distinction between recurring and non-recurring income statement components. Closely related, Fairfield, Sweeney and Yohn (1996) add that a line item's ability to predict future earnings corresponds roughly to its position on the income statement. Items "above the line" help to predict future earnings, whereas discontinued operations "below the line" do not. Finally, Bartov and Mohanram (2014) find that investors weight different line items on the income statement according to their cash flow implications, and provide further evidence that the placement of the line item on the income statement has valuation implications, which is consistent with Lipe (1986) and Bradshaw and Sloan (2002).

The application of discontinued operations therefore allows better predicting of future recurring cash flows compared to the ordinary sales scenario, where non-recurring components partly remain within "continuing operations". A better "core earnings" financial performance therefore gives rise to higher firm valuation if the company exits from a loss-making business. A higher firm valuation in turn brings advantages to shareholders and management including potentially higher stock returns, or increased management compensation if linked to share price. This can be interpreted as a main incentive to apply discontinued operation. The illustrative example from Table 9 shows that the nominal EBITDA number as well as the EBITDA margin is higher in a discontinued scenario, and that core earnings improve.

Assuming equal cost of capital between an ordinary and a discontinued scenario, it becomes obvious from Table 9 that a discontinued scenario would result in a higher Discounted Cash Flow (DCF) company valuation if the EBITDA is treated as a sustainable number. This DCF value should then theoretically mirror the equity value of the stock market if the shares are fairly priced.

A further incentive to apply discontinued operation might be in cases where an impairment charge would otherwise not be recognised as part of discontinued operations. Hirschey and Richardson (2002) argue that impairment losses lead to negative valuation effects. Similarly, Bens, Heltzer and Segal (2011) and Li et al. (2011) document that analysts revise their expectations downwards following an impairment loss announcement. It is likely that the

management would not want such an impairment charge to be connected to recurring earnings. The application of discontinued operation could therefore be a welcome opportunity to defuse the impairment time bomb. This could be interpreted as a second incentive for firms to apply discontinued operations, instead of applying an ordinary sales transaction. Lastly, firms are able to exit from an underperforming business at a relatively early point of time by applying discontinued operations. This is in contrast to the application of an ordinary sales transaction, where the divestment becomes visible at the derecognition of the assets and liabilities.

In sum, firms have a strong incentive to apply discontinued rather than applying an ordinary sales approach if they can exit from an operationally underperforming business and/or if they can reclassify an impairment charge to discontinued operations.

The next section aims to explore how the materiality term in "*major* line of business" could be interpreted in practice, and where potential borders are.

6.1.4 Materiality considerations

Material discontinued operations

The central question is as to whether firms that classify discontinued operations at a relatively lower size are compliant with the definition of IFRS 5, and where a materiality line must be drawn.

To get rid of a loss-making and relatively small discontinued operation is either not prohibited, or not in conformity with IFRS. However, the IFRS 5 standard implies that there are borders in respect of the application of IFRS 5, as the standard implies that a transaction should have a certain size. However, this is not a clear-cut limit, and companies together with the external auditors need to exercise their professional judgement on this question.

Besides qualitative considerations on that key question, it is also unclear where the quantitative demarcation point is of such a distinction between discontinued transactions and non-discontinued operations applying an ordinary divestiture approach. Unfortunately, the IFRSs are not clear on this fundamental question, and therefore the preparers have a certain margin for manoeuvring in this area. A few groups acknowledge this uncertainty and disclose this judgemental area in their annual reports. The 2016 annual report of TClarke (2016, p.100), for

example, outlines "the judgement as to whether an activity that has ceased constitutes a discontinued operation requires an assessment of whether it forms a separate component of the Group's business and represents a separate major line of business or geographical area of operations". Similarly, Fastjet (2016, p.43) reports in its 2016 annual report that judgements are made by the management as to "the determination of when an operation or asset becomes held for sale or discontinued".

Developing materiality threshold for discontinued operations

From the literature review chapter, it is evident that the size of a discontinued operation transaction is between a single cash-generating unit and an operating segment according to IFRS 8. In some exceptional cases, a single asset such as real estate could also qualify as a discontinued operation in cases where the criteria under IFRS 5.32 are met, particularly if for example the building represents a major line of business or a major geographical area of operations.

The size range between the lower and upper boundary (CGU and operating segment) implies that a reportable segment would automatically constitute a discontinued operation. Transactions involving a reportable segment may be likely to be bigger or equal to operating segments, and represent in most cases a substantial part in relation to the continuing businesses. Therefore, in cases where a reportable segment exists, a company does not normally need to exercise a great deal of judgement, although a firm might also decide to voluntarily disclose an operating segment lower than the prescribed thresholds due to its usefulness to users of financial statements. More critical is the situation where firms intend to dispose of smaller parts. There is in some cases, extensive judgement required. One possible way to exercise judgement and to narrow down this uncertainty is to follow the systematic process as outlined by the (IASB, 2017b) in making materiality judgements, whereby the most important step is to assess the quantitative and qualitative factors.

According to Deloitte (2018b) materiality assessments require consideration of the type of information and the amounts involved. In terms of qualitative factors, they distinguish between run-of-the-mill activities where higher materiality might be exercised, and unusual or one-off transactions where the primary users tend to be more interested, and thus smaller materiality is appropriate. IAS 1.98 specifies transactions where separate disclosures should be made, as they give rise due to their unusual nature. Among other items, discontinued operations are part of this list. Therefore, it can be concluded that for discontinued operations, a relatively

lower level of materiality should be applied compared to activities which can be treated as daily business transactions.

Most of the materiality practice aids do not specify materiality as the IASB (2017b) does. However, in practice quantitative materiality levels are often set by applying a specific percentage to a benchmark. The survey of the FRC (2017) shows that profit before tax as a benchmark dominates the practical application by audit firms, followed by net assets, total assets and revenues. As the profit before taxes for discontinued operations tends to be negative due to its loss-making nature, revenues and assets tend to be more appropriate to determine a quantitative threshold.

The survey of the FRC (2017) provides evidence that eight audit firms in the UK report an overall materiality range for publicly interested companies based on total revenue between 0.5 per cent and 2 per cent, which is consistent with Bellandi (2018, p.233) who outlines a rule of thumb materiality on revenue of 0.5 per cent. In terms of total assets, Nösberger (2014) outlines percentages between 0.5 per cent and 2 per cent as a commonly used rule of thumb.

Based on these thresholds and in consideration of any qualitative factors, all transactions or misstatements greater than 2 per cent in revenue and/or in total assets would generally require an adjustment to the financial statements, or if the company does not want to adjust, to a qualified audit opinion.

The overall materiality is set for an *individual transaction basis* but not for judging whether or not a part of the business constitutes a major line of business or geographical area. Therefore, 2 per cent can be seen as the lowest level for this judgemental question, as 2 per cent errors on a standalone or transaction basis would already lead to adjustments. For instance, an accounting error in the field of revenue recognition would generally need to be adjusted if this standalone transaction would be greater than 2 per cent of revenue.

While a lower range can be determined as 2 per cent of the revenues, for an upper range, the quantitative thresholds outlined under IFRS 8 could be used. On the potential upper limit, IFRS 8.13 defines among other criteria that a reportable segment is required to be 10 per cent or more of the combined consolidated revenue. Similarly, an operating segment is required to be reported separately if the segment assets are 10 per cent or more of the combined assets of all operating segments, and if the company elects to disclose this information as part of the segment reporting. That means that in terms of revenues and total assets, the quantitative cut-off should lie between 2 per cent and 10 per cent. Taking into consideration the unusual nature

of such a transaction (qualitative aspect), a more prudent approach is appropriate, meaning that a potential cut-off should be closer to the 2 per cent benchmark than to the 10 per cent. As a consequence, a quantitative benchmark between 4 and 5 per cent of the reported continuing revenues and total continuing assets would be an appropriate cut-off line to determine whether or not a major business line or geographical area exists. Any discontinued operation below 4 per cent seems to be critical in terms of the requirements under IFRS 5.32. A discontinued operation below 2 per cent threshold seems likely to be very questionable in terms of compliance with IFRS 5.32.

6.1.5   Data and sample

As discussed under 4.3.3 the sample consists companies applying discontinued operations listed on the UK, German and Swiss stock exchanges between 2015 and 2018 and excludes certain industry attributes and smaller firms. If these criteria are applied, the sample leaves with a total of 607 IFRS year-end reporting events over this selected time period.

However, this number is only a starting point for deriving the final sample, as some of the reporting events need to be excluded if they have already executed transactions in a previous year-end reporting. These companies are displayed under "consecutive reporting events" in Table 10 and consist of the following types of cases:

First, consecutive events are mainly dominated by type C firms or firms that have announced a discontinued operation in a previous year-end reporting event. Type C firms are defined as companies that have already executed/closed a discontinued operation transaction, but are still required to report effects as discontinued operation expense/income related to this past sale. Second, firms reporting discontinued operations based on a piece-meal basis belong to a wider divestiture programme that was announced during an earlier initial reporting period.

In other words, by excluding those two factors the final sample consists of firms that have initially made the decision to apply discontinued operations. A key feature of the final sample is that those firms have restated their comparative numbers as a result of their decision to initially apply discontinued operations.

The following Table 10 provides an overview of the final sample size:

Composition of the classification sample					
Sample: IFRS adopters listed on the UK, German and Swiss stock exchange, >10% reported year-end Revenue, and without industry specific firms [1]					
Year	All reporting events (total observations)	Consecutive reporting events	Missing data	Final sample	Percentage of final sample to all reporting events
2018	160	-63	-2	95	59.4%
2017	169	-72	-3	94	55.6%
2016	163	-68	-4	91	55.8%
2015	115	-49	-4	62	53.9%
TOTAL	**607**	**-252**	**-13**	**342**	**56.3%**

[1] Financial institutions, funds and insurance companies are excluded.
 A detailed list of the industry-specific subgroup is given in Appendix II

Table 10: Overview data used classification

The total of 342 observations in scope represent around 56% of firms that have made the decision to apply discontinued operations in the reporting event under review. This percentage is consistent throughout the observation period, ranging from 53.9% in 2015 to 59.4% in 2018.

6.1.6 Dependent variable: incentive to apply discontinued operations

The different accounting treatment in discontinued operation transactions compared to ordinary sale transactions provides the advantage to firms that a negative operating financial performance could be made to disappear from the spotlight of the income statement. From the date of initial classification, trading results of discontinued operations are treated as not recurring and can be seen as one-off events. Extant literature documents that recurring core earnings are valued higher by investors (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014).

Also, at this point, and usually forced by the stock exchange ad hoc rules, a firm communicates this fact to the investors' community since the transaction marks a milestone in achieving strategic goals, and is normally material. As a consequence, the company usually updates its potential guidance (i.e., EBIT Margin, Return on Operating assets) and manages and steers the investors from this point more in continuing mode rather than from a total company performance mode (Lonza Group, 2019). Hence, the focus and information content in a discontinued mode is fundamentally different than in a scenario where the transaction is treated as an ordinary divestiture. In other words, the decision to apply discontinued operations might influence the top line and many key performance indicators associated with the income statement and Statement of Financial Position (e.g. EBITDA margin, Cash Flow Margin, Asset turnover). As a consequence, firms might have an incentive to apply the IFRS 5 Standard in circumstances where the continuing business benefits from such an application, as such an application leads to higher recurring or core earnings and thus to a higher stock valuation (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014).

In case the proposed discontinued businesses have a lower financial performance than the remaining businesses, such an application would improve most of the key financial indicators. Therefore, the difference between the operating ROS of discontinued operations and the ROS of continuing businesses is set as a first incentive indicator. Operating ROS from discontinued operations does not include extraordinary items from the revaluation of the disposal group such as impairment charges, or the gain or loss from the sale of the transaction. It is predicted that firms tend to apply discontinued operations if a positive difference exists.

In addition, a currently underperforming business might also be likely to be associated with weak future returns. In this case, and depending on the level of the previous purchase price, a potential impairment charge may be necessary at the initial classification, which could lead to a decrease in valuation (Hirschey and Richardson, 2002). (Bens, Heltzer and Segal, 2011) and (Li et al., 2011) document that analysts revise their expectations downwards following an impairment loss announcement. An advantage is that such impairment charges could be labelled as further exit effects in a discontinued operation setting rather than recognised as part of total EBIT in an ordinary sales transaction. In that sense, a potential impairment charge can be seen as a second incentive factor to classify business as discontinued operations.

However, the incentive to apply discontinued operations is limited, as relatively large transactions representing a separate reportable segment according to IFRS 8 *Operating Segments* automatically constitute a discontinued operation by nature. In contrast, this means

that there is more judgemental room for firms that intend to sell a smaller part of the business that is for instance part of an operating or reportable segment according to IFRS 8 *Operating Segments*. Therefore, the potential impairment loss is also included in the model.

The dependent variable INC_CLASS, an incentive to apply discontinued operations, is set as a binary variable where it takes on 1 if a firm's continuing *operating* ROS is greater than the operating ROS of the discontinued operation or an impairment loss of the discontinued operation is recognised at the initial application, or zero otherwise.

However, this also includes all cases where firms do not have much room for manoeuvre, particularly in cases where the constitution of a discontinued operation is quite clear due to its large relative size. For instances, little room for judgement exists when a discontinued operation reports >30% revenues compared to the continuing business, and is separately disclosed as a reportable segment at the initial classification.

6.1.7   Independent variables

According to the materiality considerations, a threshold of 5% of reported discontinued revenues compared to the continuing business seems a reasonable cut-off size to determine whether a transaction meets the "major line of business or geographical area" criteria pursuant to IFRS 5.32. Without considering other criteria that need to be fulfilled to constitute a discontinued operation, a size below that threshold would ultimately raise questions regarding the compliance with the standard. On the other hand, a size above the 5% benchmark does not appear to be in a critical area. In this area firms usually do not have a choice, and therefore less motivation and incentive (application of discontinued operations vs. ordinary sales transaction) provided other discontinued operations criteria are met. Otherwise, audit firms likely would step in and might qualify their audit opinion if a case is obvious, where little or no flexibility exists in terms of a quantitative threshold, and where qualitative arguments can be ruled out. For instance, in conglomerates a sale of a major business component might be a regular activity due to its diversity of products. This might be a qualitative indicator that a firm is not able to constitute a discontinued operation. Another example might be the case where the firm does not exit entirely from a specific business, but instead modifies the existing products or only partially exits some products of a similar product range.

Therefore, it is predicted that the relative size of discontinued operations is generally negatively associated with the incentive to apply discontinued operations. Since judgemental uncertainties are more prevalent in lower-sized transactions, it is expected that those

transactions are more exposed in relation to the motivation/incentive to apply discontinued operations.

To test the relative size of a discontinued transaction, both the relative assets and revenues are used in two models to examine whether a negative association occurs. The relative assets and revenues variables that measure the relative part of discontinued operations to the remaining continuing businesses are both continuous variables, and range from 0 to over 7 times. The mean is approx. 0.30 / 0.17 for revenue and asset relation respectively, and in median terms 0.097 and 0.053 respectively. This suggests that the majority of firms are above the critical 5% threshold, but obviously a considerable number of firms (119 out of 342) or 34.8 per cent (refer to Table 16) are also reporting below this quantitative threshold.

Furthermore, three dummy variables are included in the second model, which specifies the relative revenue size range (<2%, >2%<5%, >5%<10%) of the transactions. This allows to differentiate whether a group has a greater motivation/incentive in applying discontinued operations.

Consistent with the relative size of the transaction it is predicted that the presence of a reportable segment is also negatively associated with the motivation. As a reportable segment usually qualifies automatically for classifying a discontinued operation and is typically associated with larger-sized transactions, there exists less judgement not to apply discontinued operations.

Furthermore, control variables SIZE and ROA are integrated, as both variables indicate statistically significant differences in Table 13 and Table 14 between Group A, which has an incentive to apply discontinued operations, and Group B that has no or limited incentives to apply. SIZE is defined as the natural logarithm of the Total Assets, and deemed to be appropriate to include ruling out any total size effects, as only the relative size effect between discontinued operations and continuing operations is of interest. In addition SIZE is frequently used as a proxy for ease of access to financial markets (Lord and Saito, 2017, p.76) and widely used in the accounting literature specifically in previous discontinued operation studies (Chagnaadorj, 2018) and (Barua, Lin and Sbaraglia, 2010). ROA that captures the profitability is also widely used as a control variable in previous discontinued studies (Lord and Saito, 2017) and (Barua, Lin and Sbaraglia, 2010).

The following table outlines the definition of all variables used in the logistic model:

Definition variables logistic regression models

Variable	Variable label		Definition
Incentive to apply discontinued operations	INC_CLASS	D	Dummy variable that takes on 1 if △ROS CONT_VS_DISC t is > 0 or IMPAIR_DUMMY t = 1, and zero otherwise
Relative size of revenues of a discontinued operation transaction to total revenues	REL_ASSETS t	I	Reported Assets held for Sale or reported assets sold divided by total assets of the company
Relative size of revenues of a discontinued operation transaction to total revenues	DIS t	I	Reported discontinued revenues divided by reported revenues. (in the case of type B firms prior full year reported revenues are used as the transaction is deconsolidated during the year)
Relative size below 2%	DIS_DUMMY <2% t	I	Dummy variable that takes on 1 if DIS t is less than 2% and zero otherwise
Relative size between 2% and 5%	DIS_DUMMY >2%<5% t	I	Dummy variable that takes on 1 if DIS t is between 2% and 5% and zero otherwise
Relative size between 5% and 10%	DIS_DUMMY >5%<10% t	I	Dummy variable that takes on 1 if DIS t is between 5% and 10% and zero otherwise
Reportable segment according to IFRS 8	REPORTABLE_SEG t	I	Dummy variable that takes on 1 if initial classification is is equivalent to a reportable segment and zero otherwise
Size of the firm	Size t	C	Natural logarithm of reported total assets
Return on Assets	ROA t	C	(Net income + Interest) divided by average total assets

D=Dependent variable, I=Independent variable, C=Control variable

Table 11: Definition variables logistic model

Furthermore, the following Table 12 displays the additional variables that are used to document further context and analysis between the groups that have a greater/lower incentive to apply discontinued operations:

Definition variables Classification of discontinued operations

Variable	Variable label	Definition
Sales	SALES t	Revenues in CHF millions
Change in Sales	△SALES t	Percentage change in sales; (SALESt – SALESt-1)/SALESt-1
Continuing EBITDA margin	EC t	EBITDA t divided by sales t
Discontinued operations	%DO t	Reported discontinued operation result divided by sales t and multiplied by -1
Sales of discontinued operations	SALES_DISC t	Revenues of discontinued operations in CHF millions
Operating result discontinued operations	RESULT_DISC_OPER t	Net income from discontinued operations without impairment, measurement effects from disposal group, gain/loss from sale discontinued operations, recycling foreign exchange differences
Return on Sales discontinued operations	ROS_DIS_OPERATING t	RESULT_DISC_OPER t divided by SALES DISC t
Impairment charge	IMPAIR_DUMMY t	Dummy variables that takes on 1 if an impairment charge is recognised associated with the discontinued operations and 0 otherwise
△ROS continuing and discontinued operations	△ROS CONT_VS_DISC t	(Reported Continuing Result divided by reported SALES t)-(RESULT_DISC_OPER t/SALES_DISC t)
Relative size below 10%	DIS_DUMMY <10% t	Dummy variable that takes on 1 if DIS t is less than 10% and zero otherwise
Relative size below 5%	DIS_DUMMY <5% t	Dummy variable that takes on 1 if DIS t is less than 5% and zero otherwise
Consideration as percentage of total assets	%CONSIDERATION_ASSETS t	Purchase price divided by total assets sold of the discontinued operation

Table 12: Definition further variables classification

6.1.8 Model construction

The logistic regression model aims to explain if an association between the dependent binary variable and specific size-related factors and variables of discontinued operation exist. It is predicted that a positive association between the incentive to apply discontinued operations and size-related factors of a discontinued operations exists. Both the relative revenues and assets are used to examine the incentive-size relationship along with control variables. Since there is no a priori hypothesis about the importance of variables, a direct approach by entering all variables is used rather than a hierarchical regression approach. This leads to the following two models:

- $LOGIT\ [P(INC\_CLASS)] = In\{P(INC\_CLASS)/[1 - P(INC\_CLASS)]\} = \beta_0 + \beta_1 REL\_ASSETS_t + \beta_2 REPORTABLE\_SEG_t + \beta_3 SIZE_t + \beta_4 ROA_t$ (1)

- $LOGIT\ [P(INC\_CLASS)] = In\{P(INC\_CLASS)/[1 - P(INC\_CLASS)]\} = \beta_0 + \beta_1 DIS_t + \beta_2 DIS\_DUMMY < 2\%_t + \beta_3 DIS\_DUMMY > 2\% < 5\%_t + \beta_4 DIS\_DUMMY > 5\% < 10\%_t + \beta_5 REPORTABLE\_SEG_t + \beta_6 SIZE_t + \beta_7 ROA_t$ (2)

The definition of the variables is given in Table 11.

6.1.9 Limitations

First, a general limitation of the study concerns the use of a limited number of underlying countries (UK, Germany and Switzerland). Compared to the plethora of companies that have applied discontinued operations using IFRS 5 over the last years, a reasonable assumption is that the study might produce different results in other jurisdictions. In addition, it focuses only on listed companies, whereas non-listed companies and smaller firms in those countries are not considered. Therefore, the results cannot be interpreted as a general conclusion applicable to all countries and IFRS adopters. This can be seen as a limitation, but on the other hand opens new avenues for future research.

Second, the initial classification of a discontinued operation is not yet investigated in the literature. Therefore, no study is available that provides an opportunity to compare the achieved outcome or variables used in prior literature. Future research should test the proposed model and findings.

6.2 Results on initial classification of a discontinued operation

6.2.1 Descriptive results on classification

The following table provides the descriptive results on two groups of firms: firms with great incentive to apply discontinued operations vs. firms with low incentive to apply discontinued operations. The data provided is split into two panels. Panel A represents all the firms that have initially reported discontinued operations, and where a greater incentive to apply discontinued operations exists. In contrast, Panel B reports all the firms that have less incentive to initially apply discontinued operations (greater/lesser incentive is defined using the dummy variable INC_CLASS t):

Panel A: Firms with greater incentive to apply discontinued operations (INC_CLASS Dummy 1)

N=249	T-test	Wicox.	Mean	Median	Std. Deviation	Percentiles 25	Percentiles 75
SALES t	**	***	3'893	353	11'334	69	2'063
$\triangle$ SALES t			0.069	0.024	0.373	-0.080	0.143
EC t			0.093	0.098	0.662	0.032	0.198
%DO t	***	***	0.081	0.008	0.585	-0.004	0.039
Size t	***	***	6.349	6.135	2.229	4.738	7.915
ROA t	***	***	-0.018	0.021	0.196	-0.049	0.069
SALES DISC t	***	***	236	17	799	3	119
RESULT_DISC_OPER t	***	***	-12.5	-1.3	118.3	-6.6	0.0
ROS_DIS_OPERATING t	*	***	-2.045	-0.125	15.954	-0.446	-0.002
IMPAIR_DUMMY t	***	***	0.418	0.000	0.494	0.000	1.000
$\triangle$ ROS CONT_VS_DISC t	*	***	2.019	0.160	15.977	0.040	0.439
DIS t	***	***	0.212	0.079	0.424	0.020	0.220
DIS_DUMMY <10% t	***	***	0.562	1.000	0.497	0.000	1.000
DIS_DUMMY <5% t	***	***	0.410	0.000	0.493	0.000	1.000
DIS_DUMMY <2% t	***	***	0.249	0.000	0.433	0.000	0.500
REL_ASSETS t [1]	***	***	0.096	0.036	0.150	0.010	0.121
REPORTABLE_SEG t	***	***	0.386	0.000	0.488	0.000	1.000
%CONSIDERATION_ASSETS t [2]		***	1.423	0.718	4.786	0.286	1.254

[1] Total available observations for the variable REL_ASSETS t are 210 (panel A) and 92 (panel B) respectively
[2] Total available observations for the variable %CONSIDERATION_ASSETS t are 111 (panel A) and 68 (panel B) respectively
*, **, *** Indicate significant differences between Panel A and Panel B using a one tailed t-test at the 10%, 5%, and 1% levels, respectively

Table 13: Descriptive information Panel A

Panel B: Firms with lower incentive to apply discontinued operations (INC_CLASS Dummy 0)

N=93	T-test	Wicox.	Mean	Median	Std. Deviation	Percentiles 25	75
SALES t	**	***	7'993	651	20'676	97	4'279
△SALES t			0.023	0.006	0.278	-0.096	0.113
EC t			0.056	0.080	0.317	0.024	0.176
%DO t	***	***	-0.208	-0.027	0.693	-0.139	-0.002
Size t	***	***	7.156	7.068	2.410	5.135	8.854
ROA t	***	***	0.042	0.054	0.195	0.001	0.104
SALES DISC t	***	***	2'338	68	8'447	17	415
RESULT_DISC_OPER t	***	***	75.1	5.3	332.8	0.5	31.1
ROS_DIS_OPERATING t	*	***	0.165	0.078	0.430	0.023	0.153
IMPAIR_DUMMY t	***	***	0.000	0.000	0.000	0.000	0.000
△ROS CONT_VS_DISC t	*	***	-0.241	-0.073	0.422	-0.227	-0.021
DIS t	***	***	0.550	0.165	1.105	0.072	0.449
DIS DUMMY <10% t	***	***	0.355	0.000	0.481	0.000	1.000
DIS DUMMY <5% t	***	***	0.183	0.000	0.389	0.000	0.000
DIS DUMMY <2% t	***	***	0.086	0.000	0.282	0.000	0.000
REL_ASSETS t [1]	***	***	0.328	0.096	0.920	0.032	0.226
REPORTABLE_SEG t	***	***	0.602	1.000	0.492	0.000	1.000
%CONSIDERATION_ASSETS t [2]		***	1.720	1.008	2.376	0.623	2.023

[1] Total available observations for the variable REL_ASSETS t are 210 (panel A) and 92 (panel B) respectively

[2] Total available observations for the variable %CONSIDERATION_ASSETS t are 111 (panel A) and 68 (panel B) respectively

*, **, *** Indicate significant differences between Panel A and Panel B using a one tailed t-test at the 10%, 5%, and 1% levels, respectively

Table 14: Descriptive information Panel B

6.2.2 Dependent variable

The variable INC_CLASS is a dummy variable that takes on 1 if a firm benefits from the application and zero otherwise.

The analysis from the descriptive statistics as well as from the Table 15 indicates that out of 342 firms, 249 firms or 72.8% have an incentive to apply the standard and benefit from higher core earnings and thus potential higher stock market valuation. This percentage is evenly distributed per country under review indicating that both incentive indicators are similar present in each country.

Overall, it can be concluded that for most of the firms the application of discontinued operations is attractive, combining both incentives (Increasing continuing financial performance and classification of an impairment charge under discontinued operations). It also reveals the importance for many firms to exit from a loss-making business.

Classification Motivation / Incentive Analysis			
Description		**Number of firms**	**thereof firms reporting Impairment**
△ROS benefit indicator [1]		220	73
Impairment charge benefit indicator		29	29
TOTAL incentive firm group (referred as Panel A)	**A**	**249**	**102**
△ROS benefit indicator [1]		93	0
Impairment charge benefit indicator		0	0
TOTAL non incentive firm group (referred as Panel B)	**B**	**93**	**0**
TOTAL Sample		**342**	**102**
Percentage of benefit firms to total sample = A/(A+B)		**72.8%**	**100.0%**
- applicable to UK [2]		*74.5%*	
- applicable to DE [2]		*67.9%*	
- applicable to CH [2]		*73.9%*	

[1] Referred to as variable △ROS CONT_VS_DISC t in the following analysis
[2] Calculated as A/(A+B) on country level

Table 15: Descriptive Statistics dependent variable

6.2.3 Independent variables logistic regression

6.2.3.1 Relative Size variables logistic regression

The descriptive information shows that the size of a discontinued operation measured by the relative revenue of the discontinued operation to the continuing revenues (DIS t) variable is 0.079 for Panel A and 0.165 for Panel B respectively in median terms. In respect of the mean values the difference is even higher, with 0.21 (Panel A) and 0.55 (Panel B). A one-tailed t-test shows significance at 1% levels, where $t(102) = -2.867$ $p<0.001$. This indicates that firms that have a higher incentive to apply discontinued operations tend to sell lower relative-sized transactions. These companies are also lower in total firm size as the variable SIZE provides significant differences at the 1% levels for both a t-test and Wilcoxon Rank test. This finding

also indicate that larger firms do announce more positive-valued discontinued operations, which is consistent with Lord and Saito (2017). It appears that a systematic focus strategy is more prominent with larger firms to exploit their comparative advantage.

Looking at the dummy variables that specify lower partitions of transactions also shows statistically significant differences at all levels (10%, 5% and 2%) between Panels A and B. This clearly indicates that smaller transactions are strongly represented in Panel A.

Similarly, and consistent with variable DIS t, the variable REL_ASSETS t that measures the assets held for sale, or sold assets in relation to the total assets, shows a significant difference between Panel A (0.036) and Panel B (0.096) in median terms, and 0.096 and 0.328 in mean terms respectively. The difference is also statistically significant at the 1% levels, where t(93) = -2.402 p<0.001.

A breakdown of the DIS t variable by frequency is displayed in the following table. It includes both panel A and panel B data. It indicates that on average the relative size of a discontinued operation is 31% in mean terms and reveals that approximately half of the firms report discontinued transactions greater than 10% in relative size.

Composition of relative size of discontinued operations

Relative revenues discontinued operations to continuing business	Number of firms (frequency)	Mean	Median	Percent	Cumulative percent
<2%	70	0.007	0.008	20.5%	20.5%
>2%<5%	49	0.035	0.037	14.3%	34.8%
>5%<10%	54	0.074	0.075	15.8%	50.6%
>10%	169	0.579	0.249	49.4%	100.0%
TOTAL	**342**	**0.311**	**0.106**	**100.0%**	

Table 16: Composition relative size of discontinued operations

However, looking at the lower groups it becomes evident that more than 20% of all firms report less relative discontinued operations than 2%. This can be considered very low in relation to the generally accepted audit materiality benchmarks, according to which even an error of this magnitude leads to a correction or qualified audit opinion (an error in an audit that is above the

set audit materiality threshold needs to be corrected) or if not, leads consequently to a qualified audit opinion. The audit materiality benchmarks are always set on a transaction basis. Thus, for the firms applying discontinued operations lower than 2 per cent relative revenues, it is questionable whether such a size represents a strategic shift and a material line of business. It appears that for transactions at such a small size it would probably more compliant to apply an ordinary divestiture.

A further perspective that extends the size frequency information from Table 16 is if the incentive / motivation dimension is added.

In line with the development of the dependent variable the following Figure 8 divides the total frequencies of 342 into two categories: "no incentive to apply discontinued operations" and "incentive to apply discontinued operations".
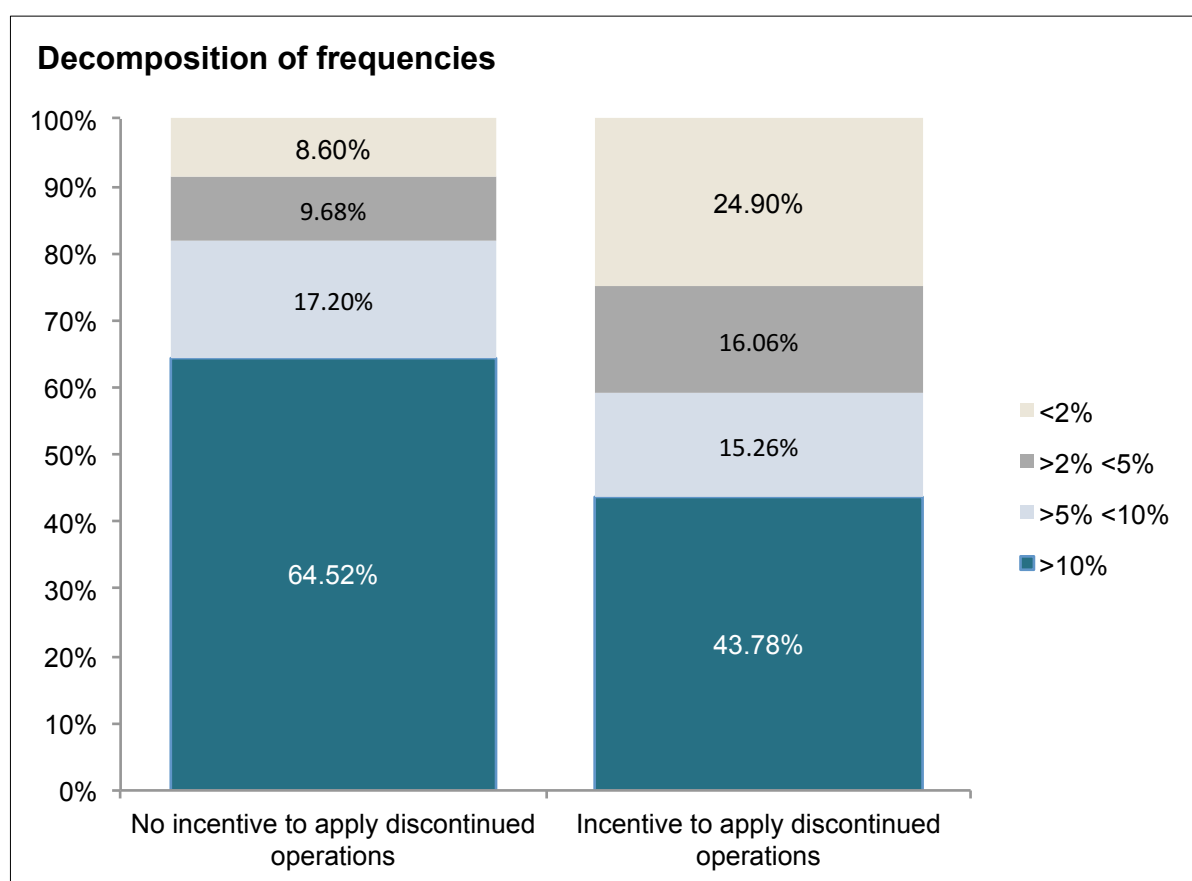
Figure 8: Decomposition of frequencies

As the classification criteria under IFRS 5 to apply discontinued operations are equal for both groups, it would be expected that the composition of the frequencies do not deviate substantially. However, Figure 8 shows the opposite situation of what is expected. The size pattern of both groups is significantly different. A chi-square test shows significance at the 1% levels (X^2 (3) = 16.771, p<0.001 and confirms this difference. This highly significant result indicates that firms tend to interpret the classification criteria differently depending on motivation/incentive. While only 18% of the firms with no incentive are present in the category up to 5% relative size transactions, firms with a greater incentive represent almost 41%. This can be interpreted as the range of latitude or judgement exercised in applying discontinued operations, particularly in lower-sized transactions where inherently more judgement is required. On the other hand, this finding confirms the notion that applying discontinued operations is favourable if a firm is able to exit from an underperforming business to increase recurring or core earnings to benefit from higher stock valuation (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014).

In sum, firms tend to apply discontinued operations where they have more discretion to do so, to benefit from exiting an underperforming business or to avoid an impairment charge in the continuing EBIT. In turn this leads to a higher recurring financial performance and thus to a higher equity valuation. The contingency table where the expected values are derived is shown in Appendix VI.

Considering this relative low size, the question arises as to why such small fractions of total businesses could constitute a discontinued operation, and where the size threshold starts for ordinary sales transactions (ordinary sales transactions are applicable for those transactions that do not meet the criteria of a discontinued operation under IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*).

Not surprisingly, by looking at the firms that have classified transactions below 2%, it can be noted that around 80% of them do not qualify a separate reportable segment. On the other hand, it could be interpreted that 20% of the firms may argue that the presence of a reportable segment evidences the existence of a discontinued operation. However, it still leaves the sample with 17% of firms that are strongly exposed to classified transactions at a very low size (hereinafter "risky group"). Focusing on the characteristics of those firms it becomes obvious that the following differences exist between the risky group and the rest of the sample:

- Size factors: The size of the firms of the risky group is considerably lower than of the rest of the sample. *t* tests indicate significance at t(216) = -2.166, p=0.016 on Total Assets and t(297) = -2.479, p=0.007 using a one-tailed test.

- Audit firm: Although a one-tailed t-test only shows weak significance t(74) = -1.324, p=0.095 the risky group tend to have a non-Big Four auditor. On the contrary, this underlines the fact that Big Four auditors tend to not accept transactions that fall below a critical size. In particular, KPMG seems not support transactions of the risky group as a t-test indicates weak significance, t(87) = -1.631, p=0.053 using a one-tailed test.

- Mandatory Disclosure Score: The disclosure chapter in Section 6.8.6 of this thesis shows that size factors and the choice of auditor are important determinants of compliance with mandatory disclosures. Thus, not surprisingly, the disclosure score exhibits on average a ratio of 70 per cent for the risky group and 81 per cent for the rest of the sample. This suggests that the risky group comply less, and this is statistically significant, t(340) = -5.337, p<0.001 using a one-tailed test, with mandatory IFRS 5 disclosures compared to the rest of the sample. This might also be an indication of the proprietary nature (Dye, 1986; Verrecchia, 2001) of disclosing information. The risky group might not prefer to be very transparent, as the application of discontinued operations is questionable, or because of a bad deal negotiated, as the percentage of consideration paid in relation to the realised assets is also significantly different.

6.2.3.2 Other independent variables logistic regression

Looking at the reportable segments reveals that firms with a higher incentive/motivation to apply discontinued operations report a discontinued operation in 38.6% of all cases, which is equal to the size of a reportable segment according to IFRS 8. This is significantly lower than for firms not having an incentive in applying discontinued operations 60.2%. This difference is statistically significant at the 1% levels, t(340) = -3.646, p<0.001.

Generally, firms belonging to Panel B are larger in size, as the variable SIZE *t* which is the natural logarithm of total assets indicates a statistically significant difference at the 1% levels t(340) = -2.912 p<0.01. The total SALES *t* confirms this difference in total magnitude of the firms, as it reveals significance at the 5% level, t(113) = -1.813 p<0.05. This suggests that out of all firms applying discontinued operation only those that tend to be lower in total size have a greater incentive or motivation to apply discontinued operations, which is consistent with the finding of Lord and Saito (2019), who document that negative-valued discontinued operations are smaller in size.

The variable ROA t indicates that Panel A firms are underperforming, as the mean of ROA t shows a value of -0.018, whereas in Panel B a mean value of 0.042 is visible. This difference indicates significance at the 1% levels. One source of this poorer return that is calculated on a total firm basis is because of the poorer operating return on sales from discontinued operations (variable ROS_DIS_OPERATING t).

6.2.4   Independent variables on other remaining variables

Consistent with the natural logarithm of the total assets (SIZE variable), total Sales are also significantly different between Panel A and Panel B. The variable SALES_DISC t indicates significance at the 1% levels $t(92) = -2.396$, $p<0.01$ as well as the variable RESULT_DISC_OPER t, which shows significance at $t(100) = -2.481$, $p<0.01$.

On the other hand, the variable ΔSALES t shows that Panel A firms experience a greater change in top line (mean 0.069) compared to year t-1 than firms in Panel B (mean 0.023). This seems counterintuitive at first sight. However, one needs to consider that a prior income statement has to be restated in the year-end reporting of the initial discontinued classification. Thus, it appears that Panel A firms gain more benefit in revenue growth from the classification to discontinued operations, due to the underperforming top line growth of the discontinued business compared to the remaining continuing business.

Another source is visible by looking at the %CONSIDERATION_ASSETS t variable, which generally measures the attractiveness of the realised assets in a transaction that indicates in Panel A a ratio of 1.42 times, whereas in Panel B a ratio of 1.72 times. This difference is significant at the 1% levels using a Wilcoxon Rank Sum Test.

Considering the EBITDA margin of the continuing businesses that reflect the EC t variable, it appears that no significant difference exists. Consequently, this means that a main contributor of the overall poorer ROA is attributable to the discontinued financial performance. The difference in ROA shows a statistically significant difference at the 1% levels $t(340) = -2.518$, $p<0.01$. Looking at the %DO t variable that expresses the percentage of the total reported discontinued result divided by SALES t confirms this belief, as it results in a Panel A positive value of 0.081 and a Panel B negative value of -0.208 in mean terms respectively. This represents a statistically significant difference at 1% levels $t(340) = 3.861$, $p<0.01$. This variable is multiplied by -1 for the purpose of the classification shifting chapter. Therefore, positive values indicate a negative margin between reported discontinued operations to total sales and vice versa.

6.2.5 Announcement of discontinued transactions to the capital market

A further aspect is whether discontinued transactions are communicated to the capital market. As discontinued operations should be by definition material to a firm, it can be concluded that such information might affect the price of a company's shares. Driven by the stock exchange regulations, firms are not only required to communicate final results or trading updates, but also ad hoc information if a material event occurs. This might be relevant in the case of a merger or acquisition, or a change in senior management. As a consequence, discontinued operations should generally be communicated to the outside world.

On average, a firm closes a discontinued deal in 120 days (67 days on median terms) after its announcement. If the average time period is divided between companies selling larger transactions > 5% DIS t (121 days) and those selling smaller transactions <5% DIS t (115 days), it becomes clear that no substantial difference exists. However, focusing on the frequency of discontinued announcements made to the public reveals that firms executing transactions at a greater relative size (> 5% DIS t) do communicate 75 per cent of all transactions, whereas companies at a lower size (<5% DIS t) only announce 45 per cent of all transactions. This difference is statistically significant $t(340) = -6.660$, $p<0.001$.

From an IFRS compliance perspective (IFRS 5.32) this is a further indication that the management of firms selling lower-sized relative transactions is less likely to believe that such transactions are material to investors. This can be seen as a further argument that smaller transactions should be treated as non-material for accounting purposes.

6.2.6 Correlation matrix

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 INC_CLASS	Pearson Correlation	1																		
	Sig. (2-tailed)																			
2 SALES t	Pearson Correlation	-.125*	1.000																	
	Sig. (2-tailed)	0.020																		
3 ΔSALES t	Pearson Correlation	0.059	-0.048	1.000																
	Sig. (2-tailed)	0.277	0.374																	
4 EC t	Pearson Correlation	0.028	0.020	0.090	1.000															
	Sig. (2-tailed)	0.605	0.708	0.095																
5 %DO t	Pearson Correlation	.205**	-0.010	-0.033	-.166**	1.000														
	Sig. (2-tailed)	0.000	0.854	0.549	0.002															
6 Size t	Pearson Correlation	-.156**	.568**	-0.012	.125*	-0.071	1.000													
	Sig. (2-tailed)	0.004	0.000	0.821	0.021	0.193														
7 ROA t	Pearson Correlation	-.135*	0.066	0.018	.231**	-.445**	.296**	1.000												
	Sig. (2-tailed)	0.012	0.224	0.744	0.000	0.000	0.000													
8 SALES DISC t	Pearson Correlation	-.206**	.401**	-0.031	0.004	0.004	.298**	0.023	1.000											
	Sig. (2-tailed)	0.000	0.000	0.567	0.939	0.938	0.000	0.673												
9 RESULT_DISC_OPER t	Pearson Correlation	-.191**	.125*	0.006	0.019	-0.062	.119*	0.054	0.043	1.000										
	Sig. (2-tailed)	0.000	0.020	0.916	0.725	0.253	0.028	0.323	0.427											
10 ROS_DIS_OPERATING t	Pearson Correlation	-0.074	0.032	-0.029	0.000	-0.012	0.076	0.019	0.019	0.016	1.000									
	Sig. (2-tailed)	0.183	0.561	0.604	0.995	0.832	0.168	0.728	0.736	0.773										
11 IMPAIR_DUMMY t	Pearson Correlation	.404**	-0.039	-0.071	-0.043	.228**	-0.044	-.207**	-0.064	-0.067	0.046	1.000								
	Sig. (2-tailed)	0.000	0.476	0.192	0.426	0.000	0.421	0.000	0.237	0.218	0.403									
12 ΔROS CONT_VS_DISC t	Pearson Correlation	0.075	-0.030	0.035	0.046	-0.006	-0.071	0.015	-0.019	-0.015	-.999**	-0.052	1.000							
	Sig. (2-tailed)	0.174	0.585	0.533	0.411	0.911	0.203	0.788	0.783	0.783	0.000	0.347								
13 DIS t	Pearson Correlation	-.216**	-0.051	-0.022	0.018	-.137*	-0.062	0.014	.223**	0.041	0.045	-0.056	-0.048	1.000						
	Sig. (2-tailed)	0.000	0.343	0.681	0.743	0.011	0.249	0.800	0.000	0.447	0.418	0.305	0.385							
14 DIS DUMMY <10% t	Pearson Correlation	.185**	0.059	0.082	0.021	0.019	0.048	0.001	-.144**	-0.037	-0.101	0.018	0.105	-.391**	1.000					
	Sig. (2-tailed)	0.001	0.275	0.129	0.705	0.720	0.375	0.986	0.007	0.494	0.067	0.744	0.056	0.000						
15 DIS DUMMY <5% t	Pearson Correlation	.212**	0.048	0.074	0.004	0.018	-0.003	0.010	-.115*	-0.051	-.138*	0.064	.141*	-.301**	.722**	1.000				
	Sig. (2-tailed)	0.000	0.375	0.171	0.948	0.735	0.950	0.852	0.033	0.347	0.013	0.236	0.011	0.000	0.000					
16 DIS DUMMY <2% t	Pearson Correlation	.180**	-0.034	0.096	-0.038	0.026	-0.073	-0.045	-0.086	-0.038	-.198**	0.074	.200**	-.217**	.501**	.694**	1.000			
	Sig. (2-tailed)	0.001	0.531	0.077	0.482	0.625	0.180	0.411	0.111	0.486	0.000	0.171	0.000	0.000	0.000	0.000				
17 REL_ASSETS t [1]	Pearson Correlation	-.201**	-0.026	-0.106	-0.081	-0.095	-0.028	-0.007	.147*	0.038	0.024	-0.069	-0.028	.527**	-.235**	-.173**	-.117*	1.000		
	Sig. (2-tailed)	0.000	0.659	0.066	0.162	0.098	0.625	0.899	0.011	0.507	0.680	0.232	0.633	0.000	0.000	0.003	0.043			
18 REPORTABLE_SEG t	Pearson Correlation	-.194**	0.024	.144**	0.068	-0.045	0.082	0.076	0.103	0.011	0.071	-0.016	-0.070	.230**	-.352**	-.307**	-.250**	.118*	1.000	
	Sig. (2-tailed)	0.000	0.653	0.008	0.208	0.410	0.129	0.158	0.058	0.837	0.197	0.773	0.207	0.000	0.000	0.000	0.000	0.041		
19 %CONSIDERATION_ASSETS t [1]	Pearson Correlation	-0.036	0.025	0.002	0.031	-0.075	0.140	.159*	-0.044	-0.005	0.005	-0.119	0.012	-0.062	0.135	.157*	-0.041	-0.069	0.073	1.000
	Sig. (2-tailed)	0.634	0.736	0.983	0.677	0.320	0.061	0.034	0.562	0.948	0.949	0.114	0.871	0.407	0.072	0.036	0.583	0.358	0.332	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
[1] Total available observations of REL_ASSETS t are N=302, %CONSIDERATION_ASSETS t N=179

Table 17: Correlation matrix classification

In the correlation matrix the variable INC_CLASS that represents the incentive of classifying transactions as discontinued shows statistically significant correlations on certain size-related variables. For instance, INC_CLASS is negatively correlated with the relative size variable (DIS t) as well as REL_ASSET t variable that measures the relative assets size of a discontinued operation, which is also negatively correlated with the dependent variable. As expected from the descriptive statistics the size Dummy variables (DIS DUMMY <10% t, DIS DUMMY <5% t and DIS DUMMY <2% t) also indicate a positive correlation with the dependent variable. These results are consistent with the descriptive statistics.

Looking at the correlation matrix, there may be no evidence that multicollinearity is an issue, as the correlation among the variables used in the further analysis does not exceed r=0.8.

To conclude, the bivariate associations in respect of the variables used in further analysis is reasonable and consistent with the first results from the descriptive statistics shows no obvious problem with multicollinearity.

6.2.7   Logistic regression results

6.2.7.1   General model checks

Prior to interpreting the logistic results, a series of checks is conducted in order to eliminate biased regression results. It includes the inspection of influential cases and outliers, the presence for linearity of the logit and further checks for multicollinearity. The approach taken is briefly described as below:

a) Influential cases and outliers

For both Models A and B, using Equations (1) and (2), the studentised residuals were analysed. The results provide evidence that there are no cases over three studentised residuals that might indicate the presence of outliers. Following Leone, Minutti-Meza and Wasley (2019), all cases over two were analysed to judge whether corrective actions need to be taken. The inspection reveals that no data points are caused by calculation errors, economically justified and therefore legitimated to be included in the dataset. As a result, no corrective measures are necessary. As a sensitivity analysis both models were re-run by excluding all data points over two studentised residuals. The results of Models A and B provide qualitatively similar results, meaning that the variables of interest do not change significantly in terms of significance and signs, as both DIS t as well as DIS DUMMY <2% t reveal significance at the 5% and 1% levels, respectively. All remaining variables do not change either

in signs, but SIZE t and ROA t become more significant in Model A at 5% and 1% respectively. Furthermore, the model's x^2 =49.380 in Model A and x^2 =63.641 in Model B, Pseudo R^2 measured by Cox and Snell (15.3% Model A) and (17.3% Model B) as well as Nagelkerke (21.7% Model A) and (25.4% Model B) improve slightly. The overall predictive accuracy also slightly improves to 77% in Model B.

b) Linearity of logit

The check whether each variable used in Models A and B is linearly related to the log of the dependent variable shows that all interaction terms are not significant. The test results show that all continuous variables used in the logistic Models A and B have significance values greater than .05, indicating that the assumption of linearity of the logit has been met.

c) Presence of multicollinearity

To test whether multicollinearity is an issue, a linear regression is run to obtain statistics such as the tolerance and VIF. According to Menard (1995), the applied criteria to spot collinearity issues are defined as tolerance values less than 0.1 and VIF values greater than 10 (Gujarati, 1998). The collinearity diagnostics do not provide any values outside this tolerance, as in both models the tolerance level is in a range of 0.732 to 0.984, and VIF is in between 1.016 to 1.365. Therefore, it can be concluded that multicollinearity is not an issue.

6.2.7.2 Model fit statistics

The following table shows the model fit statistics of Models A and B:

Model fit information

Description	Null Model	Model A	Model B
Model coefficient x^2		33.071	41.654
Significance		0.000	0.000
- 2LL	371.304	338.233	358.602
Cox and Snell R^2		0.104	0.115
Nagelkerke R^2		0.147	0.166
Hosmer and Lemeshow Test X^2		3.250	10.597
Hosmer and Lemeshow Test significance		0.918	0.226
Overall % of predictive accuracy	69.5	73.5	73.7
-thereof % classification benefit accuracy (defined as 1)		96.2	96.0

Table 18: Model fit statistics LOG model classification

The model indicates a statistically significant x^2 of 33.071 for Model A and 41.654 for Model B respectively, that is in both models statistically significant at $p<0.01$. In addition, the log likelihood statistic decreases in both models, which indicate that both models are able to discriminate between firms that have a greater incentive to apply discontinued operations and firms that have less incentive to do so. In addition, the Hosmer and Lemeshow test indicate an x^2 of 3.250 (Model A) and 10.597 (Model B) that is in both models not significant. Therefore, it can be concluded that the model fits the data in both cases. The Cox and Snell R^2 0.104 and 0.115 and Nagelkerke R^2 0.147 and 0.166 indicate that the variable used in both models can explain to a certain degree whether firms have a greater incentive to apply discontinued operations. According to Cohen (1988) this is considered as a medium effect size.

As the predictive accuracy for both models is around 96% it appears that the defined predictors are suitable to calculate the probability whether a firm belongs to the group that has greater incentive to apply discontinued operations. However, the calculated probability of the group

that has less incentive to apply the standard is considerably lower, explaining the overall lower predictive accuracy of around 74%, which represents a 6% increase compared to the constant model (Null model).

6.2.7.3 Hypotheses test results

The following table documents the test results of both Models A and B:

			Logistic regression results: Incentive to apply discontinued operations										
Independent variables			**Model A**						**Model B**				
			Estimated Coefficients	Standard Error			Odds	Estimated Coefficients	Standard Error			Odds
Variable label [1]	Hyp.	Expected sign	B	SE	Wald	Sig.	Exp (B)	B	SE	Wald	Sig.	Exp (B)
Constant	n/a	n/a	2.145	0.469	20.922	0.000 ***	8.545	2.142	0.486	19.388	0.000 ***	8.514
DIS t	H2	-						-0.529	0.236	5.021	0.025 **	0.589
DIS DUMMY <2% t	n/a	+						0.931	0.447	4.333	0.037 **	2.536
DIS DUMMY 2% - 5% t	n/a	+						0.592	0.438	1.821	0.177	1.807
DIS DUMMY 5% - 10% t	n/a	+						-0.067	0.374	0.032	0.857	0.935
REL_ASSETS t	H2	-	-2.140	0.720	8.833	0.003 ***	0.118					
REPORTABLE_SEG t	n/a	-	-0.508	0.273	3.450	0.063 *	0.602	-0.472	0.277	2.912	0.088 *	0.624
SIZE t	n/a	n/a	-0.106	0.059	3.206	0.073 *	0.899	-0.138	0.059	5.488	0.019 **	0.871
ROA t	n/a	n/a	-1.497	0.855	3.068	0.080 *	0.224	-1.469	0.843	3.036	0.081 *	0.230
N			302					342				

[1] Definition is detailed in table 8
* significant at the 10% level using a two-tailed t-test
** significant at the 5% level using a two-tailed t-test
*** significant at the 1% level using a two-tailed t-test

Table 19: Test results LOG Models A and B classification

The logistic regression results show that the Wald statistics in Model A of the relative discontinued assets in relation of the total assets (REL_ASSETS *t)* is significant at 1% levels. Furthermore, the corresponding relation of variable (DIS *t*) that measures the discontinued revenues in relation to the continuing revenues provides in Model B a similar result, that is, significance at 5% levels. The dummy variables in Model B that represent the different size ranges of discontinued operations do provide evidence of significant associations for transactions lower than 2% of relative revenues. However, the dummy variable DIS Dummy between 2% - 5% and 5% - 10% *t* do not appear to be significant.

Looking at the coefficients it becomes obvious that all variables have the expected sign in both Models A and B, except variable DIS DUMMY 5%-10% *t*. This clearly indicates that causality exists between the motivation or incentive of the classification of discontinued operations and

the relative size of a transaction, specifically by looking at Exp(B), which gradually increases with the size level of variable DIS DUMMY 5%-10% t = Exp(B) 0.935 to Exp(B) 2.536 of variable DIS DUMMY <2% t. The Exp(B) of 2.536 implies that firms in that category are 2.5 times more likely than those over 10% relative size (reference category) to have an incentive to initially classify discontinued operations, if all other independent variables are held at constant values.

Furthermore, the outcome confirms the findings obtained from the descriptive statistics, the correlations between the dependent variable and the outcome from the chi-square test.

As the DIS t variable and REL_ASSETS t variables are both significant and have the predicted signs it therefore supports the H2 proposed in this thesis. Furthermore, it also confirms the notion that transactions sitting in the lowest size category benefit most from the application of discontinued operations.

Among the control variables the SIZE t that represents the total Size of a company as well as the ROA t that expresses the total Return on Assets both have negative signs, and are significant between 5% and 10% levels. It indicates that firms having a greater incentive to apply discontinued operations are underperforming and smaller in size. It also confirms the evidence gathered from the descriptive statistics and correlation matrix.

6.2.8   Robustness tests

<u>a) Alternative models</u>

To challenge the statistical outcome from model A and B and to further investigate on the size effect of discontinued transactions two alternative models have been developed. For both models the relative size of transactions below 5% and transactions above 10% is set as the dependent variable in a logistic regression. The dependent variable takes on 1 if the transaction is lower than 5% (model C) or greater than 10% (Model D) respectively or zero otherwise. In terms of independent variables, the inventive indicator variable (INC_CLASS) that served as a dependent variable in Models A and B is determined as the variable of interest. It is predicted that this variable shows a positive association in Model C and a negative association in Model D with the dependent variable. The control variables from Models A and B are retained as well as the variable REPORTABLE_SEG t.

This leads to the following Models C and D:

- $LOGIT\ [P(DIS\_DUMMY\ < 5\%\ t)] = In\{P(DIS\_DUMMY\ < 5\%\ t)/[1 - P(DIS\_DUMMY\ < 5\%\ t)]\} = \beta_0 + \beta_1 INC\_CLASS + \beta_2 REPORTABLE\_SEG_t + \beta_3 SIZE_t + \beta_4 ROA_t$ (3)

- $LOGIT\ [P(DIS\_DUMMY\ > 10\%\ t)] = In\{P(DIS\_DUMMY\ > 10\%\ t)/[1 - P(DIS\_DUMMY\ > 10\%\ t)]\} = \beta_0 + \beta_1 INC\_CLASS + +\beta_2 REPORTABLE\_SEG_t + \beta_3 SIZE_t + \beta_4 ROA_t$ (4)

The following Table 20 reports the test results on Equations (3) and (4):

Logistic regression results: Size range discontinued operations												
Independent variables			**Model C (<5% Size)**					**Model D (>10% Size)**				
			Estimated Coefficients	Standard Error			Odds	Estimated Coefficients	Standard Error			Odds
Variable label [1]	Hyp.	Expected sign	B	SE	Wald	Sig.	Exp (B)	B	SE	Wald	Sig.	Exp (B)
Constant	n/a	n/a	-1.109	0.492	5.086	0.024 **	0.330	0.478	0.457	1.094	0.296	1.613
INC_CLASS	n/a	+/-	0.994	0.314	10.025	0.002 ***	2.702	-0.714	0.274	6.774	0.009 ***	0.490
REPORTABLE_SEG t	n/a	-/+	-1.320	0.261	25.654	0.000 ***	0.267	1.444	0.240	36.238	0.000 ***	4.237
SIZE t	n/a	n/a	0.035	0.056	0.388	0.534	1.035	-0.094	0.054	2.971	0.085 *	0.910
ROA t	n/a	n/a	0.555	0.693	0.642	0.423	1.742	-0.207	0.631	0.107	0.743	0.813
N			342					342				

[1] Definition is detailed in table 8
* significant at the 10% level using a two-tailed t-test
** significant at the 5% level using a two-tailed t-test
*** significant at the 1% level using a two-tailed t-test

Table 20: Test results LOG models C and D classification

As expected, the test results for Model C indicated that the variable INC_CLASS is positively associated with the dependent variable at the 1% levels. This is consistent with the Models A and B and underlines that the relative size of a discontinued operation drives the motivation or incentive to classify a transaction as discontinued operation. In contrast, Model D aims to investigate the firms that classify greater parts as discontinued operation. As expected, Model D shows an opposite sign of the variable of interest at the 1% levels, indicating that for larger companies the defined incentive does not hold. This can be explained by the fact that larger-

sized transactions automatically qualify as a discontinued operation regardless of the benefit of the continuing business or a potential impairment charge (variable INC_CLASS combines those two factors) associated with the discontinued operation.

The model indicates a statistically significant x^2 of 45.156 for Model C and 52.517 for Model D respectively, that is in both models statistically significant at p<0.01, with a decreasing likelihood statistic for both Models C and D. The Cox and Snell R^2 0.124 and 0.171 and Nagelkerke R^2 0.142 and 0.190 indicate similar values compared to Models A and B, and thus can explain whether firms have a greater or lower incentive to apply discontinued operations. The overall predictive accuracy of Model C is 72.5%, whereas Model D shows a value of 67.8%. This represents for Model C a 11% increase, and for Model D, 34% of the overall predictive accuracy compared to the Null model.

b) Sub-sample on country level

As a further robustness test an even narrower sample (N=235) that consists only of UK-based firms is used, and the equations on Model A and B are repeated. This sub-sample has been chosen as it represents approximately 69% of the total sample.

Overall, for Model A it results an x^2 of 26.659 and for model B 32.297 that is in both models statistically significant at p<0.01. The Cox & Snell R^2 shows a value of 0.122 and 0.128 respectively and Nagelkerke R^2 indicates values of 0.174 and 0.189. All these values are in line with the test results in Table 18 and Table 19. Furthermore, in Model A and Model B the variables of interest REL_ASSET t and DIS t respectively are both negatively associated with the motivation/incentive to apply discontinued operations, and significant at the 5% levels. Thus, the results from this sub-sample confirm the test result provided in Table 19.

6.3 Discussion / conclusion on classification of a discontinued operation

The aim of this section was to test whether firms classify discontinued operations that are lower than the commonly known audit thresholds (referred to as Hypothesis H1) and whether the incentive or motivation to classify transactions as discontinued operation is influenced by the relative size of a transaction (referred as to Hypothesis H2).

Firms have two possibilities to reflect divestitures in financial statements. First, they can reflect the deal as an ordinary sales transaction, or second as discontinued operations if all criteria under IFRS 5 are met. Besides criteria that are formalistic in nature (e.g. management must be committed to a plan to sell the disposal group, active programme to locate a buyer), the criteria under IFRS 5.32 defines that a business has to be a *major* line of business. However, this term is not defined under IFRS and therefore offers the possibility to preparers to opportunistically use this lack of clarity to classify discontinued operations.

To opportunistically use this judgement area, the question arises, what is the benefit of classifying discontinued operations instead of reflecting the deal as an ordinary sales transaction. The main incentive appears to be the possibility to divide the financial reporting structure into recurring (continuing) and non-recurring (discontinued) businesses. As most of the discontinued operations are financially underperforming, this allows firms to exit from these businesses to improve and present higher core/recurring businesses to investors. Higher core earnings are related to higher equity valuations, and potentially lead to higher stock price (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014). This stringent separation of continuing and discontinued operations is difficult to achieve in an ordinary divestiture setting unless a company is prepared to give substantial additional disclosures. In addition, firms are able to exit from an underperforming business at a relatively early point of time by applying discontinued operations, which is in contrast to the application of an ordinary sales transaction where normally the divestment becomes visible at the derecognition of the assets and liabilities.

A further incentive in this context is the potential avoidance of an impairment charge presented as part of the recurring business. Bens, Heltzer and Segal (2011) and Li et al. (2011) provide evidence that following an announced impairment loss, analysts revise their expectations downwards.

Combining these two effects [25] as a dependent variable in a logistic regression, the models reveal that firms having a higher incentive to apply discontinued operations have more discretion to do so. The relative size of transactions to the remaining continuing businesses show (in terms of relative revenues and relative total assets) both a significant and negative association with the incentive to apply discontinued operations. Firms that classify relatively small deals as discontinued operations benefit most from the application. Firms that have a strong incentive to apply discontinued operations and sitting in the lowest [26] relative size category are 2.5 times more likely to classify discontinued operations as compared to firms sitting in the highest [27] relative size category. Therefore, the hypothesis H2, which is based on R2, cannot be confirmed, as the results provide evidence of a significant negative association between size and incentive to apply discontinued operations.

The results from the chi-square analysis confirm these results and show a statistically significant difference in the size pattern between firms with and without an incentive to apply discontinued operations. This underlines the applied management discretion in low-sized relative transaction categories, considering that the classification criteria under IFRS 5 are neutral and not dependent on the incentive to apply discontinued operations.

Ignoring the management discretion in low-sized categories, the application of discontinued operations improves the usefulness of information given to investors. This is because the separation of discontinued operations gives investors and analysts an improved forecasting tool to better disentangle future recurring cash flow streams. In extreme cases, all divestment projects classified as discontinued operations, regardless of their relative size, could lead to better FCF projections and thus allows reports of continuing operations to be of higher quality (Curtis, McVay and Wolfe, 2014). However, this conflicts with IFRS 5.32, where only major lines of business can be classified as discontinued operations, and thus the question arises where the materiality line lies between ordinary sales transactions and discontinued operations. In this study, the materiality benchmark of lower than 5% relative discontinued revenue to continuing revenues is assumed to be critical in view of the compliance with IFRS 5.32, whereas firms qualifying discontinued operations lower than 2% relative revenues are seen as very questionable. This is because, a lower than 2% threshold would already be

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[25] First, the binary variable of the regression model is coded as 1, and zero if the firm exits from an underperforming discontinued operations (defined as operating ROS of discontinued operations < ROS continuing operations) and second, in the case where the firm has recognised an impairment charge at initial classification of discontinued operations.

[26] Defined as < 2 % relative discontinued revenues to continuing revenues in year t.

[27] Defined as > 10% relative discontinued revenues to continuing revenues in year t.

relevant in an audit for "normal" individual accounting misstatements, and in the range of commonly known audit materiality thresholds (e.g. judging revenue recognition errors, overstatement of accounts receivables, or inventory items).

Looking at the lowest size category (< 2% relative revenue to continuing revenues) where firms have a strong incentive to apply discontinued operations accounts for about 20% of the sample. This is problematic and might violate the requirements under IFRS 5.32, as the discontinued transactions of these firms should likely not be interpreted as strategic shifts or major line of businesses. In other words, a 2% threshold would imply that 50 businesses could be strategically relevant, and each would consist of a major line of business. The results indicate that only 80% of the sample initially classifies discontinued operations that are greater than audit transaction-based materiality benchmarks. Therefore, the hypothesis H1 cannot be confirmed, as it was expected that more than 90% of the firms initially classify transactions above the commonly known audit threshold.

Applying the same quantitative threshold for constituting a discontinued operation might not be appropriate, as audit materiality thresholds are applicable for individual line items and not for a disposal group combining several line items. Furthermore, Lüdenbach, Hoffmann and Freiberg (2019, p.2013) consider according to their judgement that a low single-digit percentage of relative discontinued revenue to continuing revenues is immaterial, and thus does not qualify as a discontinued operation.

Without considering and knowing the individual circumstances of each firm, the application for the lowest group appears to be questionable, and firms opportunistically tend to misapply IFRS 5. This gives the management a significantly more powerful instrument to influence the earnings and key figures than potentially classifying small expenses from the continuing section to a discontinued area. It appears that for these firms, the application of the ordinary divestiture approach would be more compliant with IFRS, but leads to undesired costs remaining in the income statement, which might interpreted as recurring items by investors. Furthermore, companies selling smaller discontinued parts announce the deal less frequently to the capital market, which is a further indication of an insignificant, strategically not relevant transaction.

In this context, the question also arises about the role of the auditor and their assessment. As part of their IFRS audit opinion, auditors confirm that they conduct the audit in accordance with International Standards on Auditing (ISA) set out by (International Auditing and Assurance Standards Board (IAASB), 2018). ISA 540 requires that auditors critically review accounting

estimates. The assessment whether a firm is in conformity with the initial classification of discontinued operations can be interpreted as a material accounting estimate, and thus reviewing such estimates should be part of the audit procedures. The present study shows that there is a tendency for smaller transactions not to be supported by Big Four auditors at initial classification. However, the auditors are not only involved in the initial assessment of whether a discontinued operation can be constituted, but also in assessing other judgemental topics throughout the audit process. Auditors might need to assess and review the valuation considerations of disposal groups, the costs components that are linked to discontinued operations, or the appropriateness of mandatory discontinued disclosures given in the annual report. This is discussed separately later under classification shifting (Chapter 6.5) and mandatory disclosures (Chapter 6.8). From the auditors' point of view, however, proper initial assessment is likely to be of greater importance than possible incorrect cost allocations or the absence of reportable items, because the question of applying discontinued operations or an ordinary sales approach has the most material impact on financial statements.

The results provide evidence that it might be fruitful for the standard setter to revisit the undefined term "major line of business" raised at the IFRIC (2016) interpretations committee meeting, incorporating a clear definition to the standard and clarifying the relation between discontinued and ordinary divestiture in order to limit the incomparability of future financial statements.

6.4 Model design classification shifting (Q3 – H3, H4, H5)

6.4.1 Introduction

The following sub-section describes the approach taken by investigating whether or not companies engage in classification shifting. An expectation model as developed by McVay (2006) is used and applied by Barua, Lin and Sbaraglia (2010) to address the formulated Hypotheses H3, H4 and H5. According to the hypotheses, it is predicted that managers are engaged in classification shifting by classifying expenses from the continuing section of the income statement to the discontinued section. This might happen in situations where a specific incentive exists to do so, particularly in loss-making situations or where managers are under pressure to meet or beat the public guidance, or in cases of being compliant with debt contracts.

Critical factors of the model are the generation of reliable estimates, the interpretation of the association between unexpected values and discontinued operations as well as the definition of control variables.

6.4.2 Model design classification shifting

The main assumption is that companies might shift operating expenses in year *t* from the continuing section vertically to the discontinued area of the income statement. To detect whether firms make use of such classification, an estimation model similar McVay (2006) is used to model the *levels* of an expected continuing EBITDA margin in year *t* and an expected *change* in continuing EBITDA margin in year *t+1*. Differences to the actual reported figures are determined as unexpected levels of continuing EBITDA margins, and unexpected change of continuing EBITDA margins. The estimation model is therefore fully based on continuing financial performance rather than on an estimation of discontinued result.

Classification shifting would result in year *t* to show a better continuing financial performance, whereas the financial performance of the discontinued part would have an opposite negative effect. The bottom line of the income statement remains unchanged, however, the information content of the figures presented to investors changes at this point, as the company is required to separate out all discontinued components from the income statement and to present them in a single line item called discontinued operations. The attention and focus of the business is more on the continuing rather than the discontinued businesses as those exiting businesses are often interpreted as non-recurring and one-off exiting costs. In the same course the firm is

also required to restate its comparative income statement figures, including cash flow statement, to ensure a comparative view aiming to provide transparent financial information to investors.

The overall objective of the standard setter is to enable investors to make a distinction as to which cash flows are sustainable and which is of a one-off nature. Therefore, disaggregation of the income statement and cash flows at the time of applying discontinued operations for the first time helps investors to make better decisions.

In this financial setting, new opportunities emerge on how to present financial information to investors and to the outside world. As there is no clear-cut guidance under IFRS 5 as to the nature of expenses allowed to be allocated to discontinued operations, a field of discretion and judgement appears that could be opportunistically used by managers to improve the profitability of continuing operations. In contrast, US GAAP limits the classification to discontinued operations and states under subtopic 205-20-45-9 that the classification of overhead costs are prohibited.

Managers might classify for example internal strategy costs, portions of executive salary costs or general consulting costs generously to discontinued operations to increase the profitability of continuing operations. In this case a positive unexpected margin in year t would be detected.

On the other hand, a positive unexpected operating continuing margin in year t may occur due to improved operational performance by increasing EBITDA. If this assumption is correct and the company is able to organically increase its performance (e.g. better product mix, cost saving measures or the discontinuation of small business not forming a discontinued operation), then the assumption of the model is that the expected level of the EBITDA margin continues in year $t+1$. In other words, it is likely that the abnormal unexpected EBITDA margin levels observed in year t could persist and result in a sustainable higher EBITDA margin for a certain period in the future, or at least in year $t+1$. Economically it can be explained by the fact that launched efficiency programmes such as cost reduction programmes, improved product mix or ceasing of loss-making products very often impacts a company in more than one year. As such, this seems to be a valid assumption, which can be economically supported. In terms of the future regression analysis, this would also mean that in a perfect world the detected abnormal level in year t can be observed in year $t+1$ as well, and therefore the change in unexpected continuing earnings in year t to $t+1$ would be zero. An even higher EBITDA margin level in year $t+1$ would provide evidence that potential turnaround measures in the prior year appear to have been effective. In this case, the change in unexpected change in continuing

margin in year *t+1* and the reported result of discontinued operations in year *t* are positively associated.

In the opposite case, a lower reported level of the EBITDA margin in year *t+1* would result in a negative change from year *t* to year *t+1* and therefore negatively associated with reported discontinued result in year *t*. A negative change in EBITDA margin between year *t* and year *t+1* could provide evidence that an improved margin in year *t* is only temporarily achieved and not sustainable. This might be for instance the case if a company has had an extraordinary customer or order that resulted in a significantly higher EBITDA margin in year *t* which due to its one-off characteristics disappeared in year *t+1* and no longer contributed to the business. Besides this potential economic rationale, it appears that due to its nature of discontinued operations firms (financially distressed e.g. lower Return on Assets, loss-making history, pressure from capital market) the unexpected continuing earnings in year *t* do not relate to economic improvements and may result in an artificial inflation of reported results in year *t* which reappears in year *t+1*. In this case, the change in unexpected continuing earnings from year *t* to year *t+1* is negatively associated with the reported discontinued operation result in year *t*. Therefore, a negative sign between the change in unexpected continuing earnings and reported discontinued result is expected if classification shifting is prevalent.

A combination of both a *positive* association of the unexpected level of EBITDA margin in year *t* und a *negative* association of the unexpected change of the EBITDA margin in year *t+1* provides evidence that a firm might engage in classification shifting.

The following figure illustrates the basic functionality of the model:
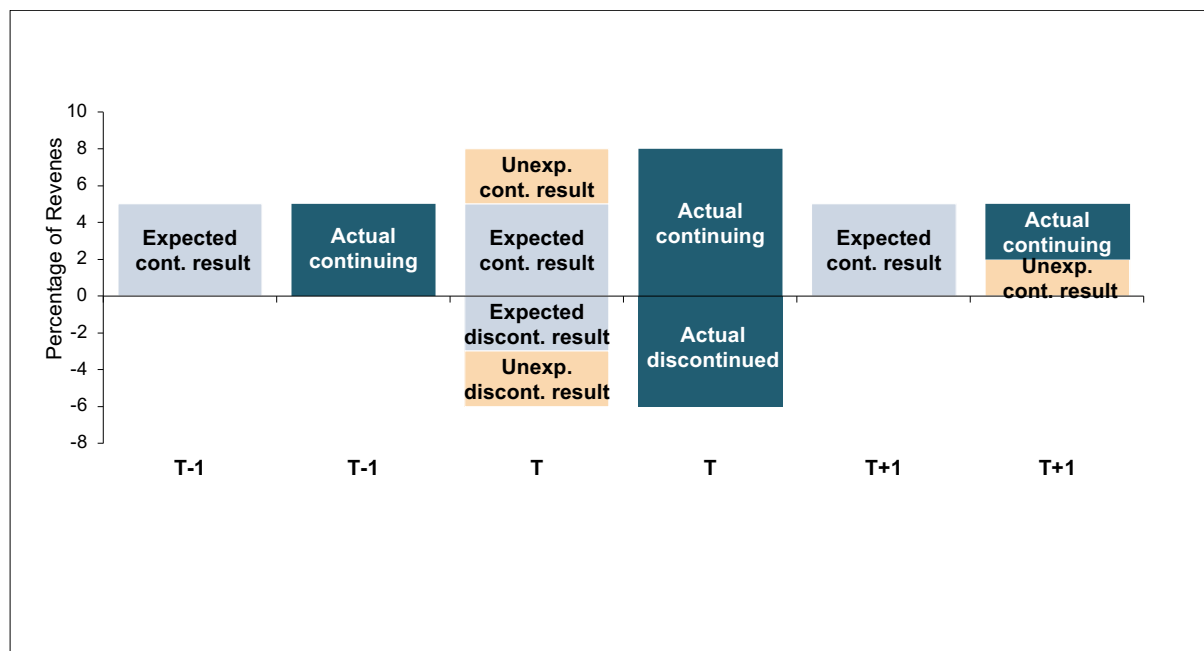
Figure 9: Functionality Estimation model

The generic example in the diagram shows that in year *t* the continuing actual result is overstated by 3%, whereas in the same year the discontinued operations are understated by the same amount. Companies within the same industry not having the opportunity to reclassify costs within the income statement to discontinued operations or other special items are expected to report a lower profit in year *t*, which is equal to the expected continuing result in the diagram. Therefore, the illustrative example displays the presence of classification shifting, as there is a positive correlation between unexpected continuing result and discontinued operations in year *t*. In year *t+1* the costs reoccur, which leads to a lower actual result than expected.

Conversely, there might be some compensating effects between real economic improvements and classification shifting which the model is not able to capture. This can be seen as a limitation.

In addition, the estimation model is inherently an imperfect model, and the reality cannot be 100% predicted in such a forecast or estimation model, particularly not through such a quantitative study. This is a second limitation and should be considered when interpreting the results.

6.4.3   Data and sample classification shifting

The data used consists of company year financial statements starting from 2009 to 2017 that are listed on the UK, German and Swiss stock exchanges. The specific variables used to estimate the unexpected continuing earnings and unexpected change in continuing earnings requires one year lagged financial information ($t-1$) and one year future information ($t+1$). The estimation model for calculating expected continuing earnings is applied separately for each fiscal year. Consistent to the methodology in Chapter 4.3.3, financial institutions and insurance companies have been excluded from the sample as well as lower-sized firms (McVay, 2006; Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019), as those firms have fundamentally different business characteristics or do not represent a stable and meaningful financial performance. The following Table 21, which contains a sample size of 8,807 observations, summarises the data used in analysing the empirical results on classification shifting:

Composition of the sample				
	Sample: IFRS adopters listed on the UK, German and Swiss stock exchanges, > CHF 10 million reported year-end Revenue, and without industry-specific firms [1]			
Year	All reporting events (total observations)	Continuing reporting events	Discontinued reporting events	Ratio discontinued firms / total observations
2017	997	836	161	16.1%
2016	998	849	149	14.9%
2015	976	853	123	12.6%
2014	998	865	133	13.3%
2013	1'018	898	120	11.8%
2012	1'046	914	132	12.6%
2011	1'039	892	147	14.1%
2010	889	768	121	13.6%
2009	846	744	102	12.1%
TOTAL	**8'807**	**7'619**	**1'188**	**13.5%**

[1] Financial institutions, funds and insurance companies are excluded. See detailed exclusion list in Appendix IV.

Table 21: Overview data used classification shifting

A detailed overview of the exclusion of industry subgroups and the derivation of the final sample is given in Appendix IV, which might help to replicate results in future studies. The ratio between discontinued reporting events and total reporting events generally shows an upward

trend that is consistent with the increasingly fast pace of product life cycles as discussed under section 5.6.

6.4.4 Determination of expected and unexpected result

The basic assumption in the model is to determine an expected continuing result in year *t,* where *t* is to be defined as the year when the reporting of discontinued operations occurs. The model is based on an expectation of continuing earnings in year *t* and an expected change in continuing earnings from the actual period *t* to the year *t+1*. The unexpected values are calculated by the difference between the expected continuing earnings in year *t* and the actual values in year *t* and the expected change from the year *t* to *t+1* minus the actual change in year *t+1*.

1 Step: Calculation expected values and description of regressors

Calculation of expected values

To calculate the expected continuing EBITDA margin (EC t) and the expected change in continuing margin (△EC t) the methodology of McVay (2006) is used, as the literature review reveals that this methodology has been widely used subsequent to its publication, and can be seen as a standard model for classification shifting. Furthermore, the extensive testing and usage of this methodology attests its validity and reliability. According to the study by McVay (2006), 'core earnings' is defined as operating earnings before depreciation and special items, scaled by revenue. In this thesis continuing EBITDA scaled by revenue is used for determining core earnings, as it also excludes major special items like impairment charges. Other special items are difficult to explore, as most of those elements are not separately presented in the income statement. Furthermore, EBITDA represents a non-measurement GAAP that is widely used with corporate companies as a critical performance indicator, and serves as a starting point in business valuations. Continuing EBITDA margins (EC t) and (△EC t) are determined as the dependent variables.

The intention for calculating the (EC t) is to estimate a value which would reflect a "real" EBITDA margin in *t* as well as a "real" change in EBITDA margin that is applied for companies applying discontinued operations. The estimates are built on several year/industry regressions. Following McVay (2006) and Barua, Lin and Sbaraglia (2010) the sample is divided into small regressions that require a minimum of 15 observations per industry per year to ensure a sufficient large pool to estimate the EBITDA level and change. The following estimation

equations are used, which contain six continuous variables for Equation (5) and seven for Equation (6) (definitions are described in Table 22):

- $EC_t = \beta_0 + \beta_1 EC_{t-1} + \beta_2 ATO_t + \beta_3 ACCRUALS_{t-1} + \beta_4 ACCRUALS_t + \beta_5 \triangle SALES_t + \beta_6 NEG\_\triangle SALES_t + \in_t$

$$(5)$$

- $\triangle EC_t = \varphi_0 + \varphi_1 EC_{t-1} + \varphi_2 \triangle EC_{t-1} + \varphi_3 \triangle ATO_t + \varphi_4 ACCRUALS_{t-1} + \varphi_5 ACCRUALS_t + \varphi_6 \triangle SALES_t + \varphi_7 NEG\_\triangle SALES_t + v_t$

$$(6)$$

In a perfect world and as a first step, the estimation equation (5) would exactly reflect the *actual result* in year *t* of companies not applying discontinued operations as well as the estimated change Equation (6) in year *t+1* with the *actual change* in year *t+1*.

For all companies, restated financial information is used, otherwise the expectation model would not provide reliable estimated information due to the absence of comparability with prior reporting years.

Description of independent variables

The variable EC *t-1* which expresses the prior year EBITDA margin is included, similar to McVay (2006), because it is predicted that this variable tends to be very persistent. Therefore β_1 in Equation (5) is expected to be positive. According to McVay (2006) the variable ATO *t* that is defined as the asset turnover closely parallels the outcome variable. As the variable is inversely correlated to profit margin a negative sign in terms of levels is expected. The model includes both current year ACCRUALS *t* and prior year ACCRUALS *t-1* as the accrual level is a strong explanatory variable for future performance. In addition, Sloan (1996) finds that earnings performance attributable to the accrual component of earnings exhibit a lower level of persistence than attributable to the cash flow component. This seems obvious as the operating cash flow is not materially affected by a/an (unusual) change in accrual levels, as the changes reverse within the net working capital. Louis and Robinson (2005) find unusually good performance to be associated with a large increase in accruals and unusually poor performance to be associated with a large decrease in accruals. Therefore, β_3 is expected to be negative and β_4 to be positive. The variable $\triangle$SALES *t* is included because McVay (2006) finds that an increase in revenues might increase profitability, as the fixed costs tend to be

constant. Positive sales growth might result in an improvement in EBITDA margin. As a result, a positive sign is predicted. Furthermore, McVay (2006) includes the control variable NEG_ΔSALES *t* that expresses the negative Sales growth from *t-1* to *t* and zero otherwise. McVay (2006) includes this variable because prior literature finds that costs increase more when activity rises than they decrease when activity falls.

The expected change in continuing earnings Model (6) includes lagged earnings levels (EC *t-1*) and changes (ΔEC *t-1*). The reason why those variables are included is because it allows the model to vary the degree of mean reversion based on the prior year's continuing earnings. Both coefficients are predicted to be negative. For the change in asset turnover an opposite positive sign is expected compared to the level included in Model (5). The remaining variables ACCRUALS *t-1*, ACCRUALS *t*, ΔSALES *t* and NEG_ΔSALES *t* are retained with the same sign expected as in Model (5).

Following others (McVay, 2006; Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019) the sample is divided into year/industry regressions. One regression requires a minimum of 15 observations. This results in a total of 164 regressions for both regressions in Equations 5 and 6 respectively.

2 Step: Application of the calculated coefficients

Subsequently, as a second step, the coefficients calculated from Equations (5) and (6), which represent both best estimates, are applied to *all* companies in year *t* (discontinued and non-discontinued firms).

Consistent with the generation of the coefficients, the underlying data is based on restated figures for discontinued operations. A restatement of discontinued firms has the effect that all income statement items relating to discontinued firms are shown separately in one line, and that all discontinued expense and income components are excluded from the prior year continuing result. This leads to a comparable income statement of discontinued applying firms. The result of each regression is presented as a mean value of the parameter estimates, p-value, percentage with sign in the predicted direction in Table 28 and Table 29 (Chapter 6.5.4).

3 Step: Calculation of unexpected values and control variables

UEC_t = unexpected continuing EBITDA margin is measured as the difference between reported and predicted EBITDA margin, where the predicted values are estimated from the Equation (5).

$\triangle UEC_{t+1}$ = unexpected change in continuing EBITDA margin is calculated as the difference between actual change in EBITDA margin (reported ECt+1-reported EC t) and predicted change in continuing EBITDA margin, where predicted values are estimated from Equation (6).

The following Table 22 gives an overview of the variables used as part of the estimation model:

Definition variables classification shifting

Variable	Variable label	Definition
Unexpected continuing margin (EBITDA)	UEC t	Difference between reported and predicted continuing EBITDA margin, where predicted values are estimated from equation (5)
Unxpected change in continuing margin	△ UEC t+1	Difference between reported change in continuing EBITDA margin and predicted change in EBITDA margin, where predicted values are estimated from equation (6)
Continuing EBITDA margin	EC t	Actual reported continuing EBITDA; (EBITDA / Sales)
Change in continuing EBITDA margin	△ EC t	Change in EBITDA margin calculated as EC t - EC t-1
Asset turnover ratio	ATO t	SALESt /(NOA t + NOA t-1)/2 where NOA = (Total Assets – Cash – Short-Term Investment)-(Total Assets – Total debt – Equity)
Change in Asset turnover ratio	△ ATO t	Change in asset turnover; ATO t - ATO t-1
Accruals	ACCRUALS t	Operating accruals; (EBITDA from continuing operations – Cash from operation continuing) / Sales
Sales	SALES t	Revenues in CHF millions
Change in Sales	△ SALES t	Percentage change in sales; (SALES t – SALES t-1)/SALES t-1
Change in negative sales	NEG_△ SALES t	Percentage change in sales (△ SALES t), if △ SALES t is less than 0, and 0 otherwise

Table 22: Variables estimation model

4 Step: Two tests for identification of classification shifting

To provide evidence of classification shifting and to test Hypothesis H3, whether firms engage in classification shifting while applying discontinued operations, the following basic models based on (McVay, 2006)'s approach and similar to the studies by (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019) are used:

- $UEC_t = \beta_0 + \beta_1 \%DO_t + \beta_2 SIZE_t + \beta_3 ACCRUALS_t + \beta_4 ACCRUALS_{t-1} + \beta_5 OCF_t + \beta_6 ROA_t + \in_t$ *(7)*

- $\triangle UEC_{t+1} = \varphi_0 + \varphi_1 \%DO_t + \varphi_2 \%DO_{t+1} + \varphi_3 SIZE_t + \varphi_4 ACCRUALS_t + \varphi_5 ACCRUALS_{t-1} + \varphi_6 OCF_t + \varphi_7 ROA_t + v_t$ *(8)*

%DO *t* (reported discontinued operation scaled by revenues) is defined as the variable of interest where in Equation (7) a statistically positive association with UEC_t would provide a first strong evidence of classification shifting (defined as Test 1).

However, such a positive relation might also be due to economic reasons, which could lead to an increased continuing EBITDA margin (e.g. cost saving programmes, improvement of product mix). To get further evidence that shifted costs reappear in the following year, a negative association between $\triangle UEC_{t+1}$ and %DO *t* would provide further evidence of classification shifting and exclude economic related effects (defined as Test Two).

The most important thing is the sign in both tests. A *positive* sign *in Test One* and a *negative* sign in *Test Two* indicates the presence of classification shifting.

In addition to the variable of interest, further control variables are included. Previous studies on classification shifting involving discontinued operations shows that SIZE *t* is used as control variable (Barua, Lin and Sbaraglia, 2010; Anthonius and Murwaningsari, 2018; Chagnaadorj, 2018; Ji, Potepa and Rozenbaum, 2019) while OCF *t* is used with (Barua, Lin and Sbaraglia, 2010); Anthonius and Murwaningsari (2018); Ji, Potepa and Rozenbaum (2019). Previous studies also reveal that company size materially affects earnings management techniques, while OCF *t* controls for the possibility of earnings management through manipulations of real activities. In this study, to control for performance the variables SIZE *t*, total ACCRUALS *t*, ACCRUALS *t-1*, ROA *t*, OCF *t* are used. The selection of these control variables is similar to Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), and all of them indicate statistically significant differences using a *t*-test at better than the 5% levels. In addition to control for discontinued operations in year *t+1* the variable %DO *t+1* is added in terms of Equation (8) which is consistent with the approach of Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019).

The following table gives an overview of the variables used for the basic test models:

Definition variables classification shifting - basic test models

Variable	Variable label	Definition
Unexpected continuing margin (EBITDA)	UEC t	Difference between reported and predicted continuing EBITDA margin, where predicted values are estimated from equation (5)
Unxpected change in continuing margin	△ UEC t+1	Difference between reported change in continuing EBITDA margin and predicted change in EBITDA margin, where predicted values are estimated from equation (6)
Discontinued operations	%DO t	Reported discontinued operation result divided by SALES t
Size	SIZE t	Natural logarithm of reported total assets
Continuing EBITDA margin	EC t	Actual reported continuing EBITDA; (EBITDA / Sales)
Accruals	ACCRUALS t	Operating accruals; (EBITDA from continuing operations – Cash from operation continuing) / Sales
Operating Cash Flow	OCF t	Operating cash flow scaled by lagged reported total assets
Return on Assets	ROA t	(Net income + Interest) divided by average total assets

Table 23: Variables basic test models

6.4.5 Dealing with influential observations

The technique how to deal with outliers and influential observations can change inferences as those observations are very different from the rest of the dataset and thus can take on extreme values. Extreme values have the potential to impact the estimates of the regression coefficients. Therefore, it is crucial how such extreme values are interpreted and treated while applying a linear regression model. A specific applied choice might lead to a different overall conclusion.

To overcome the problem of extreme values, different techniques are applied in accounting research. The paper of Leone, Minutti-Meza and Wasley (2019) shows that winsorization and truncation are both widely used in prior accounting studies. This is confirmed by looking at previous classification shifting studies (McVay, 2006; Barua, Lin and Sbaraglia, 2010; Fan et al., 2010) or (Ji, Potepa and Rozenbaum, 2019). All of them have winsorized extreme values at the 1st and 99th percentile. On the other hand the paper of Leone, Minutti-Meza and Wasley (2019) also reveals that influence diagnostics and robust regression outperform the traditional winsorizing and truncation at identifying influential observations. The main consideration is that extreme values in a linear regression do not immediately have a significant influence on the model. However, the application of winsorizing and truncation would potentially result in legitimate data points being changed or deleted. The study of Chagnaadorj (2018), which is also in the field of classification shifting while applying discontinued operations, shows that influence diagnostics (Cook's Distance) is used and extreme values are removed from the data set.

According to Leone, Minutti-Meza and Wasley (2019) a cut-off defined as > 2 studentized residuals is recommended to capture influential observations. Therefore, all observations larger than studentized 2 are excluded both for the determination of the individual estimate regressions (only affects the input coefficients but not the full sample as a whole) and for the subsequent Models A - G. Alternatively as a sensitivity test the Models A - G are also determined and reported on the basis of the exclusion of observations larger than studentized 3.

As a further sensitivity test, all observations >2 studentized residuals in the alternative estimation model (presented under robustness tests which lead to similar results in Models A - G) were analysed. The analysis of these extreme values showed that all of them except one observation has over 100% change in levels or change of EBITDA margins. These extreme observations were further analysed to identify the nature and potential economic event with the help of the underlying annual reports. The overview in Appendix III reveals that acquisitions, significant new launched products, extreme valuation impacts on assets / liabilities or disposal effects other than discontinued operations are the driving factors of these very unusual EBITDA margins. In this context, the financial materiality of the individual cases should be emphasised, which significantly influences the studentized residual. According to this analysis it is believed that these cases arise from fundamentally different economic backgrounds that are very different from the rest of the data. Thus, these observations were deleted in the alternative estimation model. The removal of 41 cases reduced the sample size by 0.45%.

6.4.6 Limitations

In the applied classification shifting model there might be some compensating effects between real economic improvements and classification shifting, which the model is not able to capture. In other words, the model predicts a zero unexpected EBITDA margin at which it may conclude that no classification shifting took place. However, this effect was offset, for example due to higher marketing or staff expenses. Under these circumstances the expectation model applied, similar to McVay (2006), would not be able to predict and reflect this specific economic background. This can be seen as a limitation.

6.5 Results on classification shifting

6.5.1 Introduction

The purpose of this sub-section is to provide results on the classification shifting while applying discontinued operations, and to answer the following hypotheses as described in Section 3.5:

H3: Companies engage in classification shifting to increase continuing earnings.

H4: Companies engage in classification shifting to increase continuing earnings in order to meet or beat analysts' forecasts.

H5: Companies engage in classification shifting to increase continuing earnings in situations where the net debt / EBITDA ratio is tight in relation to common target benchmarks.

Further below in this section, the descriptive statistics specifically on classification shifting, as well as the correlation results, are discussed. The results are then derived in two steps.

First, the measurement of the unexpected continuing earnings is displayed and discussed.

Second, the main results covering several different models on the relationship between the calculated unexpected continuing earnings and discontinued operation results are provided and discussed.

Furthermore, additional models including exploratory and sensitivity tests are discussed and finally, the chapter closes with a summary of the major findings.

6.5.2 Descriptive statistics

The following overview provides descriptive statistics of the main variables used in further regressions. Panel A shows all firms not applying discontinued operations, and Panel B illustrates all variables of firms applying discontinued operations:

Panel A: Firms/reporting events without reporting discontinued operations						Percentiles	
N=7'619	T-test	Wilcox.	Mean	Median	Std. Deviation	25	75
SALES t	***	***	3'947	246	20'574	60	1'266
△ SALES t	***	***	0.059	0.020	0.458	-0.068	0.114
NEG_△ SALES t	***	***	-0.053	0.000	0.102	-0.068	0.000
EC t	***	***	0.140	0.119	0.191	0.060	0.207
△ EC t		*	0.004	0.001	0.147	-0.019	0.021
EC t-1	**	***	0.136	0.121	0.215	0.060	0.206
△ EC t-1			0.091	0.001	4.431	-0.020	0.021
ATO t			3.037	1.751	39.413	0.947	3.222
△ ATO t			1.319	-0.006	115.469	-0.192	0.164
ACCRUALS t-1	**	***	0.043	0.033	0.174	0.003	0.074
ACCURALS t	***	***	0.041	0.031	0.163	0.002	0.071
UEC t	***	***	0.000	0.000	0.071	-0.024	0.026
△ UEC t+1		*	-0.005	-0.003	0.237	-0.035	0.032
%DO t	n/a	n/a	0.000	0.000	0.000	0.000	0.000
%DO_POS t	n/a	n/a	0.000	0.000	0.000	0.000	0.000
%DO_NEG t	n/a	n/a	0.000	0.000	0.000	0.000	0.000
SIZE t	***	***	5.863	5.607	2.097	4.330	7.282
OCF t	***	***	0.088	0.084	0.110	0.038	0.135
ROA t	***	***	0.051	0.056	0.126	0.023	0.093
NET_DEBT_EBITDA t		***	35.482	0.528	3128.475	-0.757	1.936
EPS_SURPRISE t [1]			-0.014	0.015	8.682	-0.058	0.080

[1] Total available continuing observations are N=6'715
*, **, *** Indicate significant differences between continuing and discontinued reporting events using a one tailed t-test at the 10%, 5%, and 1% levels, respectively

Table 24: Descriptive Statistics classification shifting Panel A

Panel B: Discontinued reporting events

N=1'188	T-test	Wilcox.	Mean	Median	Std. Deviation	Percentiles 25	75
SALES t	***	***	6'676	1'048	17'874	275	4'337
△SALES t	***	***	-0.036	-0.033	0.228	-0.132	0.048
NEG_△SALES t	***	***	-0.090	-0.033	0.129	-0.132	0.000
EC t	***	***	0.124	0.114	0.179	0.050	0.183
△EC t		*	-0.002	0.001	0.174	-0.025	0.021
EC t-1	**	***	0.126	0.112	0.182	0.057	0.185
△EC t-1			0.002	0.002	0.166	-0.022	0.024
ATO t			3.551	1.629	42.951	0.969	2.872
△ATO t			-1.853	-0.013	74.484	-0.230	0.179
ACCRUALS t-1	**	***	0.031	0.028	0.159	0.001	0.066
ACCURALS t	***	***	0.029	0.028	0.141	0.000	0.062
UEC t	***	***	0.007	0.001	0.080	-0.024	0.036
△UEC t+1		*	-0.005	0.000	0.264	-0.039	0.042
%DO t	n/a	n/a	0.003	0.000	0.223	-0.010	0.009
%DO_POS t	n/a	n/a	-0.025	0.000	0.113	-0.010	0.000
%DO_NEG t	n/a	n/a	0.028	0.000	0.189	0.000	0.009
SIZE t	***	***	7.106	7.128	2.121	5.602	8.638
OCF t	***	***	0.073	0.072	0.095	0.033	0.109
ROA t	***	***	0.035	0.047	0.137	0.004	0.085
NET_DEBT_EBITDA t		***	9.796	1.103	280.418	-0.424	2.459
EPS_SURPRISE t			-0.158	0.016	5.535	-0.057	0.082

[1] The variables discontinued result in year scaled by sales (%DO t), %DO t as well as negative and positive discontinued result scaled by revenues %DO_NEG t and %DO_POS t are multiplied by -1 to keep the positive association between discontinued operations and unexpected continuing earnings.

[2] Total available discontinued observations are N=1'105.
*, **, *** Indicate significant differences between continuing and discontinued reporting events using a one tailed t-test at the 10%, 5%, and 1% levels, respectively

Table 25: Descriptive Statistics classification shifting Panel B

The definition of the variables used is as follows:

Definition variables classification shifting

Variable	Variable label	Definition
Sales	SALES t	Revenues in CHF millions
Change in Sales	△ SALES t	Percentage change in sales; (SALES t – SALES t-1)/SALES t-1
Change in negative sales	NEG_△ SALES t	Percentage change in sales (△ SALES t), if △ SALES t is less than 0, and 0 otherwise
Continuing EBITDA margin	EC t	Actual reported continuing EBITDA; (EBITDA / Sales)
Change in continuing EBITDA margin	△ EC t	Change in EBITDA margin calculated as EC t - EC t-1
Asset turnover ratio	ATO t	SALESt /(NOAt + NOAt-1)/2 where NOA = (Total Assets – Cash – Short-Term Investment)-(Total Assets – Total debt – Equity)
Change in Asset turnover ratio	△ ATO t	Change in asset turnover; ATO t - ATO t-1
Accruals	ACCRUALS t	Operating accruals; (EBITDA from continuing operations – Cash from operation continuing) / Sales
Unexpected continuing margin (EBITDA)	UEC t	Difference between reported and predicted continuing EBITDA margin, where predicted values are estimated from equation (4)
Unexpected change in continuing margin	△ UEC t+1	Difference between reported change in continuing EBITDA margin and predicted change in EBITDA margin, where predicted values are estimated from equation (5)
Discontinued operations	%DO t	Reported discontinued operation result divided by SALES t
Discontinued positive and negative	%DO t_POS and %DO t_NEG	Reported positive or negative result scaled by sales and multiplied by (-1)
Size	SIZE t	Natural logarithm of reported total assets
Operating Cash Flow	OCF t	Operating cash flow scaled by lagged reported total assets
Return on Assets	ROA t	(Net income + Interest) divided by average total assets
Net debt to EBITDA	NET_DEBT_EBITDA t	Net debt divided by reported EBITDA
EPS_SURPRISE	EPS_SURPRISE t	Percentage of forecast difference between last analyst consensus before announcement of final results and reported results

Table 26: Definition of variables classification shifting

The unexpected earnings (UEC_t) for firms without reporting discontinued operations which is shown in Panel A with < 0.000 are considerably less compared to the unexpected continuing earnings in Panel B of 0.007 which includes only discontinued reporting firms. In terms of change in unexpected earnings ($\triangle UEC_{t+1}$), the difference is also lower for firms without reporting discontinued operations than for those reporting discontinued operations. Both variables in mean and median terms show substantial differences. In a one-tailed *t*-test (UEC *t*) is statistically different (at p<0.01). A Wilcoxon Rank Sum test indicates further differences for UEC *t* (at p<0.01) and $\triangle UEC_{t+1}$ (at p<0.10). This suggests that discontinued firms tend to experience more unexpected level of EBITDA margins in year *t* and corresponding unexpected changes in EBITDA margins in year *t+1* than non-discontinued firms. This result indicates that discontinued firms might engage in classification shifting.

Not surprisingly, the reported EBITDA margin (EC *t*) is approximately 13% lower (mean level) for discontinued firms compared to non-discontinued peers, which is statistically significant (at

p>0.01) using a one-tailed test. Furthermore, the sales growth ($\triangle$SALES *t-1 t*) shows for discontinued firms a decline by 3.6%, whereas for firms without reporting discontinued operations a positive number of more than 6% (mean level) is reported. However, it needs to be considered that currency effects and/or in some cases acquisitions or minor disposals are also influenced by the growth levels.

Operating cash flow scaled by lagged reported total assets (OCF) as well as ROA report statistically significant differences as a result of lower sales growth and lower EBITDA margin.

This indicates that discontinued reporting firms are more under pressure to improve and enhance shareholder value due to its weaker financial performance, which is consistent with prior divestiture studies (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998) (Berger and Ofek, 1999; Desai and Jain, 1999; Dranikoff, Koller and Schneider, 2002; Shin, 2008; Lord and Saito, 2019). As a result, this might result in cost saving initiatives, changes in product mix or obviously in a discontinuation of existing businesses.

On the other hand, discontinued firms tend to be larger in size. Firms applying discontinued operations report 1.7x sales (mean level) as non-discontinued firms.

Similar to Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019) Size *t*, OCF *t*, ACCURALS *t* and ACCURALS *t-1*, and ROA *t* are used as control variables in further regressions, as these variables indicate statistically significant differences between firms with and without applying discontinued operations.

6.5.3   Correlation matrix

The Pearson correlation matrix reveals that unexpected continuing margin (UEC *t*) and the change in unexpected continuing margin ($\triangle$UEC *t+1*) are positively/negatively correlated with discontinued variables (%DO *t)* and (%DO_NEG *t*). This can be interpreted as evidence that firms engage in classification shifting while applying discontinued operations, particularly in situations where the discontinued operation reports negative results.

Pearson / Spearman correlation matrix (N=8807) [1]

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 SALES t	1.000	-.029**	.049**	.076**	-.036**	.087**	-.034**	.137**	-0.009	-0.007	-.022*	0.012	.035*	-.059**	-.176**	.094**	.931**	.181**	.185**	.188**	0.013
2 ΔSALES t	-.021*	1.000	.917**	.187**	.197**	.074**	.057**	0.018	.315**	.023*	.122**	-.060**	-.224**	0.012	.103**	-.089**	-.023*	.196**	.253**	-.064**	.044**
3 NEG_ΔSALES t	0.021	.375**	1.000	.188**	.174**	.087**	.056**	.052**	.299**	0.020	.119**	-.067**	-.206**	0.008	.097**	-.089**	.038**	.215**	.277**	-.058**	.046**
4 EC t	0.001	.121**	.166**	1.000	.251**	.816**	.116**	-.438**	-.036**	.318**	.472**	.377**	-.049**	-.031**	0.003	-.050**	.247**	.486**	.558**	.064**	.091**
5 ΔEC t	-0.006	.354**	.129**	.251**	1.000	-.490**	-.129**	0.007	.156**	-.245**	.188**	.504**	-.394**	-0.005	0.007	-0.014	-.028**	.103**	.207**	-.031**	.069**
6 EC t-1	0.004	-.145**	.057**	.721**	-.490**	1.000	.204**	-.443**	-.115**	.466**	.336**	.112**	.191**	-.036**	-0.004	-.049**	.254**	.421**	.421**	.069**	.047**
7 ΔEC t-1	-0.004	.057**	0.008	-0.012	-0.002	-0.009	1.000	0.006	-.039**	.159**	.102**	-.053**	.071**	0.003	-0.003	0.007	-.027*	.068**	.122**	-.033**	.043**
8 ATO t	-0.004	0.006	0.008	-0.016	0.002	-0.016	0.006	1.000	.284**	-.249**	-.222**	-.120**	-.087**	0.020	.026*	0.003	-.135**	.101**	.096**	-.268**	0.010
9 ΔATO t	-0.002	-0.001	-0.003	-0.007	0.004	-0.009	-0.001	.284**	1.000	-.176**	-.110**	0.007	-.082**	.039**	.034**	.024*	-.034**	.052**	-0.019	-.067**	.039**
10 ACCRUALS t-1	-0.009	.070**	0.016	.324**	-.343**	.537**	0.013	-0.004	-0.001	1.000	.307**	.081**	.202**	0.015	.032**	-0.011	.083**	.022	.131**	.161**	.050**
11 ACCURALS t	-0.008	.091**	.077**	.599**	.351**	.288**	-0.012	-0.010	-0.002	.387**	1.000	-.052**	-.331**	0.018	.032**	-0.007	.072**	-.240**	.257**	.169**	0.017
12 UEC t	0.000	-0.010	-.036**	.337**	.388**	.026*	-0.004	0.013	0.008	-0.027	-.054**	1.000	.111**	-.022*	-.034**	0.002	.058**	.395**	.240**	-.022	.050**
13 ΔUEC t+1	0.005	-.129**	-.126**	-.257**	-.609**	.204**	0.001	0.002	0.001	.206**	-.422**	-.035*	1.000	-.027*	-.029**	-0.010	.059**	.136**	-.102**	0.006	0.004
14 %DO t	-0.009	-0.009	-.036**	.136**	.151**	0.014	0.000	-0.001	-0.001	.021*	.163**	.060**	-.161**	1.000	.742**	.722**	-.065**	-.036**	-.133**	-0.020	-.038**
15 %DO_POS t	-0.008	.024*	.048**	.041**	.042**	0.007	0.002	0.002	0.001	0.012	0.024	.037**	-0.016	.521**	1.000	.072**	-.180**	0.018	-.057**	-.064**	-.032**
16 %DO_NEG t	-0.006	-.025*	-.071**	.134**	.152**	0.012	0.000	-0.002	-0.002	0.018	.176**	.048**	-.179**	.856**	0.004	1.000	.089**	-.073**	-.139**	.036**	-.023*
17 SIZE t	.457**	-.043**	.084**	.191**	-.028*	.193**	-0.016	-.025*	-.024*	.040**	.039**	.058**	.036**	-0.010	-.032*	0.007	1.000	.127**	.142**	.262**	0.010
18 OCF t	0.001	.051**	.187**	.386**	0.010	.341**	-0.017	.036**	0.015	-0.016	-.181**	.362**	.051**	-0.009	.035**	-.033*	.098**	1.000	.602**	-.206**	.098**
19 ROA t	0.015	.083**	.247**	.430**	.092**	.321**	-.023*	.024*	-0.002	.096**	.148**	.252**	-.049**	-.170**	-.100**	-.138**	.145**	.550**	1.000	-.158**	.145**
20 NET_DEBT_EBITDA t	-0.002	.039**	0.006	-0.008	0.015	-0.018	0.000	0.000	0.000	-0.001	0.004	-0.018	-0.011	0.000	0.001	0.000	-0.010	-.030*	0.021	1.000	-.038**
21 EPS_SURPRISE t	0.005	0.013	.058**	.031**	0.017	0.016	0.001	0.001	0.000	-0.015	0.000	0.015	-0.015	0.003	0.015	-0.006	0.021	.059**	.076**	-0.003	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

[1] Total available observations of EPS_SURPRISE t variable are N=7820

Table 27: Pearson Correlation Matrix

6.5.4 Classification Shifting Measuring of expected continuing values

The following table provides the regression results for a model using Equation (5):

Estimate of the expected EBITDA level model

Independent variable	Sign prediction	Parameter estimate (Mean)	One-tailed p-value	Percent significant (p-value ≤ 0.1, one-tailed test)	Percent with sign in the predicted direction
			Dependent Variable = EC t (Level)		
Intercept		0.05	0.039		
EC t-1	+	0.71	0.004	98.8%	98.8%
ATO t	-	-0.01	0.118	43.9%	67.1%
ACCURALS t-1	-	-0.27	0.025	87.0%	89.6%
ACCURALS t	+	0.49	0.007	90.2%	98.8%
△SALES t	+	0.05	0.064	71.1%	69.7%
NEG_△SALES t	+	0.13	0.071	70.7%	73.2%
Adjusted R^2			84.69%		

Table 28: Estimate of the expected EBITDA level model Equation (5)

The estimation in Table 28 represents approximately 9,000 observations and 82 regressions. The regressions are estimated by industry and year, and the p-values shown are based on one-tailed tests for each of the predictors. The table consists of p-values instead of t-statistics because of the varying sample sizes of the specific regressions.

Combining all regressions, it results an R^2 of 84.7% on average over the 9 years period. This value ranges from 25% to 98%. The average value is slightly higher compared to the study of McVay (2006) where an R^2 of 75.5% is disclosed. Furthermore, the F-test of each regression provides evidence that the overall fit of each model is significant at the 1% level in all years under review.

Looking at the individual predictor variables of the regression it shows that the majority of the predictors have predicted signs. In terms of statistical significance the majority of predictors are significant except for the ATO *t* variable. Overall, the significance and predicted sign pattern shows similar values as in the study of McVay (2006) but on a higher level.

The variable ATO *t* was included by McVay (2006) because it closely parallels profit margin and should have an inverse relation with the dependent variable. This is confirmed by looking at the correlation matrix of the present study, as the variable ATO *t* shows a negative correlation with the outcome variable. The McVay (2006) study shows that this variable is significant in only 36% of all cases using a one-tailed test, and has the predicted sign in 67% of all regressions. Both values are in line with results of the present study, as 67% of all regressions have the sign prediction and 44% of all regressions are statistically significant.

According to McVay (2006) the variable EC *t-1* is included because this variable tends to be very persistent. A closer look at the Spearman correlation matrix of the present study confirms this fact, as it reveals a relatively high correlation of r=0.719 (at p<0.01) between the dependent variable EC *t* and EC *t-1* variable. This variable shows the predicted sign in more than 98% of all regressions and is statistically significant in almost all regressions, which is in line with McVay (2006).

The present study includes ACCRUALS *t-1* in the regression model as Sloan (1996) finds that accrual levels are an explanatory variable for future performance. In the present study this variable has the predicted sign in almost all regressions (90%) and is statistically significant in 87% of all cases, which is slightly higher than reported by McVay (2006).

The variable ACCRUALS *t* which expresses the current year accruals is also used by McVay (2006) to control performance, as extreme performance is highly correlated with changes in accrual levels. Therefore good/bad financial performance can be highly associated with increase/decrease of accruals level. The predicted sign is achieved in almost all cases (99%), of which over 90% are statistically significant. The paper of McVay (2006) exhibits similar values (sign prediction 82% and significance 74%).

McVay (2006) also mentions that the inclusion of the ACCRUALS *t* results in a possible bias. The reason for these concerns is that some parts of special items could be included in accruals. In McVay (2006)'s study, special items scaled by revenues is the variable of interest and can be compared to discontinued operations scaled by revenues as the variable of interest in this thesis. A later study (Fan et al., 2010) confirms this possible research design problem.

However, in contrast to these special items, the accounting of discontinued operations is much more regulated in detail, and upon initial classification, accruals relating to discontinued operations must be included as part of assets/liabilities held for sale. In addition, the financial performance must also be divided into a continuing and a discontinued part under IFRS 5.

Therefore, the expectation model in this thesis that aims to predict a pure continuing EBITDA margin does not suffer from this bias. This is also consistent with Barua, Lin and Sbaraglia (2010), who also take note of this bias and additionally calculate the expectation model without accruals in a robustness test, and qualitatively arrive at the same results.

McVay (2006) describes the inclusion of $\Delta SALES\ t$ as an explanatory variable due to the fact that as revenues grow, fixed costs become smaller per sales dollar. To allow the slope to differ between revenue increases and decreases the variable NEG_$\Delta SALESt$ is included. Both variables have in around 70% of all regressions the expected sign and are statistically significant. This is slightly lower than McVay (2006), where around 80% of all regressions have the predicted sign.

The following overview provides the regression results for a model using Equation (6):

Estimate of the expected EBITDA change model

Independent variable	Sign prediction	Parameter estimate (Mean)	One-tailed p-value	Percent significant (p-value ≤ 0.1, one-tailed test)	Percent with sign in the predicted direction
Dependent Variable = $\Delta EC\ t$ (Change)					
Intercept		0.029			
EC t-1	-	-0.239	0.017	93.8%	97.5%
ΔEC t-1	-	-0.095	0.044	86.4%	72.8%
ΔATO t	+	-0.001	0.131	34.1%	51.2%
ACCURALS t-1	-	-0.264	0.028	90.4%	91.8%
ACCURALS t	+	0.458	0.009	97.6%	96.3%
$\Delta SALES$ t	+	0.053	0.069	71.4%	70.1%
NEG_$\Delta SALES$ t	+	0.114	0.065	71.6%	72.8%
Adjusted R^2			66.90%		

Table 29: Estimate of the expected EBITDA change model (equation 6)

The regression results from Table 29 on the change in continuing EBITDA margin show an R^2 of 66.9% on average. This value is higher compared to the study of McVay (2006), where an R^2 of 51.7% is disclosed and represents 82 industry year regressions. Furthermore, the F-test

of each regression also provides evidence that the overall fit of each model is significant at the 1% level in all years under review.

The inclusion of EC *t-1* and Δ EC *t-1* is consistent with prior literature that forecasts changes in profitability (Fama and French, 2000). As expected, EC *t-1* has a negative sign in 98% of all regressions and is statistically significant in 94%. On the other hand, the variable ΔEC *t-1* has the predicted sign only in 73% of all regressions and shows a statistically significant contribution in 86% of all regressions. Both variables allow the model to vary the degree of mean reversion based on the prior year's continuing earnings and are in line with the results of McVay (2006).

The negative coefficient of ACCRUALS *t-1* has on average the predicted sign and is statistically significant at 1% levels in around 90% of all regressions. This is consistent with McVay (2006) and in line with the expectation that higher levels of accruals have lower earnings persistence. The variable ACCRUALS *t* is significant at an even higher level and has the predicted sign in almost all cases.

ΔATO *t* has the predicted sign in half of all regressions but is only significant in 34% of all regressions. This is slightly lower compared to the study of McVay (2006) which indicates significance in 41% of the regressions, and reveals that 64% of all regressions have the predicted sign.

Consistent with McVay (2006) and in line with Anderson, Banker and Janakiraman (2003) the slope coefficient on sales growth is significantly higher for companies that experience a sales decrease NEG_ΔSALES *t* (average nine years: 0.17) compared to those having a positive sales growth ΔSALES *t* (average nine years: 0.05). Both variables have in more than 70% of all regressions the predicted sign and are statistically significant at approximately the same level.

6.5.5   Testing model overview

The main purpose of this section is to test the hypotheses that were developed following the literature review. The testing is based on Equations (7) and (8) and adjusted accordingly to fit the individual purpose of the model. The Models A to D are used for testing the hypotheses, while Models E to G provide additional information and are used for performing robustness tests.

Hypothesis testing models

- **Model A** - Overall presence of classification shifting --> Testing H3
- **Model B** - Split of positive and negative reporting discontinued events --> Testing H3
- **Model C** – Meet/beat forecast guidance --> Testing H4
- **Model D** - Compliance with accounting covenants in a lender's contract --> Testing H5

Alternative models without testing hypothesis

- **Model E** - Type of audit firm
- **Model F** - Internal monitoring
- **Model G** - Robustness tests

The Models E and F provide further insights from a governance point of view as to whether internal monitoring and the type of auditor help to mitigate the potential presence of classification shifting. It indirectly validates the results of the Models A to D.

Furthermore, the robustness test under Model G includes a series of tests aiming to validate and challenge the statistical outcome of all models. First, it challenges the unexpected level and change of continuing earnings by repeating all models using an alternative measuring approach similar to Chagnaadorj (2018). Second, it validates the results of the core Model B based on a sub-sample that takes into account the different discontinued reporting events A, B, and C, similar to Chapter 5. Third, a further validity test is performed by clustering all results at firm level similar to study of Ji, Potepa and Rozenbaum (2019) but which has not been considered in the earlier study of Barua, Lin and Sbaraglia (2010).

In order to test the hypothesis whether companies engage in classification shifting, it is predicted that a positive association (+ coefficient on $\beta_{xy} > 0$; variables of interest) exists between unexpected continuing earnings and reported discontinued operations in year t and

a negative association (- coefficient on $\varphi_{xy} < 0$; variables of interest) between the change in unexpected continuing earnings in year *t+1* and reported discontinued operations in year *t*.

The following regression results of all models include both discontinued and non-discontinued reporting firms. Firms not reporting discontinued operations are set to zero in terms of discontinued variables (e.g. %DO *t* and %DO *t+1*).

6.5.6   Model A and H3: (Total discontinued result)

To test H3 the construction of the regression according to McVay (2006) is followed but specific control variables are added similar to (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019), as discussed in Section 6.4.4. According to Table 25 the control variables used indicate significant differences of at least at 5% levels using a t-test and Wilcoxon Rank Test between firms applying discontinued operations and non-applying firms. This leads to the following equations:

- $$UEC_t = \beta_0 + \beta_1 \%DO_t + \beta_2 SIZE_t + \beta_3 ACCRUALS_{t-1} + \beta_4 ACCRUALS_t + \beta_5 OCF_t + \beta_6 ROA_t + \epsilon_t \qquad (9)$$

- $$\triangle UEC_{t+1} = \varphi_0 + \varphi_1 \%DO_t + \varphi_2 \%DO_{t+1} + \varphi_3 SIZE_t + \varphi_4 ACCRUALS_{t-1} + \varphi_5 ACCRUALS_t + \varphi_6 OCF_t + \varphi_7 ROA_t + v_t \qquad (10)$$

The test results in the following table report all year-end reporting observations from year 2009 to 2017 from listed companies in the UK, Germany and Switzerland for Equations (9) and (10).

It is expected that the variable %DO *t* of the first regression is positively associated with unexpected level of continuing earnings, whereas it is negatively associated in the second regression. Overall, this would provide evidence that firms engage in classification shifting.

	Dependent variable: UECt			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=8'807)		B	t		B	t
(Constant)		-0.018	-6.836 ***		-0.016	-2.089 **
% DO t	+	0.075	8.193 ***	-	-0.247	-9.339 ***
% DO t+1	n/a			n/a	0.322	13.430 ***
SIZE t	n/a	0.001	2.079 **	n/a	0.006	5.828 ***
ACCRUALS t-1	n/a	-0.012	-2.568 ***	n/a	0.599	45.573 ***
ACCRUALS t	n/a	-0.008	-1.562	n/a	-0.894	-58.836 ***
OCF t	n/a	0.203	23.697 ***	n/a	-0.127	-5.151 ***
ROA t	n/a	0.059	7.960 ***	n/a	0.017	0.792
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		14.37%			36.38%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO t and %DO t+1 (use a one-tailed t-test) Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 30: Regression results classification shifting Model A

For Equation (9), the coefficient on %DO *t* is significant (β_1=0.075, p<0.01) and positive, which is consistent with the prediction. This first result can be interpreted as showing that firms overall report abnormal continuing earnings in year *t* when applying discontinued operations. As the coefficient is positive, it provides evidence that companies report higher continuing EBITDA margins, as expected. Focusing solely on the results of Equation (9) it can be concluded that overall operating improvements have been made compared to non-discontinued firms, but it is unclear whether from real economic improvements, classification shifting or a combination of both.

Looking at the change of unexpected continuing earnings in year *t+1* in the above table, which represents the test results for Equation (10), it becomes obvious that the variable %DO *t* is also both negative and significant (φ_1=-0.247, p<0.01). This can be interpreted as showing that the abnormal level of EBITDA margin in year *t* reappears in year *t+1*. Or in other words, it provides evidence that overall the unexpected EBITDA margin in year *t* is not driven or not entirely driven by economic improvements, but by expenses shifted in year *t* from the

continuing area to discontinued operations, as the expenses reappear in year *t+1*. This finding is consistent with Barua, Lin and Sbaraglia (2010).

6.5.7 Model B and H3: (Loss reporting vs. profit reporting)

The results from Model A provide clear evidence that discontinued firms in the scope of the survey overall engage in classification shifting. However, the question arises whether a more detailed analysis provides more insights on the different incentives of engaging in shifting expenses. Following Barua, Lin and Sbaraglia (2010), a distinction between profitable and loss-making discontinued operations is made and the variable %DO *t* from Equations (9) and (10) is replaced by % DO_POS *t* and % DO_NEG *t* to see whether classification shifting is present in both situations. This leads to the following equations:

- $UEC_t = \beta_0 + \beta_1\%DO\_POS_t + \beta_2\%DO\_NEG_t + \beta_3SIZE_t + \beta_4ACCRUALS_{t-1} + \beta_5ACCRUALS_t + \beta_6OCF_t + \beta_7ROA_t + \in_t$ (11)

- $\triangle UEC_{t+1} = \varphi_0 + \varphi_1\%DO\_POS_t + \varphi_2\%DO\_NEG_t + \varphi_3\%DO\_POS_{t+1} + \varphi_4\%DO\_NEG_{t+1} + \varphi_5SIZE_t + \varphi_6ACCRUALS_{t-1} + \varphi_7ACCRUALS_t + \varphi_8OCF_t + \varphi_9ROA_t + v_t$ (12)

Discontinued operations reporting a loss are generally more exposed, or have more incentive to misclassify expenses. The background on this is that a firm in such a situation can benefit in many ways, impacted by the following:

- First, they can inflate the continuing earnings, which gives them more leverage to underline that the new "continuing business strategy" works out and benefits the investors, who value recurring earnings more highly than non-recurring earnings (Lipe, 1986; Kormendi and Lipe, 1987; Bartov and Mohanram, 2014). Second, they have better arguments to exit a business that is loss-making, as the loss on discontinued operations further increases.

- Second, Kaplan, Kenchington and Wenzel (2019) argue that valuation considerations explain an asymmetric behaviour of firms only shifting expenses into income-decreasing discontinued operations. In other words, shifting expenses in a situation

where a firm reports positive discontinued operations comes at a price, lowering the potential purchase price, while shifting expenses into a loss-reporting discontinued operation is less value relevant. The valuation model of Kaplan, Kenchington and Wenzel (2019) is constructed considering the notion that firm profits are more value relevant to equity markets than firm losses. In this sense, management need to decide between the benefits of increasing continuing earnings versus lowering the potential purchase price.

- Third, the "big bath" hypothesis, which is also mentioned by Barua, Lin and Sbaraglia (2010) in this context could influence the decision by the managers to misclassify expenses or to set up provisions at the upper limit in this particular situation. In case a discontinued operation might be already in a loss-making situation it does not matter to further increase the losses on the "bad" discontinued result, which in turn increases the recurring continuing results.

- Fourth, another aspect in this context is that loss-making discontinued operations often have a history of poor operating performance. Therefore, the bad message of poor performance is no surprise to the market. At this point in time it might also be a good opportunity for managers to introduce clearing activities, where the root cause of some items is not necessarily related to discontinued operations and might go back many years in the company's history. In such a case management and auditors might have changed many times since, and documentation of the accounting issues and background is not available anymore. Such an opportunity might help firms to dispose of old toxic accounting issues by classifying them to discontinued operations which would potentially lower future core earnings.

- Fifth, apart from the motivation to shift or not shift expenses into discontinued operations, the opportunity to shift expenses is limited. First, any excessive expenses shifted to discontinued operations as a result of setting up accruals or provision (e.g. warranty, tax or indemnity provisions) reverse at some point following the sale. The release in provision and accruals needs again to be recognised under discontinued operations. Second, huge amounts well above a common audit materiality threshold would also likely to be questioned by the auditors.

It appears that firms have more incentive to engage in classification shifting to increase continuing earnings in a negative rather than in a positive discontinued financial setting. Therefore, it is expected that negative reporting discontinued operations are positively

associated with the level of unexpected continuing earnings in year *t* and negatively associated with the change in year *t+1*.

The following Model B divides the reported discontinued result into loss-making (%DO Neg *t*) results and profit-reporting discontinued results (%DO Pos *t*):

	Dependent variable: UECt			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=8'805)		B	t		B	t
(Constant)		-0.018	-6.834 ***		-0.016	-2.130 **
% DO_POS t	+	-0.034	-1.872 **	-	-0.093	-1.774 **
% DO_NEG t	+	0.101	8.657 ***	-	-0.448	-13.054 ***
% DO_POS t+1				n/a	0.096	2.039 **
% DO_NEG t+1				n/a	0.418	14.854 ***
SIZE t	n/a	0.001	1.853 *	n/a	0.006	5.735 ***
ACCRUALS t-1	n/a	-0.012	-2.713 ***	n/a	0.594	45.357 ***
ACCRUALS t	n/a	-0.008	-1.588	n/a	-0.877	-57.549 ***
OCF t	n/a	0.206	24.016 ***	n/a	-0.118	-4.815 ***
ROA t	n/a	0.056	7.585 ***	n/a	0.010	0.459
Fixed effects Industry	YES			YES		
Fixed effects Country	YES			YES		
Adjusted R²	14.45%			37.05%		

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO_POS t, %DO_NEG t, %DO_POS t+1, and %DO_NEG t+1 (use a one-tailed t-test)
Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 31: Regression results classification shifting Model B

Consistent with the prediction, the variable %DO_NEG *t* has in both years *t* and *t+1* the expected signs. In terms of unexpected levels in year *t* the variable is statistically significant (β_2=0.101, p<0.01), as well as for year *t+1* (φ_2=-0.448, p<0.01) indicating that a number of firms reporting loss-making discontinued operations have shifted expenses to the discontinued line. However, the prediction does not hold true for firms reporting positive discontinued operations, as the variable does not have the predicted sign (first regression). This result suggests that only loss-reporting discontinued firms tend to misclassify expenses and engage in classification shifting. This finding is consistent with others (Barua, Lin and Sbaraglia, 2010; Ji, Potepa and Rozenbaum, 2019; Kaplan, Kenchington and Wenzel, 2019).

Based on the test results according to Model A and Model B, in combination with the descriptive statistics and the results from the correlation matrix, it can be concluded that Hypothesis (H3) can be supported, and that firms applying discontinued operations in the UK, Germany and Switzerland generally engage in classification shifting in cases where they report loss-making discontinued operations.

The results also support the outcome from the initial classification (refer to section 6.3) as it appears that firms that shift expenses into income decreasing discontinued operations have also a higher motivation to initially apply discontinued operations.

However, classification might be also present in cases where companies report positive discontinued operations, depending on individual circumstances and motivations. It appears that a trade-off exists between higher current core earnings and potential lower discontinued operations. According to the current results from Model B this hypothesis cannot be confirmed, but might be present under specific circumstances (e.g. meeting continuing EBITDA benchmarks to directly benefit from performance pay). In this case managers would weigh a personal salary higher than a higher purchase price at the expense of the shareholders, which would indicate principal – agent conflict and represent a further avenue of research.

6.5.8   Model C and H4: (Meet and Beat investors' expectations)

Model C aims to investigate whether firms tend particularly to misclassify expenses to meet or beat earning expectations by investors. Firms do regularly maintain their investors' community by feeding them with relevant business information from which future expectations can be derived. Most important is the outlook information, where analysts might change their models and recommendations to buy, hold or sell shares. If expectations are missed, it might lead to a falling share price as soon as this new information becomes available in the market. As a result, shareholders may become impatient and the pressure on the company increases, especially on the management. Furthermore, the remuneration of management is often based on share prices, and CEOs might experience adverse effect on annual cash bonuses when earnings fall short of the consensus analyst forecast (Matsunaga and Park, 2001). For this reason, the management is basically interested in seeing that share prices rise, or that the company generates at least a risk-adjusted return and meets the analyst forecast.

According to the descriptive information in Table 24 and Table 25, discontinued firms do meet and beat the last-issued median consensus analyst forecast by 1.6% (median terms), whereas non-discontinued firms have a slightly lower ratio of 1.5% (median terms).

To investigate whether firms engage in classification shifting to meet or beat the EPS earnings guidance, the estimate of classification shifting calculated per firm is compared to the EPS earnings guidance. Following an approach similar to McVay (2006, p.522) a dummy variable is created that takes on 1 if the estimate of classification shifting in year t is greater than the pre-tax forecast error, and zero otherwise. This dummy variable (ESTIMATE > SURPRISE_DUMMY t) represents 27% of all observations, meaning that almost one third of the companies have classified expenses in year t from the continuing area to the discontinued area greater than the positive forecast error (positive surprise). Comparing this group, which makes up one third of the sample with the rest of the sample, it becomes obvious that firms where the estimate is greater than the positive surprise have a significantly lower ROA t(7829) = 6.927, p>0.01, lower sales growth from year t-1 to t, $t(7829)$ = -3.730, p<0.01 but are greater in size $t(7829)$ = 3.544, p <0.01 using a one-tailed t-test. This might also confirm the increased pressure to deliver the results that have been promised to the capital market.

Following Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), and based on the evidence from Model B that particularly negative reporting discontinued operations engage in classification shifting, the following equations are defined:

- $UEC_t = \beta_0 + \beta_1 \%DO\_NEG_t + \beta_2 ESTIMATE > SURPRISE\_DUMMY_t + \beta_3 MEAT\&BEAT\_DUMMY * \%DO\_NEG_t + \beta_4 SIZE_t + \beta_5 ACCRUALS_{t-1} + \beta_6 ACCRUALS_t + \beta_7 OCF_t + \beta_8 ROA_t \in_t$ (13)

- $\triangle UEC_{t+1} = \varphi_0 + \varphi_1 \%DO\_NEG_t + \varphi_2 ESTIMATE > SURPRISE\_DUMMY_t + \varphi_3 MEAT\&BEAT\_DUMMY * \%DO\_NEG_t + \varphi_4 \%DO\_NEG_{t+1} + \varphi_5 SIZE_t + \varphi_6 ACCRUALS_{t-1} + \varphi_7 ACCRUALS_t + \varphi_8 OCF_t + \varphi_9 ROA_t + v_t$ (14)

It is predicted that the variable of interest ESTIMATE > SURPRISE_DUMMY * %DO_NEG t is positively associated with dependent variables in Equation 13 and negatively in Equation 14. This would provide evidence that firms, particularly reporting negative discontinued operations, make use of classification shifting to meet or beat investors' expectations.

	Dependent variable: UEC t			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=7'831)		B	t		B	t
(Constant)		-0.030	-11.238 ***		-0.020	-2.541 **
% DO_NEG t	n/a	-0.061	-2.554 **	n/a	0.031	0.436
ESTIMATE > SURPRISE_DUMMY t	n/a	0.050	30.135 ***	n/a	0.011	2.175 **
ESTIMATE > SURPRISE_DUMMY t * % DO_NEG t	+	0.112	4.255 ***	-	-0.467	-5.967 ***
% DO_NEG t+1				n/a	0.426	13.997 ***
SIZE t	n/a	0.000	1.013	n/a	0.006	5.196 ***
ACCRUALS t-1	n/a	-0.012	-2.548 **	n/a	0.573	40.909 ***
ACCRUALS t	n/a	0.016	2.840 ***	n/a	-0.892	-54.142 ***
OCF t	n/a	0.176	19.550 ***	n/a	-0.075	-2.836 ***
ROA t	n/a	0.052	6.955 ***	n/a	-0.006	-0.276
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		23.02%			38.06%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO_NEG t, ESTIMATE > SURPRISE_DUMMY t * %DO_NEG t, and %DO_NEG t+1 (use a one-tailed t-test).
Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 32: Regression results classification shifting Model C1

As expected, the coefficients on the variables of interest have the predicted signs and are statistically significant in both regressions (β_3=0.112, p<0.01) and (φ_3=-0.467, p<0.01) respectively. This finding is consistent with Hypothesis H4.

The test results suggest that firms applying discontinued operations in the UK, Germany and Switzerland use classification shifting to increase the continuing result to meet and beat the analysts' forecast. This finding is consistent with previous studies (Barua, Lin and Sbaraglia, 2010) and (Ji, Potepa and Rozenbaum, 2019), although they use a broader approach compared to McVay (2006).

This approach is investigated in the next model.

Following Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), who build on the approach of Matsumoto (2002), a dummy variable is created that compares the actual reported EPS minus the last-issued consensus analyst forecast. The following dummy variable (MEET&BEAT_DUMMY t) replaces the previous dummy variable (ESTIMATE > SURPRISE_DUMMY t) in equation (13) and (14) and takes on 1 if firm years have analysts' forecast errors that are non-negative, and zero otherwise. However, this approach does not

factor in that some of the observations have even surprised the capital market without having used classification shifting. As a result, the dummy variable increases and now represents approximately 61.3%, which is significantly more compared to the previous model (27%). This percentage is in line with the study of Ji, Potepa and Rozenbaum (2019, p.33), which reveals a percentage of 63.7%.

Similar to the previous model, it is expected that this dummy variable interacted with %DO_NEG t is positively/negatively associated in the first/second regression.

The following table reports on the results:

	Dependent variable: UECt			Dependent variable: $\triangle$UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=7'828)		B	t		B	t
(Constant)		-0.023	-7.665 ***		-0.023	-2.772 ***
% DO_NEG t	n/a	0.007	0.245	n/a	-0.094	-1.148
EPS_MEET&BEAT_DUMMY t	n/a	0.000	0.018 **	n/a	0.013	2.824 ***
EPS_MEET&BEAT_DUMMY t * % DO_NEG t	+	0.046	1.463 *	-	-0.315	-3.591 ***
% DO_NEG t+1				n/a	0.433	14.365 ***
SIZE t	n/a	0.001	2.666 *	n/a	0.005	4.996 ***
ACCRUALS t-1	n/a	-0.012	-2.337 **	n/a	0.572	41.182 ***
ACCRUALS t	n/a	0.018	3.111 ***	n/a	-0.894	-54.690 ***
OCF t	n/a	0.228	24.331 ***	n/a	-0.086	-3.282 ***
ROA t	n/a	0.043	5.428 ***	n/a	-0.011	-0.490
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		14.17%			38.27%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO_NEG t, EPS_MEET&BEAT_DUMMY t * %DO_NEG t, and %DO_NEG t+1 (use a one-tailed t-test).
Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . However, the exclusion of observations ±3 studentized residuals has resulted in qualitatively different results in terms of significance and sign prediction.

Table 33: Regression results classification shifting Model C2

Consistent with the prediction, the variable MEET&BEAT_DUMMY * %DO_NEG t has in both years t and $t+1$ the expected signs. In terms of unexpected levels in year t the variable is statistically not significant (β_3=0.046, p<0.1) but shows a statistically significant association in the second regression for year $t+1$ (φ_3=-0.315, p<0.01). The results indicate that a number of

firms might shift expenses to meet or beat investors' expectations. However, as the first regression does not indicate significance, or only significance at 10% level, it cannot be concluded by solely using this specific model that firms increase the continuing result to meet and beat the analysts' forecast.

On the other hand, the second model provides evidence that a broader approach results in a similar outcome, which further reinforces the presence of classification shifting to increase the continuing result to meet and beat the analysts' forecast.

6.5.9 Model D and H5: (Lending contract)

The purpose of the following model is to investigate whether classification shifting is prevalent while firms are required to comply with lending contracts.

Siggelkow and Zülch (2013, p.6) state that "most credit agreements contain strict regulations concerning leverage, called debt covenants. The breach of a given covenant can lead to an immediate repayment claim from the creditor, which would result in extensive liquidity problems for most companies". Siggelkow and Zülch (2013) further document that the majority of credit agreements include debt covenants. In this context the literature shows that firms among other factors divest businesses in response to some kind of pressure from lenders, due to their high leverage (Lang, Poulsen and Stulz, 1995; Lasfer, Sudarsanam and Taffler, 1996; Dranikoff, Koller and Schneider, 2002; Veld and Veld-Merkoulova, 2008; Otsubo, 2013; Lord and Saito, 2019).

While this kind of action might be the last resort to resolve severe refinancing problems and/or liquidity issues, Yun, Wayne and Xiaoou (2019) argues that firms also use classification shifting techniques to avoid EBITDA covenant violations in existing lending contracts. Particularly, they observe that classification shifting is prevalent when firms are close to violating at least one EBITDA-related covenant. In this respect, the relationship between agency theory and debt contract was discussed in section 3.2.1.

Furthermore, Roberts and Sufi (2009) document that firms having higher leverage and a weaker credit rating have a higher probability of a covenant violation and are expected to have higher costs of debt violations. Higher financing costs (DeAngelo, DeAngelo and Wruck, 2002; Dichev and Skinner, 2002; Sufi, 2009; Butt, 2015) or the reduction of the net debt/repayment of the outstanding amounts might be adverse consequences if a firm is in breach of an agreed covenant. Against this backdrop, discontinued reporting firms seem to be potentially more

affected by such violations, as the descriptive statistics on Table 25 and Table 7 show statistically significant differences between firms with and without reporting discontinued operations on leverage, equity ratio and net debt/EBITDA ratios. As such, discontinued firms have a higher incentive to misclassify expenses to avoid violating covenants.

The study by Li (2016) provides further evidence that an EBITDA-related metric is the most common accounting-based metric for measuring compliance with loan agreements. Although pure balance sheet-oriented covenants might occur, Li (2016) documents that DCF covenants are the most commonly used earnings-based covenants, accounting for 67% of the sample, which consists of over 2,000 loan agreements. Furthermore, Li (2016) shows that based on 100 randomly examined loan contracts, 82 of the cases exclude a wide range of unusual or extraordinary items from the EBITDA definition.

As discontinued operations are treated as non-recurring items, or items in connection with acquisitions and disposals, it can be concluded that most of the compliance calculations with the lenders exclude the result on discontinued operations. Managers might therefore have an incentive to classify expenses to discontinued operations in cases where the compliance or, for instance, the net debt/EBITDA ratio, is tight in relation to the agreed accounting covenants in a lending agreement. Similarly, the study by Beatty and Weber (2006, p.264) documents regarding goodwill impairment that firms would prefer to obtain below-the-line accounting treatment if they have relatively little covenant headroom and their covenant calculations exclude impairment effects.

Although a lending contract might consist of several accounting covenants, the following analysis concentrates on the net debt/EBITDA, as this ratio appears to be the one most widely used in lending agreements. To analyse the risk structure of the sample, firms are grouped into different net debt/EBITDA risk categories ranging from no risk up to over four. Firms over four are not deemed to have a sustainable debt-to-EBITDA leverage ratio (Damijan, 2018, p.181). Negative net debt-to-EBITDA values are either categorised as no-risk positions or positions >4 in cases where they report negative EBITDA numbers.

Table 34 shows that the majority of the firms (72.2 per cent) are either not exposed to covenants as they do not report positive net debt numbers, or have only limited risks as they report a net debt/EBITDA ratio up to two. Similarly, the leverage ratio in average and median terms gradually increases for the no-risk category and for the group up to two net debt/EBITDA ratio, but remains on a lower level.

Composition of net debt to EBITDA ratio by categories

Categories	Observations	Percentage of Observations	Average Net debt/ EBITDA ratio	Leverage ratio (average total debt divided by total assets)	Leverage ratio (median total debt divided by total assets)
No Risk	3'391	38.5%	-0.85	0.06	0.05
> 0 ≤ 1	1'564	17.8%	0.53	0.16	0.15
> 1 ≤ 2	1'399	15.9%	1.45	0.25	0.24
> 2 ≤ 3	871	9.9%	2.39	0.33	0.30
> 3 ≤ 4	422	4.8%	3.42	0.37	0.35
> 4	1'161	13.2%	4.96	0.40	0.37
TOTAL	**8'808**	**100.0%**	**0.60**	**0.22**	**0.19**

Table 34: Net debt / EBITDA ratio by categories

On the other hand, Roberts and Sufi (2009) argue that firms that are more financially distressed or constrained are expected to have higher costs of debt covenant violations. Looking at the firms that represent the remaining upper net debt/EBITDA group it appears that these firms also have a significant higher leverage ratio. As a consequence, this upper group might be more under pressure, as the covenant headroom is likely to be closer to a violation.

Therefore, it is expected that firms with net debt/EBITDA ratio up to two do not engage in classification shifting, while the upper group face greater incentives to avoid violating the net debt/EBITDA covenants.

In building the specific regressions to test whether firms engage in classification shifting to meet the accounting covenants, the past results of positive and negative discontinued reporting firms are factored in. Similar to the previous Model B it is expected that classification shifting is more prominent with negative reporting discontinued operations.

Consistent with Table 34 the models are divided into six risk categories of net debt/EBITDA ratio each, for positive and negative reporting discontinued operations, which leads to the following equations:

- $UEC_t = \beta_0 + \beta_1\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_NO\_RISK_t + \beta_2\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_0 - 1_t + \beta_3\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_1 - 2_t + \beta_4\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_2 - 3_t + \beta_5\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_3 - 4_t + \beta_6\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_ > 4_t + \beta_7\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_NO\_RISK_t + \beta_8\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_0 - 1_t + \beta_9\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_1 - 2_t + \beta_{10}\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_2 - 3_t + \beta_{11}\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_3 - 4_t + \beta_{12}\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_ > 4_t + \beta_{13}SIZE_t + \beta_{14}ACCRUALS_{t-1} + \beta_{15}ACCRUALS_t + \beta_{16}OCF_t + \beta_{17}ROA_t + \in_t$

$$(15)$$

- $\triangle UEC_{t+1} = \varphi_0 + \varphi_1\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_NO\_RISK_t + \varphi_2\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_0 - 1_t + \varphi_3\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_1 - 2_t + \varphi_4\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_2 - 3_t + \varphi_5\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_3 - 4_t + \varphi_6\%DO\_POS_t * NET\_DEBT\_EBITDA\_CAT\_ > 4_t + \varphi_7\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_NO\_RISK_t + \varphi_8\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_0 - 1_t + \varphi_9\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_1 - 2_t + \varphi_{10}\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_2 - 3_t + \varphi_{11}\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_3 - 4_t + \varphi_{12}\%DO\_NEG_t * NET\_DEBT\_EBITDA\_CAT\_ > 4_t + \varphi_{13}\%DO\_POS_{t+1} + \varphi_{14}\%DO\_NEG_t + \varphi_{15}SIZE_t + \varphi_{16}ACCRUALS_{t-1} + \varphi_{17}ACCRUALS_t + \varphi_{18}OCF_t + \varphi_{19}ROA_t + v_t$

$$(16)$$

The following table shows the test results:

(N=8'808)	Predicted sign	Coefficients B	t	Predicted sign	Coefficients B	t
		Dependent variable: UECt			**Dependent variable: $\triangle$ UEC t+1**	
(Constant)		-0.018	-6.798 ***		-0.016	-2.213 **
% DO_POS t * NET_DEBT_EBITDA_CAT_NO_RISK t	+	0.089	4.345 ***	-	0.007	0.118
% DO_POS t * NET_DEBT_EBITDA_CAT_0-1 t	+	0.029	0.434	-	-0.085	-0.442
% DO_POS t * NET_DEBT_EBITDA_CAT_1-2 t	+	0.011	0.124	-	-0.017	-0.071
% DO_POS t * NET_DEBT_EBITDA_CAT_2-3 t	+	0.089	0.935	-	-0.189	-0.696
% DO_POS t * NET_DEBT_EBITDA_CAT_3-4 t	+	-0.270	-1.324 *	-	0.103	0.178
% DO_POS t * NET_DEBT_EBITDA_CAT_>4 t	+	-0.055	-0.888	-	-0.076	-0.414
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_NO_RISK t	+	0.495	19.540 ***	-	0.249	3.444 ***
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_0-1 t	+	0.088	6.062 ***	-	-0.582	-13.998 ***
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_1-2 t	+	0.121	1.375 *	-	-0.248	-0.986
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_2-3 t	+	0.193	7.219 ***	-	-0.336	-3.999 ***
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_3-4 t	+	0.199	0.816	-	-1.337	-1.926 **
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_>4 t	+	-0.044	-2.129 **	-	-0.008	-0.140
% DO_POS t+1				n/a	0.108	2.239 **
% DO_NEG t+1				n/a	0.399	13.111 ***
SIZE t	n/a	0.001	1.891 *	n/a	0.006	5.704 ***
ACCRUALS t-1	n/a	-0.012	-2.514 **	n/a	0.590	44.958 ***
ACCRUALS t	n/a	-0.010	-1.950 *	n/a	-0.870	-57.037 ***
OCF t	n/a	0.204	23.645 ***	n/a	-0.118	-4.799 ***
ROA t	n/a	0.060	8.078 ***	n/a	0.019	0.902
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		17.64%			37.90%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except all %DO _NET_DEBT variables, %DO_POS t+1, and %DO_NEG t+1 (use a one-tailed t-test).
Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 35: Regression results classification shifting Model D1

As predicted, firms reporting positive discontinued operations do not reveal the presence of classification shifting in any net/debt EBITDA risk class. Even in the upper group greater than two, the variables of interest are either insignificant or do not have the predicted sign.

Focusing on the negative reporting discontinued operations the test results provide evidence that although the category with no-risk shows in both regressions significance, the sign of the second regression is also positive, indicating that no classification shifting exists in this

category. This result suggests that the shifted costs do not reappear in the second year, indicating that higher reported than estimated performance is sustainable and not driven by shifting expenses in year t.

On the other hand, the categories between >0.0x ≤ 1.0x and > 2.0x ≤ 3.0x both indicate the presence of classification shifting. The first regression indicates in both categories the predicted positive sign and significance at 1% levels (β_2=0.088, p<0.01, β_4=0.193, p<0.01). In terms of the change both categories indicate negative signs and significance (φ_2=-0.582, p<0.01, φ_4=-0.336, p<0.01). While the results of the category > 2.0x ≤ 3.0x are in line with the prediction, the lower category between >0.0x ≤ 1.0x and the categories greater > 3.0x, where classification shifting would also have been expected, are not in line with the prediction. This will be further explored in the following Model D2.

The test results from Table 35 might be biased by other incentives not yet captured in the existing model. According to the test results of Model C, firms also engage in classification shifting to meet and beat the analysts' forecast. Similar to Yun, Wayne and Xiaoou (2019), who include additional control variables for meet and beat incentives, the following approach aims to rule out the influence from the test results under Model C. For this, the sample from Model C is used and adjusted for cases that have an incentive to meet and beat the analysts' forecast, but do not report net debts or net debt/EBITDA in the category between zero and 1. As a result, the sample is reduced by a total 1,286 observations (thereof 850 allocated to no-risk observations, 427 to net debt/EBITDA category zero to 1, and nine related to outlier adjustments). It is assumed that these excluded observations are exclusively related to the incentive to meet and beat the analyst's forecast, but not to the incentive to meet potential accounting covenants in a lending agreement.

Based on this approach, the Equations (15) and (16) are repeated. The following Table 36 displays the results:

	Dependent variable: UECt			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=6'545)		B	t		B	t
(Constant)		-0.032	-11.590 ***		-0.019	-2.275 **
% DO_POS t * NET_DEBT_EBITDA_CAT_NO_RISK t	+	0.047	1.325 *	-	-0.031	-0.291
% DO_POS t * NET_DEBT_EBITDA_CAT_0-1 t	+	0.134	1.652 **	-	-0.077	-0.312
% DO_POS t * NET_DEBT_EBITDA_CAT_1-2 t	+	-0.008	-0.106	-	-0.028	-0.114
% DO_POS t * NET_DEBT_EBITDA_CAT_2-3 t	+	0.066	0.763	-	-0.213	-0.805
% DO_POS t * NET_DEBT_EBITDA_CAT_3-4 t	+	-0.336	-1.800 **	-	0.067	0.117
% DO_POS t * NET_DEBT_EBITDA_CAT_>4 t	+	-0.098	-1.724 **	-	-0.099	-0.550
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_NO_RISK t	+	-0.033	-0.828	-	0.391	3.196 ***
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_0-1 t	+	0.676	2.240 **	-	-0.315	-0.342
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_1-2 t	+	0.137	1.704 **	-	-0.273	-1.115
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_2-3 t	+	0.195	7.989 ***	-	-0.434	-5.225 ***
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_3-4 t	+	0.216	0.974	-	-1.333	-1.979 **
% DO_**NEG** t * NET_DEBT_EBITDA_CAT_>4 t	+	-0.040	-2.112 **	-	-0.014	-0.236
% DO_POS t+1				n/a	0.104	2.039 **
% DO_NEG t+1				n/a	0.478	14.931 ***
SIZE t	n/a	0.002	5.085 ***	n/a	0.006	4.696 ***
ACCRUALS t-1	n/a	-0.009	-1.664 *	n/a	0.577	36.719 ***
ACCRUALS t	n/a	0.021	3.273 ***	n/a	-0.848	-44.429 ***
OCF t	n/a	0.212	20.546 ***	n/a	-0.076	-2.419 **
ROA t	n/a	0.043	5.244 ***	n/a	-0.011	-0.430
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R[2]		13.72%			31.84%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except all %DO _NET_DEBT variables, %DO_POS t+1, and %DO_NEG t+1 (use a one-tailed t-test).
Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 36: Regression results classification shifting Model D2

As predicted and consistent with the test result of Table 35, firms reporting positive discontinued operations as well as firms in the category with no outstanding net debts do not engage in classification shifting, as the results are either insignificant or do not have the predicted signs. In addition, and in line with the prediction, the category 0 - 1 in the negative reporting discontinued operations category no longer exhibits the presence of classification shifting after controlling for the incentive effects of meat and beat analysts' forecast of Model C.

However, the categories greater than 3.0x still do not indicate the presence of classification shifting. A possible explanation is that these companies need to be immediately restructured, bear a severe risk of illiquidity and/or have already reached technical default and violated the agreed covenants. Roberts and Sufi (2009, p.1668) report the effects of a covenant violation on capital structure and find that on average a leverage ratio of 0.29 corresponds to a covenant violation. Comparing the categories over 3.0x in Table 34 it becomes evident that the leverage ratio in these categories (3.0x = 0.37 and >4.0x = 0.40) are both considerably over this threshold. Thus, in these categories it seems likely that firms have already crossed the covenants thresholds and classification shifting, therefore this appears to no longer be an appropriate tool to prevent any accounting covenants breach.

As predicted, the size category between 2 and 3 provides evidence that firms engage in classification shifting, as both regressions have the predicted signs and show significance at the 1% level (β_{10}=0.195, p<0.01, φ_{10}=-0.434, p<0.01). A leverage ratio of 0.29 as described by Roberts and Sufi (2009, p.1668) corresponds to the net debt/EBITDA category between 2 and 3, as Table 34 reports on average a leverage ratio of 0.33 in mean terms and 0.30 in median terms respectively. This reinforces the view that specifically in this category the headroom appears to be tight, and firms have a greater incentive to misclassify expenses to avoid violating accounting covenants.

Based on the test results it can be concluded that Hypothesis H5 can be supported, and that firms applying discontinued operations in the UK, Germany and Switzerland generally engage in classification shifting in order to comply with potential covenants in a lending contract. However, this only holds true if the net debt/EBITDA ratio lies between 2.00x and 3.00x, and if firms reporting income-decreasing discontinued operations. The incentive in this area to engage in classification shifting appears to be higher, as the covenant headroom in this area seems to be tighter to avoid potential debt covenant violation and its potential adverse consequences such as higher interest rates (DeAngelo, DeAngelo and Wruck, 2002; Dichev and Skinner, 2002; Sufi, 2009; Butt, 2015) and higher cost of new debt (Butt, 2019) or a decline in capital spending (Chava and Roberts, 2008) or introduction of capital spending restrictions (Nini, Smith and Sufi, 2009).

Furthermore, the test results are also supportive of and consistent with Model B and therefore Hypothesis H3, as only the category 2.00x and 3.00x in the negative reporting discontinued operations, reveals the presence of classification shifting.

6.5.10 Model E: (Type of audit firm)

(Haw, Ho and Li, 2011) find that classification shifting in eight Asian countries relates to Big Four auditors and control structure. Although each firm is responsible for preparing the financial statements, audit firms play an important role in identifying potential errors in classification shifting while applying discontinued operations. As part of their audit procedures as set out by (International Auditing and Assurance Standards Board (IAASB), 2018), the classification of items allocated from the discontinued area should be discussed with the management and additional audit evidence obtained, to conclude that the discontinued area only includes expenses that are linked to the discontinued transaction. However, the interpretation of the expenses associated with discontinued operations is not clear, and the standard does not give any guidance. The following model aims to examine whether differences exist among audit firms in preventing classification shifting.

For each Big Four audit firm as well as for no Big Four auditors, a separate dummy variable is assigned and multiplied with the %DO variable (discontinued operations as a percentage of sales).

This leads to the following equations:

- $$UEC_t = \beta_0 + \beta_1 \%DO\_DELOITTE_t + \beta_2 \%DO\_EY_t + \beta_3 \%DO\_KPMG_t + \beta_4 \%DO\_PWC_t + \beta_5 \%DO\_NON\_BIG\_FOUR_t + \beta_6 SIZE_t + \beta_7 ACCRUALS_{t-1} + \beta_8 ACCRUALS_t + \beta_9 OCF_t + \beta_{10} ROA_t + \in_t \qquad (17)$$

- $$\triangle UEC_{t+1} = \varphi_0 + \varphi_1 \%DO\_DELOITTE_t + \varphi_2 \%DO\_EY_t + \varphi_3 \%DO\_KPMG_t + \varphi_4 \%DO\_PWC_t + \varphi_5 \%DO\_NON\_BIG\_FOUR_t + \varphi_6 DO_{t+1} + \varphi_7 SIZE_t + \varphi_8 ACCRUALS_{t-1} + \varphi_9 ACCRUALS_t + \varphi_{10} OCF_t + \varphi_{11} ROA_t + v_t \qquad (18)$$

It is expected that no variable that is associated with the Big Four audit companies is significant, as those companies tend to deliver high-quality audits due to their well-educated staff, their in-depth audit experience across industries, and due to technical IFRS departments actively involved in an audit prior to issuance of an audit opinion.

The following results provide insights on the presence of classification shifting in case of the involvement of different audit firms:

	Dependent variable: UECt			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=8'806)		B	t		B	t
(Constant)		-0.018	-6.871 ***		-0.015	-2.018 **
% DO_Deloitte t	n/a	0.061	1.690 **	n/a	0.036	0.347
% DO_EY t	n/a	0.030	0.602	n/a	-0.142	-0.990
% DO_KPMG t	n/a	-0.019	-0.840	n/a	0.050	0.751
% DO_PWC t	n/a	0.086	6.329 ***	n/a	-0.488	-12.572 ***
% DO_NON_BIG_FOUR t	n/a	-0.071	-1.812 **	n/a	-0.119	-1.062
% DO t+1				n/a	0.310	12.355 ***
SIZE t	n/a	0.001	1.996 **	n/a	0.006	5.662 ***
ACCRUALS t-1	n/a	-0.012	-2.661 ***	n/a	0.592	45.099 ***
ACCRUALS t	n/a	-0.008	-1.419	n/a	-0.874	-56.961 ***
OCF t	n/a	0.205	23.993 ***	n/a	-0.121	-4.941 ***
ROA t	n/a	0.055	7.473 ***	n/a	0.015	0.731
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		14.23%			36.93%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO_EY t, %DO_KPMG t, %DO_PWC t, %DO_NON_BIG_FOUR t, and %DO t+1 (use a one-tailed t-test).
Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 37: Regression results classification shifting Model E1

The results from Table 37 show that firms applying discontinued operations having PwC as a Big Four auditor engage in classification shifting. The discontinued operations PwC variable (% DO_ PwC t) has a positive sign and is statistically significant in year t (β_4=0.086, p<0.01) and has an opposite statistically significant effect in the second regression showing the change in year $t+1$ (φ_4=-0.488, p<0.01). For all other firms the test results indicate that the corresponding variables of interest are either not statistically significantly at levels lower than 5%, or do not have the predicted signs.

This result underlines that classification of expenses between the continuing and discontinued section is a grey area and leaves room for interpretation and judgement for firms as well for auditors.

On the other hand, the audit procedures are limited to the extent that immaterial amounts are not scrutinised. This raises the question of whether the test result changes in consideration of a commonly audited materiality benchmark. While a percentage of the EBT (earnings before taxes) dominates in practice to determine an appropriate materiality benchmark in a discontinued operation, setting a benchmark calculated from total sales seems to be more appropriate. This is because many discontinued operations report losses and are treated as non-recurring items. According to FRC (2017) a general audit materiality between 0.5 percent and 2 percent of company's sales might be an appropriate range to set materiality. The sample is divided into two groups. The first group consists of all observations greater than plus/minus 1% of unexpected continuing earnings (UEC t is the percentage of unexpected continuing earnings scaled by sales t) whereas the second group contains only observations greater than plus/minus 2%.

	Predicted sign	Dependent variable: UECt Materiality level > ±1% UEC t (Coefficients) B	t	Materiality level > ±2% UEC t (Coefficients) B	t	Predicted sign	Dependent variable: ΔUEC t+1 Materiality level > ±1% UEC t (Coefficients) B	t	Materiality level > ±2% UEC t (Coefficients) B	t
(Constant)		-0.022	-6.191 ***	-0.022	-4.674 ***		-2.227	0.026 **	-0.039	-2.783 ***
% DO_Deloitte t	n/a	0.062	1.439 *	0.172	3.608 ***	n/a	0.026	0.229	0.078	0.556
% DO_EY t	n/a	0.031	0.525	0.041	0.542	n/a	-0.180	-1.151	-0.189	-0.856
% DO_KPMG t	n/a	0.070	3.195 ***	0.072	2.759 ***	n/a	-0.065	-1.101	-0.068	-0.865
% DO_PWC t	n/a	0.073	4.519 ***	0.079	3.972 ***	n/a	-0.567	-13.352 ***	-0.550	-9.382 ***
% DO_NON_BIG_FOUR t	n/a	-0.060	-1.276	0.109	3.255 ***	n/a	-0.015	-0.123	-0.013	-0.137
% DO t+1						n/a	0.293	11.013 ***	0.296	8.322 ***
SIZE t	n/a	0.001	2.198 **	0.002	2.308 **	n/a	0.007	5.514 ***	0.011	5.667 ***
ACCRUALS t-1	n/a	-0.023	-3.549 ***	-0.033	-4.158 ***	n/a	0.530	30.694 ***	0.618	26.384 ***
ACCRUALS t	n/a	0.017	2.596 ***	0.019	2.391 **	n/a	-0.773	-44.137 ***	-0.853	-36.373 ***
OCF t	n/a	0.266	24.127 ***	0.294	21.207 ***	n/a	-0.064	-2.213 **	-0.124	-3.050 ***
ROA t	n/a	0.055	5.942 ***	0.072	6.176 ***	n/a	-0.056	-2.324 **	-0.062	-1.800 *
Fixed effects Industry		YES		YES			YES		YES	
Fixed effects Country		YES		YES			YES		YES	
N		6'754		5'131			6'754		5'131	
Adjusted R²		16.50%		17.93%			33.08%		30.17%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO_EY t, %DO_KPMG t, %DO_PWC t, %DO_NON_BIG_FOUR t, and %DO t+1 (use a one-tailed t-test).

Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 38: Regression results classification shifting Model E2

In consideration of these materiality benchmarks, it becomes evident from the test results in Table 38 that PwC does also tolerate classification shifting if transactions are selected that are higher than 1% UEC *t* (β_4=0.073, p<0.01) and have an opposite statistically significant effect in the second regression showing the change in year *t+1* (φ_4=-0.567, p<0.01).

Even looking at the higher benchmark of (2%), the presence of classification shifting with the corresponding PwC variables persists and indicates statistical significance at the 1 percent levels (β_4=0.079, p<0.01) in terms of the first regression and (φ_4=-0.550, p<0.01) in year *t+1*.

The result provide evidence that materiality with PwC audited firms do not play a role in deciding whether classification shifting is accepted or not. A possible explanation is that a wrong classification does not impact net results, equity or total assets which is in contrast to

an audit finding arising from overstated accounts receivables or understated provisions. This might be the reason why audit firms and in particular PwC pay less attention to reclassification items.

In line with Table 38 a further detailed test is performed by repeating Equations (17) and (18) on a country basis and considering a materiality level of greater than ± 2 per cent of unexpected earnings in year *t*. Two subsamples consisting of UK-located firms and German/Swiss-located firms are constructed and show qualitatively similar results, indicating that PwC-audited firms do engage in classification shifting. Although fixed effects on country level are considered in the model of the whole sample, this test rules out the influence of the legal institution and associated investor protection and audit practices among different regions.

6.5.11 Model F (Internal monitoring)

Besides the loss-making discontinued operations, the internal structure of reporting to senior management might further benefit the opportunity to misclassify costs to discontinued operations. Haw, Ho and Li (2011) report that the control structure influences the presence of classification shifting in eight Asian countries.

The purpose of this model is to investigate whether an internal reporting structure helps to prevent classification shifting. According to IFRS 8 *Operating Segments* a company is required to disclose the reportable segments separately. However, IFRS 5 is not clear on the relation between the discontinued standard and segment reporting standard (Lüdenbach and Hoffmann, 2013). This leads to an uncertainty as to whether or not firms are required to disclose separately a reportable segment as part of their segment reporting, after initial classification of discontinued operations. In IFRS 5.5B disclosures in other IFRSs do not apply unless specific disclosures are required. IFRS 8 *Operating Segments* is silent on the disclosure requirements for discontinued operation, however KPMG (2017b) is of the opinion that if the discontinued operations are still part of the reporting to the CODM, the same rules should be applied in the external segment reporting. IFRS 8 *Operating Segments* is based on the management approach, and the degree of disclosure of the reportable segment depends on the internal reporting to the CODM.

Terminating disclosing discontinued operations in a year-end reporting event after the initial classification would indicate that senior management is no longer concerned with the businesses to be sold. Following the slogan "out of sight, out of mind", this could constitute a further opportunity to misclassify costs.

To investigate whether the internal monitoring plays a role in classification shifting while applying discontinued operations, a dummy variable is created that takes on 1 if the segment reporting still contains the information according to IFRS 8.23 of the discontinued operation after initial classification. The partial sample includes year-end reporting events from 2015 to 2017, where this manually collected disclosing information is gathered from annual reports.

This leads to the following equations:

- $$UEC_t = \beta_0 + \beta_1 \%DO_t + \beta_2 DUMMY\_MONITORING_t +$$
$$\beta_3 \%DUMMY\_MONITORING * \%DO_t + \beta_4 SIZE_t + \beta_5 ACCRUALS_{t-1} +$$
$$\beta_6 ACCRUALS_t + \beta_7 OCF_t + \beta_8 ROA_t + \in_t \qquad (19)$$

- $$\triangle UEC_{t+1} = \varphi_0 + \varphi_1 \%DO_t + \varphi_2 DUMMY\_MONITORING_t +$$
$$\varphi_3 \%DUMMY\_MONITORING * \%DO_t + \varphi_4 \%DO_{t+1} + \varphi_5 SIZE_t +$$
$$\varphi_6 ACCRUALS_{t-1} + \varphi_7 ACCRUALS_t + \varphi_8 OCF_t + \varphi_9 ROA_t + v_t \qquad (20)$$

In cases where the financial information of the discontinued operation is disclosed in the segment reporting after initial classification, it seems likely that the line managers of the discontinued operation are still required to provide financial information to the senior management (CODM). Along with the financial information line managers usually need to comment on the figures provided. As a consequence, monitoring activities are in place on a lower component level, but also on senior management level. This would not necessarily be the case in situations where the senior management (CODM) does not receive detailed information about discontinued operations after the decision to sell the operation.

Therefore, it is predicted that the monitoring activities have a positive influence on classification shifting, meaning that internal reporting supports the absence of classification shifting. As a consequence, the first regression should have a negative sign, whereas the second regression should exhibit a positive sign in case monitoring activities support the absence (unlike all previous models).

	Dependent variable: UECt			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=2'931)		B	t		B	t
(Constant)		-0.016	-3.398 ***		-0.010	-1.015
% DO t	n/a	0.169	8.311 ***	n/a	-0.041	-1.003
DUMMY_MONITORING t	n/a	-0.021	-2.814 ***	n/a	-0.026	-1.724 *
DUMMY_MONITORING t * %DO t	-	-0.243	-6.972 ***	+	0.236	3.324 ***
% DO t+1				n/a	0.040	1.322 *
SIZE t	n/a	0.001	1.277	n/a	0.005	4.086 ***
ACCRUALS t-1	n/a	-0.011	-1.450	n/a	0.671	44.258 ***
ACCRUALS t	n/a	-0.068	-6.878 ***	n/a	-1.020	-51.034 ***
OCF t	n/a	0.134	9.109 ***	n/a	-0.132	-4.414 ***
ROA t	n/a	0.077	5.994 ***	n/a	0.105	4.048 ***
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		14.13%			53.77%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO t, DUMMY_MONITORING t * %DO t, and %DO t+1 (use a one-tailed t-test).

Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations. Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively different results in terms of significance and sign prediction.

Table 39: Regression results classification shifting Model F

Consistent with the prediction, the variable DUMMY MONITORING * %DO *t* has in both years *t* and *t+1* the expected signs. In terms of unexpected levels in year *t* the variable is statistically significant (β_3=-0.243, p<0.01) as well as for year *t+1* (φ_3=0.236, p<0.01), indicating that internal monitoring activities have a positive influence, limiting the expenses to be shifted from the continuing area to discontinued operations.

6.5.12 Model G: (Robustness tests)

a) Sensitivity tests using robust regression

To control for cross-sectional dependence and heteroskedastic and auto-correlated residuals, t-statistics based on robust standard errors are calculated. Following Ji, Potepa and Rozenbaum (2019), Models A – G are repeated by clustering at firm level. This sensitivity test is applied in both regressions, estimating the level of unexpected continuing earnings and change in unexpected continuing earnings. Overall, after clustering at firm level, the test results of all models indicate lower t-values and higher p-values consistent with the considerations of Cameron and Miller (2015). However, the results show that the variables of interest of all models of the sensitivity tests are consistent with the reported OLS regressions results of Models A – G. The following table provides an overview of the sensitivity test per model:

Test results clustering standard errors at firm level

Model	Description	Predicted sign confirmation of		Significance of variables of interest		Cluster
		First regression level UECt	Second regression change in UECt	First regression UECt	Second regression change in UECt	Number of clusters at firm level
Model A	Overall presence of classification shifting	YES	YES	***	**	1'593
Model B	Positive and negative reporting discontinued operations [1]	YES	YES	***	***	1'593
Model C1	Meet/Beat analyst's forecast	YES	YES	**	**	1'401
Model C2	Meet/Beat analyst's forecast	YES	YES	not significant	not significant	1'399
Model D1	Compliance with accounting covenants in a lender's contract [2]	YES	YES	***	***	1'593
Model D2	Compliance with accounting covenants in a lender's contract without incentive to meet and beat analyst's forecast [3]	YES	YES	***	**	1'358
Model E1	Type of audit firm [4]	YES	YES	***	***	1'593
Model E2	Type of audit firm 1% and 2% materiality [4]	YES	YES	***	***	1'305
Model F	Internal monitoring	YES	YES	***	**	1'151
Model G	Robustness model	YES	YES	***	***	1'150

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a one-tailed t-test.

[1] Negative reporting discontinued operations.

[2] %DO_NEG t of category 2-3 reports statistically significance at the 1% levels for the first regression and at 10% levels for the second regression respectively. %DO_NEG t of category 0-1 is statistically significant at the 1% levels in both regressions.

[3] Reporting of %DO_NEG t of category 2-3 without incentive meet/beat analyst forecast.

[4] Consistent with the OLS models E1 and E2 only variable %DO t PwC has the predicted signs and is significant (except materiality level above 2%).

Table 40: Test results clustering standard errors at firm level

b) Type of firms

The sample used in the previous analysis to test for the presence of classification shifting consists of different types of companies. Type A and Type B firms are those which are in the process of selling a substantial part of the business, while Type C firms only report additional expenses or income related to previously executed transactions. In addition, the full sample also includes pure "restatement" effects arising mechanically from the first-time application of IFRS 5, where firms are required to restate their prior year's figures. It is believed that Type C firms and pure "restatement reporting discontinued operations" do not actively engage in classification shifting, or only do so in rare cases, as there is little incentive to do so. Restatement effects are not critical as those figures represent past figures, which are already reported and therefore uninteresting, or only interesting to investors from a comparability perspective. Type C adjustments are usually small adjustments that need to be explained separately as part of the discontinued note, and thus are visible to auditors and investors.

In order to test whether these two effects (Type C events and restated discontinued effects) do not influence the overall conclusions, a partial sample which consists of all discontinued and continuing firms from year 2015 to 2017 is used [28]. This partial sample is separated into two groups. The first group includes Type A and B firms, whereas group two consists of only Type C firms and firms reporting discontinued operations through restated effects from a subsequent reporting event.

It is expected that Type C and restated discontinued reporting events do not matter in terms of classification shifting, and thus provide either statistically non-significant results or have opposite signs for each regression compared to Model B. In terms of Types A and B it is expected to see the usual impact as in the previous models. Two dummy variables are defined A&B_DUMMY t and C&RESTATED_DUMMY t. The first dummy variable takes on 1 if it includes Type A and B reporting events and zero otherwise, whereas the second dummy variable includes Type C firms as well as reporting events arising from pure prior year restatements.

As a first step, Model B, which is based on Equations (11) and (12), is repeated to see if the partial segment indicates similar results. Model B is selected because it represents the core model that contains positive and negative reporting events and serves as a basis for all further analysis. Untabulated results show qualitatively similar results in terms of sign prediction and

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[28] A three-year sub-sample is used as the categorisation information on discontinued reporting events. It is manually collected and only available between 2015 and 2018 (refer to Chapter 5).

significance. As a second step the following equations are defined to test the two effects as described above:

- $UEC_t = \beta_0 + \beta_1\%DO\_NEG_t * A\&B\_DUMMY_t + \beta_2\%DO\_POS_t * A\&B\_DUMMY_t +$
  $+\beta_3\%DO\_NEG_t * C\&RESTATED\_DUMMY_t + \beta_4\%DO\_POS_t *$
  $C\&RESTATED\_DUMMY_t + \beta_5SIZE_t + \beta_6ACCRUALS_{t-1} + \beta_7ACCRUALS_t +$
  $+\beta_8OCF_t + \beta_9ROA_t + \in_t$ \hfill (21)

- $\triangle UEC_{t+1} = \varphi_0 + \varphi_1\%DO\_NEG_t * A\&B\_DUMMY_t + \varphi_2\%DO\_POS_t *$
  $A\&B\_DUMMY_t + \varphi_3\%DO\_NEG_t * C\&RESTATED\_DUMMY_t + \varphi_4\%DO\_POS_t *$
  $C\&RESTATED\_DUMMY_t + \varphi_5\%DO\_POS_{t+1} + \varphi_6\%DO\_NEG_{t+1} + \varphi_7SIZE_t +$
  $\varphi_8ACCRUALS_{t-1} + \varphi_9ACCRUALS_t + \varphi_{10}OCF_t + \varphi_{11}ROA_t + v_t$ \hfill (22)

The following table provides evidence of the partial segment using Equations (21) and (22):

	Dependent variable: UECt			Dependent variable: △UEC t+1		
	Predicted sign	Coefficients		Predicted sign	Coefficients	
(N=2'925)		B	t		B	t
(Constant)		-0.013	-3.197 ***		-0.017	-2.068 **
% DO_NEG t * A&B_DUMMY t	+	0.116	8.038 ***	-	-0.445	-15.254 ***
% DO_POS t * A&B_DUMMY t	+	0.169	4.655 ***	-	0.071	0.966
% DO_NEG t * C&RESTATED_DUMMY t	-	-0.091	-0.541	+	-0.808	-2.355 ***
% DO_POS t * C&RESTATED_DUMMY t	-	-1.261	-4.780 ***	+	-0.765	-1.324 *
%DO_POS t+1					0.128	3.152 ***
% DO_NEG t+1				n/a	-0.100	-1.686 **
SIZE t	n/a	0.001	1.203	n/a	0.005	4.479 ***
ACCRUALS t-1	n/a	-0.027	-3.313 ***	n/a	0.603	37.117 ***
ACCRUALS t	n/a	-0.057	-5.830 ***	n/a	-0.996	-50.832 ***
OCF t	n/a	0.140	9.548 ***	n/a	-0.116	-3.954 ***
ROA t	n/a	0.075	5.850 ***	n/a	0.083	3.245 ***
Fixed effects Industry		YES			YES	
Fixed effects Country		YES			YES	
Adjusted R^2		14.08%			63.43%	

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level. All test results use a two-tailed t-test except %DO_NEG t *A&B_DUMMY t, %DO_POS t * A&B_DUMMY t, %DO_NEG t * C&RESTATED_DUMMY t, %DO_POS t * C&RESTATED_DUMMY t, %DO_POS t+1, and %DO_NEG t+1 (use a one-tailed t-test). Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations . Alternatively, the exclusion of observations ±3 studentized residuals has resulted in qualitatively similar results in terms of significance and sign prediction.

Table 41: Regression results robustness test

Consistent with the prediction, the variable of interest %DO_NEG *t* %*A&B_DUMMY *t* has in both years *t* and *t+1* of the partial sample the expected signs. In terms of unexpected levels in year *t* the variable is statistically significant (β_1=0.116, p<0.01), as well as for year *t+1* (φ_1=-0.445, p<0.01), indicating that Type A and B firms engage in classification shifting, particularly in a discontinued loss-reporting situation.

On the other hand, the variable DO_NEG *t* * C&RESTATED_DUMMY has the expected sign only in year *t*. This variable is only significant in the second regression (φ_3=-0.808, p<0.01). Although this variable does not have the predicted sign in the second regression, it provides evidence that Type C reporting events as well as restatement effects do not indicate the presence of classification shifting.

As the results are consistent with the expectations it seems likely that the entire sample is also not affected by Type C reporting events and restatement effects.

c) Alternative estimation model

Several previous classification studies (Barua, Lin and Sbaraglia, 2010; Haw, Ho and Li, 2011; Ji, Potepa and Rozenbaum, 2019) follow the method of McVay (2006) for calculating the unexpected level and change in core earnings. However, the study of Chagnaadorj (2018) applies a slightly different approach, as the sample is not divided into small industry/year regressions. Instead of this Chagnaadorj (2018) calculates only one regression by year but adds several binary variables to consider the variations among industries. As a consequence, the number of underlying regressions used to estimate the parameters for calculating the level and change in unexpected earnings is significantly lower. The aim of the following robustness test is to verify whether the conclusions change if a different approach is applied. The following equations for the level and change are applied by year and extended with binary industry variables:

- $EC_t = \beta_0 + \beta_1 EC_{t-1} + \beta_2 ATO_t + \beta_3 ACCRUALS_{t-1} + \beta_4 ACCRUALS_t + \beta_5 \triangle SALES_t + \beta_6 NEG\_ \triangle SALES_t + \beta_7 IND\_BMT_t + \beta_8 IND\_CO_t + \beta_9 IND\_CC_t + \beta_{10} IND\_CN_t + \beta_{11} IND\_EN_t + \beta_{12} IND\_FS_t + \beta_{13} IND\_IN_t + \beta_{14} IND\_RE_t + \beta_{15} IND\_TE_t + \beta_{16} IND\_UT_t + \in_t$

(23)

- $\triangle EC_t = \varphi_0 + \varphi_1 EC_{t-1} + \varphi_2 \triangle EC_{t-1} + \varphi_3 \triangle ATO_t + \varphi_4 ACCRUALS_{t-1} + \varphi_5 ACCRUALS_t + \varphi_6 \triangle SALES_t + \varphi_7 NEG\_ \triangle SALES_t + \varphi_8 IND\_BMT_t + \varphi_9 IND\_CO_t + \varphi_{10} IND\_CC_t + \varphi_{11} IND\_CN_t + \varphi_{12} IND\_EN_t + \varphi_{13} IND\_FS_t + \varphi_{14} IND\_IN_t + \varphi_{15} IND\_RE_t + \varphi_{16} IND\_TE_t + \varphi_{17} IND\_UT_t + v_t$ 　　　　　　(24)

The following table gives an overview of the variables used as part of the alternative estimation model :

Definition variables classification shifting

Variable	Variable label	Definition
Unexpected continuing margin (EBITDA)	UEC t	Difference between reported and predicted continuing EBITDA margin, where predicted values are estimated from equation (5)
Unexpected change in continuing margin	$\triangle$ UEC t+1	Difference between reported change in continuing EBITDA margin and predicted change in EBITDA margin, where predicted values are estimated from equation (6)
Continuing EBITDA margin	EC t	Actual reported continuing EBITDA; (EBITDA / Sales)
Change in continuing EBITDA margin	$\triangle$ EC t	Change in EBITDA margin calculated as EC t - EC t-1
Asset turnover ratio	ATO t	SALES t /(NOA t + NOA t-1)/2 where NOA = (Total Assets – Cash – Short-Term Investment)-(Total Assets – Total debt – Equity)
Change in Asset turnover ratio	$\triangle$ ATO t	Change in asset turnover; ATO t - ATO t-1
Accruals	ACCRUALS t	Operating accruals; (EBITDA from continuing operations – Cash from operation continuing) / Sales
Sales	SALES t	Revenues in CHF millions
Change in Sales	$\triangle$ SALES t	Percentage change in sales; (SALES t – SALES t-1)/SALES t-1
Change in negative sales	NEG_$\triangle$ SALES t	Percentage change in sales ($\triangle$SALES t), if $\triangle$SALES t is less than 0, and 0 otherwise
Industry specific variable: Basic Materials	IND_BM t	Dummy variable that takes on 1 if the firm operates in the basic materials industry and zero otherwise
Industry specific variable: Communications	IND_CO t	Dummy variable that takes on 1 if the firm operates in the communication industry and zero otherwise
Industry specific variable: Consumer cyclical	IND_CC t	Dummy variable that takes on 1 if the firm operates in the consumer cyclical industry and zero otherwise
Industry specific variable:Consumer non cyclical	IND_CN t	Dummy variable that takes on 1 if the firm operates in the consumer non cyclical industry and zero otherwise
Industry specific variable: Energy	IND_EN t	Dummy variable that takes on 1 if the firm operates in the energy industry and zero otherwise
Industry specific variable: Financial	IND_FS t	Dummy variable that takes on 1 if the firm operates in the basic financial industry and zero otherwise
Industry specific variable: Industrial	IND_IN t	Dummy variable that takes on 1 if the firm operates in the industrial industry and zero otherwise
Industry specific variable: Real Estate	IND_RE t	Dummy variable that takes on 1 if the firm operates in the real estate industry and zero otherwise
Industry specific variable: Technology	IND_TE t	Dummy variable that takes on 1 if the firm operates in the technology industry and zero otherwise
Industry specific variable: Utility	IND_UT t	Dummy variable that takes on 1 if the firm operates in the utility industry and zero otherwise

Table 42: Variables alternative estimation model

The estimation results for both equations reveal an average R^2 of 75.1% in terms of levels and 78.4% in terms of change. Furthermore, the F-test also provides evidence that the overall fit of the model is significant at the 1% level in all years under review. The analysis of the predictors consisting of 18 regressions exhibit a similar situation in terms of sign prediction and

significance level, just as for the primary estimation model in this thesis that contains 164 regressions. The detailed calculation of the estimated regressions by year is provided in Appendix VII.

All models A - F are repeated based on this alternative estimation model and provide qualitatively similar results. This means that the variables of interest in Models A - F have not changed either in sign prediction or in significance level.

6.6   Discussion / conclusion on classification shifting

The purpose of this section was to examine whether firms listed on the British, German and Swiss stock exchange engage in classification shifting while using discontinued operations (refer to research question Q3).

Employing an expectation model similar to McVay (2006), the results suggests that firms engage in classification shifting. However, the test results show an asymmetric classification behaviour, as classification shifting seems more prevalent when firms report negative discontinued operations, which is consistent with the US study of Barua, Lin and Sbaraglia (2010) and corroborates the valuation considerations of Kaplan, Kenchington and Wenzel (2019), as they argue that classification shifting in income-increasing discontinued operations comes potentially with a lower purchase price, which is in contrast to shifting expenses into negative reporting or income-decreasing discontinued operations. In the context of positive reporting discontinued operations, there appears to be a trade-off between lowering positive reporting discontinued operations that potentially lead to a lower purchase price and the motivation/incentive to increase core continuing earnings. The findings also support the outcome from the initial classification (refer to section 6.3) as it appears that firms that shift expenses into income decreasing discontinued operations have also a higher motivation to initially apply discontinued operations. Thus, the test results support H3.

The test results further provide evidence that firms engage in classification shifting to meet or beat analysts' forecasts. This conclusion is based on the selection of all firms have surprised the expectations of the capital market and report greater estimated shifting effects in year t than the pre-tax forecast error. A potential outcome for this result is the fact that the remuneration of management is often based on share prices, and CEOs might experience an adverse effect on their annual cash bonuses when earnings fall short of the consensus analyst forecast (Matsunaga and Park, 2001). In addition, firms that have surprised the capital market with the help of shifting expenses to discontinued operations report also significant lower ROA and Sales growth, but are greater in size compared to the rest of the sample. This further confirms increased pressure to deliver the results promised to the capital market. An alternative test that follows the method employed by Barua, Lin and Sbaraglia (2010) and Ji, Potepa and Rozenbaum (2019), who build on the approach of Matsumoto (2002), reinforces the notion that firms engage in classification shifting to meet or beat analysts' forecasts. As a result, the test results support H4.

Motivated by the adverse consequences of a violation of an accounting covenant breach such as higher interest (DeAngelo, DeAngelo and Wruck, 2002; Dichev and Skinner, 2002; Sufi, 2009; Butt, 2015), higher cost of new debt (Butt, 2019), decline in capital spending (Chava and Roberts, 2008) or introduction of capital spending restrictions (Nini, Smith and Sufi, 2009) the investigation also shows that firms tend to misclassify expenses where the headroom of non-compliance is tight. Dividing the sample into different risk groups and controlling for meet and beat analyst forecast's motivation effects, it becomes obvious that firms reporting income-decreasing discontinued operations in the category between >2.00x but <3.00x net debt / EBITDA engage in classification shifting. This finding is similar to (Yun, Wayne and Xiaoou, 2019), who document the presence of classification shifting of EBITDA-related covenants close to violation, and consistent with the effects of a covenant violation on capital structure (Roberts and Sufi, 2009, p.1668). As a result, this finding is consistent with H5.

In addition, the role of the audit firms seems to provide mixed results. Contrary to what was expected, in general the Big Four auditors cannot prevent firms from misclassifying expenses. Looking at the individual audit firms it seems apparent that PwC acting as a group auditor is where firms engage in classification shifting. This finding is observable by considering a materiality level > ± 1 per cent of unexpected continuing earnings (UEC t) [29], which can be determined as a material amount where auditors normally ask for corrections and adjustments. This is an important consideration, as in contrast immaterial amounts do not impair the investors' ability to make decisions, and classification shifting would otherwise be pointless. By considering an even higher materiality threshold > ± 2 per cent UEC t the results show that the presence of classification shifting persists. This does not necessarily support the notion that greater amounts are detected by all audit firms, and that classification shifting as a tool to opportunistically shift expenses to discontinued operations is limited. On the other hand, it also underpins the view that different opinions are present among the audit profession, which calls for clarification of the IFRS 5 standard.

Obviously internal monitoring activities also play an important role in the presence of classification shifting. Based on a sub-sample, the results suggest that those firms still reporting discontinued results to the CODM after initial classification tend to not be engaging in classification shifting, while the opposite tend to engage. It appears that the internal reporting structure of a group influences the degree and extent of classification shifting. If financial information is part of the external segment reporting it also need to be reflected in the internal

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[29] UEC t is the percentage of unexpected continuing earnings scaled by sales t

financial reporting. As part of internal control mechanisms larger reported amounts and unusual fluctuations need to be explained in a cascade-like organisational setting. Such review and control mechanisms as a result of external segment reporting potentially mitigates the presence of classification shifting.

The results are robust when examining a sub-sample of firms reporting Type A and B as well as Type C year-end reporting events and pure restatement effects. Only Type A and B firms engage in classification shifting, while Type C year-end events and restatement effects do not play a role in terms of classification shifting. Furthermore, all models are repeated by adding clustered standard errors at firm level. The findings are similar in terms of predicted signs and significance. In addition, all models A - G are repeated based on an alternative approach similarly to Chagnaadorj (2018) in measuring the estimates of unexpected levels and change in continuing EBITDA margin. The estimation approach, which takes into account year regressions including binary industry variables, consists of 18 regressions. All test results are confirmed and provide qualitatively similar results in terms of sign prediction and significance.

By considering the test results, the correlation analysis and descriptive information suggests that firms in scope engage in classification shifting while applying discontinued operations in a European IFRS environment, which is consistent with the US-based studies of Barua, Lin and Sbaraglia (2010) and Kaplan, Kenchington and Wenzel (2019). The prevalence of classification shifting should alert the IASB to improving the standard, but also the audit profession in curbing such earnings management techniques. Further, lenders and shareholders should take note that firms might shift expenses to discontinued operations at the cost of investors.

6.7 Model design disclosures (Q4 – H6, H7, H8)

6.7.1 Introduction / critical factors

The aim of this sub section is to develop a model to address the formulated Hypotheses H6, H7 and H8. According to these hypotheses, it is predicted that:

H6: The size of a company is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations

H7: The auditor type is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations

H8: The leverage ratio (total debt divided by total reported assets) is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations

The following sub-section describes the approach taken by investigating how companies interpret and manage critical disclosure notes while applying discontinued operations. Critical features in measuring the compliance of disclosures and its drivers are: (i) the definition of the relevant mandatory disclosure items section 6.7.2; (ii) the definition of an appropriate disclosure score section 6.7.5; and (iii) the interpretation and impact of materiality of the disclosures section 6.7.4. In order to find the factors of compliance of the disclosures, the research of critical explanatory variables is key to explaining the disclosure score, which is defined as the dependent variable.

6.7.2 Selection of required disclosures under IFRS

As a first step, all required disclosure notes in the current 2017 official IFRS version were reviewed to identify all mandatory discontinued operations notes to the consolidated financial statements. To have a comprehensive view on the required discontinued operations notes, not only the requirements under the major standard for discontinued operations IFRS 5 are considered but also other standards like IFRS 13 *Fair Value Measurement* or IAS 1 *Presentation of Financial Statements,* as these standards are frequently intertwined with the application of discontinued operations.

As a second step, the disclosure checklists applicable for the year-end 31 December 2017 from (EY, 2017; KPMG, 2017a; PWC, 2017b) is used to compare the disclosure requirements with the first assessment in step one. The checklists were considered as an appropriate

benchmark, as they have been reviewed numerous times by IFRS technical experts prior to their publication. As a third step, and based on selected Big Four disclosure checklists a final assessment has been developed.

The following list shows the mandatory items identified that relate to discontinued operations:

IFRS and IAS Standards affected by discontinued operations

Relevant Standards	Initial assessment author	KPMG disclosure checklist	EY disclosure checklist	PwC disclosure checklist	Final assessment
		Basis: Disclosure checklists published by the accounting firms [1]			
IFRS 5 Non-current Assets Held for Sale and Discontinued Operations	17	16	15	13	15
Core Standard	**17**	**16**	**15**	**13**	**15**
IFRS 13 Fair Value Measurement	2	2	2	2	2
IAS 7 Statement of Cash Flows	5	5	5	5	5
IAS 1 Presentation of Financial Statements	1	1	1	1	1
IAS 12 Income Taxes	2	2	2	2	2
IAS 33 Earnings per Share	1	1	1	1	1
IFRS 14 Regulatory Deferral Accounts [2]	2	2	2	1	0
Standards with interaction	**13**	**13**	**13**	**12**	**11**
IAS 16 Property, Plant and Equipment	1	1	1	1	1
IAS 38 Intangible Assets	1	1	1	1	1
IAS 40 Investment property	1	1	1	1	1
IAS 41 Agriculture	1	1	1	1	1
Standards with table requirements	**4**	**4**	**4**	**4**	**4**
Total	**34**	**33**	**32**	**29**	**30**

[1] The checklists were compared with the original IFRS/IAS standards and no contradictions were identified.
[2] This standard has been found to be very rarely applied in practice and has therefore not been included.

Table 43: Mandatory disclosures discontinued operations

As a result, the degree of mandatory disclosures that is reflected in the dependent variable is made up of 30 mandatory disclosure items required by IFRS. In Appendix II the full list of mandatory required disclosure items is presented.

Previous studies have shown that only a fraction of mandatory disclosure notes were determined as mandatory under IFRS 5. Tsalavoutas (2011) identified ten items, while Boshnak (2017) identified 14 relevant items under IFRS 5 mandatory disclosures. Unlike previous studies, this thesis not only focuses on the main source standard IFRS 5 of discontinued operations, but also on the interaction of other IFRS standards related to discontinued operations. This allows for a more complete picture of compliance with mandatory disclosure items, as a discontinued operations transaction impacts several sections in the consolidated financial statements. In addition, previous studies summarised detailed notes

requirements together in one item, which is the reason why they arrive at a lower number of mandatory items. This thesis considers all sub-items as well.

6.7.3 Data and sample

The primary source of the data for the calculation of the mandatory disclosure score is taken from the annual reports. The sample consists of year-end events of UK-, German- and Swiss-listed firms over the period from 2015 to 2018.

Each individual annual report in scope was carefully reviewed based on the final assessment of the 30 mandatory disclosure items.

The final sample is divided into different types of year-end reporting events. This is because each type has different characteristics related to mandatory disclosures. For instances, type C firms only require reporting a fraction of disclosures compared to type A or B firms, whereas type B1 firms do not sell a substantial business, but rather aim to abandon parts of their businesses.

Type A firms consist of companies that are in the process of selling a discontinued operation, whereas type B firms have closed the transaction or sold the disposal group in the reporting period under review. Type C firms are those that have already closed a discontinued operation transaction in an earlier reporting period but are still required to report effects related to this previous transaction, while type B1 firms are in the process of abandoning a substantial part of their business (without sale). Type B2 firms are those that were acquired exclusively with a view to resale. This specific typing of closing events allows the construction of different models (refer to earlier discussion under Section 5.3).

Furthermore, the sample does not include firms that report discontinued operations arising from a previous year restatement effect. This means that only firms in the current period are examined, but not those that have previously published non-discontinued operations but now report discontinued operations, looking at the previous reporting event.

The following table summarises the total sample used for the disclosure analysis of Model A and Models B and C:

Composition of the disclosure sample

Sample: IFRS adopters listed on the UK, German and Swiss stock exchange, >10% reported year-end Revenue, and without industry specific firms [1]

Year	All reporting events analysed for Model A	Type C reporting events	Type B2 reporting events	Missing data	All reporting events analysed for Model B and C	Percentage of sample Model B and C to Model A
2018	160	-36	-1	-3	120	75.0%
2017	169	-45	-1	-3	120	71.0%
2016	163	-49	-2	-3	109	66.9%
2015	115	-33	-4	0	78	67.8%
TOTAL	**607**	**-163**	**-8**	**-9**	**427**	**70.3%**

[1] Mainly finanical institution, funds and insurance companies are excluded. See detailed exclusion list in appendix IV

Table 44: Sample size disclosure analysis

6.7.4   Materiality and relevance of mandatory IFRS disclosures

Materiality is a critical element in preparing financial statements whether items are required to be disclosed Brennan and Gray (2005, p.6) and thus a model design question. Particularly when it comes to the preparation of the notes to the financial statements, it is often not clear how this fundamental principle needs to be applied. Therefore, the determination of materiality is an individual assessment that needs to be done by the preparers and auditors of financial statements. IFRS does not give clear guidance on this topic, although in IAS 1.7 and in IAS 8.5 a reference is made to the materiality of information. As a general rule, IFRS defines materiality as omissions or misstatements of items to be disclosed if they could individually or collectively influence the economic decisions that users make on the basis of the financial statements. To clarify the interpretation of materiality, the IASB has issued a materiality practice aid (IASB, 2017a) to assist preparers in materiality decisions. The objective of the practice statement is to provide guidance in applying the concept of materiality to financial statements prepared in accordance with International Financial Reporting Standards. Even though the practice statement includes many examples that can help preparers to make useful decisions in applying materiality, the element of judgement still persists in preparing financial statements. The practice statement highlights that the characteristics of the stakeholders can influence the company's decision of material information, and quantitative and qualitative

criteria play an important role in assessing materiality. While the practice statement by the IASB helps users in a structured way to apply materiality in line with IFRS, it is not mandatory to IFRS adopters, and therefore different views and approaches in determining materiality persist.

Materiality is an interactive process where not only the preparers play a major role, but also where other parties like auditors and regulators are involved. The following figure shows the interaction between the different parties:

Preparers
Group CFO, Group CEO,
Group Controller and
Investment Relation Officer

Regulators
Enforcement activities

Auditor
IFRS Desk, Audit Team

All parties influence materiality decisions
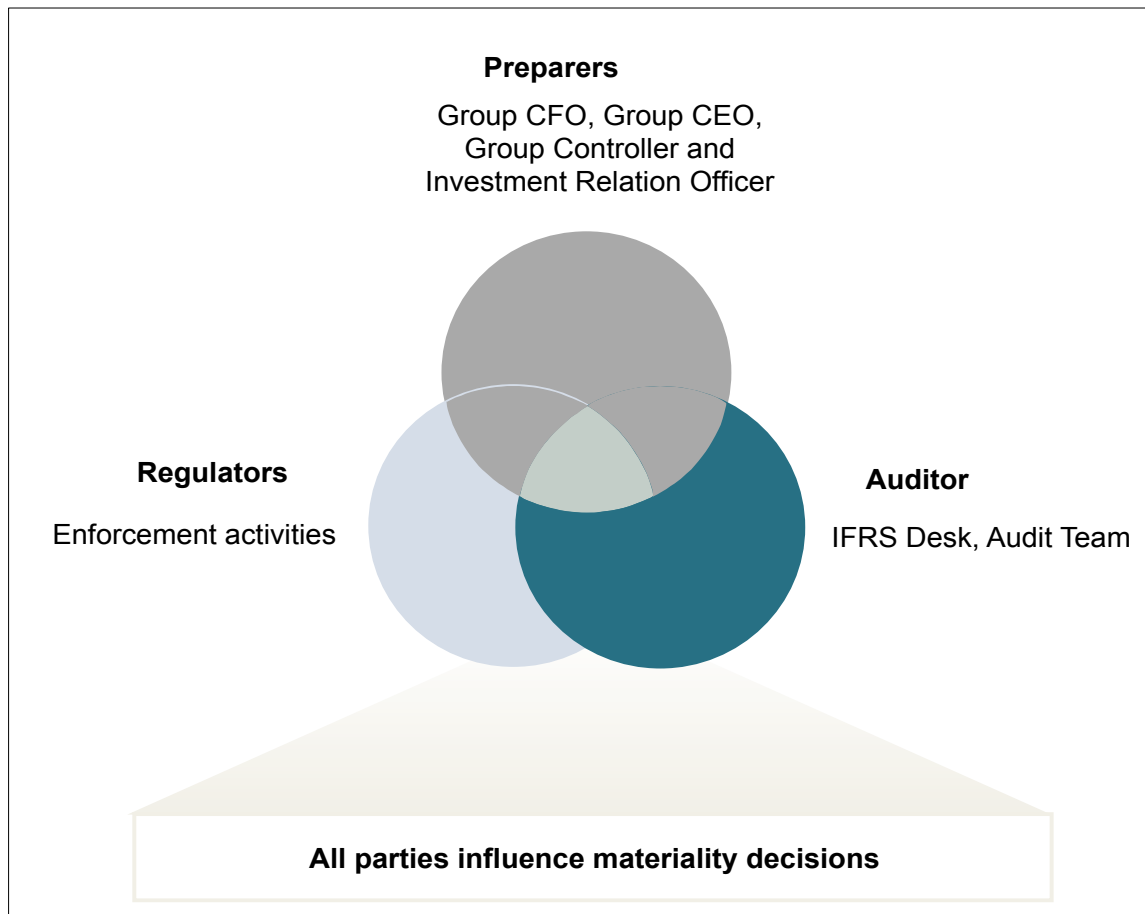
Figure 10: Interaction materiality decisions

Auditors who express an opinion over the IFRS consolidated financial statements are stating in their audit opinion that the figures are fairly presented, in all material respects in accordance with IFRS and local law e.g. Norvartis Group (2015, p.243) or provide in newer audit opinions information on how the application of materiality is influenced by the audit scope e.g. Vodafone Group Plc (2017, p.91); OC Oerlikon Group (2018, p.159).

This indicates that the auditor needs to explicitly take a materiality decision. Auditors conducting a group audit are often required by local law to confirm that the audit is performed in accordance with International Standards on Auditing (ISA). According to ISA 320 (International Auditing and Assurance Standards Board (IAASB), 2018) a disclosure information is material if omitting the information would influence the economic decisions of users taken on the basis of the financial statements. Furthermore, International Auditing and Assurance Standards Board (IAASB) (2018) sets out that determining materiality involves the exercise of professional judgement and is affected by the size or nature of a misstatement, or a combination of both. International Auditing and Assurance Standards Board (IAASB) (2018) outlines that considerations should be made in connection with the common financial information needs of users.

The use of a benchmark (e.g. percentage of continuing income) in determining materiality is a starting point, but individual circumstances must be considered, for example the ownership structure (equity or debt financing), industry environment (relative higher focus on development costs in pharmaceutical companies) or whether attention is focused on a particular aspect of the company's business that is separately disclosed in the financial statements. This is for example a newly-acquired business or a discontinued operations project. This indicates strong parallels to the newly developed practice statement to clarify the materiality within the IFRS Standards.

Regulators may require or enforce different definitions, which might be seen as an additional influencing factor to materiality. The regulators might introduce specific materiality thresholds in assessing a profit warning, or define their own materiality. The SIX (2017) state that the disclosure of irrelevant information could represent a violation of the principle of materiality equivalent to the omission or misrepresentation of important details, which underlines the importance of giving only relevant information to the investors. This is consistent with the view of IASB (2017b). Moreover, SIX (2017) acknowledge that both qualitative and quantitative aspects must be taken into account in assessing materiality.

Besides the opinions of auditors and regulators, it remains primarily at the preparer's discretion to find a balance between obscuring irrelevant information and not providing enough relevant information. On the other hand, defining materiality is not a new element in financial statements, and preparing consolidated financial statements requires materiality decisions.

The decision whether or not discontinued disclosures are material is relatively simple, as disclosures to discontinued operations are per se material. This can be derived from IFRS

5.31, as it requires discontinued operations to be a separate major line of business or geographical area. The word "major" highlights the materiality in relation to the financial statements as a whole. However, a materiality judgement might be applied in the decision to disclose certain information within the discontinued operations explanatory note.

The relevance of information is another key feature in preparing financial statements. In some cases, it may seem inappropriate to disclose a specific piece of information even though it is required by IFRS, as this information would lead to a misinterpretation or obscurity, as it is not relevant for the readers of the financial statements. IAS 1 stipulates that only relevant and material information need to be disclosed. Furthermore, IAS 1.17(b) sets out that a fair presentation also requires an entity to present information in a manner that provides relevant, reliable, comparable and understandable information. Only in extremely rare circumstances does IAS 1 require a departure from the compliance with IFRS. In this case an entity would need to disclose this non-compliance in favour of a better-achieved fair presentation.

To conclude, a company is required to assess the individual situation, and is responsible for maintaining a discourse among the stakeholders, or at least with the auditors. Too much and irrelevant information is neither compliant with IFRSs, nor desired and intended by stock exchange regulations, shareholders or other readers of the financial statements. Therefore, in assessing relevance and materiality an element of judgement always exists, regardless of the developed IFRS materiality practice statement and other available guidance. In light of the significance of a discontinued transaction all identified mandatory disclosures with reference to Table 43 are defined as material and no materiality threshold is introduced on mandatory disclosures.

6.7.5   Definition of disclosure score

A disclosure score is defined in this thesis as a level of compliance achieved over the mandatory disclosures of discontinued operations. As a general disclosure requirement under IFRS 5.30 it is stated that an entity shall present and disclose information that enables users of the financial statements to evaluate the financial effects of discontinued operations and disposals of non-current assets. In this context, the question arises which mandatory items are not applicable under company-specific circumstances, and what the maximum number of mandatory disclosures is. This can be seen as the first assumption to be made in defining a disclosure score. The second assessment is to decide whether or not a weighted approach should be applied.

A key assumption in determining the IFRS disclosure compliance level is whether or not the required disclosure items should be equally treated. The applied method can impact the compliance score and thus lead to a different conclusion. If a required item is weighted, then the individual judgement of the examiner is involved in the study. In this sense, a neutral treatment of each item would be more advantageous. On the other hand, it seems evident that, for example, the disclosure of the purchase price in a discontinued operations transaction is more valuable to an investor than the line item of related income tax expenses. In this case the question of a fair ranking and the preference of the readers would arise. This is an individual question and for some of the readers specific information is more valuable than for others. As a further side effect, the different applied methods make it difficult to compare with other investigations. Previous studies (Glaum and Street, 2003; Al-Shammari, Brown and Tarca, 2008; Hodgdon et al., 2008; Al Mutawaa and Hewaidy, 2010; Al-Akra, Eddie and Ali, 2010; Galani, Alexandridis and Stavropoulos, 2011; Devalle and Rizzato, 2013) have shown that an unweighted approach is the preferred option, as it limits the subjectivity of the examiner. However, there are a number of studies using both an unweighted and weighted method (Naser and Nuseibeh, 2003; Devalle, Rizzato and Busso, 2016). Apart from the advantages and disadvantages both unweighted and weighted methods have in common, a non-applicable disclosure item does not impact the disclosure score. This is accomplished by reducing the formula's counter and numerator of non-applicable items. In other words, the disclosure index is calculated as the ratio of the total items disclosed to the maximum possible score applicable for that company.

In addition, previous studies on the evaluation of mandatory disclosures have shown that for both an unweighted and weighted approach a so-called partial compliance or total compliance method can be applied. The partial compliance method measures the compliance by adding the scores for each standard and then dividing this sum by the number of standards applicable. A partial compliance method is only relevant in the event of assessing more than one standard or topic in the annual report, as some of the standards have more mandatory disclosure items than others. If the relative size of mandatory disclosure items of each standard were not considered, the investigation would be unintentionally distorted by the standards with more required items compared to those with fewer items. As this thesis only focuses on one particular standard, such a distinction and the application of the partial compliance approach are deemed irrelevant. In favour of unbiased information and to reduce subjectivity of the examiner, this thesis follows an unweighted approach.

As a first step in developing the Mandatory Disclosure Index per company, the definition of the maximum achievable score per company must be set. This is necessary as otherwise a company would achieve a lower score due to no applicable items. This results in a top score that is equal to the sum of the maximum achievable items by using the following equation:

$$TS_{it} = \sum_{i=1}^{n} d_i \tag{25}$$

Where d is the expected disclosure item and N is the number of items that the firm is required to present under IFRS

As a second step the Mandatory Disclosure Index (MDI) is calculated by using Equation (25) as the denominator. The numerator is defined as the total realised number of mandatory disclosure items (RMD). This leads to the following second equation:

$$MDI_{it} = \frac{RMD_{it}}{TS_{it}} \tag{26}$$

MDI = Mandatory Disclosure Index for a company j, $0 \leq MDI \leq 1$

i = a number that identifies each company, e.g. i = (1,2,3,...)

t = year of the disclosure, e.g. I = (2015, 2016, 2017, 2018)

The following regression models A, B and C are primarily used to address the formulated hypotheses that are based on the first research question, H6, H7 and H8:

Model A:

- $MDI_{it} = \beta_0 + \beta_1 SIZE_t + \beta_2 REPORTABLE\_SEG_t + \beta_3 AUDIT_t + \beta_4 PART\_OF\_SEG\_REPORTING_t + \beta_5 AUDC_t + \beta_6 IMPAIR\_DUMMY_t + \beta_7 LEV_t + \beta_8 INC\_CLASS_t + \beta_9 INITIAL\_VS\_CONSE_t + \beta_{10} YEAR\ 2015_t + \beta_{11} YEAR\ 2016_t + \beta_{12} YEAR\ 2017_t + \beta_{13} COUNTRY\_DUMMY\_GERMANY_t + \beta_{14} COUNTRY\_DUMMY\_SWITZERLAND_t + \in_t$

$$\tag{27}$$

Model B (includes relative Size of a discontinued operation compared to Model A):

- $MDI_{it} = \beta_0 + \beta_1 SIZE_t + \beta_2 DIS\_DUMMY < 5\%_t + \beta_3 REPORTABLE\_SEG_t + \beta_4 AUDIT_t + \beta_5 PART\_OF\_SEG\_REPORTING_t + \beta_6 AUDC_t + \beta_7 IMPAIR\_DUMMY_t + \beta_8 LEV_t + \beta_9 INC\_CLASS_t + \beta_{10} INITIAL\_VS\_CONSE_t + \beta_{11} YEAR\ 2015_t + \beta_{12} YEAR\ 2016_t + \beta_{13} YEAR\ 2017_t + \beta_{14} COUNTRY\_DUMMY\_GERMANY_t + \beta_{15} COUNTRY\_DUMMY\_SWITZERLAND_t + \in_t$ $\qquad$ (28)

Model C (includes relative Size of a discontinued operation and ten industry specific variables compared to model A):

- $MDI_{it} = \beta_0 + \beta_1 SIZE_t + \beta_2 DIS\_DUMMY < 5\%_t + \beta_3 REPORTABLE\_SEG_t + \beta_4 AUDIT_t + \beta_5 PART\_OF\_SEG\_REPORTING_t + \beta_6 AUDC_t + \beta_7 IMPAIR\_DUMMY_t + \beta_8 LEV_t + \beta_9 INC\_CLASS_t + \beta_{10} INITIAL\_VS\_CONSE_t + \beta_{11} YEAR\ 2015_t + \beta_{12} YEAR\ 2016_t + \beta_{13} YEAR\ 2017_t + \beta_{14} COUNTRY\_DUMMY\_GERMANY_t + \beta_{15} COUNTRY\_DUMMY\_SWITZERLAND_t + \beta_{16} IND\_BMT_t + \beta_{17} IND\_CO_t + \beta_{18} IND\_CC_t + \beta_{19} IND\_CN_t + \beta_{20} IND\_EN_t + \beta_{21} IND\_FS_t + \beta_{22} IND\_RE_t + \beta_{23} IND\_TE_t + \beta_{24} IND\_UT_t + \in_t$ $\qquad$ (29)

Where:

MDI = Mandatory Disclosure Index for a company j, 0 ≤ MDI ≤ 1

i = a number that identifies each company, e.g. i = (1,2,3,...)

t = year of the disclosure, e.g. I = (2015, 2016, 2017, 2018)

6.7.6 Variables and measure

The purpose of the independent variables is to explain why the Mandatory Disclosure Index (MDI) varies between firms, despite all disclosure items included in the mandatory disclosure score being mandatory for the companies under review. To explain the variation among the selected companies, the MDI is calculated from the underlying definition in Equation (26) and serves as the dependent variable in a multivariate linear regression model. The independent variables are divided into (i) Size-related factors (ii) governance-related factors (iii) financial

performance factors (iv) financing factors and (v) other factors. The following variables include company-specific but also country-specific variables:

a) Size related variables

Size of the company

Large firms often not only receive more attention from the public eye, but they also have a broad shareholder base and variety of other financial creditors. Bondholders and banks are interested in disclosures presented in the financial statements to monitor and assess their investments. Therefore, large firms tend to disclose more disclosures compared to lower-sized firms (Cooke, 1989) as the agency cost is higher. A possibility to reduce agency cost is to provide more and transparent disclosures to the readers of the financial statements (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008).

A further aspect is that lager firms are more likely to afford highly skilled IFRS experts and consolidation specialists due to economy of scale. This knowledgeable workforce may have a further positive impact on the disclosures in financial reports.

Previous studies (Al-Shammari, Brown and Tarca, 2008; Hodgdon et al., 2008; Al Mutawaa and Hewaidy, 2010; Al-Akra, Eddie and Ali, 2010; Galani, Alexandridis and Stavropoulos, 2011; Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015) and (Appiah et al., 2016) have shown that size is a key determinant to explain the variations in MDI, and is determined to be statistically significant and positively associated with MDI. The size in this context is defined as the natural logarithm of the total assets at year end and expected to be positively associated with MDI.

Size of the discontinued transaction and reportable segments

A further size proxy in the context of discontinued operations is the relative size of transactions. Although discontinued transactions are always material by definition, a smaller discontinued transaction may be treated as less material and therefore get less attention by auditors, investors and management. The variable (DIS_DUMMY<5% t) takes on 1 if the transaction is less than 5% between continuing and discontinued businesses and zero otherwise. Unlike the total SIZE transaction, this variable is expected to be negatively associated with MDI.

On the other hand, an operating segment according to IFRS 8 that passes the materiality threshold is required to be reported as a reportable segment, at least until the date of initial classification. Separate disclosed reportable segments receive more attention by the

management and investors than smaller discontinued businesses that may be part of a reportable segment. The variable REPORTABLE_SEG *t* takes on 1 if the discontinued operation represents a reportable segment and zero otherwise. Therefore, it is expected that a discontinued operation representing a reportable segment is positively associated with MDI.

b) Governance-related variables

Audit firm

It is expected that the Big Four auditors have a significant impact on the quality and compliance of the published financial statements of a company. Especially in complex transactions the auditors often act as consultants, without violating their role as an independent party. The Big Four companies possess large IFRS expertise and experience (Haniffa and Cooke, 2002) and often have a so-called IFRS desk that is responsible to review all IFRS consolidated financial statements prior to sign-off by the audit partner. Such a high degree of competence is normally not available at non-Big Four auditors, as the focus of non-Big Four audit firms is more on smaller clients that tend to have less complexity and less international presence. However, this does not mean that non-Big Four auditors are less qualified. They often have no choice to be appointed as auditors due their missing international presence or limited capacity.

Furthermore, auditors act as an instrument for limiting the opportunistic behaviour by the management or agents (Jensen and Meckling, 1976) and (Watts and Zimmerman, 1983).

The positive influence of a big audit firm choice is documented in many studies and turns out to be a statistically significant determinant (Abd-Elsalam and Weetman, 2003; Glaum and Street, 2003; Al-Akra, Eddie and Ali, 2010; Tsalavoutas, 2011; Amiraslani, Latridis and Pope, 2013; Glaum et al., 2013b; Demir and Bahadir, 2014; Lopes, 2014; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018).

Therefore, it is expected that the presence of a Big Four auditor is positively associated with the MDI that represents the AUDIT *t* variable, which takes on 1 if the firms has elected a big Four audit firm and zero otherwise.

Part of the segment reporting

According to IFRS it seems unclear whether a firm is required to disclose their discontinued segment after its initial classification as discontinued operation KPMG (2017b, p.29). Some of the firms only disclose the continuing result and present the discontinued result as a reconciling

item. Others provide full disclosure of the current trading and potential sale effects. The segment reporting according to IFRS 8 *Operating Segments* follows the management approach and represents the view through the eyes of the management. This in turn means that if a discontinued operation is part of the segment reporting, the management also receives this specific financial information as part of their internal reporting. The frequency of the internal reporting varies from company to company, but it is likely that they receive such information at least quarterly. To conclude, if a firm reports financial information as part of their segment reporting, the management or CODM is still interested to monitor the economic situation and financial performance of the discontinued operation (refer to earlier discussion under Section 2.5).

The dummy variable PART_OF_SEG_REPORTING *t* takes on 1 if firms still disclose separately discontinued operations in a subsequent reporting event after its initial classification to discontinue an operation, and zero otherwise. Due to the increased monitoring activities compared to those not disclosing discontinued operations a positive association with the MDI is expected.

Presence of audit committee

The audit committee ultimately approves the financial statements for the purpose of the annual general meeting. The scope of duties of an audit committee is, among other topics, to critically review the financial statements prior to their publication. Normally the audit committee gives a recommendation to all board members as to whether or not the financials should be authorised. During that process an audit committee is in close contact with the Group CFO and audit firm and critically reviews the underlying assumptions, judgements and disclosure in the consolidated financial statements. Verriest, Gaeremynck and Thornton (2013) find that firms with more effective audit committees provide higher compliant disclosures. Similarly, Alanezi and Albuloushi (2011) and Glaum et al. (2013b) document that the existence of audit committees is a positive influential factor of compliance. As discontinued operations are material by definition and include several judgmental elements, it is expected that audit committee members are actively involved in such transactions. Therefore, it is expected that the presence of an audit committee, and specifically the number of meetings held as determined by the variable AUDC *t,* is positively associated with MDI.

c) Financial performance variables

Incentive to apply discontinued operations

As part of the classification analysis a binary variable was created that takes on 1 if a company has a greater incentive or motivation to apply discontinued operations and zero otherwise. This variable INC_CLASS *t* is defined as 1 if firms benefit from the initial application mainly through an increased operating ROS margin. The results from the classification of discontinued operations suggest that the majority of firms that initially classify discontinued operations benefit from the application because they can increase the continuing operations. This is due to the exit of the financially underperforming discontinued operation compared to the continuing businesses. Furthermore, the classification for a number of firms appears to be questionable. In addition, the results from the classification chapter reveal that those firms where the classification is most questionable benefit most from the application (refer to Section 6.2.2).

It is expected that firms are reluctant to give disadvantageous information to the public as it could unmask the questionable application and/or the executed bad deal which would support the proprietary cost theory (Verrecchia, 2001).

As a result, it is predicted that the variable INC_CLASS *t* is negatively associated with MDI.

Impairment

The recognition of an impairment charge is deemed to be an unusual transaction that might get more attention by investors, management and auditors regardless of its continuing or discontinued nature. Furthermore, Mazzi et al. (2017) document that goodwill-related mandatory disclosures lead to a decrease in cost of equity via the reduction of estimation risk. Prior studies (Mazzi et al., 2017; Mazzi, Slack and Tsalavoutas, 2018), show a positive association with impairment loss and disclosures. It is therefore predicted that the presence of an impairment charge is positively associated with MDI.

d) Financing variable (Leverage)

Lenders have a legitimate interest to monitor their investments in order to assess the quality and risks of their assets. Haniffa and Cooke (2002) argue that highly leveraged firms disclose more information to assure creditors that shareholders and management are less likely to bypass their covenant claims (Haniffa and Cooke, 2002). Further, firms having relatively higher leverage are likely to have higher agency cost. Providing extra disclosures might support the

reduction agency cost. On the other hand lenders, and in particular the banks, have other tools and mechanisms to assess their positions. Often firms are forced to periodically hand in covenant calculations or monthly reporting of unaudited financials.

On the other hand, loan contracts often include accounting covenant numbers, compliance with which needs to be periodically reported.

Prior studies provide mixed results between leverage and disclosures. Several studies (Alanezi and Albuloushi, 2011; Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Lucas and Lourenço, 2014; Agyei-Mensah Ben, 2019) document a positive association with disclosures, while other studies (Lopes, 2014; Appiah et al., 2016) reveal a negative association.

Following the studies that provide a positive influence on disclosures, it is expected that leverage is positively correlated with MDI. The leverage is calculated as the total long-term and short-term interest-bearing financial debts divided by total assets.

e) Other variables

Initial vs. subsequent application of the standard

Firms that report discontinued operations for the first time are required to divide their income statement and potentially the cash flow statement into continuing and discontinued operations. Along with the change in the current reporting period the comparative figures have to be restated. Thus, this fundamental structure only occurs in the first year-end reporting event and it is therefore expected that this period gets more attention from investors, management and auditors. As a result, it is predicted that the variable INITIAL_VS_CONSE t is positively associated with MDI.

Type of Industry, Country and year variables

IFRS 5 discontinued rules are relevant to all firms applying discontinued operations. Therefore, a specific industry should not provide a significant positive or negative association with the dependent variable MDI. As a result, no prediction of the signs is made. Industrial firms are held constant in the multivariate regression analysis.

Similarly, the country binary variables and year dummy variables are included to proxy the enforcement strength by country and potential year effects, to hold constant in the multivariate analysis.

The following table summarises the definition of the variables selected to explain the Disclosure Score (MDI) in Models A - E and the overall sign prediction.

Definition variables mandatory disclosures

Variable	Variable label	Definition	Expected sign
Disclosure score	MDI t	Disclosure score calculated by total achieved score divided by applicable score	
Size of the firm	SIZE t	Natural logarithm of reported total assets	+
Relative size below 5%	DIS_DUMMY <5% t	Dummy variable that takes on 1 if DIS t is less than 5% and zero otherwise	-
Reportable segment according to IFRS 8	REPORTABLE_SEG t	Dummy variable that takes on 1 if initial classification is is equivalent to a reportable segment and zero otherwise	+
Type of auditor	AUDIT t	Dummy (1) variable for Big Four audit firms and (0) otherwise	+
Separate disclosed segment	PART_OF_SEG_REPORTING t	Dummy variable that takes on 1 if the discontinued operation is presented as a separate reportable segment in the annual report and zero otherwise	+
Influence of Audit Committee	AUDC t	Number of meetings held of the Audit Committee in the reporting period	+
Impairment charges	IMPAIR_DUMMY t	Dummy variables that takes on 1 if an impairment charge is recognised associated with the discontinued operations and 0 otherwise	+
Leverage	LEV t	Leverage as measured by total long-term and short-term interest bearing financial debts divided by total assets	+
Incentive to apply discontinued operations	INC_CLASS t	Dummy variable that takes on 1 if $\triangle$ROS CONT_VS_DISC t is > 0 or IMPAIR_DUMMY t = 1, and zero otherwise (referred to Section 6.1.6)	-
Initial or consecutive reporting period of applying discontinued operations	INITIAL_VS_CONSE t	Dummy variable that takes on 1 if the firm is requred to restate their comparative figures according to IFRS 5 and zero otherwise	+
Reporting year	YEAR, 2015, 2016, 2017, 2018	Separate dummy variables that take on 1 if reporting year is 2015, 2016, 2017 or 2018 and zero otherwise	+/-
Country	COUNTRY_DUMMY_UK / GERMANY / SWITZERLAND	Separate dummy variables that take on 1 if the firm is located in the UK, Germany or Switzerland.	+/-
Industry specific variable: Basic Materials	IND_BM t	Dummy variable that takes on 1 if the firm operates in the basic materials industry and zero otherwise	+/-
Industry specific variable: Communications	IND_CO t	Dummy variable that takes on 1 if the firm operates in the communication industry and zero otherwise	+/-
Industry specific variable: Consumer cyclical	IND_CC t	Dummy variable that takes on 1 if the firm operates in the consumer cyclical industry and zero otherwise	+/-
Industry specific variable: Consumer non cyclical	IND_CN t	Dummy variable that takes on 1 if the firm operates in the consumer non cyclical industry and zero otherwise	+/-
Industry specific variable: Energy	IND_EN t	Dummy variable that takes on 1 if the firm operates in the energy industry and zero otherwise	+/-
Industry specific variable: Financial	IND_FS t	Dummy variable that takes on 1 if the firm operates in the basic financial industry and zero otherwise	+/-
Industry specific variable: Industrial	IND_IN t	Dummy variable that takes on 1 if the firm operates in the industrial industry and zero otherwise	+/-
Industry specific variable: Real Estate	IND_RE t	Dummy variable that takes on 1 if the firm operates in the real estate industry and zero otherwise	+/-
Industry specific variable: Technology	IND_TE t	Dummy variable that takes on 1 if the firm operates in the technology industry and zero otherwise	+/-
Industry specific variable: Utility	IND_UT t	Dummy variable that takes on 1 if the firm operates in the utility industry and zero otherwise	+/-

Table 45: Variables MDI

6.7.7 Limitations

The determination of whether or not a firm complies with a mandatory item is a judgemental element by the researcher. This should be considered while interpreting the results in the following chapter. Moreover, the study follows an unweighted approach in measuring

mandatory disclosure items, while others follow a weighted concept. In addition, the sample excludes firms lower than CHF 10 million as well as financial institutions, which may be seen as a further limitation. Furthermore, the identified predictors of the disclosure model potentially do not capture all factors, explaining the mandatory compliance of IFRS disclosures in discontinued operations. Other aspects such as attitude to doing right, timing constraints in preparing the financial statements, budget restrictions or the dominance of the CFO might also impact the compliance level. This can also be seen as limitation to the study.

6.8 Results on mandatory disclosures

6.8.1 Introduction

The purpose of this section is to describe the results of the mandatory disclosures of discontinued operations.

The main priority of this chapter is to address the following research question / hypotheses as outlined under 3.5:

- Research question of H6: Is the size of a company positively associated with the level of mandatory compliance with disclosures arising from discontinued operations?
- Research question of H7: Is the auditor type positively associated with the level of mandatory compliance with disclosures arising from discontinued operations?
- Research question of H8: Is the leverage ratio (total debt divided by total reported assets) positively associated with the compliance level with mandatory disclosures arising from discontinued operations?

Further in this chapter, the dependent variable is described along with the descriptive statistics of the independent variables as well as the correlation matrix. Furthermore, the multivariate regression discusses several models and outcomes. Finally, the chapter close with a summary of the major findings.

As indicated in Table 44, a total of 607 annual reports from 2015 to 2018 of firms listed on the British, German and Swiss Stock exchanges have been manually reviewed. A detailed overview of the firms under review is given in Appendix I.

6.8.2 Descriptive statistics / analysis disclosure score

The following table provides evidence of the variables used as part of the disclosure analysis:

Descriptive statistics: Disclosure analysis

N=607	Indicator	Mean	Median	Std. Deviation	Percentiles 25	75
MDI	n/a	0.775	0.800	0.167	0.688	0.889
SIZE t	Size	6.799	6.721	2.281	5.087	8.458
DIS_DUMMY <5% t [1]	Size	0.372	0.000	0.484	0.000	1.000
REPORTABLE_SEG t	Size	0.303	0.000	0.460	0.000	1.000
AUDIT t	Governance	0.783	1.000	0.413	1.000	1.000
PART_OF_SEG_REPORTING t	Governance	0.239	0.000	0.427	0.000	0.000
AUDC t	Governance	3.456	4.000	2.227	2.000	5.000
IMPAIR_DUMMY t	Financial performance	0.199	0.000	0.400	0.000	0.000
LEV t	Financing	0.219	0.201	0.186	0.068	0.307
INC_CLASS t	Financial performance	0.428	0.000	0.495	0.000	1.000
INITIAL_VS_CONSE t	Other	0.585	1.000	0.493	0.000	1.000
YEAR 2015	Year	0.189	0.000	0.392	0.000	0.000
YEAR 2016	Year	0.269	0.000	0.444	0.000	1.000
YEAR 2017	Year	0.278	0.000	0.449	0.000	1.000
YEAR 2018	Year	0.264	0.000	0.441	0.000	1.000
COUNTRY_DUMMY_UK	Country	0.656	1.000	0.476	0.000	1.000
COUNTRY_DUMMY_GERMANY	Country	0.278	0.000	0.449	0.000	1.000
COUNTRY_DUMMY_SWITZERLAND	Country	0.066	0.000	0.248	0.000	0.000
IND_BM t	Industry	0.072	0.000	0.260	0.000	0.000
IND_CO t	Industry	0.107	0.000	0.309	0.000	0.000
IND_CC t	Industry	0.138	0.000	0.346	0.000	0.000
IND_CN t	Industry	0.191	0.000	0.393	0.000	0.000
IND_EN t	Industry	0.049	0.000	0.217	0.000	0.000
IND_FS t	Industry	0.051	0.000	0.220	0.000	0.000
IND_IN t	Industry	0.239	0.000	0.427	0.000	0.000
IND_RE t	Industry	0.026	0.000	0.160	0.000	0.000
IND_TE t	Industry	0.102	0.000	0.303	0.000	0.000
IND_UT t	Industry	0.023	0.000	0.150	0.000	0.000

[1] Total available observations N=433

Table 46: Descriptive statistics disclosure analysis

6.8.3 Dependent variable: Mandatory disclosure score

The dependent variable is set as the Mandatory Disclosure Index (MDI) that is manually calculated for each company between 2015 and 2018 using Equations (25) and (26). The MDI not only includes the main standard IFRS 5 around discontinued operations but also other relevant IFRS standards around discontinued operations like IAS 7 *Statement of Cash Flows* Statement or IFRS 13 *Fair Value Measurement* as outlined in Table 43, where 30 mandatory disclosure items were identified. Therefore, in this thesis a more comprehensive approach is used, unlike other studies (Devalle, Rizzato and Busso, 2016; Boshnak, 2017) where standards-by-standards on their own are analysed. However, for Types A and B firms, a significantly higher number is applicable than for Type C companies. Out of 30 possible

mandatory items, 23 for Type A and 25 for Type B were applicable, while for Type C only 9 out of 30 were required to be disclosed. In consideration of the maximum individual mandatory disclosure items per company a total of approximately 9,900 items were analysed. Out of 9,900 assessed items 7,700 items were found to be properly disclosed which indicates an overall achieved disclosure score of 0.775. This disclosure is equivalent to approximately 16 applicable disclosure items per company, where on average 13 are achieved. The average score for all types is similar to prior studies.(Tsalavoutas, Tsoligkas and Evans, 2020) analyse 70 studies and define a mean below 75 per cent as a low compliance score. Considering the complexity of the standard, a mean of 0.775 provides evidence that the companies under review provide on average a relatively high-quality set of compliant financial statements in terms of discontinued operation disclosures. An explanation for this might be the fact that discontinued companies are on average bigger in size than non-discontinued reporting companies, where the expertise of knowledgeable employees is more prevalent. In addition, discontinued operations, at least for Types A and B, should be by definition major transactions and therefore get more attention from the management and board of directors, and should be part of the group auditor's audit strategy and risk assessment considerations.

On the other hand, there are still many companies that significantly do not comply with the mandatory disclosures. Therefore, a more detailed analysis by reporting type aims to investigate potential variances in compliance.

Looking at the types of reporting events in Figure 11, it becomes obvious that Type B firms dominate with 43% of the sample size, followed by Type C 27% and Type A firms 23%. Type B1 and B2 firms only account for 7% of the total sample size. Therefore, Type B1 and B2 are not examined further in detail.
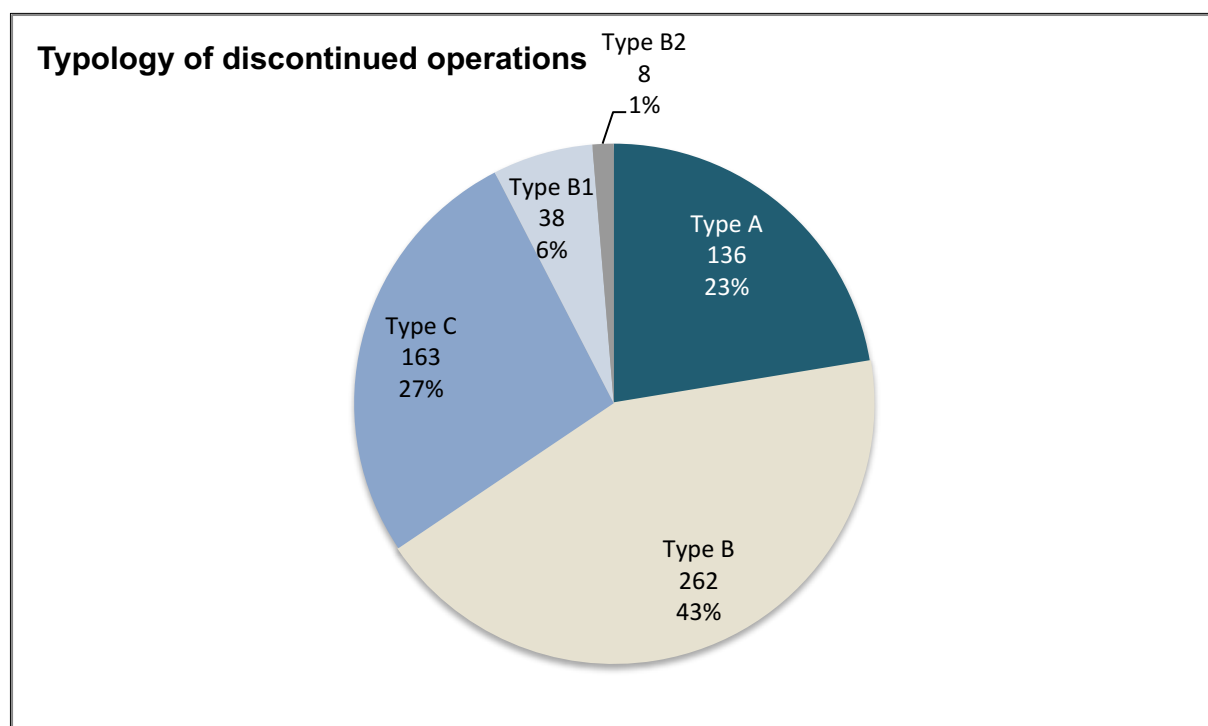
Figure 11: Typology of discontinued operations

This composition does not change significantly over the four-year period and can be therefore considered as a realistic long-term composition.

Looking at the individual MDI scores by type in Figure 12, it appears that Type C companies have the highest score (0.797) followed by Type B (0.779) and Type A (0.766). Type B1 (0.701) and B2 (0.703) have the lowest scores.
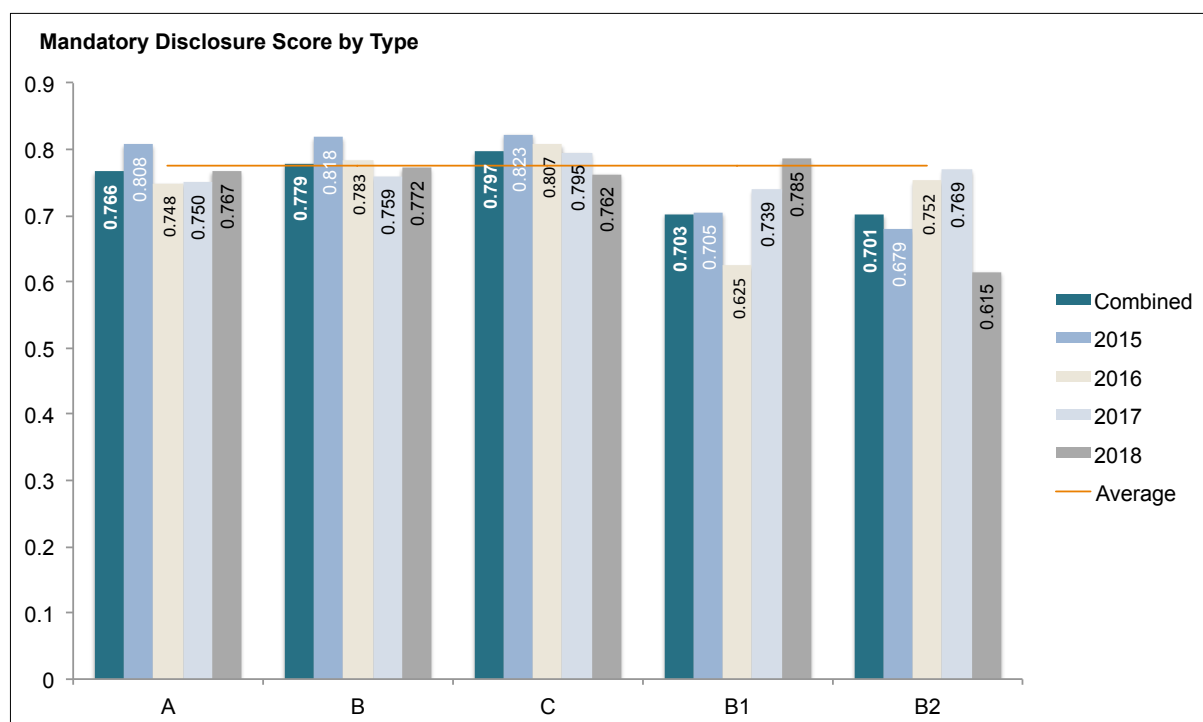
Figure 12: Mandatory Disclosure Score by Type

Comparing the individual years 2015 to 2018 by reporting type it can be observed that the development of the disclosure score in terms of Types A, B and C tend to be decreasing, whereas for type B1 the opposite effect is visible. In particular, the year 2015 seems to be much better in reporting compliance than the subsequent years 2016 to 2018, as this year clearly indicates for Types A, B and C above average MDI values.

As reported later in this chapter two major factors drive the reporting compliance (see the results of the multivariate analysis in section 6.8.6). The first factor is the size of a company and the second the selection of the auditor. An analysis of the companies in 2015 in comparison to the remaining years shows that discontinued adopting firms in 2015 are much larger in size. A one-tailed t-test of the variable SIZE t, $t(605)=4.388$, $p=<0.01$ confirms this statistically significant difference. A second factor is the higher concentration of Big Four auditors. A one-tailed t-test of the variable AUDIT t, $t(270)=-5.392$, $p=<0.01$ also confirms this significant difference.

On the other hand, B1 and B2 firms exhibit lower reporting qualities than the other types A, B and C. As in the year 2015, these types consists of firms that are significantly smaller in size, and where non-Big Four auditors are more prevalent. A one-tailed t-test of the variable SIZE *t*

t(605)=-2.885, p=<0.01 confirms a statistically significant difference as well as the same test for variable AUDIT t, t(52)=1.853, p=0.02.

These findings may indicate that the calculated disclosure scores are not biased by the application of different weighting, and that the assessment approach is consistent throughout the sample.

<u>Individual score by mandatory disclosure item</u>

A total of 30 individual mandatory items make up the total achieved disclosure score of 0.775. The following table provides a summarised overview of the individually achieved scores per item. The mean per mandatory disclosure item represents the individual disclosure score, and the valid data are observed for reporting events applicable for this individual disclosure item. For instance, the criteria in IAS 33.68 which disclose the basic and diluted earnings per share (item 7) are applicable for all reporting events (N=607), whereas item 6, which requires firms to disclose adjustments in the current reporting period to amounts previously presented as discontinued operations, is only applicable for Type C firms (N=163).

The full list with detailed description is given in Appendix II.

	Abbreviated description	Reference IFRS	Mainly applicable for Type	N Valid	N Missing	Mean	Std. Deviation
1	Disclosure of information that enables users to evaluate the financial effects	IFRS 5.30	A, B and C	607	0	0.89	0.318
2	Disclosure, Revenue, pre tax profit loss discops	IFRS 5.33	A, B and C	496	111	0.93	0.256
3	Effect on measurement to fair value less costs to sell or profit / loss on disposal	IFRS 5.33	A, B and C	607	0	0.80	0.400
4	Amount of income from discontinued operations attributable to owners of the parent	IFRS 5.33(d)	A, B and C	607	0	0.77	0.419
5	Restatment income statement	IFRS 5.34	A, B	347	260	0.98	0.131
6	Adjustments in the current period to amounts previously presented as DiscOps	IFRS 5.35	C	163	444	0.72	0.451
7	Basic and diluted EPS DiscOps	IAS 33.68	A, B and C	607	0	0.93	0.260
8	No restatement of prior balance sheet	IFRS 5.40	A and B	355	252	0.99	0.118
9	Disclose the net cash flows attrib. to the operating, investing and financing activities	IFRS 5.33 c	A, B and C	596	11	0.82	0.384
10	Re-present cash flows for prior periods presented	IFRS 5.34	A and B	349	258	0.88	0.329
11	Fair value measurement at the end of the reporting period	IFRS 13.93(a)	A	136	471	0.24	0.430
12	Disclosure of level of the fair value hierarchy	IFRS 13.93(b)	A	136	471	0.15	0.363
13	Cumulative income or expense recognised directly in OCI	IFRS 5.38	A and B	415	192	0.41	0.493
14	Disclosure of major classes of assets and liabilities classified as held-for-sale	IFRS 5.38-39	A	136	471	0.88	0.332
15	Description of the non-current asset or disposal group	IFRS 5.41(a)	A and B	431	176	0.71	0.454
16	Description of the facts and circumstances of the disposal	IFRS 5.41(b)	A and B	444	163	0.61	0.489
17	Impairment loss or any subsequent increase in fair value less costs to sell of the assets	IFRS 5.41(c)	A and B	129	478	0.91	0.292
18	Reportable segment in which the non-current asset or disposal group is presented	IFRS 5.41(d)	A	89	518	0.62	0.489
19	Separate disclosure of discontinued items / note	IAS 1.98(e)	A, B and C	607	0	0.98	0.155
20	Tax expense relating to the gain or loss on discontinuance	IAS 12.81(h) (i)	B	262	345	0.31	0.463
21	Tax expense on ordinary activities of the discontinued operation	IAS 12.81 (h) (ii)	A, B and C	600	7	0.82	0.386
22	Disclosure PPE table and discontinued operations	IAS 16.73 (e) (ii)	A and B	250	357	0.88	0.321
23	Disclosure intangible assets table and discontinued operations	IAS 38.118 (e) (ii)	A and B	211	396	0.87	0.340
24	Disclosure biological assets between the beginning and the end of the current period	IAS 41.50 c	A and B	3	604	0.67	0.577
25	Carrying amount of investment property at the beginning and end of the period	IAS 40.76 c / IAS 40.79 d (iii)	A and B	13	594	1.00	0.000
26	Cash Flow arising from losing control of subsidiaries or other businesses	IAS 7.39	B	257	350	0.89	0.307
27	Total consideration paid / received	IAS 7.40(a)	B	264	343	0.82	0.386
28	Portion of the consideration consisting of cash and cash equivalents	IAS 7.40 (b)	B	258	349	0.67	0.470
29	Cash and cash equivalents over which control is lost	IAS 7.40 (c)	B	262	345	0.43	0.496
30	Assets and liabilities over which control is lost	IAS 7.40 (d)	B	269	338	0.66	0.475
	Maximum score			607	0	16.32	5.336
	Achieved score			607	0	12.69	5.158
	Disclosure Score (MDI)			**607**	**0**	**0.775**	**0.167**

Table 47: Results per mandatory disclosure score item

Overall, almost all firms tend to present discontinued operations in a separate note. Looking at this note, the firms properly disclose revenue and pre-tax profit/loss from discontinued operations in 93% of all cases (item 2). This indicates the importance of those basic financial metrics. In addition, the EPS from discontinued operations appear to be important information to investors as it is disclosed also in 93% of all cases (item 7). On the other hand, the amount of income from discontinued operations attributable to owners of the parent seems disclosed only in 77% of all cases (item 4).

Having a closer look at the non-compliant reporting items per reporting type the following becomes obvious:

Type A: "IFRS 13.91 / IFRS 13.93 requires a company to disclose information that helps users of its financial statements assess for assets and liabilities that are measured at fair value on

non-recurring basis in the statements of financial position after initial recognition, the valuation techniques and inputs used to develop those measurements". To comply with IFRS 13.91 a firm is required in IFRS 13.93(a) to disclose the fair value measurement at the end of the reporting period and the reasons for the measurement. In addition, the firm is also required in 13.93(b) to disclose the level of the fair value hierarchy within which the fair value measurements are categorised in their entirety (level 1, 2, 3). According to the analysis of the mandatory disclosures, in respect of the fair value criteria (IFRS 13.93(a) it is found that only 24% out of 136 type A firms comply with this requirement (item 11). Not surprisingly, the criteria in IFRS 13.93(b) that requires disclosing the fair value hierarchy indicates an even lower score of 15% (item 12).

Disclosing a potential fair value of a discontinued operation while a firm is in the process of selling seems to be delicate. The management might find themselves in an unfavourable position, as such a disclosure might have a boomerang effect on the negotiation of the sale which could limit their scope for action. Those two items are the worst contributors in terms of type A firms. This finding can be clearly linked to the proprietary cost theory, where (Dye, 1986) argues that such disclosure can lower the equity value of a firm. Other studies (Al-Shammari, Brown and Tarca, 2008; Tsalavoutas, 2011; André, Dionysiou and Tsalavoutas, 2018) document similar issues, where disclosing information can commercially harm a company. On the other hand, a majority of type A firms (88%) tend to properly disclose the major classes of assets and liabilities held for sale (item 14).

Type A and B: Only 41% of all companies correctly disclose the comprehensive income items related to a discontinued operation (item 13). Often the cumulative translation adjustments that are recycled by date of deconsolidation (loss of control) are not disclosed either in the notes to the financial statements nor as part of the OCI. A possible explanation is that firms may not have this kind of information at the time of deconsolidation, as the total amount of the CTAs is the sum of currency fluctuation since establishment or acquisition of the companies to be sold. The potential effect may go back and include many decades well before the introduction of consolidation systems. This total effect might be unclear and therefore not disclosed. Other potential items like impact on the remeasurement of defined benefit obligation or cash flow hedges related to discontinued operations are also not properly presented. On the other hand, almost all firms (98%) do apply a restatement of the income statement at the initial application of discontinued operation (item 5). This finding corroborates the results from the initial classification of a discontinued operation of this thesis where the application of discontinued operations is for most firms favourable. This is due to its separation of the income statement

into continuing (recurring) and discontinued (non-recurring) items and the associated valuation advantages as recurring earnings are more highly valued and perceived to be more persistent by investors (Lipe, 1986; Kormendi and Lipe, 1987; Bartov and Mohanram, 2014). However, the restatement of the cash flow statement is slightly lower, and shows a score of 88% (item 10). Four firms or 1% of the applicable sample do restate the Statement of Financial Position at initial application, which is obviously not in conformity with IFRS (item 8).

Type B: A substantial number of companies do not correctly present the requirements according to IAS 7.40. As a consequence the portion of the consideration consisting of cash and cash equivalents is only visible in 67% of all cases (item 28), but more seriously, the amount of the assets and liabilities associated with the loss of control over those assets/liabilities are not disclosed in 34% of all cases (item 30).

Type C: For type C firms in cases where positive impacts occur from the release of provisions or other liabilities, there is often no corresponding tax impact presented. Furthermore, in some cases, there is simply the overall context of the past transaction, which is not properly described and therefore there is no visible context that links the income statement effect to the past events to enable users to evaluate the overall picture and their financial effects. However, the adjustments in the current period to the amount previously presented as discontinued operations are disclosed in 72% of all cases (item 6).

A further aspect in terms of type C firms is the dispersion of the MDI. The mean MDI of 0.797 shows a standard deviation of 0.18 that is considerably higher than for the rest of the sample, which shows a mean value of 0.767 and a standard deviation of 0.16. This can be explained by the fact that Type C reporting events include more flexibility in terms of materiality judgement than Type A and B firms. For Type A and B, a discontinued operation's transactions should always be a material business transaction. Therefore, the preparers have little margin to waive any mandatory disclosure items due to the company's materiality such as proportion of discontinued revenues as a percentage of the total continuing revenue, which should be material. As for Type C firms, the reporting is usually limited to an update on prior transaction-related circumstances, for example release of warranty provision or indemnity provision, as the transaction is already completed. In this case the companies might be able to include more materiality judgement.

Country specific analysis

The following Figure 13 shows the average development of the MDI over the period per country of reporting event as well as a combination of all three types:
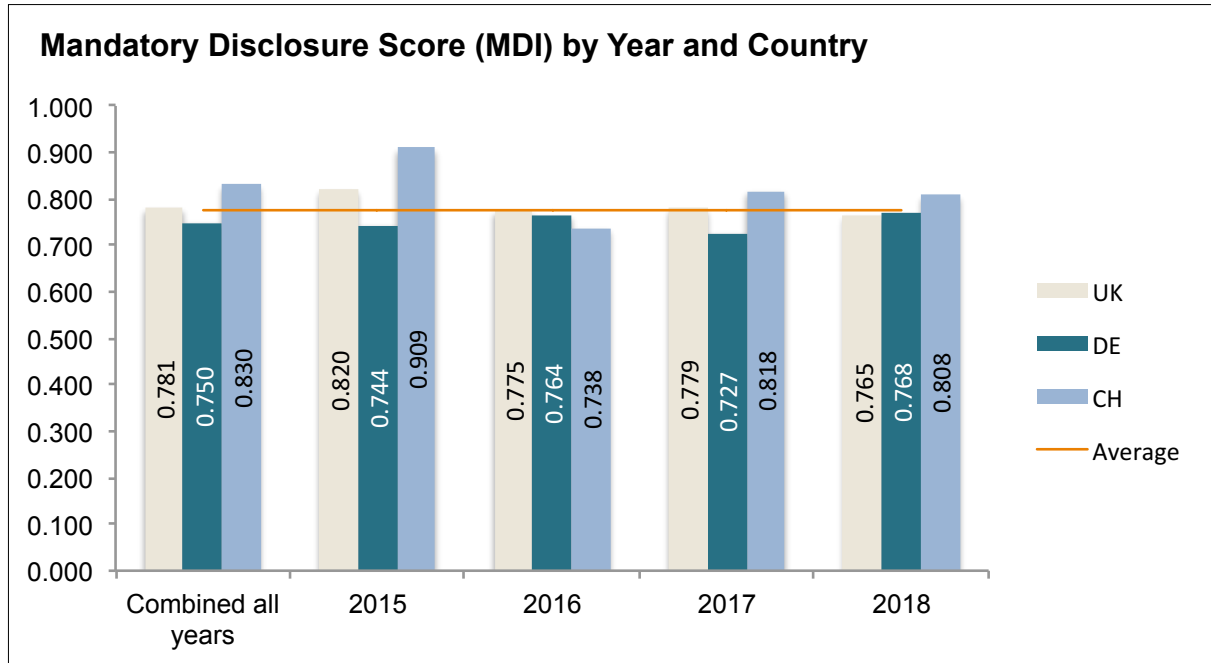
Figure 13: MDI Score by country and year

Switzerland scored best with a mean combined value of (0.830), N=40 followed by UK (0.781), N=398 companies and German firms (0.750), N=169. At first sight this seems a surprising result, as UK firms tend to have very well-educated finance professionals and a wide-ranging finance community. Looking at the average market capitalisation of the sample by country it can be noticed that the UK has the lowest mean (CHF 3.7 billion), followed by Germany (CHF 9.9 billion) and Switzerland (CHF 11.8 billion). This must be put in context, as the size of a company is one of the main contributors to the compliance of mandatory disclosures. Using a one-tailed t-test the variable SIZE t shows a statistically significant difference between Switzerland and UK, t(54)-6.194, p<0.001, and generally confirms the material difference in market capitalisation. On the other hand, all Swiss companies under review have solely appointed a Big Four auditor, which is a second contributor to compliance. This concentration is statistically significant compared to the UK when using a one-tailed t-test, t(397)-10.461, p<0.01. Considering the size and auditor impact the different MDI scores are reasonable and explain partly the variations among countries.

6.8.4 Independent variables

The following sections aims to comment on the descriptive statistics of the independent variables used as part of the multivariate regression model. Each independent variable is assigned to an overall indicator:

a) Size-related variables

The variable (SIZE t) represents the natural logarithm of the firm's total assets. The mean of 6.799 equals to CHF 11.5 billion assets. As described in Chapter 5.5, discontinued firms tend to be larger in size compared to continuing firms, which is consistent with prior discontinued studies (Barua, Lin and Sbaraglia, 2010; Chagnaadorj, 2018; Ji, Potepa and Rozenbaum, 2019). This is primarily due to the fact that discontinued companies must first achieve a certain level of growth before individual parts are divested. Furthermore, it is very likely that start-up companies, for example, do not apply discontinued operations as they pursue a growth strategy. In regional terms, there are differences: UK reports average assets of CHF 9.5 billion, Switzerland CHF 11.6 billion and Germany of CHF 16.0 billion.

Relative size (DIS_DUMMY<5% t) is a dummy variable that indicates 1 (and zero otherwise) for firms where the size of a discontinued transaction is 5% lower in revenue compared to the remaining continuing businesses. Unlike the total size of a company, this variable should further indicate that the relative size of a discontinued transaction is a potential factor of disclosure compliance. According to the descriptive statistics over 37% of the firms apply discontinued operations that are lower than 5% of revenue compared to the continuing businesses.

The reportable segment variable (REPORTABLE_SEG t) further indicates the size of a discontinued transaction. The descriptive statistics show that approximately a third of all transactions form a reportable segment. These firms are unlikely to be in the category of (DIS_DUMMY<5% t). This is due to the fact that the segment's reported revenue should be 10% or more of the revenue of all operating segments (although it is possible to voluntarily report operating segments separately). The correlation matrix confirms this and shows a significant negative association at the 1% level between these variables r=-0.313.

b) Governance-related variables

Monitoring activities by the group management and audit committee as well as the critical review and examination of the consolidated financial statements by the group auditors are

likely to have a positive influence on the compliance of mandatory disclosures. In terms of monitoring activities by the group management a dummy variable is defined (PART_OF_SEG_REPORTING t) that indicates 1 (and zero otherwise) when companies disclose the discontinued operation separately as part of the segment information (e.g. revenue, expenses, possibly total assets). IFRS is not clear whether discontinued operations are required to be reported separately in segment reporting after the initial classification. The assumption is that the management (CODM) regularly reviews the performance even after classifying the business to be discontinued. This is due to the fact that the external reporting structure should be equal to the internal reporting to the senior management. The descriptive statistics indicate that 24% of all companies disclose discontinued operations as part of their segment reporting. However, this ratio is significant higher when excluding Type C firms. These companies almost never report a separate discontinued segment anymore.

The mean value of the (AUDIT t) variable shows that the majority of the firms (78.3%) employ a Big Four audit firm. The Big Four auditors have an international presence and possess a wide range of knowledge throughout all markets. Furthermore, they employ technical experts in accounting and advisory, and in particular, IFRS specialists are part of a group audit process. A dummy variable is set at 1 for a large audit firm and zero otherwise.

The audit committee is an important factor to increase the compliance of the financial statements prior to the publication. The variable (AUDC t) is defined as the total meetings held by the audit committee in a reporting period. A higher number should generally indicate a higher level of monitoring activities. The mean value indicates that the audit committee meets 3.5 times in a reporting period. The audit committee discusses and reviews the annual financial statements prepared by the management team. On the other hand, the audit committee is typically responsible for setting up internal controls and risk management systems and oversees the internal and external audit process which does not directly have an impact on the compliance of the disclosures. The quality of the financial statements, and therefore the disclosure of the mandatory items, depend highly on the individual involvement of the board members and their competencies in international accounting and reporting.

c) Financial performance variables

Impairment charge

A dummy variable (IMPAIR_DUMMY t) is defined that indicates 1 for the presence of an impairment charge in a discontinued transaction (or zero otherwise). According to the

descriptive statistics, approximately 20% of all firms report an impairment charge that is associated with the sale of a discontinued operation. This is consistent with the study of Mazzi et al. (2017, p.48-49) where a ratio of 21% is recalculated. However, this value increases by excluding Type C firms, as those firms almost never have to report an impairment charge.

Motivation to apply discontinued operations

Over 40 per cent of the firms have an incentive to apply discontinued operations as the continuing businesses benefit from the application. The classification does not change the total net income of the firm under review, but changes important continuing ratios, for example Return on Sales from continuing operations. That potentially changes the way in which companies could report financial performance to the outside world, and provides advantages in valuation as recurring earnings are perceived to be more persistent by investors (Lipe, 1986) (Kormendi and Lipe, 1987) and (Bartov and Mohanram, 2014). This ratio would be significantly higher by excluding Type C firms.

d) Financing variable (leverage)

The mean value of the interest-bearing short- and long-term debts in relation to total assets amounts to 21.9 % (LEV t), with a median at a similar level. The level of debt a firm can afford depends mainly on the underlying business risk, future EBITDA generation and the composition of the total assets.

e) Other variables

Industry / Country / Year related variables

Looking at the descriptive statistics of the different industries it becomes obvious that Industrial groups (23.9%) dominate the sample, followed by companies operating in the consumer related industry (19.1%). However, the application of IFRS and particularly IFRS 5 is neutral in terms of compliance and does not imply industry-specific regulations. Furthermore, the binary variable for UK firms indicates that 66 % of the observations is attributable to them followed by Germany of 28% and Switzerland 6%.

Initial vs. subsequent application

The mean of the variable (INITIAL_VS_CONSE t) indicates that approximately 59% of the firms do apply discontinued operations for the first time. These are typically Type A firms but also quite a number of Type B firms announce and close a transaction in the same reporting

period. Initial adopters of discontinued operations have in common that they are required to restate the comparative figures. The variable (INITIAL_VS_CONS t) is a dummy variable that takes on 1 if a firm initially applies discontinued operations and zero otherwise.

6.8.5 Correlation matrix and diagnostic checks

The aim is to use the independent variables as determinants of MDI (mandatory disclosure score) in a multivariate context. As part of a diagnostics check and before the explanatory variables are used in the multivariate regression model, the variables are tested to see whether any multicollinearity issue exists. As the model is based on an OLS regression, one prerequisite is the absence of perfect multicollinearity. The source of any multicollinearity lies in the correlation between the variables. Table 48 shows the matrix of all potential correlations between the variables. With regard to the independent variables there is a no correlation greater than 0.8 except for the country dummy variable UK and Germany. However, the UK dummy variable is dropped in the following multivariate models to hold constant the effects of the other countries.

In addition, the VIF factor shows for all models a range between 1.05 and 2.6. As common knowledge, a VIF factor exceeding ten is a sign of serious multicollinearity requiring corrections. Therefore, it can be concluded that no issues exist with regard to multicollinearity.

Another important step before calculating the regression is to check the data for normality. From the visual inspection of the predicted probability plot (P-P) as suggested by Ghasemi and Zahediasl (2012) it appears that the residuals for all models are not perfect normally distributed. However, the assumption of normality seems to be not significantly violated as there is only a little deviation visible.

Furthermore, the homoscedasticity check of whether or not the residuals are equally distributed shows that those values look in some areas like randomly distributed data. On the other hand, there is some visible concentration of data points where the data tend to bunch together. However, there is no obvious pattern visible. Therefore, it can be concluded that there is no heteroscedasticity in place.

Pearson correlation matrix (N=607) [1]

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1 MDI t																												
2 SIZE t	.219**	1.000																										
3 DIS_DUMMY <5% t [1]	-.316**	-0.011	1.000																									
4 REPORTABLE_SEG t	.179**	0.019	-.313**	1.000																								
5 AUDIT t	.323**	.483**	-0.089	0.026	1.000																							
6 PART_OF_SEG_REPORTING t	.157**	-0.049	-.107*	.227**	-0.032	1.000																						
7 AUDC t	.213**	.515**	-0.087	.122**	.403**	-0.018	1.000																					
8 IMPAIR_DUMMY t	0.075	-0.053	-0.011	.146**	0.023	0.069	0.079	1.000																				
9 LEV t	0.049	.175**	-0.016	0.047	0.067	0.028	0.032	0.064	1.000																			
10 INC_CLASS t	-.080*	-.162**	.128**	.124**	-.117**	0.054	-0.037	.435**	-0.059	1.000																		
11 INITIAL_VS_CONSE t	0.048	-0.077	-.096*	.323**	-.112**	.158**	0.024	.278**	-0.001	.696**	1.000																	
12 YEAR 2015	.088*	.176**	0.012	-0.017	.163**	-0.015	.109**	0.064	0.073	0.015	-0.011	1.000																
13 YEAR 2016	-0.019	-.105**	0.004	0.021	-0.032	-0.008	-.099*	-0.070	-.093*	0.024	-0.002	-.293**	1.000															
14 YEAR 2017	-0.032	-0.034	0.000	0.030	-0.029	0.023	-.093*	-.080*	0.012	-0.025	-0.014	-.300**	-.376**	1.000														
15 YEAR 2018	-0.027	-0.016	-0.014	-0.037	-.083*	-0.002	.097*	.095*	0.016	-0.012	0.026	-.289**	-.363**	-.372**	1.000													
16 COUNTRY_DUMMY_UK	0.043	-.254**	0.031	0.040	0.005	0.016	.111**	0.014	-0.051	0.074	0.058	0.048	-0.028	0.001	0.032	1.000												
17 COUNTRY_DUMMY_GERMANY	-.093*	.188**	0.050	-0.050	-.082*	-0.012	-.160**	-0.016	0.045	-.085*	-.081*	0.047	-0.041	0.000	-0.013	-.857**	1.000											
18 COUNTRY_DUMMY_SWITZERLAND	.086*	.147**	-.154**	0.013	.140**	-0.009	0.077	0.000	0.017	0.012	0.035	.092*	-0.026	-0.002	-0.038	-.367**	-.165**	1.000										
19 IND_BM t	0.050	.191**	0.055	.092*	.086*	0.067	.105**	0.004	0.002	-0.011	0.055	0.027	-0.026	-0.018	0.020	-.118**	.096*	0.054	1.000									
20 IND_CO t	0.014	-.090*	-0.074	0.003	-0.037	-0.007	-0.054	-0.013	0.066	-0.052	0.000	0.037	0.007	-0.013	-0.026	-0.041	.094*	-.092*	-.097*	1.000								
21 IND_CC t	0.035	-0.038	0.071	-0.067	-0.066	-0.034	-0.005	0.051	-0.034	0.077	0.047	0.038	-0.006	-0.047	0.020	0.009	-0.036	0.047	-.112**	-.139**	1.000							
22 IND_CN t	.092*	0.023	0.005	-0.029	0.002	0.052	0.064	0.030	0.018	0.003	0.010	-0.010	0.036	0.007	-0.034	.167**	-.152**	-0.045	-.136**	-.168**	-.195**	1.000						
23 IND_EN t	-0.055	0.019	.194**	0.032	0.065	-0.039	0.011	-0.057	0.068	-.090*	-.116**	0.045	-0.018	-0.057	0.036	.101*	-0.074	-0.061	-0.064	-0.079	-.091*	-.111**	1.000					
24 IND_FS t	-0.053	0.024	0.035	0.026	0.032	0.046	0.003	0.034	-.099*	0.056	0.059	0.002	0.028	0.023	-0.054	0.042	-0.061	0.029	-0.065	-.080*	-.093*	-.113**	-0.053	1.000				
25 IND_IN t	-0.046	-0.008	-0.038	-0.042	0.061	-.105**	-0.009	-0.038	.150**	-0.032	-.085*	-0.024	-0.026	0.040	0.007	-.098*	.092*	0.022	-.157**	-.194**	-.225**	-.272**	-.128**	-.130**	1.000			
26 IND_RE t	-0.013	0.014	-0.079	0.048	-0.038	-0.020	-.122**	-0.005	0.024	0.024	-0.007	-0.027	-0.007	0.058	-0.028	0.011	-0.010	-0.002	-0.046	-0.057	-0.066	-.080*	-0.038	-0.038	-.092*	1.000		
27 IND_TE t	-0.067	-.195**	-0.079	0.014	-.126**	0.079	-0.072	-0.005	-0.079	0.016	0.019	-.080*	0.041	0.009	0.020	-0.019	0.021	-0.002	-.094*	-.117**	-.135**	-.164**	-0.077	-0.078	-.189**	-0.055	1.000	
28 IND_UT t	0.002	.220**	-0.051	0.018	0.054	-0.009	0.052	-0.022	0.075	0.022	0.063	0.010	-0.068	0.003	0.058	-0.073	0.027	.092*	-0.043	-0.053	-0.062	-0.075	-0.035	-0.036	-.086*	-0.025	-0.052	1.000

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
[1] Total available observations of DIS_DUMMY <5% t are N=433

Table 48: Pearson correlation matrix

6.8.6   Regression results

6.8.6.1   Model results

A multivariate regression model is used to test whether the size factors, governance-related factors, financing factors, and financial performance-related aspects can deliver a substantial explanation for the variations of MDI score.

The MDI score per company/reporting event is the sum of all achieved mandatory disclosure items and indicates an overall score of 77.5 per cent.

The multivariate regression model contains five different models:

- Model A) *All firms* included
- Model B) All variables *without Type B2 and C firms and including size related factor* of the relative discontinued operation
- Model C) All variables *without Type B2 and C firms* based on Model B sub-sample including *industry specific* variables
- Model D) All variables without Type B2 and C firms based on Model B sub-sample that is restricted to *UK firms* only
- Model E) All variables without Type C firms based on Model on sub-sample that is restricted to *German and Swiss* firms only

The results for Models A, B and C are as follows:

Independent variables			Model A		Model B		Model C	
			Standardised Coefficients		Standardised Coefficients		Standardised Coefficients	
Variable label	Hyp.	Expected sign	Beta	t	Beta	t	Beta	t
(Constant)				31.028 ***		23.457 ***		21.019 ***
SIZE t	H6	+	0.101	2.006 **	0.304	5.813 ***	0.375	6.700 ***
DIS_DUMMY <5% t	n/a	-	n/a	n/a	-0.266	-6.538 ***	-0.281	-6.593 ***
REPORTABLE_SEG t	n/a	+	0.091	2.259 **	0.089	2.159 **	0.101	2.398 **
AUDIT t	H7	+	0.284	6.465 ***	0.195	4.290 ***	0.187	4.075 ***
PART_OF_SEG_REPORTING t	n/a	+	0.119	3.155 ***	0.135	3.498 ***	0.130	3.355 ***
AUDC t	n/a	+	0.067	1.431	0.025	0.531	-0.010	-0.218
IMPAIR_DUMMY t	n/a	+	0.088	2.087 **	0.110	2.573 ***	0.093	2.190 **
LEV t	H8	+	-0.010	-0.271	-0.012	-0.300	-0.003	-0.065
INC_CLASS t	n/a	-	-0.229	-4.086 ***	-0.133	-3.082 ***	-0.132	-3.029 ***
INITIAL_VS_CONSE t	n/a	+	0.094	1.724 *	0.170	4.393 ***	0.156	4.063 ***
YEAR 2015	n/a	-	-0.007	-0.148	-0.042	-0.929	-0.063	-1.393
YEAR 2016	n/a	-	-0.010	-0.218	-0.056	-1.205	-0.084	-1.781 *
YEAR 2017	n/a	-	-0.062	-1.345	-0.095	-2.035 **	-0.115	-2.453 **
COUNTRY_DUMMY_GERMANY	n/a	-	-0.056	-1.386	-0.100	-2.396 **	-0.103	-2.452 **
COUNTRY_DUMMY_SWITZERLAND	n/a	+	0.073	1.910	0.006	0.160	0.014	0.343
IND_BM t	n/a	n/a	n/a	n/a	n/a	n/a	-0.062	-1.398
IND_CO t	n/a	n/a	n/a	n/a	n/a	n/a	0.025	0.563
IND_CC t	n/a	n/a	n/a	n/a	n/a	n/a	0.064	1.402 *
IND_CN t	n/a	n/a	n/a	n/a	n/a	n/a	-0.008	-0.155
IND_EN t	n/a	n/a	n/a	n/a	n/a	n/a	-0.006	-0.147
IND_FS t	n/a	n/a	n/a	n/a	n/a	n/a	0.000	-0.005
IND_RE t	n/a	n/a	n/a	n/a	n/a	n/a	-0.054	-1.318
IND_TE t	n/a	n/a	n/a	n/a	n/a	n/a	-0.013	-0.284
IND_UT t	n/a	n/a	n/a	n/a	n/a	n/a	-0.132	-3.153 ***
Adjusted R^2			0.226		0.417		0.430	
F			13.126		20.514		13.862	
Prob. (F)			<0.001		<0.001		<0.001	
N			581		410		411	

Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations
* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

Table 49: Regression results Models A, B and C

Furthermore, the test results of the country-specific regressions are shown in the next table:

Independent variables			Model D: UK		Model E: DE and CH	
			Standardised Coefficients		Standardised Coefficients	
Variable label	Hyp.	Expected sign	Beta	t	Beta	t
(Constant)				21.555 ***		10.879 ***
SIZE t	H6	+	0.291	4.576 ***	0.142	1.683 *
DIS_DUMMY <5% t	n/a	-	-0.283	-5.863 ***	-0.212	-2.823 ***
REPORTABLE_SEG t	n/a	+	0.042	0.847	0.164	2.253 **
AUDIT t	H7	+	0.156	2.879 ***	0.294	3.608 ***
PART_OF_SEG_REPORTING t	n/a	+	0.150	3.152 ***	0.128	2.047 **
AUDC t	n/a	+	0.092	1.624	-0.033	-0.398
IMPAIR_DUMMY t	n/a	+	0.125	2.458 **	0.044	0.585
LEV t	H8	+	0.038	0.784	-0.151	-2.382 **
INC_CLASS t	n/a	-	-0.208	-4.044 ***	0.037	0.499
INITIAL_VS_CONSE t	n/a	+	0.049	1.041	0.374	5.890 ***
YEAR 2015	n/a	-	-0.023	-0.419	-0.106	-1.369
YEAR 2016	n/a	-	-0.050	-0.885	-0.088	-1.095
YEAR 2017	n/a	-	-0.097	-1.734 *	-0.136	-1.663
COUNTRY_DUMMY_SWITZERLAND	n/a	+	n/a	n/a	0.016	0.238
Adjusted R^2			0.419		0.524	
F			16.406		11.137	
Prob. (F)			<0.001		<0.001	
N			279		130	

Outliers have been defined and excluded using observations for which the studentized residuals lie outside the range of ±2 standard deviations
* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

Table 50: Regression results Models A, B and C

According to the findings reported in Table 49 and Table 50, it can be concluded that all regression models are significant at 1% level (F values). This indicates that the proposed firm characteristics explain a substantial part of the variation of the levels of compliance with discontinued operations mandatory IFRS disclosures.

The adjusted R^2 indicates that the chosen variables explain between 22.6 per cent and 52.4 per cent of the variation in companies' levels of compliance with mandatory disclosures around discontinued operations. Compared to other studies it is evident that this adjusted R^2 result is

at the upper limit. The study by Glaum and Street (2003) reveals an adjusted R^2 between 29.6 per cent to 31.4 per cent; Galani, Alexandridis and Stavropoulos (2011) report an adjusted R^2 of 13.8 per cent; Tsalavoutas (2011) reports an adjusted R^2 between 35 per cent to 41 per cent and the R^2 of Devalle, Rizzato and Busso (2016) is between 14.0 per cent to 17.4 per cent. Furthermore, Boshnak (2017) calculates an adjusted R^2 between 40.5 per cent to 46.0 per cent and André, Dionysiou and Tsalavoutas (2018) document an adjusted R^2 between 34 per cent to 59 per cent.

6.8.6.2 Results variables with hypotheses testing

<u>Size effects on mandatory disclosure (H6)</u>

The SIZE *t* variable, defined as the natural logarithm of the company's total assets, shows in all Models A to E a positive sign as predicted. In terms of statistical significance all models show significance at the 1% or 5% levels except Model E, which is at 10%. In particular in Models B, C and D the SIZE *t* variable is the most contributing variable to these models. This finding is consistent with (Al-Shammari, Brown and Tarca, 2008; Hodgdon et al., 2008; Al Mutawaa and Hewaidy, 2010; Al-Akra, Eddie and Ali, 2010; Galani, Alexandridis and Stavropoulos, 2011; Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015) and (Appiah et al., 2016), indicating a positive association.

Moreover, the variable (DIS_DUMMY <5% *t*) that proxies the lower-sized transactions below 5% revenue, compared to the continuing revenues, shows in all Models B to E a negative sign as expected and significance at the 1% levels in all modes. The relative contribution (standardised coefficients) of the DIS_DUMMY<5% *t* amounts for Model B -0.266, Model C -.0.281, Model D -0.283 and Model E -0.212 respectively. This represents for all models the second most contributing variable.

The higher the relative contribution of discontinued business to the continuing business measured mainly as relative revenues, and the bigger a company in absolute terms (measured by the natural logarithm of total assets), the more the discontinued operation and the company itself is in the focus of investors, senior management, audit firms, and board of directors. Against this backdrop, it is thus not surprising that size-related variables have a material impact on the compliance and number of mandatory disclosures given in the notes to the financial statements. This result also fits with the agency theory by (Jensen and Meckling, 1976) and

with the goal to reduce agency costs by disclosing a set of financial statements at a high compliance level or providing more/extra information (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008).

In addition, it seems obvious that firms with more than 30,000 employees tend to have more internal experience and cost advantages (economies of scale) in preparing IFRS 5 compliant consolidated financial statements than firms employing only a small workforce.

As expected, the presence of a reportable segment also exhibits a positive association and confirms the importance of big sized transactions with the dependent variable. This variable is significant at the 5% level in Model A, B, C, and E and shows the predicted sign in all models.

From the results it can be concluded that size effects measured by the natural logarithm of the total assets (variable SIZE t) have a statistically positive impact on mandatory disclosures. In addition, all other size-related variables confirm the importance of size in context of discontinued operations mandatory IFRS disclosures. Therefore, this finding supports the hypotheses (H6) of this thesis.

Results on the type of auditor (H7)

As expected, the signs in all models of variable (AUDIT t) are positive. Furthermore, the variable is statistically significant in all models at the 1% level. This result suggest that the Big Four auditors have a significant impact on the mandatory disclosure compliance, which supports Hypothesis H7. This positive association is consistent with prior studies (Abd-Elsalam and Weetman, 2003; Glaum and Street, 2003; Al-Akra, Eddie and Ali, 2010; Tsalavoutas, 2011; Amiraslani, Latridis and Pope, 2013; Glaum et al., 2013b; Demir and Bahadir, 2014; Lopes, 2014; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018).

It seems likely that discontinued operations are due to the unusual nature and significant impact on the financial statements which are part of the auditor's risk assessment, for example the annual report of Vodafone Group Plc (2017, p.94); OC Oerlikon Group (2018, p.161); The Weir Group PLC (2018, p.119). As a consequence, auditors are involved in many steps of the transaction and in all critical accounting and reporting topics, for example examining whether or not all IFRS 5 requirements are fulfilled to constitute a discontinued operation, cut-off date of loss of control, measurement considerations with a disposal group. Furthermore, Big Four auditors have a so-called IFRS desk that assists the audit team in reviewing the IFRS annual reports. For non-Big Four auditors this sort of quality centre is likely to be unavailable due to

their smaller size. Therefore, Big Four auditors are in a superior position compared to non-Big Four companies; consequently, they facilitate a better quality of financials, in particular, mandatory disclosures.

Another possible explanation for the relatively high contribution of the audit firms is the fact that preparers are not frequently experienced in the preparation of consolidated accounts including discontinued operations. Looking at the previous chapters, it appears that on average discontinued operations are reported only once in eight years. On the other hand, firms are regularly exposed to other standards like IAS 1 *Presentation of Financial Statements*, IAS 2 *Inventories* or IAS 16 *Property, Plant and Equipment,* but not IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*. Tsalavoutas (2011) provides evidence that quite a substantial compliance score difference exists among the standards where IFRS 5 is ranked at the lower end. Under these circumstances, the expertise of a Big Four auditor can make a substantial difference compared to a non-Big Four audit firm and increases the disclosure compliance.

Financing structure on mandatory disclosures (H8)

The leverage variable (LEV *t*) has the expected sign only in Model D, whereas in all other models negative signs are shown. In Model E the variable is even statistically significant: -0.151 at the 5% level which is, however, consistent with Lopes (2014) and Appiah et al. (2016). This is not an intuitive result, and opposite to what was predicted, as it was expected that the higher the interest-bearing debts in relation to the total capital invested, the more firms comply with mandatory disclosures, which would be consistent with (Alanezi and Albuloushi, 2011; Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Lucas and Lourenço, 2014; Agyei-Mensah Ben, 2019). In light of the agency theory (Jensen and Meckling, 1976) creditors have a legitimate interest to be supplied with company information in order to monitor and assess the quality and risks of their assets, and to control the behaviour of the agent. However, the lenders and in particular the banks, obviously have other tools and mechanisms to assess their positions. Holthausen and Leftwich (1983) and Leftwich (1983) document that one possible way to reduce costs of monitoring and agency conflicts is to include accounting numbers in lending contracts. Further, Siggelkow and Zülch (2013) document that the majority of credit agreements include debt covenants. This might explain why creditors are less dependent on the information provided through financial reports.

Based on this result, the model cannot provide evidence to prove that leverage levels influence the mandatory disclosures of discontinued operations.

6.8.6.3   Other variables

Audit Committee role on mandatory disclosure

The variable (AUDC t) shows in Models A, B and D a positive standard coefficient as expected, however, none of the models provide significance, indicating that the number of meetings held by the audit committee does not play an important role in respect of compliance with mandatory disclosures. This finding is different from predicted, and inconsistent with the studies of Alanezi and Albuloushi (2011) and Glaum et al. (2013b), who find a positive association. A possible explanation for this result is that audit committees do not play an active role in the preparation of the accounts and therefore have less influence on technical accounting matters than the management and audit firm. On the other hand, the competencies of the audit committee members, quality of review and potentially other priorities of the members are not captured in this variable, and therefore caution is needed when interpreting this result.

Impact segment disclosure

Consistent with the prediction, the variable PART_OF_SEG_REPORTING t has the expected sign in all models and is statistically significant at the 1 per cent and 5 per cent levels. This finding supports the notion that internal monitoring is positively associated with the compliance levels.

IFRS 8 *Operating Segments* requires firms to report the segment numbers in the same way and structure as the internal reporting. In other words, the presentation of the segments reflects the view through the eyes of the senior management or CODM. As IFRS 5 is silent as to whether former reportable segments need to be separately disclosed in subsequent reporting events after their initial classification, it can be concluded that firms disclosing discontinued segments are generally better monitored by the senior management. Better internal monitoring activities obviously have a positive association with mandatory disclosures but underline at the same time that the management is still interested in the operating trading results until the sale of the discontinued operations occurs.

Impairment of disposal group

For all models the coefficient has the predicted positive sign. The variable is either statistically significant at the 1 per cent level and at the 5 per cent level, except Model E where the regression does not reveal significance. This result is consistent with (Mazzi et al., 2017) and (Mazzi, Slack and Tsalavoutas, 2018).

According to IFRS 5 an impairment charge in connection with a discontinued transaction needs to be disclosed separately. Along with the recognition of an impairment charge the information demand usually increases, as such amounts are normally material to a firm. Companies are therefore required to describe the circumstances and the root cause of such an impairment charge. This leads to more information being given in the annual report and thus generally to a better mandatory disclosure.

An impairment charge may arise at the time of initial classification (Type A firms) where the expected fair value less costs to sell of the disposal group is below the carrying value, or in the period when the firm is selling its net assets (Type B firms). For Type C firms there is usually no impairment charge involved as the transaction is already closed.

Incentive/motivation to apply discontinued operations

In line with the prediction, the variable INC_CLASS that proxies the incentive to initially apply discontinued operations shows a negative sign in all models (except Model E), indicating that companies that have a motivation to apply discontinued operations are reluctant to provide the required disclosures. This variable is statistically significant at the 1 per cent level in Model A to D. However, looking at Model E (Germany and Switzerland) it appears that this variable has no significant impact on the mandatory disclosure score in those countries.

Overall, this result supports the proprietary cost theory (Verrecchia, 2001), as for a number of firms the initial application of discontinued operations is questionable (refer to the results from the initial classification in Chapter 6.3). A proper disclosure of all circumstances around discontinued operations may unmask the questionable application and lead to further questions or actions by the stock oversight authorities. As a further rationale, firms might want to mask an overall poor financial performance of the discontinued operation in combination with a potential unfavourable deal negotiated with the buyer. This could lead to further undesired questions from the shareholders and creditors.

<u>Initial vs. subsequent application</u>

Consistent with the prediction, the test results show a positive sign in all models. Model B, C and E show significance at the 1 per cent level, whereas Model A is significant at the 10 per cent level. Model D is not significant.

The test result from Models B and C suggest that the first reporting event is a significant contributor of compliance of mandatory disclosures of discontinued operations. It appears that firms reporting discontinued operations of the first time tend to better comply with IFRS than firms in a subsequent reporting event. The key feature of the firms applying discontinued operations at the initial reporting period is the implementation of a restatement (those are coded as 1, and zero otherwise).

However, looking at the regression D (UK) and E (Germany and Switzerland) the test result show that this only holds true for German and Swiss firms, as the variable of the UK regression does not indicate significance. This outcome seems reasonable in combination with the variable INC_CLASS t. In the UK, Model D firms are reluctant to provide all mandatory disclosures as they potentially want to mask a non-compliance application, the poor financial performance of discontinued operation or an unfavourable deal negotiated with the buyer. As discussed, the variable INC_CLASS t shows a significant negative association. Having a negative association with INC_CLASS t leads automatically to an insignificant association of the variable INITIAL_VS_CONS t with mandatory disclosures, as the incentive to initially apply discontinued operations is associated with the initial reporting event (the correlation matrix confirms this relationship r=0.696, p<0.01).

The situation for Germany and Switzerland is the opposite. Even though firms have an incentive to initially apply discontinued operations, it appears that the disclosures do not suffer, as INC_CLASS t does not indicate a negative association. On the other hand, the variable INITIAL_VS_CONS t shows significance.

6.9   Discussion / conclusion on mandatory disclosures

The objective of this section was to examine to what extent firms listed on the British, German and Swiss stock exchanges from 2015 to 2018 comply with mandatory disclosure items while applying discontinued operations and what the determinants of compliance are (refer to research question Q4).

The sample of 607 year-end closing events, which excludes financial institutions and lower-sized firms reporting less than CHF 10 million revenues, was divided into different reporting types (A, B, B1 and B2 and C) allowing a differentiation between the degree of mandatory disclosures. Based on the different reporting types, five models were analysed to investigate whether size, Big Four auditors and leverage have a significant impact on the disclosure score. As the reporting of discontinued operations is by definition a material transaction, it was assumed that all mandatory items associated with discontinued operations are applicable to disclose and not rebuttable due to materiality reasons, except Type C firms, where the transaction is executed in an earlier year-end reporting event, as well as for B2 types. The analysis is motivated by a lack of available disclosure studies around discontinued operations, which is confirmed by Tsalavoutas, Tsoligkas and Evans (2020) in their structured literature review.

Prior to the assessment the self-constructed research instrument was validated against the publicly available disclosure checklists of KPMG, PwC and EY.

Following an unweighted scoring method, the analysis of 30 mandatory discontinued operation disclosure items indicate an average compliance score of 77.5% (Switzerland scored best with 83.0%, followed by UK 78.1% and Germany 75.0%).

Considering the complexity of the standard, these compliance scores can be seen in the upper scale, compared to Tsalavoutas, Tsoligkas and Evans (2020), who based on 70 studies classified 75% and less as low compliance.

However, looking at the individual mandatory items, significant differences are visible. Consistent with the proprietary cost theory (Verrecchia, 2001) it appears that firms are reluctant to provide information on the fair value measurement of disposal groups (between 15% and 24% compliance). The results show that this is mainly for firms in the process of a discontinued operation, where the disclosure of fair value measurement information would obviously put them in an unfavourable negotiation position.

All five models show an adjusted R^2 in the range of 22.6% to 52.4%. This implies that a substantial part of the variations in compliance can be explained. On the other hand, there are factors like the IFRS educational level, attitude of doing the correct thing, timing constraints in preparing and auditing etc. that may also influence the compliance but where it seems difficult to obtain observable data. This can be seen as a limitation.

In almost all subsamples the size (measured as the natural logarithm of a firm's total assets) of a firm is statistically significant when associated with the compliance of mandatory disclosure, which is consistent with prior studies (Al-Shammari, Brown and Tarca, 2008; Hodgdon et al., 2008; Al Mutawaa and Hewaidy, 2010; Al-Akra, Eddie and Ali, 2010; Galani, Alexandridis and Stavropoulos, 2011; Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015) and (Appiah et al., 2016). This finding is also in line with the agency theory by Jensen and Meckling (1976), as larger-sized firms tend to have higher agency costs that can be reduced by providing extra information (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008). In addition, it seems apparent that larger-sized firms are more in the public eye, resulting in a greater need for information, and might benefit from more internal IFRS experts. Thus, Hypothesis H6 is supported.

By looking at the individual transactions size it becomes obvious from the variable DIS_DUMMY <5% which proxies the smaller sized transactions that transaction size is negatively associated with compliance level in all models except for Model A. On the contrary, the REPORTABLE_SEG t variable indicates a statistically positive association, except for Model D which confirms the notion that size is an important determinant.

Furthermore, it seems undisputed that the Big Four audit firms make a significant contribution to compliance. In all models the Dummy variable of Big Four vs. non-Big Four auditors has a statistically significant association with the compliance level, and is consistent with Hypothesis H7. This finding is consistent with (Abd-Elsalam and Weetman, 2003; Glaum and Street, 2003; Al-Akra, Eddie and Ali, 2010; Tsalavoutas, 2011; Amiraslani, Latridis and Pope, 2013; Glaum et al., 2013b; Demir and Bahadir, 2014; Lopes, 2014; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018). Big Four auditors have a wide range of technical knowledge, including IFRS desks that support the reviewing and audit procedures of the core audit team. On the other hand, this also clearly indicates that firms with a non-Big Four auditor deliver less compliant financial reports.

By contrast, as predicted but in line with Al Mutawaa and Hewaidy (2010) and Mazzi et al. (2017), there is no significant association of the debt/asset ratio with the compliance of mandatory disclosures. In all models the leverage variables do not show statistical significance. As a result, Hypothesis H8 is not supported. This suggests that the compliance level is not relevant in terms of leverage level. A possible explanation is that financial institutions use other tools to monitor their exposure, such as compliance certificates to comply with critical accounting ratios.

The disclosure of discontinued operations as part of segment reporting is not regulated under IFRS 5. However, it seems apparent that the disclosure as part of segment reporting after initial classification has a statistically positive influence on the compliance score in all models. In this sense the internal organisation of a firm supports the compliance level, as the financial information of the discontinued operation is provided to the CODM following the principle of reporting through the eyes of management even after the initial classification. On the other hand, other monitoring activities such as the presence of an audit committee have no relevance on the disclosure compliance.

In addition, it becomes evident that firms that have a higher incentive to apply discontinued operations are less compliant with mandatory disclosures. The dummy variable that proxies the motivation or incentive to apply discontinued operations is negatively associated with the compliance score. This is statistically significant in all models except Model E (Germany and Switzerland) which reveals regional variations. Consistent with the proprietary cost theory (Verrecchia, 2001) this finding suggests that firms with a higher motivation to initially apply discontinued operations are reluctant to be transparent and provide all necessary information. This might be driven by the questionable application of discontinued operations, the underperforming discontinued operations or the unfavourable negotiated deal with the buyer.

The recognition of an impairment loss has also revealed a positive association in most models, which is consistent with Mazzi et al. (2017) and Mazzi, Slack and Tsalavoutas (2018). Impairment charges are of an unusual and infrequent nature and could materially impact net earnings. This might explain why firms want to give transparent information in annual reports around impairment charges. In addition, it seems likely that audit firms focus on impairment charges as part of their audit risk strategy due to its materiality.

Furthermore, the test results reveal that firms that classify discontinued operations in a first year-end reporting event achieve statistically significant better compliance in all models (except Model A and D) than those reporting discontinued operations in a second or even third

reporting year. A possible explanation is that transactions announced and reported in the first reporting year naturally draw more attention from the management and auditors. Thus, the mandatory compliance is better than in a subsequent reporting event, where the transaction is already known to the public.

7   Other results and findings

7.1   Purpose and overview

The purpose of this chapter is to report the results, which provide additional insights into the interpretation and management of discontinued operations and supplement the main results. The following impairment analysis assists the model development at initial classification of discontinued operations and can be linked to the first research question R1, while the analysis of type C reporting events can be broadly linked to R4. In addition, this section also includes an analysis of the consideration received of discontinued operations, and an analysis of cash flow-specific aspects that gives additional insights. The information is partly manually collected and based on companies' annual reports.

The results are based on the same samples as for the disclosure analyses as well as for classification shifting (refer to Section 4.3.3).

7.2   Impairment analysis

Short-term analysis

During the period from 2015 to 2018 approximately 20% out of 607 year-end reporting events contain an impairment charge. The mean/median value of the impairment charge during this period amounts to CHF 124.4 million and CHF 8.7 million respectively. However, by excluding type C firms the frequency of reporting an impairment charge increases from 20% to 37%, with the same mean values. Approximately 86% of all impairment charges are recognised while applying discontinued operations for the first time, vs. 14% that have recognised an impairment charge in a subsequent reporting period. This difference is statistically significant at the 5% levels, $t(152)$, $2.107 = p<0.019$ using a one-tailed t-test. This suggests that firms mainly consider an impairment charge at the beginning of a sale process, which is consistent with the main results, suggesting that considering an impairment charge as part of a discontinued operation is one of the main incentives to apply discontinued operation.

 The highest value of CHF 4,822 million is attributable to the Vodafone Group Plc (2017, p.123) in 2017, due to the fact that a new operator in India is offering 4G services for free and therefore has triggered a substantial impairment charge as part of a discontinued operation.

Focusing on the detailed accounts where an impairment loss has been recognised, it appears that Goodwill, followed by Property, Plant and Equipment (PPE), are most affected by

measuring the disposal group at the lower of its carrying value and fair value less costs to sell. The following table shows the frequencies of reported impairment losses by type:

Type / nature of impairment charge

Type	Frequency
Other	17
Receivables	4
Inventory	8
Investments	6
PPE	43
IntangibleAssets	42
Goodwill	67

Frequency of reporting
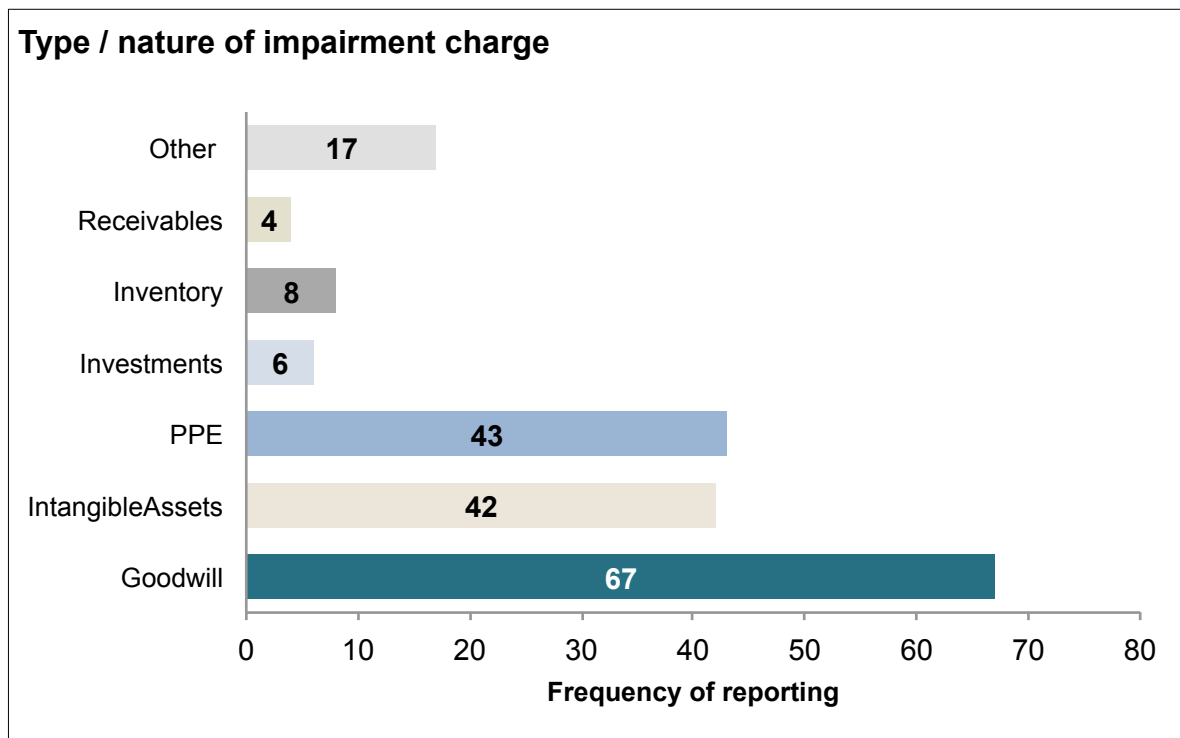
Figure 14: Type / nature of impairment charge

In the case of a potential impairment at initial classification of a discontinued operation, or in a subsequent reporting event, IFRS 5.23 requires firms to follow the impairment allocation rules as stipulated under IAS 36.104. According to IAS 36.104 (a) a firm is required first to reduce the carrying amount of the goodwill, and then in IAS 36.104 (b) the other assets of the unit pro rata on the basis of the carrying amount of each asset in the unit.

IFRS 5.4 and IFRS 5.15 stipulate a group measurement procedure that applies to the assets and liabilities associated with a discontinued operation (disposal group). However, this essentially excludes current assets and other assets as listed in IFRS 5.5 from this overall impairment test. Instead, it requires these assets to be measured individually immediately before such an overall impairment test is performed. According to IFRS 5.18 and IFRS 5.19 this applies to initial classification and in subsequent reporting events.

In the light of these measurement rules, it does not seem a surprise that the frequency of impairment losses allocated to goodwill is highest, followed by PPE and intangible assets. These three categories account for more than 80% of all impairment losses.

Long-term analysis

For the long-term analysis the data of the classification shifting topic is used. The analysis aims to investigate potential differences (amount and frequency) in reporting impairment charges of discontinued firms and non-discontinued firms. Other than in the short-term analysis, discontinued reporting firms may also include an impairment charge on the continuing part of the business. This might occur particularly for Type C reporting events, where it seems very unlikely that such an impairment charge on goodwill and intangibles is related to discontinued operations, as the transaction was executed in an earlier reporting event. This needs to be considered when interpreting the results and should be seen as a limitation.

The following table shows the results of non-discontinued reporting events (Panel A) and discontinued reporting events (Panel B):

Panel A: Firms without reporting discontinued operations

	N	T-test	Wilcox.	Mean	Median	Std. Deviation	Percentiles 25	75
IMPAIR_GOODWILL t [1]	643		***	124.7	7.3	488.3	1.7	42.6
IMPAIR_INTANGIBLES t [1]	904		***	39.9	2.5	136.6	0.4	13.7
GOODWILL_IMPAIR_SALES t [2]	643			0.049	0.009	0.104	0.002	0.038
INTANGIBLES_IMPAIR_SALES t [2]	904			0.018	0.002	0.054	0.000	0.010
DUMMY_GOODWILL t [3]	7838	***	***	0.082	0.000	0.275	0.000	0.000
DUMMY_INTANGIBLES t [3]	7838	***	***	0.115	0.000	0.319	0.000	0.000

Panel B: Firms reporting discontinued operations

	N	T-test	Wilcox.	Mean	Median	Std. Deviation	Percentiles 25	75
IMPAIR_GOODWILL t [1]	228		***	152.1	17.8	461.5	2.9	96.5
IMPAIR_INTANGIBLES t [1]	312		***	41.4	5.5	115.3	1.3	21.3
GOODWILL_IMPAIR_SALES t [2]	228			0.040	0.009	0.080	0.002	0.045
INTANGIBLES_IMPAIR_SALES t [2]	312			0.019	0.002	0.051	0.001	0.012
DUMMY_GOODWILL t [3]	1230	***	***	0.185	0.000	0.389	0.000	0.000
DUMMY_INTANGIBLES t [3]	1230	***	***	0.254	0.000	0.435	0.000	1.000

[1] IMPAIR_GOODWILL t and IMPAIR_INTANGIBLES t are defined as impairment recognised on goodwill/intangible in CHF million.
[2] GOODWILL_IMPAIR_SALES t and INTANGIBLES_IMPAIR_SALES t are defined as impairment recognised on goodwill or intangibles divided by total Sales
[3] DUMMY_GOODWILL t and DUMMY_INTANGIBLES t takes on 1 if a goodwill or intangibles charge is recognised and 0 otherwise
*, **, *** Indicate significant differences between Panel A and Panel B using a one tailed t-test at the 10%, 5%, and 1% levels, respectively.
All variables are winsorized at 1 percent and 99 percent.

Table 51: Impairment comparison

The goodwill impairment loss on discontinued reporting firms with a mean/median value of CHF 152.1 million / CHF 17.8 million is around 22% (mean) and 144% (median) higher than for firms without reporting discontinued operations. In terms of impairment recognised on intangible assets, the results show a mean/median value of CHF 41.4 million and CHF 5.5 million for discontinued reporting firms. This is 4% higher in mean and 120% in median terms, compared to none for discontinued firms. Both differences indicate significance at 1% levels using a one-tailed Wilcoxon Rank Sum test. The differences in the nominal value of such impairment charges can be mainly explained by the fact that discontinued firms are significantly larger in size. The descriptive statistics of Table 6 and Table 7 revealed that sales for discontinued firms are 2.18x higher than for non-discontinued firms. Similarly, total Assets are 2.2x higher with discontinued firms. Thus, the relative differences (goodwill impairment and intangible impairment as a percentage of sales) between both panels do not show statistical significance using both a t-test and Wilcoxon Rank Sum test.

However, the frequency clearly indicates that discontinued firms report impairment losses. Discontinued reporting firms report in 18.5% of all cases an impairment loss on goodwill, versus 8.2% of none discontinued reporting firms. In terms of impairment charges on intangible assets the spread is even higher, indicating a value of 25.4% of discontinued reporting firms and 11.5% with none discontinued reporting firms. Both differences indicate significance at 1% levels using a one-tailed t-test and a Wilcoxon Rank Sum test.

According to IAS 36.12 (f) plans to discontinue or restructure an operation provide an indication that assets might be impaired. In the light of this indication, it seems reasonable that the number of impairment charges on goodwill and intangibles is higher for discontinued reporting firms.

On the other hand, discontinued operations are by definition larger transactions (refer to IFRS 5.32, which requires a discontinued operation to be a major line of business or geographical area) and financial problems with a discontinued operation do not usually occur overnight (refer to Table 7, which indicates statistically significant differences on key performance indicators between firms with and without discontinued reporting (i.e. revenue growth (ΔSALES t), ROA, operating cash flow scaled by lagged reported total assets (OCF t)).

The decision to apply discontinued operations is often based on past events due to potential changes in technology, economic or legal environment, or over-diversification, which results in a lower financial performance (a further comparison in revenue growth from year t-2 to t-1 shows that discontinued firms report a negative growth of -0.015, whereas firms without reporting discontinued operations exhibit a 0.073 growth rate. This difference is statistically significant using a one-tailed t-test t(1869),-10.375 = p<0.01). Under these circumstances the question arises why such developments would not have resulted in an impairment charge earlier.

The results highlight that firms might be reluctant to recognise an impairment charge outside of a discontinued financial setting, which supports the notion of Bens, Heltzer and Segal (2011) and Li et al. (2011) who document that analysts revise their expectations downwards following an impairment loss announcement. A potential explanation is that firms want to avoid such impairment losses as part of their "recurring" earnings. The results support also the notion of Beatty and Weber (2006, p.264) suggesting that firms prefer to recognise impairment losses below the line in case they have relatively little covenant slack, and their covenant calculation exclude the effects of discontinued operations. Therefore, it appears that classifying a

discontinued operation is also a good opportunity to recognise an impairment charge, which might explain the significantly higher frequency of impairment losses recognised.

On the other hand, it also uncovers the conceptual weakness of impairment tests, and that firms can influence the timing of an impairment charge.

7.3 Consideration received

The following sub-section aims to provide insights on the consideration received on Type B reporting events. The sample consists of all transactions from 2015 to 2018 that have sold discontinued assets and liabilities in the corresponding reporting period.

The following table provides the descriptive statistics on the key figures related to the sale of the transaction.

Descriptive statistics: Consideration and sale on discontinued operations of type B firms					
				Percentiles	
N=242	Mean	Median	Std. Deviation	25	75
CONSIDERATION_RECEIVED t	525.1	33.6	1'497.7	3.4	206.2
NET_ASSETS_SOLD t	307.1	27.3	980.0	3.0	113.3
CTA_RECYCLING t [1]	-20.1	-0.6	117.7	-12.4	3.4
PROFIT_LOSS_ON_DISPOSAL t	175.2	2.5	619.1	-2.2	47.0
%CONSIDERATION_TO_LAGGED_SALES t	1.87	0.48	5.81	0.13	1.40

[1] Total available observations for the variable CTA_RECYCLING t are N=111.
All variables are winsorized at 1 percent and 99 percent.

Table 52: Consideration received Type B firms

The received consideration amounts to CHF 525.1 million in mean and CHF 33.6 million in median terms. The greatest contributors are Norvartis Group (2015, p.184) (portfolio transformation programme that resulted in the sale of Animal Health business, de-merger of Novartis OTC business and sale of Vaccines business for USD 19.3 billion), BHP Billiton Group (2015, p.255) (de-merger of several businesses to create an independent metals and mining company in 2015 amounting to USD 9.5 billion) and National Grid Group (2016/17, p.114) (sale of UK Gas Distribution in 2017 amounting to GBP 7.5 billion). On the other extreme end, nearly 10 per cent of all firms have either received no consideration or have even reported a negative consideration to exit from the businesses.

At the time of sale firms have on average transferred CHF 307.1 million net assets to the buyer (median CHF 27.3 million). Furthermore, firms have realised a gain from the exit amounting to CHF 175.2 million (median CHF 2.5 million). This number does also include the recycling from CTA, which is negative on mean and median terms [30]. However, the result on disposal should be interpreted with caution, as firms might have classified a discontinued operation in an earlier year-end reporting period. Upon initial classification it might be required to recognise a potential impairment charge, and therefore the net assets are already lowered by this effect.

This is visible by dividing the sample into group one, that has announced and executed a transaction in the same reporting period (type B firms) and group two that has classified a discontinued operation in an earlier period (type A firms) and reports now a gain / loss on disposal in the current period. In terms of the first group the realised profit is on average CHF 211 million, whereas for the second group CHF 68 million is reported. This difference is statistically significant using a one-tailed t-test $t(230) = 2.256$, $p<0.05$. This can be further evidenced by the fact that type A reporting events consider on average an impairment charge in 50% of all cases, whereas type B reporting events only in 16% of all events. This difference is also statistically significant using a one-tailed t-test $t(212) = 6.981$, $p>0.01$. The results indicate that a reported gain on a discontinued transaction does not necessarily reflect a financially successful exit. The length of the sales process and the associated previously recognised one-off effects as well as CTA effects at disposal must be considered.

Looking specifically at the realisation of the consideration (measured as consideration received divided by lagged discontinued sales) Table 52 reveals that the paid consideration is equal to 0.48x (median) and 1.87x (mean) of the annual discontinued sales. This ratio varies significantly across industries.

Figure 15 displays the median breakdown of this ratio 0.48x per industry group and compares it with the corresponding market value. The market values that are represented by the blue-green bars are calculated as market value of the firm divided by sales. This market value to sales ratio is calculated at year end, in the period when the firm has transferred the discontinued operation to the buyer. Figure 15 illustrates that all market values are higher than the corresponding comparable realised value.

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[30] CTA arise while closing a discontinued transaction by recycling all historical CTAs attributable to that transaction to the income statement. This non-cash entry does not change the total equity position and represents a shift between profit/loss and CTAs within equity.

Consideration/ lagged sales discops vs. Market Cap. / Sales
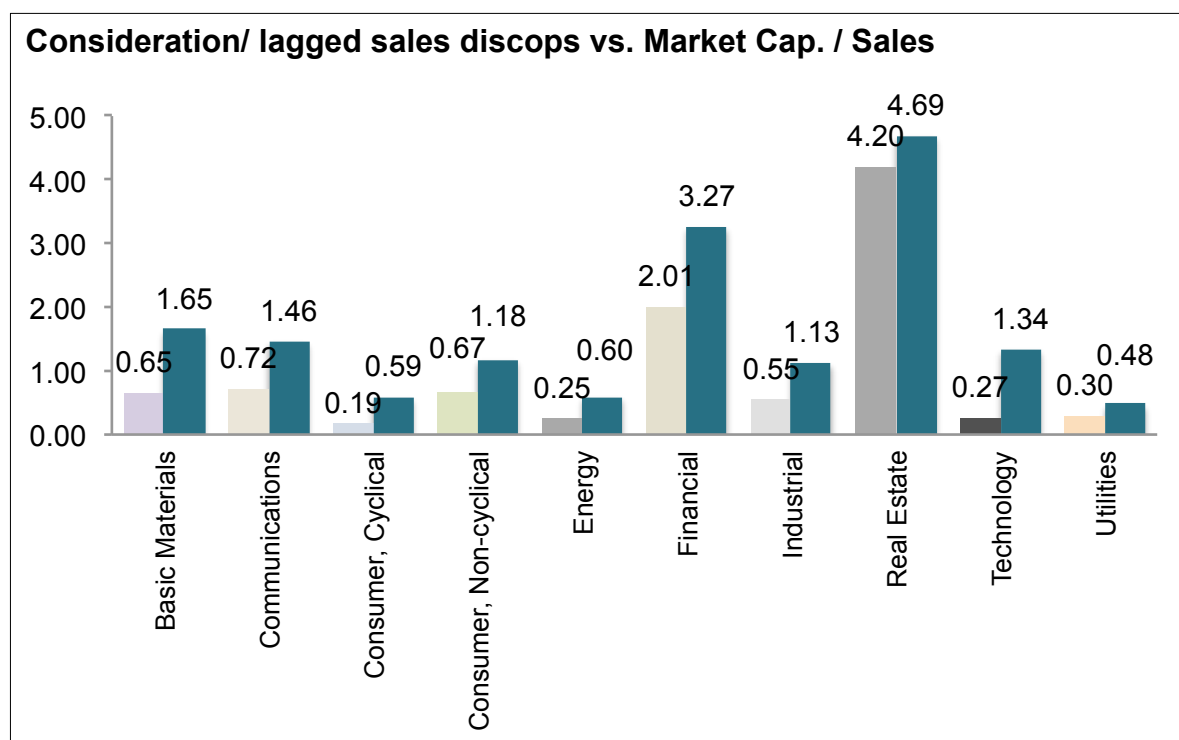
Figure 15: Consideration and market valuation

This generally suggests that the remaining businesses are valued higher by the market participants than the realised discontinued parts. In other words, the potential discounted free cash flows arising from the retained businesses are relatively higher than the realised market value of the discontinued operation, under the assumption that the shares are fairly priced.

This finding is consistent with the general notion that firms engage in discontinued transactions in the case of a historical and current underperforming financial performance with limited future prospects (Lasfer, Sudarsanam and Taffler, 1996; Allen and McConnell, 1998; Berger and Ofek, 1999; Desai and Jain, 1999; Dranikoff, Koller and Schneider, 2002; Shin, 2008; Lord and Saito, 2019).

Turning to CTA, the descriptive statistics in Table 52 show that firms report negative CTA as the mean and median of the variable CTA_RECYCLING t indicate negative signs. This negative amount depends on the historical development between the functional currencies and the presentation currency of the group. A closer look at the different countries provides evidence that Switzerland has the most firms reporting negative CTA recycling. A potential explanation is that the Swiss Francs was historically strong against other currencies. As a

result, the net assets of the individual components have been devalued over time. This leads to a negative translation reserve within equity that needs to be recycled at the closing date. The impact is a negative non-cash income statement effect that is offset within equity.

7.4 Presentation Cash Flow Statement

According to IFRS 5.33 (c) a firm has the option to disclose the net cash flows attributable to the operating, investing and financing activities either to be presented in the notes or in the financial statements. The following section aims to address and to explore this element based on the gathered information from the review of the annual reports.

On average, out of 607 year-end reporting events during the period from 2015 to 2018 covering listed firms in the UK, Germany and Switzerland 30% present their cash flow information related to discontinued operation directly in the cash flow statement. However, the following figures reveal regional differences:

Presentation of cash flow information

	Cash Flow information in financial statment	Cash Flow information in the notes
Switzerland	32.5%	67.5%
Germany	56.8%	43.2%
UK	18.3%	81.7%
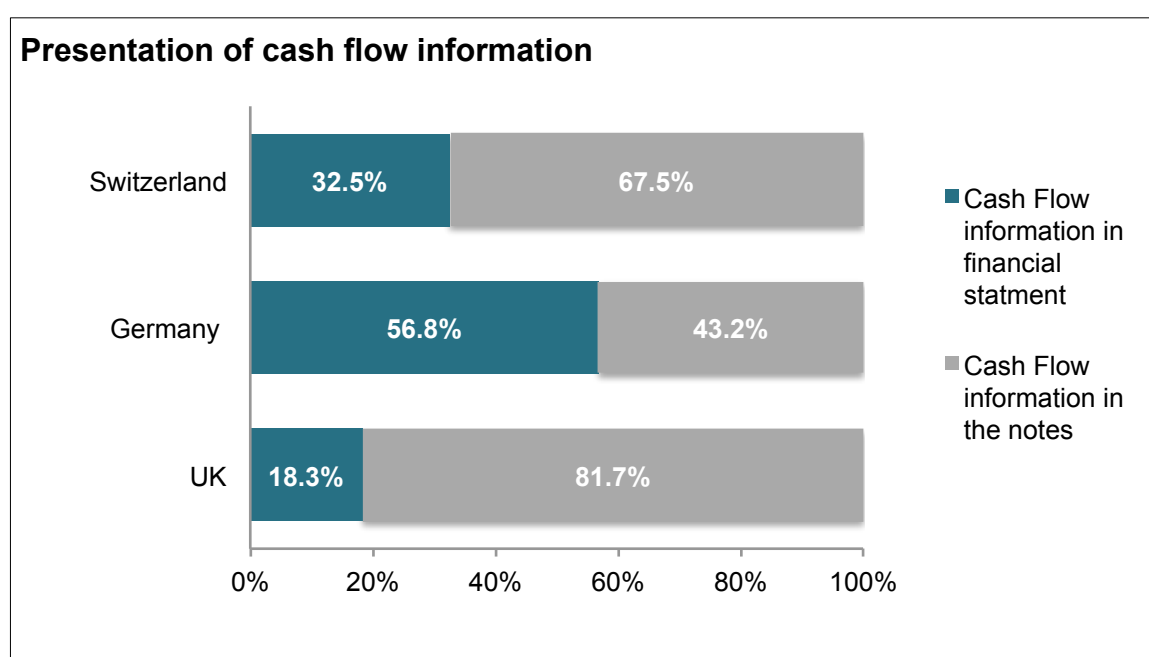
Figure 16: Presentation of cash flow information

It seems that the decision to present the cash flow information in the notes to the financial statement, or directly in the cash flow statement, depends on the size of the group. Looking at all firms together, reported sales and the natural logarithm of total reported Assets in the period under review both show significant differences at the 1% levels using a one-tailed t-test t(274),

-3.881= p<0.01 and t(605), -6.639= p<0.01 between both cash flow presenting options. Larger-sized firms therefore tend to provide the information directly in the Cash Flow statement and not as part of the notes. Similarly, firms reporting a full reportable segment according to IFRS 8 *(Operating Segments)* as discontinued operations are more likely to present discontinued cash flow information directly as part of the primary cash flow statement, compared to firms forming a discontinued operation as a part of a reportable segment. This finding is based on dummy variable that takes on 1 if the discontinued operation is part of a reportable segment and zero otherwise, which shows significance at the 5% levels using a one-tailed t-test t(354), 2.253 = p< 0.05 between both options to present the cash flow information.

A possible explanation is that smaller sized firms prefer the information in the notes because it is easier to produce and requires less change and programming in a consolidation system. In this case the cash flows from discontinued operations are derived from the full cash flow statement that includes both continuing and discontinued cash flows.

7.5   Sources of adjustments after execution of a discontinued operation

According to Figure 17, during the four-year period from 2015 to 2018, out of 607 year-end reporting events, 136 are classified as type C year-end events. By definition type C events are firms that have executed and closed a discontinued transaction in a previous year-end reporting event. However, type C firms are still required to report discontinued operations as they have made adjustments in the current reporting period related to that earlier transaction. The following figure provides an overview of the details to understand why such adjustments are necessary:

Sources of adjustments of type C reporting events

- ■ Release of provision / liabilities (e.g. indemnity, warranty, tax matters)
- □ Increase of provision (tax claims, additional warranties and indemnities)
- ■ Contigent consideration received / Measurement earn-out payment
- □ Other
- ■ No information
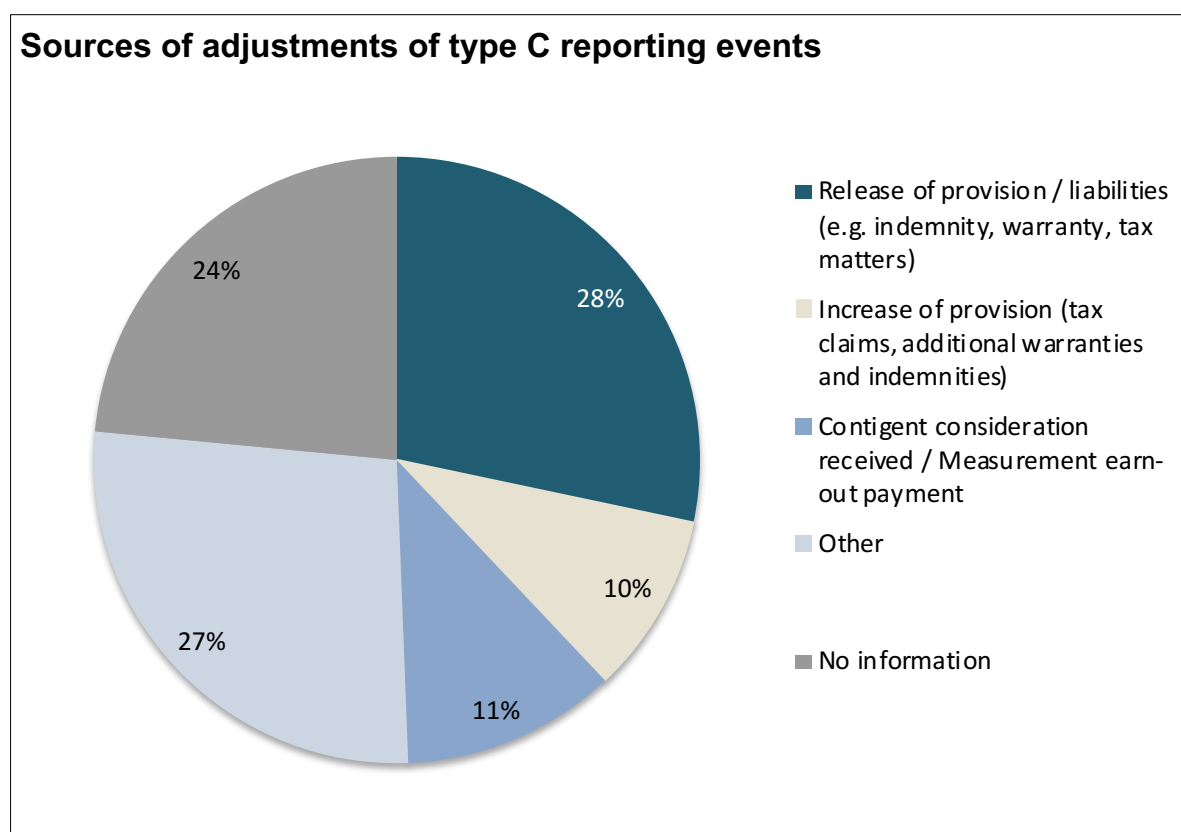
Figure 17: Mandatory Disclosure Score by Type

The analysis provides evidence that the largest part of the adjustments made (28 per cent) is related to the release of provisions that were set up at the time between initial classification and closing of the transaction. In contrast, increasing provisions represents only 10 per cent of all cases, which suggests that firms do not have to increase their provisions on a regular basis after the closing of a discontinued transaction.

The seller needs to estimate the component of the purchase price that is dependent on a future outcome at the closing date, and then at each reporting event after the closing. This results in about one tenth (11 per cent) of the companies reporting measurement effects from contingent consideration. Looking at the disclosure score details on Table 47 on item 28, it becomes evident that 258 year-end reporting events out of a total of 262 type B reporting events are settled in cash. Not surprisingly, this means that a majority of firms (98.5 per cent) receive a cash component of the purchase price. Only in very rare circumstances is the purchase price settled purely in a contingent consideration style. Generally, an earn-out component bears the risk of future legal proceedings, particularly if the purchase price depends on conditions of financial key figures (i.e. EBITDA), as the seller usually has limited control mechanisms after the closing.

In about a quarter of reporting events there are no specific details reported. This result suggests that firms are not compliant with IFRS 5.35, which requires disclosing the nature and amount of such adjustments. Comparing to Table 47 item 6 it becomes apparent that only 72 per cent of reporting events comply with that requirement, which is consistent with the results presented in Figure 17. This underlines the judgemental area in disclosing mandatory disclosures, as it appears that firms do not interpret this information as relevant, or simply overlook this requirement.

7.6   Discussion / conclusion on other results and findings

The purpose of this section was to analyse specific topics that provide additional insights into the interpretation and management of discontinued operations. In addition, the analysis supports the assumptions made under the first research question Q1 and Hypothesis H2 and gives additional in-depth information around disclosures which can be related to Q4.

The analysis of the impairment losses over a nine-year period from 2009 to 2017 of firms with and without reporting discontinued operations shows that discontinued firms recognise impairment charges significantly more frequently than non-reporting discontinued firms during the same time. Looking at a shorter time frame, the results reveal that such frequently recognised impairment losses arise from the write-down of goodwill, followed by PPE and intangible assets. The statistically significant higher frequency in goodwill impairment losses with discontinued firms indicates that firms might use a discontinued reporting event as an opportunity to recognise impairment losses and therefore confirms the assumption that impairment losses are an incentive to initially apply discontinued operations (refer to H2). The study shows that financial problems with discontinued operations do not occur overnight, as their poor performance relates back beyond the actual reporting period where the impairment is recognised. Therefore, the timeliness of such losses is questionable as the firms are required under IAS 36 to annually perform an impairment assessment (at least on goodwill). On the other hand, it also shows the conceptual weakness of the impairment model and the judgement exercised by the management.

Further, it has been shown that continuing businesses have higher valuation multiples than discontinued operation parts, which underlines that the capital market and the buyer acknowledge a higher future performance with continuing businesses and assume different levels of net present values.

In terms of disclosing cash flow information, it appears that regional practice dominates the disclosures, as UK and Swiss firms tend to give discontinued information in the notes to the financial statements, whereas German firms prefer rather to disclose this information directly in the consolidated cash flow statement.

In addition, it appears that firms that have already executed a discontinued operation in an earlier reporting period (refer to type C events under section 5.2) tend in 28 per cent of all cases to release excessive provisions setup at disposal. This confirms the prudent estimates made at the time of disposal.

8   Conclusion

8.1   Summary of the findings

The purpose of this section is to summarise the research findings by research area and to highlight the confirmation of the Hypotheses H1 to H8 in Table 53. In addition, this section includes the contribution to knowledge and documents the implications of the study. Further in this section and based on the critical review of the discontinued related IFRS standards and the research findings, recommendations are formulated to potentially improve the standard. Finally, this section ends with recommendations for future research. The aim of the thesis was to examine three research areas: (i) the interpretation of a major line of business at the initial classification of a discontinued operation, (ii) potential misclassification of operating expenses within the income statement, and (iii) the compliance and determinants of mandatory disclosures. Furthermore, under (iv) other research results are also summarised.

The following section highlights the research findings by research area:

i) Initial classification of a discontinued operation

The core principle of IFRS 5 is to provide financial information to investors that is useful and allows for better predicting recurring cash flows (IFRS Conceptual framework OB 12, OB 15 and OB 16 in combination with IFRS 5.BC62). A discontinued part of a firm is interpreted as non-recurring, and due to its transitory nature receives less attention from investors than the continuing part. In contrast, recurring or continuing earnings are valued higher than non-recurring earnings, which might lead to higher equity valuation and potentially to higher stock price (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014) as it appears that investors weight individual line items of the income statement differently (Lipe, 1986; Bradshaw and Sloan, 2002). In this context firms have motivations to report favourable recurring numbers, to benefit from equity incentives and dump the non-performing businesses. This consideration is a central element in view of the initial classification of a discontinued operation and in terms of classification shifting, as the bottom line of the income statement does not change following the initial application [31] of discontinued operations and with classification shifting.

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[31] According to IFRS 5.25, additional effects might occur due to the cease of depreciation of non-current assets following the initial classification of discontinued operations.

Present research shows that discontinued reporting firms are characterised by their poor financial situation, but are larger in size than their non-discontinued peers and tend to be more diversified. Key financial ratios and size-related variables (ROA, ROS, Equity Ratio, Operating Cash Flow Margin, Historical and Future Sales Growth, Liquidity Ratio, Sales, EBITDA, Total Assets) indicate all statistically significant differences between firms with and without reporting discontinued operations, which supports the notion of refocusing a firm's activities to core operations (Dranikoff, Koller and Schneider, 2002; Dittmar and Shivdasani, 2003; Lord and Saito, 2017) and is consistent with the financing hypothesis (Lasfer, Sudarsanam and Taffler, 1996; Otsubo, 2013; Lord and Saito, 2019).

Motivated by the underperforming financial performance of discontinued operations, together with a foreseeable impairment charge associated with the discontinued operations, allows firms to separate out businesses to be divested from the income statement and present them in a single line item if they apply discontinued operations. As a consequence, the recurring financial performance increases. In contrast, ordinary sales transactions (applicable if the criteria's under IFRS 5 to constitute a discontinued operation are not met) do not allow such a systematic differentiation. Considering these two effects (underperforming discontinued operations and impairment charge) as an incentive to apply discontinued operations in a logistic regression shows that the dependent variable accounts for over 70 per cent of the sample that benefits from the application.

In light of the requirement under IFRS 5.32 that a discontinued operation has to meet a *major* line of business, the different deal size ranges are investigated as to how they are associated with the incentive to apply discontinued operations. The results are as follows:

- First, the relative size of a discontinued operation (measured as discontinued revenues in relation to continuing revenues) is negatively associated with the incentive to initially apply discontinued operations. This finding suggests that the smaller the transaction the more the incentive to apply discontinued operations, which also parallels the degree of discretion involved. Greater relative deals (e.g. >10 per cent relative discontinued revenues to continuing revenues) do have less discretion to apply or not to apply discontinued operations than firms executing deals lower than 5 per cent.

- Second, the odds ratio for the lowest relative size category (< 2 per cent relative discontinued revenues to continuing revenues) suggests that firms with a strong incentive to qualify transactions as discontinued are 2.5 times more likely to apply

discontinued operations than firms that have less judgement sitting in the highest size category (> 10 per cent relative discontinued revenues to continuing revenues) and therefore have less incentive to do so. This confirms the negative association between deal size and incentive to apply discontinued operations. Furthermore, by looking at firms with and without an incentive to apply discontinued operations, a significant difference in the relative size pattern is observable. This indicates the extensive judgement made at the initial classification of discontinued operations. A chi-square test confirms the different sized patterns between firms with and without an incentive. This finding also underlines the exercised management discretion, as the IFRS 5 standard is neutral and not dependent on the incentive to apply or not to apply discontinued operations.

- Third, for approximately 20 per cent of all firms under review, the application is questionable, as the relative size (of below 2 per cent relative discontinued revenue to continuing revenues) is below commonly known audit benchmarks. This finding suggests that firms opportunistically apply discontinued operations to benefit from exiting an underperforming business and/or avoiding an impairment charge as part of the recurring earnings to increase continuing or recurring earnings. Also looking at the communication of these transactions to the capital market, it reveals that those are significantly less communicated than all other transactions, indicating that the management also does not treat those deals as "major transactions".

The vague prescriptions and the undefined term "major operation" provide firms an earnings management tool to justify and corroborate their strategic rationale, as continuing businesses have higher information content for future earnings and therefore are valued higher by investors price (Lipe, 1986; Kormendi and Lipe, 1987; Bradshaw and Sloan, 2002; Bartov and Mohanram, 2014). In this setting, preparers are able to opportunistically use their judgement with smaller sized deals to constitute a discontinued operation and to "move away" loss-making businesses and impairments associated with the sale at a relatively early point in time of the divestiture process [32]. Although the application of discontinued operations supports the usefulness of information provided to investors, it also poses the question where the difference lies between "IFRS 5 discontinued operations" and ordinary sales transactions under IFRS 15 in combination with IAS 16 and/or IAS 38. This calls for further guidance and improvement of

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[32] In contrast, a firm in an ordinary sales transaction setting is not allowed to restate their financials at the point of expressing an intention to undertake a divestiture or by signing an agreement with the buyer. Only when the assets are derecognised does the transaction become visible in financial statements, which can be much later compared to discontinued operations.

the standard, as different practices also limit the comparability of financial statements within industries.

ii) Classification shifting

Classification shifting is another area where managers may need to exercise judgement to question what sort of cost elements relate to a discontinued operation. Unlike US GAAP, IFRS does not prohibit the classification of overhead costs. Hence, there exists uncertainty regarding what kind of costs can be classified vertically down in the income statement from continuing operations to discontinued operations. Applying an expectation model similar to Barua, Lin and Sbaraglia (2010) that builds on McVay (2006) this thesis shows that:

- First, firms engage in classification shifting, particularly in the case of a loss-making discontinued operation. This finding is consistent with the previous US study by Barua, Lin and Sbaraglia (2010) focusing on US GAAP firms, and corroborates the asymmetric valuation considerations of Kaplan, Kenchington and Wenzel (2019). This underpins the strategic decision to sell a loss-making part of the business and improves the continuing result at the same time. This finding also supports the outcome from the initial classification (refer to section 6.3).

- Second, as a further motivation, it appears that firms engage in classification shifting to meet or beat the analyst's forecasts. The present research shows that classification shifting is particularly prevalent in situations where firms would not have surprised the capital market without the help of classification shifting. This finding is also consistent with the US study of Barua, Lin and Sbaraglia (2010).

- Third, from an external lender's perspective, the thesis provides insights that firms, particularly those with critical net debt/EBITDA ratios between 2 and 3, do engage in classification shifting. It appears that in this category, the headroom to comply with lenders' covenants is tight and therefore firms are under more pressure to meet the contractual obligations to avoid incurring costs from technical default, i.e. higher interest (DeAngelo, DeAngelo and Wruck, 2002; Dichev and Skinner, 2002; Sufi, 2009; Butt, 2015), higher cost of new debt (Butt, 2019), decline in capital spending (Chava and Roberts, 2008) or introduction of capital spending restrictions (Nini, Smith and Sufi, 2009).

- Fourth, contrary to what was predicted, the present research shows that not all Big Four audit firms can prevent firms from misclassifying expenses. Selecting shifted items in year *t* greater than 1 per cent of reported revenues, it appears that only PwC-

audited firms tend to misclassify expenses. Even by using a higher 2 per cent threshold, the results reveal that the presence of classification shifting persists. In light of commonly used overall materiality benchmarks of 0.5 per cent to 2 per cent from reported revenues (FRC, 2017) or 1 per cent to 3 per cent documented by International Federation of Accountants (IFAC) (2018, p.52) it appears that the shifted amounts might exceed the specific thresholds. This finding underlines the controversy and judgement among the audit profession, but also supports the view of Nelson, Elliott and Tarpley (2002) that classification is less scrutinised by auditors as it does not change total earnings or total equity.

- Finally, a partial sample provides evidence that potential internal monitoring activities of discontinued financial information provided to the CODM help to avoid increasing continuing earnings by using classification shifting. The results show that if a firm discloses a discontinued segment separately as part of their segment reporting according to IFRS 8, then financial information presented to investors is likely to go through a series of monitoring levels prior to publication (i.e. review of local CFOs of the discontinued businesses, review divisional CFO and review group CFO). This might explain why disclosing separate discontinued financial information helps to avoid classification shifting, as the internal management structure should reflect the segment reporting according to IFRS 8. In addition, firms disclosing such information are significantly greater in size (total Assets and Employees) and therefore tend to experience higher agency costs (Jensen and Meckling, 1976), and thus may give extra information to reduce it (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008).

iii) Disclosure analysis

The analysis on mandatory disclosures indicates that firms interpret and manage mandatory discontinued disclosures differently. The manual review of over 600 annual reports between 2015 and 2018 provides evidence that

- First, on average, an IFRS compliance score of 77.5 per cent is achieved. Compared to other studies (Glaum and Street, 2003; Galani, Alexandridis and Stavropoulos, 2011; Tsalavoutas, 2011; Devalle, Rizzato and Busso, 2016; Boshnak, 2017; André, Dionysiou and Tsalavoutas, 2018) including different countries, this is a relatively high score and underpins the quality of IFRS reporting in the countries under review.

- Second, looking at the individual mandatory items, it appears that firms are reluctant to disclose fair value information according to IFRS 13.93 of on-going transactions. Information on fair value measurement hierarchy is presented in only one quarter of the firms. Potential price downside risks might prevent firms from disclosing this information, which is consistent with the proprietary cost theory (Verrecchia, 2001) and related reduction in firm value (Dye, 1986).

- Third, the main drivers of compliance, which are positively associated with mandatory disclosures, are the Big Four auditors as well as the size of the company. As the IFRS 5 standard is relatively complex in its application, and due to the fact that firms are not regularly exposed to that standard (after eight years on average) it is not a surprise that Big Four audit firms drive the compliance level. This finding is consistent with prior studies (Appiah et al., 2016; Devalle, Rizzato and Busso, 2016; Florio, Lionzo and Corbella, 2018). Size (measured as the natural logarithm of total assets) contributes positively to compliance, because larger firms tend to have higher agency costs (Jensen and Meckling, 1976), giving more information to reduce such costs (Watts and Zimmerman, 1983; Gallego Álvarez, María García Sánchez and Rodríguez Domínguez, 2008). This result is consistent with previous studies that also show a positive association (Amiraslani, Latridis and Pope, 2013; Hartwig, 2013; Santos, Ponte and Mapurunga, 2014; Cascino and Gassen, 2015; Appiah et al., 2016). Looking at the specific deal size, the models show consistent results, as lower-sized transactions (defined as less than 5 per cent of discontinued revenues in relation to continuing revenues) tend to be statistically significant, negatively associated with mandatory disclosures, whereas discontinued businesses that form a reportable segment are positively associated with compliance in almost all models. However, contrary to prediction, leverage (defined as total interest-bearing financial debts divided by total assets) is found to be not significantly positively associated with mandatory disclosures in almost all models. Focusing solely on German and Swiss firms, the results even show a significant negative association, which is in line with e.g. (Lopes, 2014) and (Appiah et al., 2016). In light of the mixed results of extant studies showing positive association (Hartwig, 2013; Lucas and Lourenço, 2014; Agyei-Mensah Ben, 2019) it seems a reasonable outcome which might be influenced by country-specific settings.

- Fourth, the recognition of an impairment loss has also revealed a positive association in most models, which is consistent with Mazzi et al. (2017) and Mazzi, Slack and Tsalavoutas (2018). This suggests, that impairment losses receive more attention by the investors and management due to their unusual nature, which in turn leads to higher

compliance. In addition, it seems likely that audit firms focus on impairment charges as part of their audit risk strategy due to its materiality.

- Fifth, other governance factors that proxy the internal monitoring activities, such as separate disclosures of discontinued operations as of the segment reporting, are statistically positively associated with the compliance of disclosures. It appears that this disclosure not only helps to mitigate classification shifting, but also leads to better disclosure compliance. On the other hand, the influence of an audit committee appears to have no significant impact.

- Finally, the variable (INC_CLASS) that proxies the incentive to apply discontinued operations is statistically significant, negatively correlated to the mandatory score in almost all models. As small-sized discontinued businesses are questionable in terms of compliance with the standard, the results might suggest that firms (particularly UK-based firms) want to be less transparent in financial reports to mask a potential non-compliance on the overall application of discontinued operations, which can be related to the proprietary cost theory (Verrecchia, 2001). An overall poor financial performance of the discontinued operations together with a potential unfavourable deal negotiated with the buyer may be further rationales for being less transparent. Furthermore, the test results also reveal that particularly German and Swiss firms reporting discontinued operations of the first time (first year-end reporting event) tend to better comply with IFRS than in a subsequent reporting event.

iv) Other results and findings

During the development of the thesis other findings have been made, that are worth reporting but are not in response of a specific formulated hypothesis / research question. However, they do contribute to the understanding of the context and give more detailed insights.

- The aim of impairment models under IAS 36 is to timely and reliably reflect the maximum amount (recoverable amount) of a potential component of an entity. If this component is later part of a discontinued transaction it is assumed that no significant difference in the frequency of reporting impairment charges exist with firms reporting discontinued operations and those not reporting discontinued operations. On the contrary, however, discontinued firms report an impairment charge on goodwill in 18.5% of all observations, vs. 8.2% of non-discontinued reporting firms (this difference is statistically significant using a one-tailed t-test; in terms of impairment charges on intangible assets the spread is even higher). This suggests that firms do consider

impairment charges relatively late in the life of a business, and raises the question of the timeliness of impairment charges. It appears that firms tend to wait until a point where impairment charges seem unavoidable. This finding shows the conceptual weakness of impairment models, and might contribute to the current debate in improving IAS 36, where the timeliness of impairment charges is under scrutiny.

- The analysis of the consideration received as part of a discontinued transaction suggests that the remaining businesses are valued higher by market participants than the realised discontinued parts. This observation is prevalent across industries and is consistent with the notion to dispose of an underperforming business line.

Summary Confirmation of Hypotheses

Research Area	Research Question	Hypotheses	Main Models / Analysis				Alternative / Robustness tests			
			Confirmation	Type of Model	Model	Result / Strength of variables	Confirmation	Type of Model	Model	Result / Strength of variables
Interpretation of a major line of business at the initial classification	R1: What is the motivation that drives firms listed on the British, German and Swiss stock exchanges to initially classify components as discontinued operations under judgemental uncertainties?	H1: The vast majority of groups define a discontinued operation under IFRS in terms of size as a transaction that is greater than the commonly known audit materiality benchmarks.	X	n/a	n/a	Approx. 20 percent of firms do apply discontinued operations below commonly known audit materiality benchmarks.	n/a	n/a	n/a	n/a
	R2: How do firms interpret the size feature in the term "Separate major line of business or geographical area" at initial classification?	H2: The relative size of a discontinued transaction in relation to the continuing businesses does not have an influence on the incentive to apply discontinued operations.	X	Logistic Regression	A, B	Strong	X	Logistic Regression	C and D	Strong
Classification shifting		H3: Companies engage in classification shifting to increase continuing earnings.	✓	Multivariate Regression	A, B	Strong	✓	Multivariate Regression	A, B, G	Strong [1]
	R3: Do firms listed on the British, German and Swiss stock exchanges engage in classification shifting?	H4: Companies engage in classification shifting in order to meet or beat analysts' forecast.	✓	Multivariate Regression	C1	Strong	✓	Multivariate Regression	C1	Strong [1]
		H5: Companies engage in classification shifting to increase continuing earnings in situations where the net debt/EBITDA ratio is tight in relation to common target benchmarks.	✓	Multivariate Regression	D1, D2	Strong	✓	Multivariate Regression	D1, D2	Strong [1]
	R4: To what extent do firms listed on the British, German and Swiss stock exchanges comply with mandatory disclosure items while applying discontinued operations and what are the determinants of compliance?	H6: The size of a company is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations.	✓	Multivariate Regression	A	Strong	✓	Multivariate Regression	B, C, D, E	Strong and Model E Medium
		H7: The auditor type is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations.	✓	Multivariate Regression	A	Strong	✓	Multivariate Regression	B, C, D, E	Strong
Mandatory IFRS discontinued disclosures		H8: The leverage ratio (total debt divided by total reported assets) is positively associated with the level of mandatory compliance with disclosures arising from discontinued operations.	X	Multivariate Regression	A	not significant	X	Multivariate Regression	B, C, D, E	Not significant in all Model except Model E

Key:
✓ = confirmation of hypothesis
X = no confirmation of hypothesis
strong = statistical significance at the 95 percent and 99 percent levels.
medium = statistical significance at the 90 percent and 95 percent levels.
[1] Robustness tests consider the application of an alternative measuring approach of unexpected level and change in continuing earnings similar to (Chagnaadorj, 2018). Second, all A - G are repeated by clustering at firm level. Third, Model B is repeated by using a specific sub-sample based on the types of reporting events between 2015 and 2017.

Table 53: Summary Confirmation of Hypotheses

8.2 Contribution

The study contributes to knowledge in the discontinued operations area in several ways, namely methodologically on model development through empirical research of the three major topics, and theoretically by looking at the relationship between IFRS 5 and other IFRS standards. The following section summarises the contribution to knowledge and highlights the implications on various stakeholders including standard setters, audit firms, shareholders, audit committees and lenders or other stakeholders in the credit markets.

8.2.1 Methodological contribution

- As the term "*major line of business*" was raised in the interpretations committee (IFRIC, 2016) four years ago but has until now not been resolved and addressed, the study presents a methodological approach to the relative size of discontinued transactions and their association with the incentive to initially apply discontinued operations. Developing both the potential incentives to initially apply discontinued operations and the critical size categories in a logistic model setup helps to understand the practical dynamics in exercising judgement while applying discontinued operations. This model development is a first attempt to shed light on how the critical term "major line of business" under IFRS 5.32 is interpreted in practice. The validity of the model could be further tested, and it might also be worthwhile to further develop the model in future studies.

8.2.2 Empirical contribution to three major research areas

A) Initial classification of discontinued operations

- The study provides first-time insights into how the term *major* business line or *major* geographical area is applied in practice. The results reveal that the relatively smallest-sized transactions have the greatest incentive to apply discontinued operations, and that for more than 20% of the sample the initial classification of discontinued operations is questionable in terms of IFRS compliance. This finding is relevant for standard setters, as the study shows that different practices are applied that impair the comparability of financial statements within industries.
- In addition, auditors should also take note from these new insights, as audit firms need to be aware that firms that are able to exercise more judgement in determining

whether a discontinued operation exists, might opportunistically use the IFRS 5 standard as an earnings management tool.

B) Classification shifting

- First, the study shows that classification shifting is prevalent among firms under review. It thus provides new insights in European IFRS setting and therefore extends the classification shifting literature while applying discontinued operations.

- Second, the motivation that firms engage in classification shifting to meet or beat the analyst forecast also extends the classification shifting literature from a European IFRS perspective and adds to the current literature.

- Third, classification shifting aspects related to lending contracts were uncovered. This extends the current classification literature and might be useful for financial institutions that need to be aware that firms might engage in classification shifting to meet the compliance levels under the lending agreement.

- Fourth, classification shifting also plays a role with governance-related aspects. The study shows that better internal monitoring leads to lower classification shifting activities. However, the role of the Big Four auditors that prevent firms from classification shifting provides mixed results. These insights extend the current literature on classification shifting while applying discontinued operations and are relevant for auditors and audit committee members.

C) Disclosure analysis

- The disclosure analysis of more than 600 annual reports provides insights that size and the presence of a Big Four audit firm is a main contributor of compliance. This finding adds to the current literature, but extends the knowledge specifically in a discontinued operation setting. On the other hand, it also seems important that non-Big Four auditors take note and are aware of the results, enabling them to introduce mechanisms to improve their audit quality. This information is relevant for audit committee members and non-Big Four auditors.

- In addition, the study divides the annual reports into different types, which allows differentiating between the degrees of mandatory disclosure items and a more detailed study. Types A and B reporting events do require significantly more disclosures than for Type C firms. This terminology could be used by the standard setter to structure the IFRS standard or additional guidance.

- Furthermore, the disclosure study provides similar results over time, which can be seen as an advantage compared to other studies, which often only focus on a particular point in time.

- Although the overall quality of compliance is high, the study also shows that the quality per mandatory item varies significantly. Fair value measurement information is often not provided in annual reports. Appendix II might be useful for auditors and standard setters to see how the overall quality per mandatory item is met.

8.2.3 Theoretical by also looking at relationships with other standards

- Previous studies have shown that only a fraction of mandatory disclosure notes were determined as mandatory under IFRS 5. Tsalavoutas (2011) identified ten items, while Boshnak (2017) identified 14 relevant items under IFRS 5 mandatory disclosures. Unlike previous studies, this thesis not only focused on the main source standard IFRS 5 of discontinued operations, but also on the interaction of other IFRS standards related to discontinued operations, which resulted in 30 mandatory items. This allowed for a more complete picture of compliance with mandatory disclosure items, as a discontinued operations transaction impacts several sections in the consolidated financial statements. In addition, previous studies summarised detailed notes requirements together in one item, which is the reason why they arrive at a lower number of mandatory items. This thesis considers all sub-items as well.

8.3 Recommendations

Based on the research findings and the critical review of the standards related to discontinued operations the following overview summarises the recommendations and suggestions:
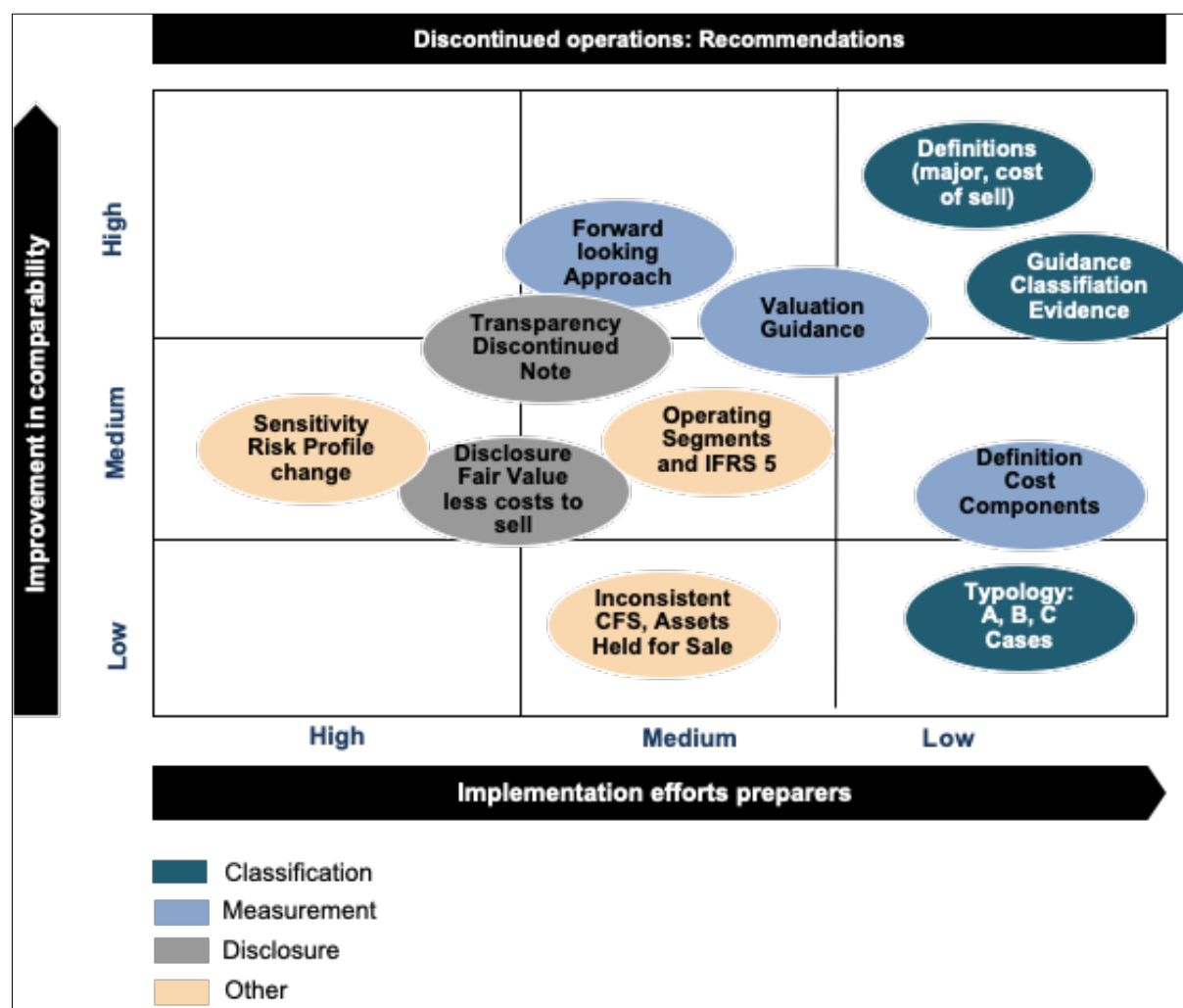
Figure 18: Recommendations

8.3.1 Classification

Definition major line of business and cost to sell: The definition of *a major line of business* is an essential feature in the assessment whether a firm is able to constitute a discontinued operation. The findings provide evidence that firms tend to opportunistically interpret this term as met if they benefit from the application. However, it seems that from a usefulness of information viewpoint, when the overall aim is to give investors the opportunity to decide which expenses and revenues are recurring and non-recurring, particularly smaller components are classified as discontinued operations. On the other hand, it seems unclear when an ordinary sales transaction is appropriate, and at which point the materiality threshold is exceeded. This represents a major judgemental area. In order to improve the comparability across industries and in favour of the reduction of this judgemental area, a clearer definition is desirable by including a materiality threshold similar to the definition of a reportable segment according to IFRS 8.

Along with the definition of what a major line of business is, the term *"cost to sell"* is also not clearly defined. As a result, firms might consider the costs to sell as a reduction to the fair value and at the same time as an accrual in the disposal group (e.g. recognition of a restructuring provision according to IAS 37 *Provisions, Contingent Liabilities and Contingent Assets,* or recognition of due diligence costs as accruals). The consequences are that the current measurement rules in the Standard would capture such components twice. First, when the discontinued operation result would be debited with the setup of the accrual, and second with the valuation of the whole disposal group. On the other hand, all related assets/liabilities of the disposal group are realised at the time of the closing, and potentially "higher" accruals are offset by an increase in gain from disposal. Further guidance from the standard setter would be desirable.

Guidance classification evidence: In IFRS 5.7 and IFRS 5.8 a sale transaction is only highly probable if the appropriate level of management has committed to a plan to sell, an active programme to locate a buyer to complete the plan is initiated, and when the sale is actively marketed at a price that is reasonable in relation to its fair value. For these terms no, or only limited, guidance exists. It appears that preparers are able to exercise judgement. In particular, in cases where the price is marketed higher than the fair value to absorb any negotiation setbacks, it appears that those requirements are not in conformity with the dynamics of practice, as price negotiation and running different price strategies are a legitimate interest of the selling party. Furthermore, it seems unclear what kind of evidence would be sufficient in

terms of management commitment. This should be further clarified by the standard setter. It is assumed that discontinued transactions are significant, and such material business decisions require board of director approval. Therefore, minutes of such meetings along with documentation of the transaction and a step plan would probably meet this criterion. An open question also appears (Lüdenbach and Hoffmann, 2013) regarding how to deal with changes from a plan and their consequences (e.g. scope adjustments in negotiations).

Typology A, B, C cases: The IFRS 5 discontinued rules do not systematically differentiate between types of discontinued transactions. Present research shows that for example, type C firms are significantly less exposed to disclosures than type A and B firms, and it would make sense to introduce such a typing, as type C firms represent approximately 27 per cent of the sample. This would reduce the complexity of the whole standard.

8.3.2 Measurement

Valuation guidance: The measurement rules of discontinued operations are a combination of measurement rules to be followed according to the individual standards (as set out in IFRS 5.4 and IFRS 5.5) and the overall measurement rules under IFRS 5.15 that requires companies to value a disposal group at the lower end of its carrying amount, and fair value less costs to sell. In addition, under IFRS 5.18 firms are required to measure assets in accordance with the applicable IFRSs. It seems unclear whether, for example, an impairment charge on goodwill with reference to IAS 36 would need to be considered immediately before initial classification, as this is a likely scenario in discontinued transactions. Consequently, this impairment charge would need to be recognised in the continuing section, which distorts the overall picture of the financial statements. As such an impairment presentation might be value relevant for an entity (Hirschey and Richardson, 2002; Bens, Heltzer and Segal, 2011; Li et al., 2011) the disclosure in that respect should be clarified. In this respect, in Section 7.2 it is observed that the frequency of recognising impairment losses on goodwill and intangible assets is statistically significantly higher with discontinued operations (18.5 per cent on goodwill) than with continuing operations (8.2 per cent on goodwill). IAS 36 requires entities to review their goodwill at least annually, and the study shows that financial distress of discontinued operations does not usually appear overnight. This indicates that firms exercise judgement on the timeliness of recognising impairment charges, which also highlights the conceptual weakness of impairment tests. Generally, the interaction of IFRS 5 with IAS 36 seems unclear, as for example KPMG (2020) is of the view that previously recognised impairment charges on goodwill can be reversed if the fair value less costs to sell exceeds the carrying amount in a

later reporting event. This seems inconsistent with IAS 36 and should be clarified by the IASB or within the audit profession.

Definition cost components: The results from the *classification shifting* topic show that firms generally engage in classification shifting. The different cost compositions and the nature of the costs that relate to a discontinued operation are a judgemental area which opens a range of possibilities and different views. In order to limit the room for interpretation it might be useful to give additional guidance in the standard, particularly for classifying internal costs components (e.g. M&A, legal etc.). Alternatively, further transparency regulations (e.g. details of shifted expenses to be presented in the notes if they exceed a certain threshold) could also help to avoid misclassifying expenses, or the IASB could follow the US GAAP counterpart which prohibits the classification of overhead costs.

Forward-looking approach: There is no clear view on how intragroup transactions between the continuing and discontinued part should be considered. Although the interpretations committee has clarified in January 2016 (IFRIC, 2016) that all intragroup transactions need to be eliminated until the date of derecognition of assets, it seems that other approaches are present in practice. In particular, transactions involving vertically integrated components classified as discontinued operations might be heavily affected by internal transactions, as normally numerous trading activities exist between the continuing and discontinued part. KPMG (2017/18), suggests that a *forward-looking* approach can be applied that allows, for instance, internally generated revenues and costs to be presented as third-party transactions, as long as those revenues and costs persist after the derecognition or loss of control. This view does not seem to be shared by IASB.

8.3.3   Disclosures

Transparency discontinued note: In IFRS 5.33 (b), an analysis of the single amount of a discontinued operation needs to be divided into revenue, expenses, pre-tax profit or loss of discontinued operations. This presentation is not aligned to the structure in the income statement. A more transparent disclosure that would follow the structure of the income statements might also help to mitigate the presence of classification shifting.

Disclosure fair value less costs to sell: According to the analysis of the individual disclosure items, it seems apparent that the disclosures related to the fair value have achieved low scores. On average, only in 24% of all cases have firms disclosed the information about the non-recurring fair value measurements according to IFRS 13.93 (a), and even fewer firms (15%)

comply with IFRS 13.93 (b) that requires them to disclose the fair value hierarchy for non-recurring fair value measurements. As this information is of proprietary nature (Verrecchia, 2001), some of the preparers might not want to give this information to the public because they might have concerns about subsequently being at a disadvantage in negotiations, which could eventually lower the firm's value (Dye, 1986). However, the information that is in IFRS 13 *Fair Value Measurement* could also simply be overlooked. Therefore, a reference in IFRS 5 to IFRS 13 *Fair Value Measurement* would potentially help to achieve better compliance scores.

8.3.4 Other

Operating segments and IFRS 5: According to Lüdenbach and Hoffmann (2013), the relationship between IFRS 8 *Operating Segments* and IFRS 5 is not clear. It seems unclear whether firms need to continue presenting a discontinued reportable segment as part of their segment reporting. According to IFRS 5.5B, disclosures in other IFRSs do not apply unless specific disclosures are given in respect of the disposal group classified as held for sale. IFRS 8 *Operating Segments* does not specify the disclosure requirements for a discontinued operation. However, KPMG (2017b) is of the view that if management reviews the financial results of the discontinued operation until the discontinuance is completed, then an entity is not prohibited from disclosing such information. A guidance on this lack of clarity would be desirable, particularly as present research shows that the disclosure of discontinued operations after the initial classification as part of the segment reporting helps to prevent the presence of classification shifting, and that such disclosure is positively associated with the compliance of mandatory IFRS disclosures.

Inconsistency cash flow statement and assets held for sale: The overall aim of presenting discontinued operations is to provide financial information to the readers that helps to assess what sort of components are recurring and non-recurring. To achieve this aim, firms are required to separate the non-recurring items in the income statement as well as the cash flow statement. Along with the separation, the comparative figures need to be restated for comparability reasons. However, IFRS 5.40 excludes the restatement of the Statement of Financial Position. This is inconsistent, and the presented Statement of Financial Position cannot be linked to the cash flow statement despite the fact that preparers must have produced such a restated Statement of Financial Position for the purpose of the cash flow statement. Furthermore, this is also inconsistent with US GAAP, which requires the Statement of Financial Position to be restated as well.

Furthermore, the presentation of discontinued operations as part of a single divestment project may consist of more than one material operating segment that has different asset, revenue and cash flow characteristics. In order to enhance transparency, it would be desirable if such transactions were split up in a similar way as under IFRS 3.B67 *Business Combinations*. In addition, a split between asset/liabilities arising from a discontinued operation and sale events other than discontinued transactions, for example sale of a building not representing a discontinued operation, would be useful.

Risk profile change: Along with the determination of the non-recurring cash flows and assets that are not available anymore after the assets are de-recognised, the question for investors also arises as to whether the risk profile changes. A significant change in the risk profile may affect future cost of capital and impact economic value-added considerations and calculations. It would therefore be in the interest of investors, regardless of whether companies expect a change in the cost of capital and could also have implications on critical assumptions in the impairment testing models. Such information might be presented as part the discontinued note.

8.4 Future research

8.4.1 Purpose of this section

The aim of this section is to briefly review the limitations and to formulate possible fields of action for future research. Potential future research areas could continue to investigate and empirically test all the models employed in this study, but also replicate the study using different regions, including potentially different institutional settings. Future research might also investigate the timeliness of impairment charges. In addition, further research might be promising in the field of corporate finance, to examine the implications of the cost of capital on the remaining businesses after the sale of a discontinued transaction. The future research areas are explained in this section in detail.

8.4.2 Study scope and countries with different institutional factors

With reference to Section 6.1.9, one limitation of the study relates to the use of the limited number of countries examined (UK, Germany and Switzerland). In view of the plethora of firms applying discontinued operations using IFRS 5, it is possible that the same study would produce different results in other jurisdictions. Different countries are likely to have different institutional settings such as enforcement control that might have an impact on the results. Therefore, it might be worthwhile in future studies to include different regions, for example from less developed economies, to investigate the different institutional factors including enforcement control and different accounting practices. In particular, this might be interesting in the area of classification shifting. While the present study does not reveal that firms shift expenses into income-increasing discontinued operations, which is consistent with Kaplan, Kenchington and Wenzel (2019) referring to valuation-based reasoning, the situation might be different in consideration of diverse countries having different institutional settings.

In addition, the study focuses only on listed non-financial companies, whereas non-listed firms and smaller entities in the study are not considered. As discussed under Section 4.3.3, this is a further limitation of the study, but also opens new opportunities for future research exclusively focusing on small firms or financial institutions and insurance companies, which are largely excluded in past research.

8.4.3   Methodological development

a) Model on relative size of transactions at the initial application of discontinued operations

The study introduces a methodological approach on the relative size of discontinued transactions and its associations, with the incentive to initially apply discontinued operations. As discussed under Section 6.1.9, one limitation to the study is that this model has not been used and represents a first attempt to investigate the size feature related to IFRS 5.32. The validity of the model could be further developed and tested in future studies using different jurisdictions or different GAAP other than IFRS.

b) Expectation model classification shifting and motivations

Although the currently employed expectation model is widely used in research practice and can be seen as a standard model, it might be fruitful to further develop the model to gain an even better prediction of expected earnings and corresponding unexpected results. As outlined under limitations in Section 6.4.6, one possibility is to further develop the model to capture potential compensation effects between real economic effects and classification shifting effects. Another possibility is to do research on a specific industry that allows including more specific industry-related variables. For example, the inclusion of order entry data or backlog data might further refine the existing model for industrial groups.

What seems further unexplored in connection with classification shifting while applying discontinued operations is whether managers shift expenses to the discontinued area to increase their personal compensation (other than meeting and beating analysts forecast as discussed under Section 6.5.8). In addition, the role of the audit firms and audit committee could be further investigated, as this study provides mixed results as to whether Big Four auditors are able to prevent classification shifting while applying discontinued operations.

c) Disclosure model

Predictors' disclosure models:

As discussed under limitations in Section 6.7.7, during the process of identifying appropriate and suitable predictors in determining the factors of mandatory IFRS compliance it has been noted that factors like IFRS educational level, attitude of doing the correct thing, timing constraints in preparing and auditing and the company's budget restrictions may also have an impact on the compliance level. However, it seems difficult to obtain observable data. This is obviously a limitation to the study but also reveals an avenue for future research.

Disclosures and materiality decisions:

Previous studies simply do not all factor in any materiality considerations in assessing a mandatory disclosure score. Although this adds another area of judgement for the researcher it should not be ignored, as irrelevant or immaterial information given to the readers may also impair the decision-making process. Therefore, researchers should include this element, or at least consider this as a limitation or as part of the robustness testing.

8.4.4   Change in risk profile and implications on cost of capital

The German industrial group (Max Automation Group, 2018) mentioned in its 2018 press release that the divestments would have a positive effect on risk profile. Similarly, the 2017 annual report of the UK-based Cenkos Group (2017, p.88) emphasised under "discontinued operations" that the change in strategy has reduced the conduct risk profile of the group. The changes in risk profile could have an impact on the long-term cost of capital. It might be worthwhile to see whether firms are able to adapt the new risk profile arising from a substantial sale, and how the internal cost of capital changes in the long run. This might also be an interesting field in researching the implications on potential lending conditions.

8.4.5   Measurement issues while applying discontinued operations

a) Timeliness of impairment charges while applying discontinued operations

A further aspect is the timeliness of impairment charges. The results show that some of the entities still report losses at the time of losing control over the discontinued operations. This might be due to the fact that the negative historical CTAs need to be recycled through the income statement. However, in some instances firms still report major losses, which raises the question whether this information would have been known at an earlier reporting event. On the other hand, firms tend to consider an (overstated) impairment charge (in line with the big bath theory) right at the beginning of the discontinued process at initial classification, which in some cases results in a gain at the time of deconsolidation. Timeliness is an important factor in reporting accurate numbers, and could have implications for audit firms, audit committees and enforcement bodies.

b) Measurement / Impairment under discontinued operations

It appears that there is little research done in the field of measurement of discontinued operations, as only expert opinions are available. Particularly, the interaction between the

overall measurement rules under IFRS 5.15 and the individual IFRSs seems unexplored but problematic and unclear. Double measurement effects might arise, or an unclear situation exists in the allocation of impairment charge, where a potential impairment loss exceeds the carrying value of the disposal group (IFRIC, 2016).

Although it seems likely that firms use a DCF model to value the fair value less cost at the early stages of a sales process, it is also a rather unexplored topic as no studies are available.

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Appendix I: Reviewed annual reports 2015-2018

Reviewed annual reports 2015 - 2018

| Name of the company | Industry | Number of reporting events | | | (1/8) |
		UK	Germany	Switzerland	Total reporting events
1&1 DRILLISCH AG	Communications	0	2	0	2
11 88 0 SOLUTIONS AG	Communications	0	2	0	2
1SPATIAL PLC	Consumer, Non-cyclical	2	0	0	2
3I GROUP PLC	Financial	1	0	0	1
3W POWER SA	Industrial	0	1	0	1
AA PLC	Consumer, Non-cyclical	1	0	0	1
AAP IMPLANTATE	Consumer, Non-cyclical	0	2	0	2
ACCENTRO REAL ESTATE AG	Real Estate	0	2	0	2
ACCESS INTELLIGENCE PLC	Technology	3	0	0	3
ADIDAS AG	Consumer, Cyclical	0	4	0	4
ADLER REAL ESTATE AG	Real Estate	0	2	0	2
AGRITERRA LTD	Consumer, Non-cyclical	1	0	0	1
AIR PARTNER PLC	Industrial	2	0	0	2
AIREA PLC	Consumer, Cyclical	1	0	0	1
ALBA SE	Industrial	0	2	0	2
ALLGEIER SE	Technology	0	3	0	3
ALPIQ HOLDING AG-REG	Utilities	0	0	2	2
ALUMASC GROUP PLC	Industrial	1	0	0	1
AMEC FOSTER WHEELER PLC	Energy	2	0	0	2
AMS AG	Technology	0	0	1	1
ANIMALCARE GROUP PLC	Industrial	1	0	0	1
ANTOFAGASTA PLC	Basic Materials	4	0	0	4
APC TECHNOLOGY GROUP PLC	Industrial	1	0	0	1
ARBONIA AG	Industrial	0	0	2	2
ARUNDEL AG	Financial	0	0	1	1
ARYZTA AG	Consumer, Non-cyclical	0	0	2	2
ASCENTIAL PLC	Communications	2	0	0	2
	Consumer, Non-cyclical	1	0	0	1
ASOS PLC	Communications	1	0	0	1
AUGEAN PLC	Industrial	1	0	0	1
AURELIUS EQUITY OPPORTUNITIE	Financial	0	1	0	1
AURUBIS AG	Industrial	0	1	0	1
AUTO TRADER GROUP PLC	Communications	1	0	0	1
AVINGTRANS PLC	Industrial	1	0	0	1
AVON RUBBER PLC	Industrial	3	0	0	3
AXEL SPRINGER SE	Communications	0	3	0	3
BALFOUR BEATTY PLC	Industrial	2	0	0	2
BASF SE	Basic Materials	0	1	0	1
BAYER AG-REG	Consumer, Non-cyclical	0	2	0	2
BAYERISCHE MOTOREN WERKE AG	Consumer, Cyclical	0	1	0	1
BBA AVIATION PLC	Industrial	3	0	0	3
BEFESA SA	Industrial	0	2	0	2
BEGBIES TRAYNOR GROUP PLC	Financial	1	0	0	1
BG GROUP LTD	Energy	1	0	0	1
BHP BILLITON PLC	Basic Materials	1	0	0	1
BILFINGER SE	Industrial	0	4	0	4

Name of the company	Industry	Number of reporting events			Total reporting events
		UK	Germany	Switzerland	
BIOTEST AG	Consumer, Non-cyclical	0	2	0	2
BKW AG	Utilities	0	0	1	1
BLANCCO TECHNOLOGY GROUP PLC	Technology	3	0	0	3
BRADY PLC	Consumer, Non-cyclical	2	0	0	2
BRAEMAR SHIPPING SERVICES PL	Industrial	2	0	0	2
BREWIN DOLPHIN HOLDINGS PLC	Financial	2	0	0	2
BROOKS MACDONALD GROUP PLC	Financial	1	0	0	1
BROWN (N) GROUP PLC	Consumer, Cyclical	2	0	0	2
CABLE & WIRELESS COMMUNICATI	Communications	1	0	0	1
CAFFYNS PLC	Consumer, Cyclical	1	0	0	1
CAMBIAN GROUP PLC	Consumer, Non-cyclical	2	0	0	2
CAMELLIA PLC	Consumer, Non-cyclical	3	0	0	3
CANCOM SE	Technology	0	4	0	4
CAPE PLC	Consumer, Non-cyclical	2	0	0	2
CAPITA PLC	Consumer, Non-cyclical	2	0	0	2
CAPITAL & COUNTIES PROPERTIE	Real Estate	1	0	0	1
CAPITAL & REGIONAL PLC	Real Estate	1	0	0	1
CARR'S GROUP PLC	Consumer, Non-cyclical	1	0	0	1
CASPIAN SUNRISE PLC	Energy	1	0	0	1
CATALIS SE	Industrial	0	1	0	1
CECONOMY AG	Consumer, Cyclical	0	2	0	2
CELLO HEALTH PLC	Communications	1	0	0	1
CENKOS SECURITIES PLC	Financial	1	0	0	1
CENTAUR MEDIA PLC	Communications	2	0	0	2
CENTRAL ASIA METALS PLC	Basic Materials	3	0	0	3
CHAMBERLIN PLC	Industrial	1	0	0	1
CHARLES STANLEY GROUP PLC	Financial	2	0	0	2
CHEMRING GROUP PLC	Industrial	4	0	0	4
CIE FINANCIERE RICHEMONT-REG	Consumer, Cyclical	0	0	2	2
CIRCASSIA PHARMACEUTICA	Consumer, Non-cyclical	2	0	0	2
CLARIANT AG-REG	Basic Materials	0	0	1	1
CLARKE (T.) PLC	Industrial	2	0	0	2
CLS HOLDINGS PLC	Real Estate	1	0	0	1
COATS GROUP PLC	Consumer, Cyclical	3	0	0	3
COMPUGROUP MEDICAL SE	Technology	0	1	0	1
CONNECT GROUP PLC	Communications	2	0	0	2
CONSORT MEDICAL PLC	Consumer, Non-cyclical	2	0	0	2
CPP GROUP PLC	Consumer, Non-cyclical	2	0	0	2
CRANSWICK PLC	Consumer, Non-cyclical	1	0	0	1
CREIGHTONS PLC	Consumer, Non-cyclical	1	0	0	1
DAILY MAIL&GENERAL TST-A NV	Communications	2	0	0	2
DAIRY CREST GROUP PLC	Consumer, Non-cyclical	2	0	0	2
DCC PLC	Energy	3	0	0	3
DCD MEDIA PLC	Communications	1	0	0	1
	Consumer, Cyclical	1	0	0	1
DE LA RUE PLC	Consumer, Non-cyclical	3	0	0	3

Name of the company	Industry	Number of reporting events			Total reporting events
		UK	Germany	Switzerland	
DEAG DEUTSCHE ENTERTAINMENT	Consumer, Cyclical	0	4	0	4
DELIVERY HERO SE	Communications	0	2	0	2
DEUTSCHE BOERSE AG	Financial	0	1	0	1
DIAGEO PLC	Consumer, Non-cyclical	1	0	0	1
DIXONS CARPHONE PLC	Consumer, Cyclical	3	0	0	3
DOLPHIN CAPITAL INVESTORS	Real Estate	2	0	0	2
DOMINO'S PIZZA GROUP PLC	Consumer, Cyclical	3	0	0	3
DRIVER GROUP PLC	Consumer, Non-cyclical	1	0	0	1
DUFRY AG-REG	Consumer, Cyclical	0	0	1	1
E.ON SE	Utilities	0	3	0	3
EBIQUITY PLC	Communications	1	0	0	1
ECHO ENERGY PLC	Energy	1	0	0	1
ECKERT & ZIEGLER STRAHLEN UN	Consumer, Non-cyclical	0	2	0	2
ELEKTRON TECHNOLOGY PLC	Industrial	1	0	0	1
	Technology	1	0	0	1
ELEMENTIS PLC	Basic Materials	2	0	0	2
ELUMEO SE	Consumer, Cyclical	0	2	0	2
ENCAVIS AG	Energy	0	1	0	1
EPWIN GROUP PLC	Industrial	1	0	0	1
EQS GROUP AG	Communications	0	1	0	1
ESSENTRA PLC	Basic Materials	1	0	0	1
	Industrial	1	0	0	1
EUROMONEY INSTL INVESTOR PLC	Communications	2	0	0	2
EVONIK INDUSTRIES AG	Basic Materials	0	3	0	3
EXCEET GROUP SE	Industrial	0	2	0	2
EXPERIAN PLC	Consumer, Non-cyclical	4	0	0	4
FABASOFT AG	Technology	0	1	0	1
FASTJET PLC	Consumer, Cyclical	2	0	0	2
FEINTOOL INTL HOLDING-REG	Industrial	0	0	1	1
FERGUSON PLC	Consumer, Cyclical	4	0	0	4
FFI HOLDINGS PLC	Consumer, Cyclical	2	0	0	2
FILTA GROUP HOLDINGS PLC	Consumer, Non-cyclical	2	0	0	2
FINDEL PLC	Consumer, Cyclical	2	0	0	2
FINTECH GROUP AG-REG	Communications	0	2	0	2
FLOWTECH FLUIDPOWER PLC	Industrial	1	0	0	1
FLYBE GROUP PLC	Consumer, Cyclical	1	0	0	1
FORBO HOLDING AG-REG	Industrial	0	0	1	1
FUTURE PLC	Communications	2	0	0	2
FYBER N.V	Technology	0	1	0	1
G4S PLC	Consumer, Non-cyclical	4	0	0	4
GAMA AVIATION PLC	Consumer, Non-cyclical	3	0	0	3
GAMING REALMS PLC	Consumer, Cyclical	1	0	0	1
GEA GROUP AG	Industrial	0	4	0	4
GEM DIAMONDS LTD	Basic Materials	1	0	0	1
GERRESHEIMER AG	Industrial	0	1	0	1
GFT TECHNOLOGIES SE	Technology	0	1	0	1
GLENCORE PLC	Basic Materials	1	0	0	1

Name of the company	Industry	Number of reporting events			Total reporting events
		UK	Germany	Switzerland	
GLOBALDATA PLC	Communications	2	0	0	2
GOLDPLAT PLC	Basic Materials	1	0	0	1
GOOD ENERGY GROUP PLC	Energy	2	0	0	2
GRAFENIA PLC	Consumer, Non-cyclical	1	0	0	1
GRAINGER PLC	Real Estate	2	0	0	2
GREENCORE GROUP PLC	Consumer, Non-cyclical	1	0	0	1
GREIFFENBERGER AG	Industrial	0	1	0	1
GRESHAM TECHNOLOGIES PLC	Technology	1	0	0	1
GVC HOLDINGS PLC	Consumer, Cyclical	1	0	0	1
HANSTEEN HOLDINGS PLC	Real Estate	2	0	0	2
HARGREAVES SERVICES PLC	Energy	1	0	0	1
	Industrial	1	0	0	1
HARVEY NASH GROUP PLC	Consumer, Non-cyclical	1	0	0	1
	Technology	1	0	0	1
HAYS PLC	Consumer, Non-cyclical	2	0	0	2
HEIDELBERGCEMENT AG	Industrial	0	4	0	4
HOLDERS TECHNOLOGY PLC	Industrial	1	0	0	1
HOLIDAYCHECK GROUP AG	Communications	0	3	0	3
HSS HIRE GROUP PLC	Consumer, Non-cyclical	1	0	0	1
HUNTING PLC	Energy	2	0	0	2
HYDRODEC GROUP PLC	Industrial	2	0	0	2
IBSTOCK PLC	Industrial	1	0	0	1
IDE GROUP HOLDINGS PLC	Technology	1	0	0	1
IDOX PLC	Technology	1	0	0	1
IGAS ENERGY PLC	Energy	3	0	0	3
IMAGINATION TECH GROUP PLC	Technology	1	0	0	1
IMI PLC	Industrial	2	0	0	2
INFAS HOLDING AG	Communications	0	2	0	2
INFINEON TECHNOLOGIES AG	Technology	0	4	0	4
INTERNATIONAL PERSONAL FINAN	Financial	1	0	0	1
IQGEO GROUP PLC	Technology	1	0	0	1
ITV PLC	Communications	1	0	0	1
JD SPORTS FASHION PLC	Consumer, Cyclical	1	0	0	1
JENOPTIK AG	Technology	0	3	0	3
JKX OIL & GAS PLC	Energy	1	0	0	1
JOHN LAING GROUP PLC	Financial	1	0	0	1
JOHNSON SERVICE GROUP PLC	Consumer, Non-cyclical	2	0	0	2
JOHNSTON PRESS PLC	Communications	1	0	0	1
JPJ GROUP PLC	Consumer, Cyclical	1	0	0	1
KAP AG	Industrial	0	1	0	1
KAP BETEILIGUNGS AG	Consumer, Cyclical	0	2	0	2
	Industrial	0	1	0	1
KAPE TECHNOLOGIES PLC	Technology	1	0	0	1
KIER GROUP PLC	Industrial	3	0	0	3
KIN AND CARTA PLC	Communications	1	0	0	1
KUDELSKI SA-BR	Technology	0	0	3	3
KUONI REISEN HLDG-REG(CAT B)	Consumer, Cyclical	0	0	1	1
LAFARGEHOLCIM LTD-REG	Industrial	0	0	2	2

Name of the company	Industry	Number of reporting events			Total reporting events
		UK	Germany	Switzerland	
LAKEHOUSE PLC	Industrial	1	0	0	1
LAMPRELL PLC	Energy	2	0	0	2
LANXESS AG	Basic Materials	0	1	0	1
LINDE AG	Basic Materials	0	2	0	2
LIVERMORE INVESTMENTS GROUP	Financial	1	0	0	1
LONDON STOCK EXCHANGE GROUP	Financial	2	0	0	2
LONZA GROUP AG-REG	Consumer, Non-cyclical	0	0	1	1
LOW & BONAR PLC	Consumer, Cyclical	3	0	0	3
M P EVANS GROUP PLC	Consumer, Non-cyclical	2	0	0	2
M.A.X. AUTOMATION SE	Industrial	0	1	0	1
MAN SE	Industrial	0	3	0	3
MANAGEMENT CONSULTING GROUP	Consumer, Non-cyclical	4	0	0	4
MARSHALL MOTOR HOLDINGS PLC	Consumer, Cyclical	1	0	0	1
MASTERFLEX SE	Industrial	0	4	0	4
MCBRIDE PLC	Consumer, Non-cyclical	1	0	0	1
MCKESSON EUROPE AG	Consumer, Non-cyclical	0	4	0	4
MEARS GROUP PLC	Consumer, Non-cyclical	2	0	0	2
MELROSE INDUSTRIES PLC	Financial	1	0	0	1
MENZIES (JOHN) PLC	Industrial	1	0	0	1
MERCK KGAA	Consumer, Non-cyclical	0	2	0	2
METRO AG	Consumer, Non-cyclical	0	1	0	1
MHP SE	Consumer, Non-cyclical	2	0	0	2
MICRO FOCUS INTERNATIONAL	Technology	1	0	0	1
MINDS PLUS MACHINES GROUP LT	Communications	1	0	0	1
MISSION MARKETING GROUP PLC	Communications	1	0	0	1
MITIE GROUP PLC	Consumer, Non-cyclical	1	0	0	1
MJ GLEESON PLC	Consumer, Cyclical	4	0	0	4
MORGAN ADVANCED MATERIALS PL	Industrial	1	0	0	1
MPAC GROUP PLC	Industrial	1	0	0	1
MUEHLHAN AG	Basic Materials	0	1	0	1
	Industrial	0	1	0	1
MYBET HOLDING SE	Consumer, Cyclical	0	1	0	1
MYBUCKS SA	Financial	0	2	0	2
NAC KAZATOMPROM JSC-GDR	Basic Materials	1	0	0	1
NATIONAL EXPRESS GROUP PLC	Industrial	3	0	0	3
NATIONAL GRID PLC	Utilities	2	0	0	2
NATURE GROUP PLC	Industrial	2	0	0	2
NCC GROUP PLC	Technology	1	0	0	1
NEX GROUP PLC	Financial	2	0	0	2
NORCROS PLC	Industrial	1	0	0	1
NORISH PLC	Consumer, Cyclical	3	0	0	3
NORTHERN BEAR PLC	Industrial	1	0	0	1
NOVARTIS AG-REG	Consumer, Non-cyclical	0	0	1	1
OC OERLIKON CORP AG-REG	Basic Materials	0	0	2	2
	Industrial	0	0	2	2
OPG POWER VENTURES PLC	Utilities	1	0	0	1
OSRAM LICHT AG	Industrial	0	3	0	3

Name of the company	Industry	Number of reporting events			Total reporting events
		UK	Germany	Switzerland	
OXFORD INSTRUMENTS PLC	Industrial	2	0	0	2
OXFORD METRICS PLC	Technology	3	0	0	3
PAN AFRICAN RESOURCES PLC	Basic Materials	2	0	0	2
PANTHER SECURITIES PLC	Real Estate	1	0	0	1
PARGESA HOLDING SA-BR	Financial	0	0	1	1
PARITY GROUP PLC	Technology	3	0	0	3
PEARSON PLC	Communications	1	0	0	1
PEBBLE BEACH SYSTEMS GROUP	Communications	3	0	0	3
PETRA DIAMONDS LTD	Basic Materials	1	0	0	1
PETRO WELT TECHNOLOGIES AG	Energy	0	3	0	3
PETROPAVLOVSK PLC	Basic Materials	1	0	0	1
POLYPIPE GROUP PLC	Industrial	2	0	0	2
PORTA COMMUNICATIONS PLC	Communications	1	0	0	1
PREMIER FOODS PLC	Consumer, Non-cyclical	2	0	0	2
PREMIER OIL PLC	Energy	4	0	0	4
PRESSURE TECHNOLOGIES PLC	Industrial	1	0	0	1
PROCREDIT HOLDING AG & CO KG	Financial	0	1	0	1
PROGILITY PLC	Technology	2	0	0	2
PROSIEBENSAT.1 MEDIA SE	Communications	0	2	0	2
QINETIQ GROUP PLC	Consumer, Non-cyclical	2	0	0	2
QUARTO GROUP INC	Communications	1	0	0	1
RANK GROUP PLC	Consumer, Cyclical	2	0	0	2
REAL GOOD FOOD PLC	Consumer, Non-cyclical	2	0	0	2
RECKITT BENCKISER GROUP PLC	Consumer, Non-cyclical	2	0	0	2
REDHALL GROUP PLC	Industrial	2	0	0	2
REDSTONECONNECT PLC	Technology	2	0	0	2
RENEW HOLDINGS PLC	Industrial	2	0	0	2
RENEWI PLC	Industrial	4	0	0	4
RENISHAW PLC	Industrial	2	0	0	2
RESTORE PLC	Consumer, Non-cyclical	2	0	0	2
RHYTHMONE PLC	Communications	1	0	0	1
ROTALA PLC	Industrial	1	0	0	1
ROYAL MAIL PLC	Industrial	1	0	0	1
RPC GROUP PLC	Industrial	1	0	0	1
RWE AG	Utilities	0	2	0	2
S & U PLC	Financial	1	0	0	1
SAGA PLC	Consumer, Cyclical	1	0	0	1
	Financial	2	0	0	2
SAGE GROUP PLC/THE	Technology	1	0	0	1
SALZGITTER AG	Basic Materials	0	3	0	3
SARTORIUS AG	Industrial	0	1	0	1
SCHMOLZ+BICKENBACH AG-REG	Basic Materials	0	0	2	2
SCHWEITER TECHNOLOGIES AG-BR	Industrial	0	0	1	1
SDL PLC	Technology	2	0	0	2
SERCO GROUP PLC	Technology	2	0	0	2
SERICA ENERGY PLC	Energy	1	0	0	1

Name of the company	Industry	Number of reporting events			
		UK	Germany	Switzerland	Total reporting events
SEVERN TRENT PLC	Utilities	3	0	0	3
SGL CARBON SE	Basic Materials	0	4	0	4
SIEMENS AG-REG	Industrial	0	4	0	4
SINCLAIR PHARMA PLC	Consumer, Non-cyclical	1	0	0	1
SKW STAHL-METALLURGIE HOLDIN	Industrial	0	3	0	3
SKY PLC	Communications	1	0	0	1
SMA SOLAR TECHNOLOGY AG	Industrial	0	2	0	2
SMITHS GROUP PLC	Industrial	1	0	0	1
SOCO INTERNATIONAL PLC	Energy	1	0	0	1
SOLID STATE PLC	Industrial	1	0	0	1
SPACEANDPEOPLE PLC	Communications	1	0	0	1
SPICE PRIVATE EQUITY AG	Financial	0	0	1	1
SPORTECH PLC	Consumer, Cyclical	2	0	0	2
SPORTTOTAL AG	Communications	0	1	0	1
	Consumer, Cyclical	0	1	0	1
STAFFLINE GROUP PLC	Consumer, Non-cyclical	1	0	0	1
STANLEY GIBBONS GROUP PLC	Consumer, Cyclical	1	0	0	1
STEINHOFF INTERNATIONAL H NV	Consumer, Cyclical	0	2	0	2
STOBART GROUP LTD	Industrial	1	0	0	1
STRATEC SE	Consumer, Non-cyclical	0	1	0	1
STRIDE GAMING PLC	Technology	1	0	0	1
STROEER SE & CO KGAA	Communications	0	1	0	1
SURESERVE GROUP PLC	Industrial	1	0	0	1
TARSUS GROUP PLC	Consumer, Non-cyclical	1	0	0	1
TATE & LYLE PLC	Consumer, Non-cyclical	3	0	0	3
TATTON ASSET MANAGEMENT PLC	Financial	1	0	0	1
TAVISTOCK INVESTMENTS PLC	Financial	2	0	0	2
TELECOM PLUS PLC	Communications	1	0	0	1
TESCO PLC	Consumer, Non-cyclical	4	0	0	4
THE FULHAM SHORE PLC	Consumer, Cyclical	1	0	0	1
THRUVISION GROUP PLC	Industrial	1	0	0	1
	Technology	1	0	0	1
THYSSENKRUPP AG	Basic Materials	0	3	0	3
TRACSIS PLC	Technology	1	0	0	1
TREATT PLC	Basic Materials	1	0	0	1
TRIBAL GROUP PLC	Consumer, Non-cyclical	1	0	0	1
TT ELECTRONICS PLC	Industrial	2	0	0	2
TUI AG-DI	Consumer, Cyclical	4	0	0	4
TUNGSTEN CORP PLC	Financial	1	0	0	1
TURBON AG	Technology	0	1	0	1
UBM PLC	Consumer, Non-cyclical	3	0	0	3
UDG HEALTHCARE PLC	Consumer, Non-cyclical	2	0	0	2
UK MAIL GROUP PLC	Industrial	1	0	0	1
UNITED INTERNET AG-REG SHARE	Communications	0	1	0	1
VALORA HOLDING AG-REG	Consumer, Cyclical	0	0	4	4
VENN LIFE SCIENCES HOLDINGS	Consumer, Non-cyclical	1	0	0	1
VESUVIUS PLC	Industrial	4	0	0	4

Name of the company	Industry	Number of reporting events			Total reporting events
		UK	Germany	Switzerland	
VIANET GROUP PLC	Technology	2	0	0	2
VICTORIA PLC	Consumer, Cyclical	1	0	0	1
VIFOR PHARMA AG	Consumer, Non-cyclical	0	0	1	1
VITEC GROUP PLC/THE	Industrial	1	0	0	1
VODAFONE GROUP PLC	Communications	3	0	0	3
VOLVERE PLC	Consumer, Non-cyclical	1	0	0	1
VON ROLL HOLDING AG-BR	Industrial	0	0	2	2
VOSSLOH AG	Industrial	0	4	0	4
WACKER CHEMIE AG	Basic Materials	0	1	0	1
WATCHSTONE GROUP PLC	Technology	3	0	0	3
WATKIN JONES PLC	Real Estate	1	0	0	1
WEBIS HOLDINGS PLC	Consumer, Cyclical	1	0	0	1
WEIR GROUP PLC/THE	Industrial	3	0	0	3
WESTWING GROUP AG	Communications	0	1	0	1
WILLIAM HILL PLC	Consumer, Cyclical	1	0	0	1
WINDELN.DE SE	Communications	0	2	0	2
WIRELESS GROUP PLC	Communications	1	0	0	1
WOOD GROUP (JOHN) PLC	Energy	1	0	0	1
WYNNSTAY GROUP PLC	Consumer, Non-cyclical	1	0	0	1
XPS PENSIONS GROUP PLC	Consumer, Non-cyclical	1	0	0	1
YOC AG	Communications	0	1	0	1
ZAPF CREATION AG	Consumer, Cyclical	0	1	0	1
ZINC MEDIA GROUP PLC	Consumer, Cyclical	2	0	0	2
ZUEBLIN IMMOBILIEN HOLDI-REG	Real Estate	0	0	1	1
TOTAL		**398**	**169**	**40**	**607**

Appendix II: Details of mandatory disclosure items

Compliance score per mandatory disclosure item

Item	Disclosure item	Reference IFRS	Mainly applicable for Type	Mean Score
1	Present and disclose information that enables users of the financial statements to evaluate the financial effects of discontinued operations.	IFRS 5.30	A, B and C	0.89
2	Disclosure of the revenue, expenses and pre-tax profit or loss of discontinued operations.	IFRS 5.33	A, B and C	0.93
3	Disclosure of gain or loss recognised on the measurement to fair value less costs to sell or on the disposal of the assets or disposal group(s) constituting the discontinued operation.	IFRS 5.33	A, B and C	0.80
4	Disclosure of the amount of income from continuing operations and from discontinued operations attributable to owners of the parent. These disclosures may be presented either in the notes or in the statement of profit or loss and OCI.	IFRS 5.33(d)	A, B and C	0.77
5	Re-present the disclosures related to discontinued operations in the statement of profit or loss and OCI (see IFRS 5.33) for prior periods presented so that the disclosures relate to all operations that have been discontinued by the reporting date for the latest period presented.	IFRS 5.34	A, B	0.98
6	Adjustments in the current period to amounts previously presented in discontinued operations that are directly related to the disposal of a discontinued operation in a prior period are classified separately in discontinued operations. The nature and amount of such adjustments is disclosed (e.g. the resolutioin of uncertainties that arise from the terms of the disposal transaction, such as the resolution of pruchase price adjustments and indemnification issues with the purchaser. The resolution of uncertainties that arise from and are directly related to the operations of the component before its disposal, such as enviornmental and product warranty obligations retained by the seller. The settlement of employee benefit plan obligations, provided that the settlement is directly related to the disposal transaction.	IFRS 5.35	C	0.72
7	If the entity reports a discontinued operation, then disclose the basic and diluted earnings per share for the discontinued operation either in the statement of profit or loss and OCI or in the notes.	IAS 33.68	A, B and C	0.93
8	Assets and liabilities classified as held for sale for non-current assets; and assets and liabilities of disposal groups classified in the current period as held for sale do NOT reclassify or re-present comparatives to reflect their classification in the current period as held for sale.	IFRS 5.40	A and B	0.99
9	Disclosure of the net cash flows attributable to the operating, investing and financing activities of discontinued operations either in the notes or in the financial statements. These disclosures are not required for disposal groups that are newly acquired subsidiaries that meet the criteria to be classified as held-for-sale on acquisition.	IFRS 5.33 c	A, B and C	0.82
10	Re-present the disclosures related to discontinued operations in the statement of cash flows for prior periods presented so that the disclosures relate to all operations that have been discontinued by the reporting date for the latest period presented.	IFRS 5.34	A and B	0.88
11	For recurring and non-recurring fair value measurements, the fair value measurement at the end of the reporting period, and for non-recurring fair value measurements, the reasons for measurement. Non-recurring fair value measurements of assets or liabilities are those that other IFRSs require or permit in the statement of financial position in particular circumstances (e.g. when an entity measure assets held for sale at fair value less costs to sell in accordance with IFRS 5.)	IFRS 13.93(a)	A	0.24
12	Disclosure of the fair value hierarchy: For recurring and non-recurring fair value measurements, the level of the fair value hierarchy within the fair value measruement are categorised in their entirety.	IFRS 13.93(b)	A	0.15
13	Presentation of any cumulative income or expense recognised directly in OCI relating to a non-current asset (or disposal group) classified as held-for-sale.	IFRS 5.38	A and B	0.41
14	Presentation of the major classes of assets and liabilities classified as held-for-sale separately from other assets, either in the statement of financial position or in the notes (not required if the disposal group is a newly acquired subsidiary that meets the criteria to be classified as held-for-sale on acquisition).	IFRS 5.38-39	A	0.88
15	Disclosure of a description of the non-current asset or disposal group.	IFRS 5.41 (a)	A and B	0.71

Item	Disclosure item	Reference IFRS	Mainly applicable for Type	Mean Score
16	Disclosure of a description of the facts and circumstances of the disposal, or leading to the expected disposal, and the expected manner and timing of that disposal.	IFRS 5.41 (b)	A and B	0.61
17	Disclosure of the gain or loss recognised (impairment loss for initial and subsequent write-down of the assets or any gain recognised on for any subsequent increase in fair value less costs to sell of the assets) in accordance with IFRS 5.20–22 and, if not separately presented in the statement of profit or loss and OCI, the caption in the statement of profit or loss and OCI that includes that gain or loss; and	IFRS 5.41 (c)	A and B	0.91
18	If applicable disclosure of the reportable segment in which the non-current asset or disposal group is presented in accordance with IFRS 8.	IFRS 5.41 (d)	A	0.62
19	Circumstances that would give rise to the separate disclosure of items of income and expense namely discontinued operations	IAS 1.98 (e)	A, B and C	0.98
20	Disclosure of the the tax expense relating to the gain or loss on discontinuance.	IAS 12.81(h) (i)	B	0.31
21	Disclosure of the tax expense relating to the profit or loss from the ordinary activities of the discontinued operation for the period, together with the corresponding amounts for each prior period presented.	IAS 12.81 (h) (ii)	A, B and C	0.82
22	Property, Plant and Equipment: Reconciliation of the carrying amount at the beginning and end of the period showing assets classified as held for sale or included in a disposal group classified as held for sale in accordance with IFRS 5 and other disposals	IAS 16.73 (e) (ii)	A and B	0.88
23	Intangible Assets: Reconcilation of the carrying amount at the beginning and end of the period showing: assets classified as held for sale or included in a disposal group classified as held for sale in accordance with IFRS 5 and other disposals	IAS 38.118 (e) (ii)	A and B	0.87
24	Agriculture: Disclosure of a reconciliation of changes in the carrying amount of biological assets between the beginning and the end of the current period showing:decreases attributable to sales and biological assets classified as held-for-sale (or included in a disposal group that is classified as held-for-sale) under IFRS 5.	IAS 41.50 c	A and B	0.67
25	Investment property: Disclosure of a reconciliation of the carrying amount of investment property at the beginning and end of the period showing: assets classified as held-for-sale or included in a disposal group classified as held-for-sale under IFRS 5 and other disposals.	IAS 40.76 c / IAS 40.79 d (iii)	A and B	1.00
26	Disclosure of the aggregate cash Flow arising from obtaining or losing control of subsidiaries or other businesses shall be presented separately and classified as investing activities.	IAS 7.39	B	0.89
27	Disclosure of the total consideration paid / received in respect of losing control of subsidiaries or other businesses.	IAS 7.40 (a)	B	0.82
28	Disclosure of the portion of the consideration consisting of cash and cash equivalents in respect of losing control of subsidiaries or other businesses.	IAS 7.40 (b)	B	0.67
29	Disclosure of the amount of cash and cash equivalents in the subsidiaries or other businesses over which control is obtained or lost.	IAS 7.40 (c)	B	0.43
30	Disclosure of the amount of the assets and liabilities other than cash or cash equivalents in the subsidiaries or other businesses over which control ist obtained or lost, summarised by each major category.	IAS 7.40 (d)	B	0.66
	Maximum			16.32
	Achieved			12.69
	Disclosure Score			**0.775**

Appendix III: Classification shifting - list of analysed items >2 studentized residual

Ticker	Name	Industry	Year	Economic event according to annual report	Additional remarks / Magnitude of economic event	Conclusion
IMM LN E	IMMUPHAR	Consumer	2009	Exercised its option to license rights	Increase Revenue by more than 32,000%	Deleted
FLOW LN	FLOWGROU	Utilitie	2013	no information available	n/a	Deleted
1434558D	SAROSSA	Financia	2010	Research and development costs	Costs are 1.7 times higher than revenues	Deleted
ACM LN E	ACCUMULI	Financia	2009	no information available	n/a	Deleted
EVE SW E	EVOLVA H	Consumer	2009	no information available	n/a	Deleted
DC/ LN E	DIXONS C	Consumer	2012	Wrongly reported figures in Bloomberg	n/a	Deleted
NETK GR	NET SE	Communic	2012	no information available	n/a	Deleted
RKH LN E	ROCKHOPP	Energy	2017	Other income on a exploration insurance claim	Impact is more than 15 times of reported core revenue	Deleted
VGAS LN	VOLGA GA	Energy	2009	Extraordinary growth in oil production	Increase Revenue by more than 1700%	Deleted
PLAZ LN	PLAZA CE	Real Est	2010	no information available	n/a	Deleted
IPO LN E	IP GROUP	Financia	2015	Changes in valuation of equity and debt instruments	Change in valuation more than 7.5 times of total revenues	Deleted
PLE LN E	PLETHORA	Consumer	2009	Restructuring of the business	no annual report available	Deleted
SANN SW	SANTHERA	Consumer	2016	Roll-out of new drug and first commercial year	340% Revenue increase compared to prior year	Deleted
POS LN E	PLEXUS H	Energy	2016	Restructuring of the business	50% reduction in annualised personnel costs	Deleted
PLAZ LN	PLAZA CE	Real Est	2017	no information available	n/a	Deleted
GKP LN E	GULF KEY	Energy	2014	Impairment of operating joint ventures / Investments	Impairment charge reporting year year 3.7 times higher than reported revenues	Deleted
ZEF GR E	ZHONGDE	Industri	2014	Gain on deconsolidation of a prior year subsidiary	Gain almost equal to reported annual revenues	Deleted
GTY GR E	GATEWAY	Real Est	2012	no information available	n/a	Deleted
KURN SW	KUROS BI	Consumer	2010	no information available	n/a	Deleted
ACTA LN	ACTA SPA	Basic Ma	2010	Sale and build large-scale photovoltaic installations	Revenue increase by more than 1800%	Deleted
GPX LN E	GULFSAND	Energy	2010	Restructuring of the business and partly exit	10 times lower revenues from core businesses	Deleted
GEEC LN	GREAT EA	Energy	2011	no information available	n/a	Deleted
ADJ GR E	ADO PROP	Real Est	2017	Changes in valuations	Gain is nearly 3 times of reported revenues	Deleted
PSDL LN	PHOENIX	Real Est	2017	no information available	n/a	Deleted
TPG LN E	TP GROUP	Industri	2012	Acquisition	Revenue increase by more than 4800%	Deleted
RKET GR	ROCKET I	Communic	2017	Gain on deconsolidation but not Discops	Gain almost equal to reported annual revenues	Deleted
MOLN SW	MOLECULA	Consumer	2016	Research and development costs	Costs are 1.5 times higher than revenues	Deleted
GENL LN	GENEL EN	Energy	2016	Impairment receivables	Write off greater than total annual reported revenues	Deleted
GTY GR E	GATEWAY	Real Est	2017	Changes in valuations	both year greater than turnover	Deleted
CIR LN E	CIRCASSI	Consumer	2017	Research and development costs	Costs are nearly 2 times of reported annual revenue	Deleted
GKP LN E	GULF KEY	Energy	2015	Impairment of operating joint ventures / Investments	Impairment charge prior year 3.7 times higher than reported revenues	Deleted
AFID LI	AFI DEVE	Real Est	2013	Changes in prior year valuations	Loss more than 2 times of annual reported revenues	Deleted
GKP LN E	GULF KEY	Energy	2012	Extraord. growth in oil production/early stage busines	Revenue increase by more than 300%	Deleted
DCI LN E	DOLPHIN	Real Est	2017	Changes in valuations	prior year 7 times revenues	Deleted
GENL LN	GENEL EN	Energy	2017	One off gain from sale receivables	Gain is 1.3 times higher than annual reported revenues	Deleted
FPM LN E	FAROE PE	Energy	2009	no information available	n/a	Deleted
ELA LN E	ELAND OI	Energy	2017	Extraordinary growth in oil production from OML 40	Revenue increase by more than 2800%	Deleted
CAD LN E	CADOGAN	Energy	2014	Impairment on operating joint venturre	Write off is 1.6 of total reported revenues	Deleted
IPO LN E	IP GROUP	Financia	2017	Gain on deconsolidation but not Discops	Gain is more than 43% of total reported revenues	Deleted
SRC LN E	SIGMAROC	Financia	2017	Acquisition	Revenue increase by more than 71000%	Deleted
93M GR E	MPH HEAL	Financia	2015	Sale of financial assets	Gain is 188 times higher than annual reported revenues	Deleted

Appendix IV: Exclusion of industry subgroups from financial sector

Excluded industry subgroup companies from financial sector

Sector	Excluded industry subgroup
Financial	Closed-end Funds
	Commer Banks
	Diversified Banking Institutions
	Diversified Finance Institutions
	Finance Auto Loans
	Finance Consumer Loans
	Finance Credit Card
	Finance Invest Bnkr / Brkr
	Finance Mortgage Loan/Banker
	Finance Leasing Companies
	Finance Other Services
	Financial Guarantee Insurance
	Insurance Broker
	Internet Financial Services
	Invest Mgmnt / Advisory
	Life/Health Insurance
	Mortgage Banks
	Multline Insurance
	Property / Casualty Insurance
	Regional Banks Non US
	Reinsurance companies

Appendix V: Derivation of the final sample

Composition of the sample

Sample: IFRS adopters listed on the UK, German and Swiss stock exchange, >10% reported year-end Revenue, and without industry specific firms [1]

Year	Non-Discontinued firms			Discontinued firms												
	DI [3]	CS [3]		DI [3]			DA [3]			CD [3]				CS [3]		
	All reporting events	Missing Data	Total adjusted for missing data	All reporting events	Restatement effects	Missing annual reports / not in scope [6]	Total adjusted for missing data and restated reporting events	Consequtive reporting events [4]	Missing data	Total adjusted for missing data, restated reporting events and type C firms	Add back to all reporting events	All Reporting events	Missing Data / not in scope [5]	Total classification shifting discontinued reporting events	Ratio discontinued firms / total observation	Ratio discontinued firms / total observation classification shifting
	A	B	C=A+B	D	E	F	G=D+E+F	H	I	J=G+H+I	K	L=J+K	M	N=L+M	O=D/(A+D)	P=N/(N+C)
2018 [2]	1'115	n/a	n/a	164	-3	-1	160	-63	-2	95	69	164	-164	n/a	12.8%	n/a
2017	1'128	-292	836	212	-43	0	169	-72	-3	94	118	212	-51	161	15.8%	16.1%
2016	1'140	-291	849	203	-38	-2	163	-68	-4	91	112	203	-54	149	15.1%	14.9%
2015	1'217	-364	853	146	-31	0	115	-49	-4	62	84	146	-23	123	10.7%	12.6%
2014	1'231	-366	865	153	n/a	-153	n/a	n/a	n/a	n/a	153	153	-20	133	11.1%	13.3%
2013	1'229	-331	898	148	n/a	-148	n/a	n/a	n/a	n/a	148	148	-28	120	10.7%	11.8%
2012	1'227	-313	914	153	n/a	-153	n/a	n/a	n/a	n/a	153	153	-21	132	11.1%	12.6%
2011	1'252	-360	892	173	n/a	-173	n/a	n/a	n/a	n/a	173	173	-26	147	12.1%	14.1%
2010	1'221	-453	768	174	n/a	-174	n/a	n/a	n/a	n/a	174	174	-53	121	12.5%	13.6%
2009	1'275	-531	744	175	n/a	-175	n/a	n/a	n/a	n/a	175	175	-73	102	12.1%	12.1%
TOTAL	**12'035**	**-3'301**	**7'619**	**1'701**	**-115**	**-979**	**607**	**-252**	**-13**	**342**	**1'359**	**1'701**	**-513**	**1'188**	**12.4%**	**13.5%**

[1] Mainly finanical institution, funds and insurance companies are excluded. A detailed list of the specific industry subgroup is given in appendix IV

[2] 1st October 2019 marks the cut off date for retrieving 2018 data from Bloomberg

[3] Sample size used for CD = classification of discontinued operations, CS = classification shifting, DA = disclosure analysis, DI = descriptive information

[4] Consequtive reporting events are defined as those who are not reporting discontinued operations for the first time (e.g. restated income statement in year t-1 but still reporting discontinued operations in year t)

[5] Firms reporting year-end 2018 are not in scope of classification shifting as one lead and lag year is required for inclusion to the classification shifting sample

[6] Reporting years 2009 - 2014 are not in scope of the IFRS disclosure analysis

Appendix VI: Crosstabulation table

Crosstabulation (Size categories x incentive/motivation to apply discontinued operations)

Categories		Incentive / motivation		
Relative revenues discontinued operations to continuing business		Incentive to apply discontinued operations	No incentive to apply discontinued operations	Total
<2%	Count	62[b]	8[a]	70.00
	Expected Count	50.96	19.04	70.00
	%within category	88.6%	11.4%	100.0%
	% within Incentive / motivation	24.9%	8.6%	20.5%
	% of Total	18.1%	2.3%	20.5%
	Standardized Residual	1.546	-2.529	
>2%<5%	Count	40[a]	9[a]	49.00
	Expected Count	35.68	13.32	49.00
	%within category	81.6%	18.4%	100.0%
	% within Incentive / motivation	16.1%	9.7%	14.3%
	% of Total	11.7%	2.6%	14.3%
	Standardized Residual	0.724	-1.185	
>5%<10%	Count	38[a]	16[a]	54.00
	Expected Count	39.32	14.68	54.00
	%within category	70.4%	29.6%	100.0%
	% within Incentive / motivation	15.3%	17.2%	15.8%
	% of Total	11.1%	4.7%	15.8%
	Standardized Residual	-0.210	0.343	
>10%	Count	109[b]	60[a]	169.00
	Expected Count	123.04	45.96	169.00
	%within category	64.5%	35.5%	100.0%
	% within Incentive / motivation	43.8%	64.5%	49.4%
	% of Total	31.9%	17.5%	49.4%
	Standardized Residual	-1.266	2.072	
TOTAL	Count	**249.00**	**93.00**	**342.00**
	%within category	**72.8%**	**27.2%**	**100.0%**

[a] 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.32.
[b] The standardized statistic is -4.071.

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Appendix VII: Regression results alternative method

The following provides the regression results for model using equation (5) (level):

Dependent variable: EC t		2009		2010		2011		2012		2013		2014		2015		2016		2017	
	Predicted sign	Coeff.		Coeff.		Coeff.		Coeff.		Coeff.		Coeff.		Coeff.		Coeff.		Coeff.	
		B	t	B	t	B	t	B	t	B	t	B	t	B	t	B	t	B	t
(Constant)		0.122	12.468 ***	0.065	8.437 ***	0.019	3.230 ***	0.034	5.517 ***	0.055	8.453 ***	0.025	4.292 ***	0.020	3.210 ***	0.035	5.974 ***	0.053	7.253 ***
EC t-1	+	0.085	8.101 ***	0.459	26.211 ***	0.751	42.500 ***	0.544	37.555 ***	0.536	34.225 ***	0.706	39.711 ***	0.843	53.771 ***	0.682	45.880 ***	0.556	35.583 ***
ATO t	-	0.000	-1.137	0.000	0.243	0.000	-1.526	0.000	-0.950	0.000	0.155	0.000	-0.915	0.000	0.824	0.000	-0.553	0.000	0.132
ACCRUALS t-1	-	-0.024	-2.092 **	-0.204	-16.726 ***	-0.453	-23.120 ***	-0.383	-17.109 ***	-0.396	-21.261 ***	-0.220	-9.312 ***	-0.395	-16.985 ***	-0.370	-29.495 ***	-0.323	-13.455 ***
ACCRUALS t	+	0.359	15.544 ***	0.620	27.846 ***	0.431	18.732 ***	0.687	30.779 ***	0.524	26.076 ***	0.535	27.467 ***	0.591	33.387 ***	0.616	31.263 ***	0.710	29.444 ***
△SALES t	+	0.085	8.257 ***	0.088	5.469 ***	0.085	8.794 ***	0.104	8.480 ***	0.060	7.822 ***	0.053	4.179 ***	0.084	8.369 ***	0.009	0.701	0.033	15.276 ***
NEG_△SALES t	+	0.183	5.430 ***	0.023	0.643	0.126	4.159 ***	0.184	4.960 ***	0.328	8.321 ***	0.174	5.019 ***	0.104	3.257 ***	0.295	7.148 ***	0.218	5.076 ***
Basic Materials	n/a	0.033	1.524	0.034	2.054 **	0.052	4.436 ***	0.037	2.967 ***	0.036	2.745 ***	0.036	3.207 ***	0.001	0.107	0.064	5.465 ***	0.040	2.752 ***
Communications	n/a	0.019	1.194	-0.004	-0.302	0.012	1.233	0.020	2.014 **	0.012	1.088	0.014	1.499	0.004	0.397	0.011	1.178	0.030	2.487 **
Consumer, Cyclical	n/a	0.001	0.078	-0.007	-0.647	0.014	1.741 *	0.009	1.102	-0.001	-0.110	0.008	0.972	-0.007	-0.778	-0.003	-0.425	-0.006	-0.543
Consumer, Non-Cyclical	n/a					0.024	3.192 ***	0.019	2.434 **	0.002	0.207	0.003	0.352	0.002	0.204	0.010	1.249		
Energy	n/a	0.072	3.157 ***	-0.058	-3.091 ***	0.063	4.887 ***	0.066	4.597 ***	0.068	4.535 ***	-0.034	-2.633 ***	-0.011	-0.716	0.061	4.048 ***	0.084	4.818 ***
Financial	n/a	0.005	0.152	0.051	1.665 *	0.027	1.202	0.032	1.268	0.043	1.492	0.010	0.427	0.036	1.299	0.011	0.500	-0.035	-1.182
Industrial	n/a	-0.004	-0.293	-0.004	-0.436													-0.012	-1.160
Real Estate	n/a	-0.043	-1.675 *	0.041	1.957 *	0.049	2.579 **	-0.008	-0.408	0.067	3.376 ***	0.072	4.434 ***	0.028	1.495	0.120	7.104 ***	0.084	4.421 ***
Technology	n/a	0.010	0.681	0.009	0.737	0.010	1.140	0.018	1.931 *	0.002	0.212	0.011	1.298	-0.017	-1.629	0.009	0.900	0.016	1.323
Utilities	n/a	0.059	1.887 *	0.042	1.634	0.033	1.757 *	0.027	1.406	0.057	2.813 ***	0.001	0.064	-0.007	-0.408	0.017	0.921	0.028	1.048
F-Stat			43.415 ***		141.691 ***		200.293 ***		284.239 ***		144.636 ***		273.534 ***		404.541 ***		346.147 ***		213.138 ***
R²			0.452		0.723		0.757		0.816		0.692		0.814		0.868		0.853		0.781
N			805		832		979		977		983		953		935		910		914

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level (two tailed t-test is used)

The following provides the regression results for model using equation (6) (change):

		2009		2010		2011		2012		2013		2014		2015		2016		2017	
Dependent variable: ΔEC t	Predicted sign	Coeff. B	t	Coeff. B	t	Coeff. B	t	Coeff. B	t	Coeff. B	t	Coeff. B	t	Coeff. B	t	Coeff. B	t	Coeff. B	t
(Constant)		0.049	6.876 ***	0.075	10.076 ***	0.018	3.147 ***	0.026	4.417 ***	0.046	7.354 ***	0.024	4.201 ***	0.022	3.615 ***	0.035	5.936 ***	0.049	6.876 ***
EC t-1	-	-0.410	-25.996 ***	-0.595	-40.128 ***	-0.247	-13.874 ***	-0.394	-29.494 ***	-0.425	-27.258 ***	-0.293	-16.405 ***	-0.125	-7.390 ***	-0.319	-21.503 ***	-0.410	-25.996 ***
Δ EC t-1	-	0.027	7.810 ***	-0.043	-7.855 ***	0.018	4.895 ***	0.052	10.165 ***	-0.044	-7.174 ***	0.000	0.016	-0.100	-15.558 ***	-0.021	-1.677 *	0.027	7.810 ***
Δ ATO t	+	0.000	0.424	0.000	0.453	0.000	0.027	0.000	0.001	0.000	0.332	0.000	-0.362	0.000	1.116	0.000	0.088	0.000	0.424
ACCRUALS t-1	-	-0.308	-13.212 ***	-0.152	-11.637 ***	-0.465	-23.823 ***	-0.293	-12.848 ***	-0.394	-21.558 ***	-0.220	-9.340 ***	-0.468	-22.569 ***	-0.360	-25.457 ***	-0.308	-13.212 ***
ACCRUALS t	+	0.685	29.052 ***	0.470	16.256 ***	0.438	19.200 ***	0.636	29.352 ***	0.533	27.747 ***	0.536	27.472 ***	0.562	31.444 ***	0.612	30.878 ***	0.685	29.052 ***
Δ SALES t	+	0.033	15.498 ***	0.110	6.922 ***	0.077	7.863 ***	0.093	8.290 ***	0.109	12.144 ***	0.053	4.054 ***	0.088	9.013 ***	0.014	1.115	0.033	15.498 ***
NEG_ Δ SALES t	+	0.212	5.083 ***	-0.035	-0.995	0.136	4.484 ***	0.194	5.511 ***	0.253	6.592 ***	0.174	4.966 ***	0.111	3.611 ***	0.295	7.163 ***	0.212	5.083 ***
Basic Materials	n/a	0.026	1.798 *	0.034	2.118 **	0.047	4.028 ***	0.026	2.213 **	0.032	2.543 **	0.037	3.236 ***	0.001	0.100	0.063	5.441 ***	0.026	1.798 *
Communications	n/a	0.032	2.701 ***	-0.009	-0.725	0.012	1.306	0.020	2.078 **	0.010	0.929	0.014	1.469	0.005	0.485	0.011	1.152	0.032	2.701 ***
Consumer, Cyclical	n/a	-0.005	-0.546	-0.014	-1.282	0.014	1.753 *	0.009	1.131	-0.003	-0.303	0.008	0.962	-0.012	-1.394	-0.004	-0.463	-0.005	-0.546
Consumer, Non-Cyclical	n/a					0.024	3.243 ***	0.018	2.398 **	0.002	0.236	0.003	0.369	0.001	0.138	0.009	1.195		
Energy	n/a	0.088	5.198 ***	-0.041	-2.234 **	0.068	5.275 ***	0.041	2.991 ***	0.050	3.483 ***	-0.034	-2.604 ***	-0.004	-0.277	0.066	4.293 ***	0.088	5.198 ***
Financial	n/a	-0.034	-1.199	0.066	2.180 **	0.026	1.181	0.009	0.393	0.029	1.040	0.011	0.435	0.029	1.070	0.011	0.474	-0.034	-1.199
Industrial	n/a	-0.011	-1.094	-0.012	-1.220													-0.011	-1.094
Real Estate	n/a	0.081	4.391 ***	0.061	2.938 ***	0.045	2.417 **	-0.018	-0.902	0.070	3.627 ***	0.072	4.461 ***	0.053	2.960 ***	0.120	7.107 ***	0.081	4.391 ***
Technology	n/a	0.014	1.179	0.003	0.263	0.010	1.163	0.016	1.802 *	-0.002	-0.222	0.012	1.313	-0.020	-1.982 **	0.009	0.894	0.014	1.179
Utilities	n/a	0.025	0.985	0.044	1.753 *	0.035	1.889 *	0.018	0.964	0.046	2.358 **	0.002	0.089	-0.008	-0.460	0.017	0.939	0.025	0.985
F-Stat			187.855 ***		244.905 ***		155.815 ***		691.776 ***		307.684 ***		74.056 ***		340.496 ***		215.913 ***		187.855 ***
R²			0.770		0.828		0.722		0.920		0.836		0.559		0.856		0.795		0.770
N			914		832		978		979		981		953		934		910		914

* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level (two tailed t-test except is used)