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A Two-tale Test of IFRS 3's Implications on Swedish Mergers and Acquisitions

**Has the transition to an indefinite life of Goodwill changed managers acquisition
behavior and the acquisition performance?**

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Abstract

In this thesis we aim to answer two questions: (i) has the implementation of IFRS 3 changed manager's acquisition behavior; (ii) and does it have an impact on acquisition performance? The implementation of IFRS 3 in 2004 materially changed the way acquisitions are accounted for and reviewed. Advocators argue for increased transparency and accountability for M&As subsequent performance, while others fear increased managerial discretion. Although we are not able to make a clear-cut settlement in the tug-of-war between the two opposing sides of IFRS 3, our results show tendencies of managers being more negligent when acquiring post-IFRS, whereas less so if acquiring larger companies. While operating cash flow performance is ameliorated, the effect is mitigated when incorporating the price tag of the acquisition, which is further supported by a negative short-term stock market reaction. Altogether, our results are inconclusive with no apparent winner over managerial acquisition behavior and acquisition performance.

Keywords: *Mergers and Acquisitions, IFRS 3, Goodwill, Discretion Potential, Signaling Theory*

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1. Introduction

“...the amount amortised in any given period can at best be described as an arbitrary estimate of the consumption of acquired goodwill during that period”

- International Accounting Standards Board (2004)

The way acquisitions are accounted for and reviewed changed materially with the implementation of IFRS 3 in 2004. Instead of the systematic amortization previously in use, the carrying amount of goodwill is to be tested annually for impairment. The change, spurred by international convergence after SFAS 141 and 142 was introduced in the US, sought to be more representative of the underlying reality and thereby more informative.

As accounting aims to depict the underlying reality of a company, it can be said to serve as a map. Merely redrawing the map does not change the actual landscape being depicted. Similarly, differences in accounting for goodwill should not have a real economic effect. However, the previous national differences in accounting for goodwill were deemed to be unfair, as comparability was reduced and research even showed that some goodwill treatments resulted in a competitive advantage when engaging in Mergers and Acquisitions (M&A) (Choi, Lee 1991). Thus, could it be that the regulatory accounting changes prompt a different behavior among managers?

Moreover, accounting serves as an informative bridge between financial statements users and managers. When promulgating the standard, standard setters argued for a signaling theory. They proposed that a more value-based goodwill measurement would allow managers to convey better information regarding investments' future cash flows (FASB). However, opponents argued that the standard increased the potential for discretion with regard to estimating the recoverable amount of goodwill. When used opportunistically as agency theory predicts, it allows managers to reduce the timeliness of goodwill impairments (Ramanna, Watts 2012).

This divergence in opinion regarding the economic consequences of IFRS 3 illustrates two opposing camps within accounting for goodwill. On the one hand, standard setters argue that the previous method of amortizing goodwill is arbitrary and does not convey the true picture of the firm. Literature supporting the signaling theory deems the impairment-only regime to be more value relevant, by linking goodwill balances to stock market prices (Sahut et al. 2011). Thus, the change is assumed to facilitate for shareholders to judge the merit of the price paid and the intrinsic value of the acquisition (PwC 2005). Furthermore, Despinoy (2017) refers to the goodwill impairment regime as an “*exogenous shock to information asymmetry*,” that ought to reduce information asymmetry and increase manager's accountability.

On the other hand, those in favor of the methodical amortization argue that it holds managers accountable for both the price paid and subsequent expenditures for an acquisition. In addition,

Ramanna and Watts (2012) argue that the use of fair value in combination with unverifiable prices, as is the case of goodwill, increase the opportunistic behavior. Suggesting that the standard's discretion allows managers to conceal or delay communication regarding the performance of unfavorable M&A. As such, Johansson et al. (2016) reason that impairments of goodwill are poor indicators of acquisition performance.

To evaluate the impact of these opposing theories, we intend to evaluate the effects of IFRS 3 on M&A performance. Does it matter if goodwill is impairment tested or amortized mechanically over its assumed useful life? The agency theory proposes that the success of a transaction is partly contingent on the level of information asymmetry between managers and owners. If the signaling theory holds, increased transparency through the impairment-only approach will limit self-interest induced transactions and pressure managers to be more thorough in their M&A transactions. On the contrary, if the embedded discretion potential is used opportunistically, the standard allows managers to be less accountable for their acquisitions and diverge more in their transactions from the shareholder maximization agenda.

In this study, we investigate the potential effects of IFRS 3 on manager's acquisition behavior and compare the performance of acquisitions before and after the standard was introduced. We employ an accounting-based study and complement and contrast our findings by investigating the stock market reaction between the two periods. While we are not able to make a clear-cut settlement in the tug-of-war between the two opposing sides of IFRS, our results show tendencies of managers being more negligent when acquiring post-IFRS, whereas less so when acquiring larger companies. While operating cash flow performance is ameliorated, the effect is mitigated when incorporating the price tag of the acquisition, which is further supported by a negative short-term stock market reaction.

Purpose

This thesis investigates whether the introduction of IFRS 3 and the abolishment of amortization have affected the way managers acquire and the subsequent performance of these transactions.

Although accounting aims to provide a mere description of the underlying reality, could it be that it also shapes manager's behavior and acquisition performance? Our research is based on a comparison between acquisitions conducted by Swedish listed firms on the Stockholm Stock Exchange before and after the introduction of IFRS 3. We draw inspiration from Healy et al. (1992) and similar studies measuring acquisition performance based on both accounting ratios and stock market reactions.

“Has the introduction of IFRS 3 prompted a different kind of acquisition behavior.”

and

“Is the introduction of IFRS 3 associated with a change in acquisition performance.”

Contribution

Our thesis contributes to the existing body of literature in three ways. Most studies investigating the implications of the impairment-only regime have been conducted in a US setting, examining the effects of SFAS 141 and SFAS 142. However, in the US, the useful economic life of goodwill amounted to 40 years. It is therefore interesting to monitor the effects in a Swedish setting where the economic life was considerably shorter, and the effect may be more evident. Secondly, while a large body of literature has investigated the value-relevance of the impairment-only regime, little research has been conducted in the M&A field regarding the impact on how managers transact. Thirdly, we conduct a comprehensive assessment of acquisition performance, including both accounting and stock market studies with various performance measures and investigation periods. Former literature only investigated the impact of IFRS 3 on acquisitions by considering stock market reactions (Despinoy 2017).

Delimitations

This thesis only considers the implications following the abolishment of amortization of goodwill. Thus, it will not consider effects following IFRS 3 (revised), that represents the second phase in the standard revision process with the main change being the possibility to choose between the partial and full goodwill in stepwise acquisitions. Furthermore, as our sample only consists of listed targets, the generalizability of our conclusions is only applicable to these types of acquisitions.

2. Previous literature & Hypotheses

The following section starts off by declaring the changes following the IFRS 3 implementation regarding goodwill. We then present the theoretical framework and previous research in related areas to provide a foundation for the investigation of IFRS 3 on M&A activities. Finally, the hypotheses are formulated.

2.1 Previous literature

As IFRS 3 was influenced by the work conducted by the Financial Accounting Standard Board (FASB), our literature review will not only focus on IFRS, but also cover research conducted on SFAS 141 and 142.

2.1.1 IFRS 3 and the subsequent treatment of goodwill

The International Financial Reporting Standards (IFRS) defines goodwill as the excess amount of consideration paid over the fair value of identifiable net assets. Recognized goodwill is the combination of the going-concern element of the target and the fair value of expected synergies recognized in the purchase analysis. The first component refers to the ability of the target itself to earn a higher rate of return on its compiled assembly of net assets, compared to if the assets were held separately. The second is the unique value expected to be generated by combining the target and the acquirer (IFRS 3). In situations where these expectations of future synergies do not materialize, goodwill is considered a measure of overprice and a source for investigating acquisition performance (Despinoy 2017).

The way acquisitions are accounted for and continuously reviewed changed materially with the implementation of IFRS. Effective from 31 March 2004, IFRS 3 *Business Combinations*, the revised IAS 36 *Impairment of Assets* and IAS 38 *Intangible assets*, all represent a transition towards a more value-based framework. The aim is to enable users of the financial statements to assess the financial impact of business combinations and their subsequent performance (PwC 2005).

With the implementation of IFRS 3, the amortization-and-impairment approach of goodwill was abandoned for the impairment-only regime. In accordance with IAS 36, the carrying amount of goodwill is to be tested annually for impairment. The impairment test compares the book value in a cash-generating unit to its corresponding recoverable amount, with an impairment charge being recognized in profit and loss (IAS 36). In addition to the mandatory annual tests, the recoverable amount is measured whenever there is an indication of impairment needed. Thus, in this process of determining the recoverable amount of goodwill, the standard integrates a fair value assessment (PwC 2005).

Before IFRS 3, goodwill was systematically amortized over a specific number of years, representing its useful life. It follows the logic of allocating the cost that secured the generated income over the period it is consumed (Seetharaman et al. 2004). While some deem the systematic amortization procedure

irrelevant, as it does not reflect the performance of the acquisition, others argue that the amortization-approach make the managers accountable for their expenditures on goodwill (Ramanna 2008; IFRS 3, DO9).

As the useful life of goodwill cannot be measured with reliability, the board decided to assign goodwill an indefinite life in combination with annual impairment testing in the new standard (IFRS 3, BC 140). However, since it is not possible to separately determine what is considered purchased goodwill and internally generated goodwill, a consequence of the standard is, therefore, the indirect recognition of internally generated goodwill (Johansson et al. 2016). Thus, the carrying goodwill will only be impaired if it is higher than the initially recognized goodwill, in combination with enhancements, such as expenditure on marketing and customer relations.

2.1.2 IFRS 3 - reducing information asymmetry

“Amortization is regarded as arbitrary and unreflective of the economics of goodwill depreciation”
- Ramanna (2008)

Under the amortization regime, goodwill is reduced to a mere synthetic accounting value unaffected by the development of the acquisition (Ramanna 2008). As goodwill amortization expenses are not considered valuable information when analyzing investments, the impairment-only approach aims to reflect the underlying economics of goodwill better (FASB).

Standard setters argued for a signaling theory, proposing that a more value-based goodwill measurement would allow managers to convey better information regarding investments' future cash flows (FASB). In accordance with standard setters, PwC (2005) stated that goodwill levels post-IFRS 3 are assumed to facilitate for shareholders to judge the merit of the paid premium as well as the intrinsic value of the acquisition.

A large body of literature has consequently investigated the value-relevance of the impairment-only regime. In general, literature has deemed goodwill balances to be more value-relevant under IFRS 3 in the eyes of the shareholders (Chalmers et al. 2008; Su 2015; Hamberg et al. 2011; Sahut et al. 2011).

For example, studies have found positive associations between both goodwill and share prices as well as goodwill and post-acquisition operating performance (Sahut et al. 2011; Su, Wells 2015). Moreover, Chalmers et al. (2011) argue in favor of the standard as they found that the timeliness of impairment recognition better reflects the underlying investment opportunities. Although not finding any supporting evidence, Despinoy (2017) refers to the transition as an *“exogenous shock to information asymmetry”*. As enhanced transparency between shareholders and managers increase accountability, it would therefore pressure management to improve their acquisition performance.

2.1.3 IFRS 3 - information delusion by increased discretion

As goodwill is based on unverifiable prices, the impairment-only approach rests on managements' estimation of the recoverable amount of goodwill (Ramanna, Watts 2012). This discretion may allow managers to conceal or delay the communication regarding the performance of unfavorable M&As. Even more so, Ramanna and Watts (2012) also discovered an association between non-impairments and management compensation reinforcing managers reluctance to make impairments.

As IFRS 3 did not impose stricter impairment tests, Hamberg et al. (2011) discovered that, when compared to the combined levels impaired and amortized before the implementation, impairments are considerably reduced. An explanation could be the delayed effect Hayn and Hughes (2006) found on US data, where goodwill impairments lag an average of 3-4 years behind economic impairments. As investors might interpret impairments as an indication of overprice for the associated business acquisition, managers are inherently reluctant to make impairments. Hence, regardless of SFAS 142's supposed increased value relevance, investors fail to anticipate the untimely goodwill balances, and systematically overvalue firms with overstated goodwill balances (Li, Sloan 2017). Thus, the discretion is argued to have real effects as shown by the mispricing of securities.

Another issue with the standard is its inability to separate purchased goodwill from internally generated goodwill. Consequently, internally generated goodwill is indirectly recognized and counteract the transparency regarding acquisition performance. As stated by Johansson et al. (2016), the buffer created by internally generated goodwill protects goodwill from being impaired. Thus, impairment and goodwill levels are poor indicators of acquisition performance.

Even though accounting is intended to show a mere reflection of the underlying economics, previous research has found that accounting rules change the way in which firms acquire. Ayers et al. (2002) show that acquisitions, where the pooling method was used¹, tend to have higher takeover premiums.

2.1.4 Agency theory

It is assumed that acquisitions intend to create and realize synergies such as economies of scale, market power and increased efficiency in managing resources. However, deviations from the assumed intention of shareholder value maximization can be explained by the agency theory.

Agency theory builds on the contractual relationship where one party (the principal) delegates decision-making authority to another party (the agent) to perform on the former's behalf (Jensen, Meckling 1976). Problems arise when the principal and agent diverge in their interests and risk attitude. In situations where it is difficult to monitor the principal, it becomes a typical moral hazard problem. In a

¹ A method previously used that led to no goodwill nor amortization expenses.

business setting, the agency relationship exists between the shareholders (principal) and the company executives (agents) (Jensen, Meckling 1976; Eisenhardt 1989).

Previous literature in the acquisition context has investigated managers' endeavor to maximize their own utility at the expense of shareholder wealth. Harford and Li (2007) demonstrate that the acquiring firm's CEO stock option compensation tends to increase regardless of acquisition performance. Consequently, compensation might be a decisive factor for engaging in acquisitions as they seem overly appealing to CEOs. In line with the hubris theory, Malmendier and Tate (2008) argue that excessively self-confident CEO's overestimate their capability to generate benefits of the acquisition. Consequently, managers overpay acquisition premiums and undertake value-destroying acquisitions.

In public firms, the major monitoring mechanism is the board of directors (McNichols, Stubben 2015). However, the effectiveness of the board is conditioned on the information available. Furthermore, Hope and Thomas (2008) categorize financial disclosure as a monitoring mechanism and find that value-destructive activities increase when disclosure quality is reduced. Consequently, investors' fail to link managerial decisions to the performance of the firm, and managers can make more suboptimal decisions (Hope, Thomas 2008).

These findings imply that M&A performance is dependent on incentives and pressure mechanisms affecting the managerial behavior. Then the question remains if IFRS 3 has contributed to increased pressure through improved transparency or if the discretion potential within the standard has offset its initial purpose.

2.1.5 Measuring M&A performance

According to shareholder value theory, managers are only supposed to engage in value-generating projects. To gauge if managers are acting accordingly, studies measuring the performance of M&As have engaged academia for decades. Typically, the research has been divided between stock market studies and accounting studies.

When measuring M&A performance, a short-term market study is deemed to be the most statistically reliable method under the assumption that markets are efficient and instantaneously incorporate expected value changes (Mitchell et al. 2001; Mandelker 1974; Langetieg 1978). The short-term study measures performance by examining the stock price reaction for a specific event using cumulative abnormal returns (CAR). The method accumulates the abnormal return of daily stock market returns over a short event-window of a couple of days up until a few months.

Although the short-term studies were statistically reliable, a growing body of research found that the abnormal returns persisted over several years following the event. Research by Mitchell et al. (2001) even showed that the negative long-term drifts outweighed any positive market reactions to the

announcement. Barber and Lyon (1997) therefore argue that short-term results could be due to misspecification rather than mispricing. To capture the full abnormal stock price return, scholars increased the event window to 3-5 years. The methodology and statistical reliability regarding long-term event studies have been debated heavily. However, two approaches are favored by scholars as the most reliable, Buy-and-Hold Abnormal Returns (BHAR) and Calendar Times portfolio (CTIME). They share many characteristics seeing that both are based on forming a portfolio and measuring its return performance. Although, the CTIME is argued to overcome most of the statistical problems that the BHAR suffers from and thus making it superior, it has been argued to be sensitive to heteroscedasticity. However, one solution to mitigate the issue of heteroscedasticity is by using a Weighted least square regression instead of the traditional OLS regression (Fama, French 1993; Lyon et al. 1999).

Given that market studies capture investors' expectations going forward the market method is criticized as it has a limited potential of attributing equity value gain to either real economic gain or market inefficiency (Healy et al. 1992). Chatterjee and Meeks (1996) argue that both market- and accounting-based studies should yield consistent results as they supposedly reflect post-acquisition cash flows. Thus, if M&A activities have real effects, gains should be captured in firms' cash flows (Mitchell et al. 2001). However, there has been little success in linking the equity value gain to operating performance, as market studies are found to show positive performance results while earnings based accounting studies tend to show a drearier picture (Caves 1989).

While some research argues that accounting ratios investigate the real materialized value following acquisitions, others argue that the method is subject to noise from disturbing events, unrelated to the acquisitions (Haleblian et al. 2009). Hence, accounting-based measures allow for assessing the overall performance of a firm but fail to specifically measure the effect of a particular acquisition.

2.2 Test logics and hypothesis

This thesis is divided into two parts to investigate if the change to impairment testing under IFRS 3 has affected acquisition behavior and performance after M&A activities.

As accounting aims to depict the underlying reality of a company, it can be said to serve as a map. Merely redrawing the map does not change the actual landscape being depicted. Similarly, the change to impairment testing does not have a real economic effect. Consequently, managers that act rationally should theoretically not change their behavior.

Before the change, the income statement was burdened with an amortization expense immediately after the acquisition. As most synergies rarely appear immediately and may even be negative in early years, an acquisition could result in severe negative effects on the reported earnings (Schuster 2017). Moreover, numerous managers complained that the amortization regime was unfair as different countries allowed different economic life of goodwill. Thus, some companies looked more profitable than others, and the amortization expense served as a restriction. Consequently, target companies that increase cash flows immediately to counter the negative amortization are hypothesized to be favored under the amortization regime.

In previous research on how the differences in national accounting practices affect managerial behavior, Choi and Lee (1991) show that countries with favorable goodwill regulations (immediate write-offs compared to annual amortization) can offer a higher premium. However, this competitive advantage in bidding for companies may result in purchasing at a too high price. Furthermore, Ayers et al. (2002) find results in line with Choi and Lee (1991) as in a previous setting where no amortization was used, acquisition premiums also increased. Similarly, Hope and Thomas (2008) argue that in cases of reduced disclosure quality, managers engage in more value-destroying projects. Thus, indicating that managers are irrational and may in fact act on the regulatory changes. Although the purpose of accounting is to show a mere reflection of the underlying economics, we hypothesize that the former regime worked as a hurdle, inducing acquisitions of a certain type. With the abandoning of amortization, IFRS 3 eliminated the amortization hurdle. Consequently, we hypothesize that managers will be less risk-averse and less restricted in their payment. We propose that managers act somewhat irrational and our first hypothesis is as follows:

The introduction of IFRS 3 has had an effect on target characteristics.

For our second hypothesis, we assume that the outcome of M&A transactions is contingent on managers' exposure to scrutiny. With the introduction of IFRS 3 and the abolishment of amortization, two opposing camps emerged regarding the subsequent effects of the standard.

On the one hand, the impairment test is assumed to reduce information asymmetry. Consequently, the standard facilitates for shareholders to judge the merit of the paid premium as well as the intrinsic value of the acquisition (PwC 2005). With improved financial transparency, managers are held more accountable for their performance which refrain them from choosing suboptimal actions. In such a case, we hypothesize acquisition performance to increase in the period following IFRS 3.

On the other hand, the standard transfers more responsibility to managers and their auditors when determining the recoverable amount of goodwill. If used opportunistically, information asymmetry is instead increased, allowing managers to evade accountability for their transactions (Ramanna, Watts 2012). Thus, agency theory predicts managers to pursue more transactions based on their personal agenda. In such a case, we hypothesize acquisition performance to be worse in the period following IFRS 3.

Thus, in our second hypothesis, we aim to compare the acquisition performance before and after the introduction of IFRS 3 to gauge if the abolishment of amortization has influenced the manager's acquisition behavior. Consequently, our second hypothesis is as follows:

The introduction of IFRS 3 has had an effect on acquisition performance in Sweden.

3. Research design

This section will start by explaining the variables used to investigate the characteristics of target companies in 3.1. Accounting-based methods used to investigate acquisition performance are presented in section 3.2, followed by Market-based methods in 3.3. In section 3.4 the control variables used in our models are described.

3.1 Target Characteristics

We start the study by investigating the characteristics of the target firms aiming to determine if the acquired targets have changed, but also the way firms acquire. Are there any indications that the transition to an impairment-only approach prompted a different type of acquisition behavior?

3.1.1 Variables

Below we will state our assumptions and the expected outcome regarding the variables. However, they are highly speculative, and as our hypothesis is to observe any change in characteristics, we will perform two-tailed tests for each variable. All variables are specified in Table 3.1.1.

Profile

With the abandonment of the amortization expense, the pressure to immediately generate cash flow to offset the expense was reduced. We therefore hypothesize that less mature firms will be acquired and the willingness to take on more risky companies increases. We proxy IMMATURITY by measuring targets capital expenditures (CAPEX), and research and development expenses (R&D) as these are indicators of expansion. Note, however, that in the calculation of this measure, Banks and Real Estate companies are excluded since CAPEX and R&D expenses are not deemed to be a good proxy of immaturity for these sectors. For riskiness, we use the variables VOLATILITY and LEVERAGE.

Suppose there was a hurdle that promoted acquisitions of relatively profitable targets before the implementation. Could it be that the abandonment of goodwill amortization removed the hurdle, thus, allowing for less profitable targets to be acquired? With this in mind, we investigate profitability as measured by $\overline{ROE}$ and $\overline{ROCE}$.

If increased, SIZE illustrate that larger targets or higher premiums for the targets are present after IFRS 3 was implemented. Thus, indicating more spending on acquisitions. If decreased it would indicate that smaller and possibly younger targets are acquired.

Premiums

To monitor the amount of value bound to future performance, and how speculative the acquisitions are, we use M/B (Market values to Book values) as a proxy.

Since the excess value is no longer amortized and shown immediately, it may allow companies to spend more when acquiring. To get an indication of the premiums paid we investigate the variable DV/B (Deal Value to Book value).

MV4W/B (Market Value 4 weeks before the announcement to Book value) tells us to what extent the deal value can be explained by the market value closer to the announcement. Has the M/B come closer to the DV/Book when being measured four weeks prior announcement, and can thus the premium be somewhat explained by the more current M/B?

Furthermore, $EBITDA/(DV+ND)$ shows the acquirers' valuation of the target based on operating profit before depreciation and amortization. Hence, a low (high) number would indicate that the price for EBITDA has increased (decreased).

EPS Enhancement

The difference between EPS of the target compared to the acquirer is investigated to give an indication if alternative motives may drive acquisitions. A common motive for acquiring targets with higher EPS is to boost acquirer's own EPS in order for managers to reach bonuses. Therefore, EPS of the acquirer before and after the acquisitions are monitored. We acknowledge that there are several steps not investigated when only monitoring these two variables to establish if companies engage in earnings enhancement, but they are included as an indication of such schemes.

Table 3.1.1 Variable Specification

Variable	Specification
VOLATILITY	Standard deviation of Target stock price return between the months t-13 to t-1
LEVERAGE	$\frac{(Long\ term\ debt_t + Short\ term\ debt_t - Cash\ \&\ Cash\ equivalents_t)}{Total\ assets_t}$
IMMATURITY	$\frac{(Capital\ expenditures_t + Research\ and\ Development\ expenses_t)}{Total\ assets_t}$
$\overline{ROE}$	$\frac{1}{3} \sum_{t=-3}^{-1} \frac{Net\ income\ available\ to\ common\ shareholders_t}{Total\ assets_t - Total\ liabilities_t - Preferred\ shares_t}$
$\overline{ROCE}^2$	$\frac{1}{3} \sum_{t=-3}^{-1} \frac{Earnings\ before\ interest\ and\ taxes_t}{(Total\ assets_t - Operating\ liabilities_t)}$
SIZE ³	$\frac{Market\ capitalization\ equity^4\ of\ Target_{beginning\ of\ announcement\ year}}{Market\ capitalization\ equity\ of\ Acquirer_{beginning\ of\ announcement\ year}}$
M/B ⁵	$\frac{Market\ capitalization\ equity\ Target_{beginning\ of\ announcement\ year}}{Book\ value\ of\ equity\ Target_{beginning\ of\ announcement\ year}}$
M4W/B	$\frac{Market\ capitalization\ equity\ Target_{4\ weeks\ prior\ to\ Announcement}}{Book\ value\ equity_{end\ of\ announcement\ year}}$
DV/B	$\frac{Deal\ value}{Book\ value\ equity_{end\ of\ announcement\ year}}$
EBITDA/(DV+ND)	$\frac{(Earnings\ before\ Interest, Taxes, Depreciation\ and\ Amortization)_t}{(Deal\ value + Long-term\ debt_t + Short-term\ debt_t - Cash\ \&\ Cash\ equivalents_t)}$
$EPS_{A,post} - \overline{EPS}_{A,pre}$	$EPS\ Acquirer_{t+1} - (\frac{1}{3} \sum_{t=-3}^{-1} EPS\ Acquirer_t)$
$\overline{EPS}_T - \overline{EPS}_A$	$(\frac{1}{3} \sum_{t=-3}^{-1} EPS\ Target_t) - (\frac{1}{3} \sum_{t=-3}^{-1} EPS\ Acquirer_t)$

² Operating Liabilities is defined as Other short-term liabilities (non-interest bearing) and Accounts payables. Other short-term liabilities include accrued expenses, deferred income tax provisions (treated as tax payables), and other short-term (non-interest bearing) liabilities not included as a portion of Accounts payable or Short-Term Borrowings.

³ In cases when the market capitalization increased by 100% or more, total assets were used.

⁴ Market Capitalization equity is defined as Share price x Shares outstanding, adjusted for dividends, stock splits and buybacks.

⁵ To avoid incorporating the expected outcome of the acquisition, we use the market value at beginning of announcement year.

3.1.2 Test for Hypothesis 1

Independent two-sample z-tests is used to determine if the difference in the sample means of the targets in the two periods are statistically different from zero. Using the central limit theorem, a normal distribution of the sample means may be approximated⁶, thus allowing us to use the Z-test (Newbold et al. 2013).

$$z = \frac{(\bar{x} - \bar{y})}{\sqrt{\frac{\sigma_x^2}{n_x} + \frac{\sigma_y^2}{n_y}}} \text{ approx } \sim N(0,1)$$

Where:

$(\bar{x} - \bar{y})$: Difference between the two means.

σ_x^2 and σ_y^2 : Variance of the two populations, proxied by our sample variances.

n_x and n_y : Sample size.

Albeit the tentative predictions, we use a two-tailed test statistic as the main question is if there is any change between the two periods. If the difference between the means is significant at the 10% level and different from zero, the null hypothesis is rejected:

$$H_0: \mu_1 - \mu_2 = 0 \quad H_1: \mu_1 - \mu_2 \neq 0$$

3.2 Accounting Studies measuring Acquisition performance

Previous research has been divided between absolute and relative performance models. The absolute model compares the average performance before and after the acquisition. The relative model benchmarks the average performance both before and after an acquisition to a control sample before making the comparison.

We will investigate acquisition performance using three models, one absolute and two relative performance models (further explained in 3.2.2-3.2.5). We commence by defining our performance measures in 3.2.1 and then continue to our different models.

3.2.1 Performance measures

Four performance measures are used in this study, ROE, ROCE, CF/CE, CF/MV, representing different aspects of performance. Opening balances are typically used for the capital base in the measures, however with regard to the available data; such a restriction would severely limit the number of observations. Thus, closing balances are used for all measures. A summary of the impact the acquisition has on the performance measures is found in Table 1.A in Appendix.

⁶ To approximate the distribution of sample means by the normal distribution, a large sample is required. A sample size of n=25 or above is considered large (Newbold et al. 2013).

To make the two samples comparable across periods, the profitability measured after IFRS 3 is adjusted for amortization of goodwill. Swedish GAAP varied in its recommendations over the first sample period from initially ten years and later five years with the possibility of an estimated useful life of twenty years. We use ten years as this seems like a reasonable estimate for a blended useful life of goodwill after examining acquirer's annual reports⁷.

$$ROE = \frac{\text{Net Income available to common shareholders}_{i,t}}{\text{Total assets}_{i,t} - \text{Total liabilities}_{i,t} - \text{Preferred shares}_{i,t}} \quad (1)$$

ROE is a ratio closely followed by analysts and used to evaluate management's ability to generate returns to shareholders. As ROE is subject to firm-specific effects, such as the companies' financial position and acquisition financing, it may, therefore, be misleading to compare firms based on this measure solely.

$$ROCE = \frac{\text{Earnings Before Interest and Taxes}_t}{\text{Total assets}_t - \text{Operating liabilities}_t} \quad (2)$$

ROCE is a refined version of the ROA. Instead of measuring Earnings before interest and taxes (EBIT) to all assets of the company, capital employed provides an operating perspective of the capital in use. Supported by Barber and Lyon (1996), operating income, defined as EBIT, excludes the effects from financing, non-recurring items, income taxes and minority interest and is thus a cleaner measurement of operating asset productivity than net income.

$$CF/CE = \frac{\text{Sales}_t - \text{COGS}_t - \text{SG\&A}_t + \text{Depreciation}_t + \text{Goodwill exp.}_t}{\text{Total assets}_t - \text{Operating liabilities}_t} \quad (3)$$

$$CF/MV = \frac{\text{Sales}_t - \text{COGS}_t - \text{SG\&A}_t + \text{Depreciation}_t + \text{Goodwill exp.}_t}{(\text{MV equity}_t + \text{BV Net debt}^9_t + \text{Preferred stock}_t)} \quad (4)$$

Cash flow measures are used to make a comparison between the periods possible without making any amortization adjustments and assumptions of economic useful life of goodwill. Furthermore, Chatterjee & Meeks, 1996, argue that accounting methods distort profitability-measures, as it may show improved profitability when companies engage in creative goodwill practices. This distortion is more likely when using a limited research period since counter effects such as reversals often fall outside the research period. Consequently, using cash flow measures may correct for this and be a purer measure to analyze.

⁷ "Depreciation rates vary depending on the type of asset: goodwill, at present from 5 to 20 percent" - NCC Annual Report (1996).

⁸ Operating liabilities is defined as Accounts payable and Other short-term non-interest-bearing liabilities.

⁹ Net debt is defined as Long-term debt and Short-term debt less Cash & Cash equivalents.

Cash flows are scaled by capital employed (3) and market value of assets (4) to be comparable over time and across firms. Compared to book values, market values include intangible assets and assets kept off-balance and are hence not distorted by accounting policy choices (Powel, Stark 2005). However, as market values are forward-looking, they are adjusted at acquisition announcement to incorporate the subsequent effects, assuming that markets are efficient. Consequently, the return will be offset by the revised market values. Healy et al. (1992) corrected for this by excluding equity value changes between the announcement and the effective date of acquisition. However, market values are found to systematically decrease over the years following the acquisition, thus making the post-acquisition performance return bias upwards (Agrawal 1992). We have therefore chosen to use the computed market value of assets for each year up until announcement and then subsequently hold them constant.

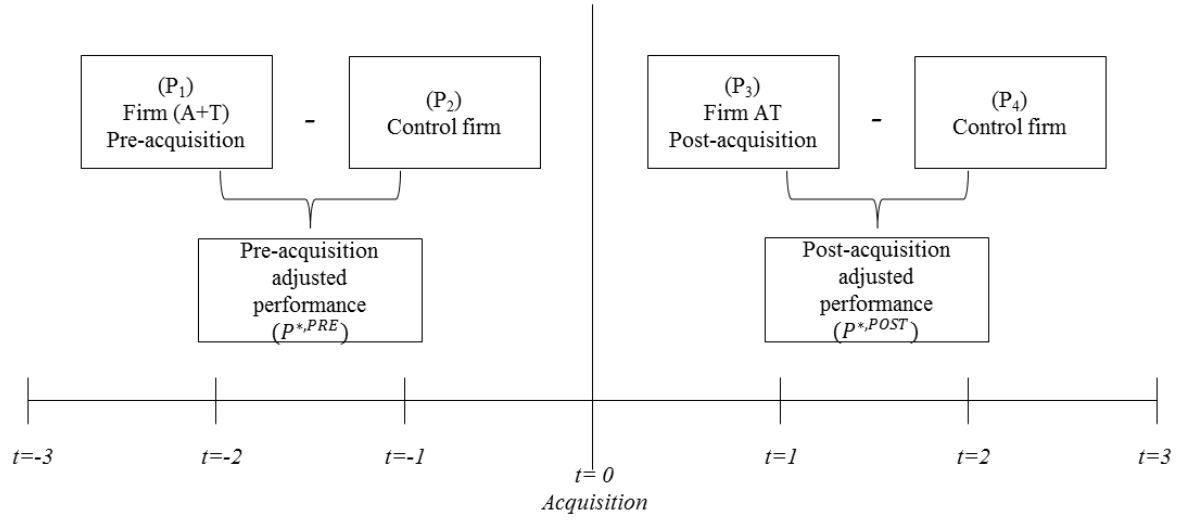
To ensure the long-term acquisition impact is captured, a five-year window before and after an event has historically been deemed optimal (Bild 1998). However, due to the limited available data, a five-year investigation period would reduce the number of observations considerably. Also, Sharma and Ho (2002) argue that such an extended period would increase spurious effects from interfering events. As a result, the investigation period is restricted to three years prior and post an acquisition.

3.2.2 Measure control-adjusted performance

To measure the control-adjusted performance, used in 3.2.4 and 3.2.5, we create a hypothetical firm before the announcement consisting of the Acquirer and the Target. The performance of the acquirer (A) and target (T) is added together (P_1), to create the performance of the hypothetical firm for the pre-acquisition period. The performance of the matched control firm (P_2) is then subtracted from the combined performance each year, resulting in the control-adjusted performance before acquisition ($P^{*,Pre}$). After the acquisition, the performance of the merged firm (P_3) less the control firm performance (P_4) results in the control-adjusted post-acquisition performance ($P^{*,Post}$). The mean value of the three years of control-adjusted performance for each acquisition is then used in a regression¹⁰. This procedure is summarized in Figure 3.2.2 below.

¹⁰ When using the performance measure ROE, we have assumed that all transactions are financed by equity in the period t-3 to t-1. This may suppress the profitability in the period before the acquisition and consequently show acquisitions to be more value-enhancing than they really are, if not financed through stock.

Figure 3.2.2: Methodology of control-adjusted performance



3.2.3 The Raw Model

To test if acquisition performance has changed between the periods of investigation we start by using an absolute model, which we call *The Raw Model* (5). We regress the average performance in the post-acquisition period with the average performance in the pre-acquisition period together with selected control variables (further explained in section 3.4). Pre-acquisition performance is the performance of the hypothetical firm, consisting of the combined acquirer and target. To control for market conditions, a dummy GLOOMY is used when the acquisition was conducted in years where OMX 30 declined more than 5% on an annual basis. Industry fixed effects are used to control for industry-specific factors.

The Raw Model

$$\bar{P}_{zi}^{Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \beta_6 GLOOMY_i + INDUSTRY_i + \varepsilon_{zi} \quad (5)$$

Where:

$\bar{P}_{zi}^{Post}$: Average post-acquisition performance for acquisition i , $t+1$ to $t+3$.

$\bar{P}_{zi}^{Pre}$: Average pre-acquisition performance for acquisition i , $t-3$ to $t-1$.

IFRS: Dummy equal to 1 if acquisition is performed post-IFRS.

CASH: Dummy equal to 1 if acquisition is financed with cash.

RELATED: Dummy equal to 1 if target and acquirer share 2-digit SIC codes.

SIZE: Target size relative to Acquirer.

GLOOMY: Dummy equal to 1 if OMX30 < -5% on an annual basis during the year of the acquisition.

INDUSTRY: Industry fixed effects.

z : Performance measures (ROE, ROCE, CF/CE, CF/MV).

The coefficient β_1 is the determinant for any effect dependent on the change to IFRS 3. If positive (negative), the acquisitions are more value generating (destroying) in the IFRS period. β_2 represents to what extent the performance after an acquisition can be explained by the performance before. The intercept α represents the acquisition-induced performance increase (decrease) independent of pre-acquisition performance.

If the estimated coefficient for IFRS is statistically significant at the 10% level and different from zero, the null- hypothesis is rejected.

$$H_0: \beta_1 = 0 \quad H_1: \beta_1 \neq 0$$

3.2.4 Control adjusted Model

The second model uses a research methodology proposed by Healy et al. (1992) with a slight modification. We use control firms rather than industry averages when benchmarking the performance before and after the acquisition. This is because we want to compare our sample performance to firms not engaging in transactions rather than outperforming the industry.

Control adjusted Model

$$\bar{P}_{zi}^{*,Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{*,Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \varepsilon_{zi} \quad (6)$$

Where: :

$\bar{P}_{zi}^{*,Post}$: Average post-acquisition control-adjusted performance for acquisition i , t+1 to t+3.

$\bar{P}_{zi}^{*,Pre}$: Average pre-acquisition control-adjusted performance for acquisition i , t-3 to t-1.

$IFRS$: Dummy variable equal to 1 if acquisition is performed post-IFRS

z_i : Performance measurement (ROE, ROCE, CF/CE, CF/MV)

The performance measures are benchmarked against control-firm performance to adjust for industry and economy-wide effects. The measurement of control-adjusted performance is further explained in section 3.2.2. The control variable CASH, RELATED and SIZE are explained in section 3.4.

If the estimated coefficient for IFRS is statistically significant at the 10% level and different from zero, the null- hypothesis is rejected.

$$H_0: \beta_1 = 0 \quad H_1: \beta_1 \neq 0$$

3.2.5 Control adjusted Change Model

The third accounting model is proposed by Ghosh (2001), who illustrates the issue of using *The Control adjusted Model* (6) when the acquirer systematically outperforms control firms in the pre-acquisition era. In cases of temporary effects causing superior performance, the two models will yield identical results. However, if the outperformance is due to permanent effects, such as increasing returns to scale, *The Control adjusted Change Model* (7) will show unbiased results, while *The Control adjusted Model* (6) will be positively biased. Acquisitions commonly take place after a period of superior performance. Thus, these are probably temporary as competitive forces eliminate abnormal profits. Permanent factors could be linked to size as acquiring firms tend to be larger than the average firm. Regarding increasing returns to scale, larger firms tend to be more profitable than small (Ghosh, 2001). In an attempt to correct for this, the matching procedure is based on size rather than benchmarking towards an industry average. However, other permanent factors may exist that motivate the use of the change model. Additionally, another reason for using the change model is to relax the assumption of a linear association between the post- and pre-acquisition performance.

Control adjusted Change model

$$\Delta \bar{P}_{zi}^* = \alpha + \beta_1 IFRS + \beta_2 CASH_i + \beta_3 RELATED_i + \beta_4 SIZE_i + \varepsilon_{zi} \quad (7)$$

Where:

$\Delta \bar{P}_{zi}^*$: Change between the average control adjusted performance before and after the acquisition.

IFRS: Dummy variable equal to 1 if acquisition is performed post-IFRS.

The control variable CASH, RELATED and SIZE are further explained in section 3.4.

If the estimated coefficient for IFRS is statistically significant at the 10% level and different from zero, the null- hypothesis is rejected.

$$H_0: \beta_1 = 0 \quad H_1: \beta_1 \neq 0$$

3.3 Market studies measuring Acquisition performance

Another way to study the impact of IFRS 3 on acquisition performance is to conduct market studies measuring the stock price performance of the Acquirer. Although a short-term event study is considered more robust, studies have shown that the full effect of a transaction may not be incorporated within the short-run event window. Therefore, we compare the results of the short-run event study with a long-term event study to see if any reversals or continued price increases occur.

3.3.1 Short-term event study Acquirer

We employ Brown and Warner (1985) 's modified model using a market model as a comparison for measuring the cumulative abnormal return over the event windows covering the announcement of a transaction. By first predicting the expected return of a firm both prior and after an announcement and comparing that to the actual return we can determine an abnormal return and subsequently the CAR, as shown in equations (8) to (10). The abnormal return is calculated as follows:

Abnormal return

$$AR_{it} = R_{it} - E(R_{it}) \quad (8)$$

Where:

AR_{it} : Abnormal return of acquirer *i* at day *t*.

R_{it} : Continuously compounded return of acquirer *i* at day *t*.

$E(R_{it})$: Expected return of acquirer *i* at day *t* calculated via the Fama-French-Carhart four-factor.

Model (9).

As we are interested in any change in the stock price performance irrespective of the size of the company, we use an equal-weighted Fama-French-Carhart four-factor model to capture the equally weighted effect. The factor portfolios are constructed as zero-investment portfolios, mimicking the excess market return, size (small minus big), market-to-book (high minus low) and the momentum for stock returns over one year (Carhart 1997).

$E(R_{it})$ in (8) is calculated using the Fama-French-Carhart four factor model as follows:

$$E(R_{it}) = R_{f,t} + \beta_{1,i}(R_{m,t} - R_{f,t}) + \beta_{2,i}SMB_t + \beta_{3,i}HML_t + \beta_{4,i}MOM_t \quad (9)$$

Where:

$E(R_{it})$: Expected return of the acquirer i at day t .

$R_{f,t}$: Risk-free return (1-month Swedish T-bill).

$(R_{m,t} - R_{f,t})$: Return of the market index less the risk-free rate at day t .

SMB_t : Return difference between two portfolios based on market capitalization, small minus big at day t .

HML_t : Return difference between two portfolios based on their book-to-market ratio, high minus low at day t .

MOM_t : The momentum factor constructed as the equal weighted average of firms with the highest 30 percent eleven-month return lagged one month less the equal weighted average of firms with the lowest 30% eleven-month return lagged one month.

All abnormal returns calculated in (8) over the event window are summed up into one cumulative abnormal return for each acquirer and event window follow the CAR calculation:

$$CAR_i(t_1, t_w) = \sum_{t=t_1}^{t_w} AR_{it} \quad \text{where } t_1 = -5 \text{ and } t_w = \text{event window length.} \quad (10)$$

In accordance with MacKinlay (1997), event windows are constructed to surround the event it studies to capture reactions both pre- and post-event such as leakage. An event window length of (-5,5) is primarily used, with complementary longer event windows of (-5,30) and (-5,60) days. Furthermore, the cumulative abnormal return is subsequently regressed using the following model:

$$CAR_i = \alpha + \beta_1 IFRS + \beta_2 CASH_i + \beta_3 RELATED_i + \beta_4 SIZE_i + \beta_5 GLOOMY_i + \varepsilon_i \quad (11)$$

Where:

CAR_i : Is the cumulative abnormal return for acquirer i .

$IFRS$: Dummy variable equal to 1 if acquisition is performed post-IFRS.

$GLOOMY$: Dummy equal to 1 if $OMX30 < -5\%$ on an annual basis the year of the acquisition.

The control variable CASH, RELATED and SIZE are further explained in section 3.4.

If the estimated coefficient for IFRS is statistically significant at the 10% level and different from zero, the null- hypothesis is rejected.

$$H_0: \beta_1 = 0 \quad H_1: \beta_1 \neq 0$$

3.3.2 Long-term event study

In this approach, a *Calendar times portfolio* (CTIME) is created in both periods, and the performance is tracked in relation to the Fama-French-Carhart four-factor model in Equation (13). The portfolio is created such that any company performing a transaction during the years 1993-2001 and 2005-2013 are included in an event portfolio. As companies announce a transaction they are included in the event

portfolio. The companies remain in the event portfolio for two years following the announcement. Once they reach the two-year limit they are dropped from the event portfolio. Consequently, the event portfolios are rebalanced each month to drop the firms that reach the two-year limit while simultaneously adding the firms that recently announced a transaction (Mitchell, Stafford 2000).

The event portfolios monthly excess return is calculated as an equal-weighted portfolio for each month using the formula where:

$$R_{p,t} = \frac{1}{N_t} \sum_{i=1}^{N_t} R_{it} \text{ where: } N_t = \text{number of acquirers } i \text{ in the event portfolio at month } t. \quad (12)$$

The portfolio excess returns are then regressed using the Fama-French-Carhart four-factor model as follows:

$$R_{p,t} - R_{f,t} = \alpha + \beta_1 IFRS + \beta_2 (R_{m,t} - R_{f,t}) + \beta_3 SMB + \beta_4 HML + \beta_5 MOM + \beta_6 GLOOMY + e_{p,t} \quad (13)$$

Where:

$R_{p,t} - R_{f,t}$: Observed return of the portfolio less the risk-free rate at month t .

$R_{m,t} - R_{f,t}$: Return of the market index less the risk-free rate at month t .

GLOOMY: Dummy equal to 1 if OMX30 < -5% on an annual basis the year of the acquisition.

The intercept α captures the event portfolios average monthly abnormal return. Any effect of the implementation of IFRS will be captured by the coefficient β_1 .

If the estimated coefficient for IFRS is statistically significant at the 10% level and different from zero, the null- hypothesis is rejected.

$$H_0: \beta_1 = 0 \quad H_1: \beta_1 \neq 0$$

3.4 Control variables

To control for other variables than IFRS that have an impact on acquisition performance, control variables are included in the selected models.

CASH is a dummy variable taking the value of 1 if the acquisition has been financed with cash. Using shares as a payment method is considered an indicator that managers of the acquiring firm believe they are overvalued (Mitchell et al. 2001, Ghosh 2001). Consequently, cash payment is considered signaling a more successful acquisition.

RELATED is a dummy variable taking the value of 1 if target and acquirer have corresponding two-digit SIC codes. Previous research shows stronger profitability improvement in related takeovers (Healy et al. 1992). Acquisitions in related business fields are assumed more successful as sources of value creation such as synergies are more available in related areas (Bild 1998).

SIZE is the target size in relation to the acquirer. Previous studies investigating the effect of the relative size of the target to acquirer have shown inconclusive results. *SIZE* is computed using market capitalization of the target in relation to acquirer one year before the announcement. In extreme cases where market capitalization of the acquirer increased by 100% or more that specific year, total assets of the target and acquirer is used.

4. Sample

4.1 Sample Selection

The sample is divided into two periods, one covering M&A activities between 1993-2001 before IFRS 3 was implemented, and the other between 2005-2013, after Swedish firms had adopted IFRS 3.

Firstly, our sample only includes Swedish acquirers. Targets, however, can be of any nationality. Additionally, only listed acquirers and targets are used to facilitate for data collection. This resulted in an initial sample size of 320 in the first period, and 190 in the second.

Secondly, a holding requirement assuring acquirer's share in the target before the acquisition is below 20% and amounts to 100% after the acquisition is used. The first is used to assure that no income from associated companies appears in the income statement before the acquisition. Furthermore, as of the IFRS 3 (revised), business combinations are accounted for using either the full goodwill or the partial goodwill method, which results in different goodwill and non-controlling interest balances. As goodwill balances are used for calculating the "synthetic" amortization in the period after IFRS 3, the 100% limit assures comparison over periods. This reduces the sample to a size of 58 and 47 acquisitions respectively.

Thirdly, stepwise acquisitions satisfying the holding requirements, less than 20% before the acquisition, and 100% after, completed within one year are added to the sample.¹¹ This process increases the sample by 7 acquisitions in the first period and 4 in the second.

Fourthly, we require available data for three consecutive years before acquisition for targets, and three consecutive years before and after the acquisition for an acquirer to reliably calculate the performance effect of the acquisition. For 10% of the sample, data for only two years before the acquisition was found. This has been allowed in order to increase the sample size. In total, this process reduced the sample to a size of 32 and 37 acquisitions in the two periods.

Lastly, a size requirement is included to assure that the effect is visible. Target size relative to Acquirer's size is calculated as the market capitalization of equity one-year prior acquisition. In cases of peaking

¹¹ For the stock market study, the announcement date of acquisition leading to full consolidation was used.

market prices¹², total assets were used instead. Of the entire sample, 50% represent significant acquisitions where the relative size exceeds 20% of the acquirer. This criterion further reduced the sample to 31 acquisitions for the first period, and 29 in the second.

Table 4.1 Sample Selection

<i>No. firms meeting criteria:</i>	Pre-IFRS	Post-IFRS
All acquisitions by Swedish listed firms and listed targets 1993-2001.	320	
All acquisitions by Swedish listed firms and listed targets 2005-2013.		190
Holding requirement (< 20%; 100%).	58	47
Adding stepwise transaction fulfilling holding requirement under one year.	65	51
Eliminated due to lack of data pre- and post.	32	37
Eliminated due to size requirement. Companies less than 5% of the acquirer are eliminated.	31	29
<i>Total sample size</i>	31	29

For Deal characteristics and Industry distribution, see Table 2.A and 3.A in Appendix.

4.2 Control sample selection

Acknowledging that acquisition performance may be due to industry-specific and economy-wide factors, a control firm is used as a proxy for performance in the absence of an acquisition in the relative studies presented in sections 3.2.4 and 3.2.5.

In line with former research, the control firms have been selected based on industry and size (Neely, Rochester 1982, Barber, Lyon 1996, Sharma, Ho 2002). The combined market capitalization of equity of acquirer and target one year before the acquisition was used as a benchmark. In cases of peaking market prices, defined as when the market capitalization increases by 100% and more, total assets were used instead. Control firm size ranges between 5% and 157% relative to the size of the hypothetical combined firm. The sizes range is quite dispersed as the matching based on industry, as mentioned below, is considered more important criteria.

The industry is first and foremost matched on three-digit SIC codes (50% of the sample) based on the acquirer's industry belonging at the time of acquisition. With regard to the Swedish market size, some firms have been matched on two-digit SIC¹³ level (50%). Furthermore, in order to capture similar economy-wide factors, control firms have primarily been selected from the Swedish market. However,

¹² Defined as when the market capitalization increases by 100% or more.

¹³ Two-digit SIC codes are also regularly used to identify common economic characteristics, and does not capture less of similarities between firms with regard to sales, profit margin and stock market returns (Ghosh, Ho 2001).

the size of the Swedish market limits the number of companies of same size and industry as for example Assa Abloy. Thereby, for companies operating on an international level control firms have been extended to the Nordic and the European market. Lastly, the control firms are not allowed to engage in any transactions during the period of investigation (-3,3). However, a limit of 40% of the deal value when put in proportion to the target and acquirer's size at the time of acquisition has been permitted.

4.3 Data collection

M&A data was obtained using Thomson Reuters Eikon, while financial information was primarily retrieved from the Bloomberg terminal and complementary data was collected using Capital IQ, Compustat. For stock market studies, the estimation of the Fama-French-Carhart Factors on a Swedish sample has been collected from the Finbas provided by Swedish house of finance (Swedish House of Finance). Stock prices are adjusted for dividends, stock splits, rights issues, buy-backs and adjustment factors (Swedish House of Finance).

4.4 Descriptive Statistics Hypothetical firm and Actual Acquirer

Below we present descriptive statistics of our selected sample. Our hypothetical firm is the combination of the target and acquirer before the transaction which becomes the actual acquirer after the transaction.

We observe a distinct drop across all performance measures in the period following IFRS 3. This could be an indication that acquirers performed worse in the post-IFRS period than before. However, it is likely related to economy-wide effects, such as the financial crisis in 2008 (Eurostat 2017).

Table 4.4 Descriptive Statistics Hypothetical firm and Actual Acquirer

Performance Measure	Year	PRE-IFRS				POST-IFRS			
		Mean	Median	SD	Obs	Mean	Median	SD	Obs
<i>ROE</i> ¹⁴	<i>-3 to -1</i>	13.32%	15.99%	0.14	29	9.84%	13.9%	0.28	28
	<i>1 to 3</i>	7.75%	8.89%	0.17	29	3.74%	10.95%	0.34	28
<i>ROCE</i>	<i>-3 to -1</i>	10.79%	10.96%	0.11	31	5.42%	7.17%	0.14	29
	<i>1 to 3</i>	6.84%	6.86%	0.06	31	3.60%	5.36%	0.08	29
<i>CF/CE</i>	<i>-3 to -1</i>	15.63%	16.26%	0.11	31	10.99%	14.04%	0.13	29
	<i>1 to 3</i>	13.05%	13.28%	0.07	31	11.40%	11.65%	0.08	29
<i>CF/MV</i>	<i>-3 to -1</i>	11.92%	11.57%	0.10	31	6.67%	8.07%	0.09	29
	<i>1 to 3</i>	12.35%	11.40%	0.10	31	11.8%	10.92%	0.08	29

Table 4.4 summarizes mean, median and standard deviation statistics for the various performance measures employed. The pre-IFRS sample period is between 1993-2001, while post-IFRS is 2005-2013. For performance variable definitions, see section 3.2.2.

¹⁴ Three sample firms are excluded for regressions with ROE as they had missing Net Income values.

For ROE, a higher dispersion in values are identified in the period following IFRS 3. The higher median indicates that low performing outliers contribute to a negatively skewed sample. Also in the sub-period before IFRS 3, we identify a high standard deviation for ROE. This is expected as ROE is affected by the most firm-specific factors of the performance measures. Apart from ROE, the other performance measures seem to experience a sound behavior with relatively small standard deviations. Consequently, sample values are not driven by extreme observations.

The level of the performance measures are in line with the general market where we expect the ROE to be around 10% and ROCE a bit lower as it is measured with less firm-specific factors such as financing and accounting choices. The cash flow measures are as expected even higher as these do not take into account the depreciation and amortization of acquisitions. We can further note that in the period before IFRS 3, performance after the acquisition has declined for all measures except CF/MV. For the period after IFRS 3 we see similar tendencies. However, CF/MV is materially higher after acquisitions, and show the lowest standard deviation. Thus, our descriptives seem to show that acquisitions deteriorate value for our earnings-based measures, but the effect is not consistent when looking at cash flows.

4.5 Descriptive Statistics Targets

Reviewing the Profile-variables for our target firms, we see considerable variation in the standard deviations across the measures. However, as the standard deviations for the same measure for the two periods appear to be similar, we conclude that the data is equally dispersed.

Volatility in both periods shows high standard deviations, indicating a large dispersion across the measure. The difference in mean and median values, in both periods, indicates that the sample is subject to some extreme observations with high volatility. $\overline{ROE}$ experience higher deviations than $\overline{ROCE}$ and have extreme observations with low profitability as illustrated by the considerably lower mean values compared to the median. This is observed in both periods. Furthermore, the targets appear to be less leveraged in the second period, which could be an indication that less risky firms are acquired.

Table 4.5 Descriptive Statistics Target

Variable	PRE-IFRS				POST-IFRS			
	Mean	Median	SD	Obs	Mean	Median	SD	Obs
Profile								
VOLATILITY ¹⁵	0.63	0.38	0.77	30	0.56	0.34	0.59	27
LEVERAGE (%)	15.35%	14.40%	0.34	31	7.57%	2.66%	0.33	29
IMMATURITY	0.10	0.06	0.10	28	0.04	0.02	0.04	22
$\overline{ROE}$ (%) ¹⁶	5.86%	11.01%	0.32	29	0.74%	5.95%	0.26	28
$\overline{ROCE}$ (%)	6.41%	6.08%	0.22	29	4.31%	4.67%	0.15	28
SIZE (%)	36.70%	16.40%	0.63	31	45.60%	29.70%	0.72	29
Premiums								
M/B	2.32	1.52	2.42	31	1.88	1.43	1.27	29
M4W/B	1.89	1.67	1.13	30	1.99	1.33	1.58	27
DV/B	2.82	2.80	1.97	31	2.79	2.04	2.26	29
EBITDA/(DV+ND)	0.15	0.07	0.32	31	0.03	0.06	0.09	29
EPS Enhancement								
$EPS_{A,post} - \overline{EPS}_{A,pre}$ ¹⁷	-2.30	-0.43	11.16	31	-0.92	0.29	8.3	28
$\overline{EPS}_T - \overline{EPS}_A$	-1.10	0.25	10.13	31	3.49	0.11	16.7	28

Table 4.5 summarizes mean, median and standard deviation statistics for all variables used to investigate targets' characteristics. The pre-IFRS sample period is between 1993-2001, while post-IFRS is 2005-2013. For variable definitions, see section 3.1.

For the premiums, the sample values between the two periods seem to be unevenly spread out for the variables. For example, EBITDA/(DV+ND) show similar median values in the two sub-periods, while experiencing a higher standard deviation of (0.32) in the first period compared to (0.09) in the second. Furthermore, the high M/B in the pre-IFRS period seems to partly be driven by some extreme values. The lower value in the second period indicate that targets have more of their market value tied up in the book values and thereby less speculative acquisitions.

The EPS variables show very high levels of dispersion with a standard deviation of (11.16) in the pre-IFRS period and (8.3) in the post-IFRS period. This is however not surprising as this is dependent on how large the company is and how many shares outstanding it has. Two firms producing the same net income but varying size and number of shares outstanding will produce EPS's that may vary substantially.

¹⁵ Three targets are excluded from VOLATILITY and M4W/B due to infrequently traded shares.

¹⁶ Three targets are excluded due to values of $\overline{ROE}$ or $\overline{ROCE}$ > +100% or < -100%. However, when combined with acquirer for acquisition performance, they are included.

¹⁷ One target is excluded as no EPS data was found.

5. Results

Section 5.1 investigates if firms acquire differently compared to the period before the regulatory changes. In section 5.2 the acquisition performance is evaluated through accounting models, in section 5.3 the accounting models are complemented with a stock market study.

5.1 Target Characteristics Results

To answer our question if other companies are being acquired after the implementation of IFRS 3, we have looked at a multitude of characteristics presented in Table 5.1 below.

The introduction of IFRS 3 has had an effect on target characteristics.

Table 5.1 Descriptive Statistics Target

	PRE-IFRS	POST-IFRS	
Variable	Mean	Mean	Diff
Profile			
VOLATILITY	0.625	0.556	-0.069
LEVERAGE (%)	15.35%	7.57%	-7.80%
IMMATURITY	0.098	0.041	-0.057***
$\overline{ROE}$ (%)	5.86%	0.74%	-5.10%
$\overline{ROCE}$ (%)	6.41%	4.31%	-2.10%
SIZE (%)	36.70%	45.60%	8.80%
Premiums			
M/B	2.317	1.880	-0.436*
M4W/B	1.890	1.986	0.096
DV/B	2.821	2.787	-0.033
EBITDA/(DV+ND)	0.152	0.029	-0.123**
EPS enhancements			
$EPS_{A,post} - \overline{EPS}_{A,pre}$	-2.300	-0.923	1.646***
$\overline{EPS}_T - \overline{EPS}_A$	-1.102	3.489	4.592***

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Table 5.1 shows the results from the independent two-sample Z-tests. Testing the mean difference between our variables used to investigate targets' characteristics. The pre-IFRS sample period is between 1993-2001, while post-IFRS is 2005-2013. For variable definitions, see section 3.1.

Profile

Most variables fail to show statistically confirmed results, restricting us from making inferences. However, we can at a 1% significance level state that there is a drop (-5.7%***) in target IMMATURITY after IFRS 3 was implemented. Contrary to our initial prediction, targets are more mature by our definition. Furthermore, we see tendencies of a decrease in both the $\overline{ROE}$ and the $\overline{ROCE}$ measure, indicating that worse performing targets are acquired in the period after IFRS 3. However, this should be interpreted with caution as we see a related downward trend in the overall market conditions for the period after IFRS 3 (Eurostat 2017). Furthermore, we see no statistical difference in

neither VOLATILITY nor LEVERAGE. Hence, we cannot draw any conclusions about a change in the riskiness of targets.

Premiums

There appears to be a change in the premiums across the periods where targets with significantly lower (-0.436*) Market-to-Book values are acquired after the implementation of IFRS 3. This indicates that the book values explain more of the target's value compared to the period before implementation. This is a further indication that more mature targets are acquired as seen in the profile variables. The observed lower value of $(EBITDA/(DV+ND))$ however, indicates a higher valuation and that acquirers are willing to pay more per unit of EBITDA. Although not significant, tendencies of higher premiums are also visible in the difference between the M/B and DV/B values. As the difference between DV/B compared to M/B has increased between the periods, acquirers pay higher premiums. However, coming closer to the announcement of the acquisition, the difference in the premiums even out, as is illustrated by M4W/B compared to DV/B.

EPS enhancement

Although, acquiring targets with higher EPS compared to the acquirer, we can conclude that acquirer's fail to boost their EPS after an acquisition following the implementation of IFRS 3. As such we cannot conclude that any indications of EPS enhancement are apparent.

5.1.1 Hypothesis results: H1

We can conclude that the null hypothesis of no difference in mean values is rejected for five of the selected characteristics. We can thus identify that premiums appear to have increased between the two periods, while more or less the same type of companies is purchased, as most of the profile-variables are insignificant. This relation indicates that IFRS 3 may have spurred acquirers to transact differently. As a next step, we will investigate the performance development of the sample acquisitions to see if the increased premiums are motivated by increased value.

5.2 Accounting Models

This section will compare acquisition performance before and after the implementation of IFRS 3 using our selected performance measures and models. To make the two periods comparable, we assume an economic useful life of 10-years and construct a synthetic goodwill amortization to all acquisitions made after IFRS 3.

The introduction of IFRS 3 has had an effect on acquisition performance in Sweden, shown by accounting performance.

5.2.1 The Raw Model

Table 5.2 below shows that the performance before the acquisition explains much of the performance after, as illustrated by the significant $\bar{P}_{zi}^{Pre}$. We can also see that the intercept representing the *acquisition induced performance* is positive indicating that acquisitions are generating value for all regressions except ROE. Although the IFRS coefficient is insignificant, we see a tendency of a negative or neutral IFRS effect for the earnings-based measures, ROE and ROCE, while the effect is positive for the cash flow measures.

Table 5.2 The Raw Model

	ROE	ROCE	CF/ CE	CF/MV
Intercept	0.021 (0.082)	0.043** (0.017)	0.103*** (0.023)	0.063*** (0.015)
$\bar{P}_{zi}^{Pre}$	0.294 (0.217)	0.191** (0.080)	0.120 (0.085)	0.315*** (0.090)
IFRS	-0.005 (0.075)	-0.007 (0.019)	0.014 (0.016)	0.022 (0.014)
CASH	-0.059 (0.129)	0.016 (0.022)	0.026* (0.014)	0.017 (0.025)
RELATED	0.077 (0.045)	-0.008 (0.016)	-0.016 (0.018)	-0.013 (0.018)
SIZE	0.036 (0.047)	-0.004 (0.007)	-0.006 (0.007)	0.065*** (0.012)
GLOOMY	-0.123 (0.110)	-0.005 (0.024)	0.000 (0.019)	-0.020 (0.024)
Industry fixed-effects	Yes	Yes	Yes	Yes
Observations	57	60	60	60
R ² Within ¹⁸	0.111	0.171	0.165	0.454
F statistics	97.97***	13.00***	5.24***	107.11***

$$\bar{P}_{zi}^{Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \beta_6 GLOOMY_i + INDUSTRY_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 5.2 shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). The intercept represents the acquisition-induced performance. The $\bar{P}_{zi}^{Pre}$ is the unadjusted performances before acquisition. The IFRS-dummy, value of 1 if post-IFRS, shows the change in acquisition performance between two sample periods 1993-2001 and 2005-2013. The GLOOMY dummy takes the value of 1 if OMX30 < -5% on an annual basis during the year of acquisition. Industry fixed-effects are used. See section 3.7 for control variable definitions.

¹⁸ When Industry fixed-effects are used we display the R² within.

Furthermore, *CASH* shows positive tendencies across all regressions, except ROE, and is significant at a 10% level (0.026*) for CF/CE. Thus, our research provides further support for earlier research claiming that acquisitions financed by cash contribute to higher acquisition-induced performance. *SIZE* and *RELATED* show inconclusive results, while, *SIZE* is positive and significant for CF/MC, indicating that targets that are larger in relation to acquirer further contribute to better acquisition performance. This result is however not surprising as the Cash flow measures do not incorporate the price tag of the acquisition.

5.2.3 Descriptive Statistics Control adjusted sample

In table 5.2.3, we note a range of mean values between 0-3% in the years before acquisition (-3 to -1), in combination with low standard deviations. This seems to indicate a good match between the Acquirer and control firm, as they have approximately the same performance before the acquisition.

Table 5.2.3 Descriptive Statistics Control adjusted sample

Performance Measure	Year	PRE-IFRS				POST-IFRS			
		Mean	Median	SD	Obs	Mean	Median	SD	Obs
<i>ROE</i>	<i>-3 to -1</i>	0.26%	2.12%	0.22	29	-0.73%	-1.3%	0.58	28
	<i>1 to 3</i>	-2.25%	2.10%	0.34	29	-3.98%	-1.25%	0.63	28
<i>ROCE</i>	<i>-3 to -1</i>	2.6%	0.96%	0.17	31	-2.39%	0.52%	0.38	29
	<i>1 to 3</i>	0.55%	0.11%	0.14	31	-2.8%	-0.80%	0.44	29
<i>CF/CE</i>	<i>-3 to -1</i>	2.08%	1.19%	0.21	31	-0.62%	-0.69%	0.37	29
	<i>1 to 3</i>	-0.52%	1.12%	0.16	31	1.68%	0.40%	0.43	29
<i>CF/MV</i> ¹⁹	<i>-3 to -1</i>	3.02%	2.58%	0.09	31	1.98%	2.7%	0.12	28
	<i>1 to 3</i>	-0.05%	-1.67%	0.14	31	7.83%	3.2%	0.17	28

Table 5.2.3 summarizes mean, median and standard deviation statistics for the various performance measures employed. The pre-IFRS sample period is between 1993-2001, while post-IFRS is 2005-2013. For performance variable definitions, see section 3.2.2. Each measure is adjusted for control firm performance.

Across all measures we notice the same tendencies as when our performance measures are not adjusted for control sample performance, see table 4.4. Tentatively, the increase or decrease in performance after an acquisition is not solely explained by economy-wide or industry specific effects. The standard deviation across the measures are slightly increased when being benchmarked to control firms, especially so for ROE. This is expected as ROE is a more volatile and firm specific measure, and benchmarking based on size and industry may not be indicators of similar ROE values.

¹⁹ For CF/MV one acquisition has been excluded due to an extreme value of market capitalization equity and ND for a control firm. This resulted in a negative CF/MV and falsely made the acquiring firm positively bias. However, the acquisition is used for the other three measures as no extreme behavior in those values of the control firm was noted.

If looking at ROCE for the period pre-IFRS, we see that our sample firms outperform the control firm before acquisition (2.08%). They continue to do so even after the acquisition (0.55%), but less so, indicating that the acquisitions have been a value destructive transaction. In general, when looking at mean and median values, we see that acquisitions in both periods tend to have a negative or neutral impact on firm performance. However, in the post-IFRS period we see that both cash flow measures, CF/CE and CF/MV, generate higher performance compared to that of our control firms after the acquisition.

For CF/MV, we also recognize a large discrepancy between the mean (7.83%) and median (3.2%) in the post-IFRS period. This indicates that the mean value is subject to some high performing observations. As we see less difference in mean and median values in table 4.4 for CF/MV when not adjusting for control firms, this distinction might be due to poor matching, or alternatively, proper matching where the acquiring firm is superior due to the acquisition.

5.2.4 Control Adjusted Model

As the Control Adjusted Model benchmarks the acquirer's performance against that of a control firm with the intention to control for market-wide and industry-fixed effects, the dummies for market conditions and industry-fixed effects are dropped in the regressions.

Contrary to the results in the Raw Model, there is evidence of a value-destructive effect of acquisitions across all regressions, as shown by the intercept, although only significant for ROCE (-0.074*).

There appears to be a positive effect of IFRS on CF/MV measure which is significant (0.067**). Thus, indicating that acquisitions after IFRS 3, generate value, as the combined effect of the intercept and the IFRS coefficient is positive (0.0027). However, as the intercept (-0.041) is not significant, we can only with confidence state that the difference between the periods is positive for the post-IFRS period. Furthermore, we see that IFRS trends from being negative or neutral for the two earnings-based measures, to positive for the two cash flow measures.

A logical reason for the difference between the performance measures is that the two earnings measures incorporate the price paid for acquisitions with higher operating performance. This is the consequence of the amortization of goodwill which represents the price paid for future increased cash flows. Thus, a negative or neutral IFRS coefficient for ROE and ROCE could indicate that operating performance is more expensive after IFRS 3. The cash flow measures, however, disregard amortization both before and after IFRS 3 which allows acquirers to purchase increased profitability and hence generate more value after IFRS 3. Thus, when evaluating ROE or ROCE, the positive effects are countered by the high amortizations of buying at higher premiums.

Table 5.2.4 The Control Adjusted Model

	ROE	ROCE	CF/CE	CF/MV
Intercept	-0.075 (0.095)	-0.074* (0.043)	-0.059 (0.038)	-0.041 (0.033)
$\bar{P}_{zi}^{*,Pre}$	0.677** (0.265)	0.911*** (0.199)	0.892*** (0.202)	-0.028 (0.125)
IFRS	-0.036 (0.109)	0.002 (0.051)	0.033 (0.048)	0.067** (0.033)
CASH	-0.072 (0.116)	0.001 (0.040)	-0.018 (0.039)	-0.006 (0.032)
RELATEDNESS	0.011 (0.103)	0.031 (0.043)	0.02 (0.041)	-0.004 (0.032)
SIZE	0.181*** (0.053)	0.099*** (0.037)	0.0875*** (0.028)	0.121*** (0.021)
Industry fixed-effects	No	No	No	No
Observations	57	60	60	59
Adjusted R ²	0.256	0.677	0.685	0.265
F statistics	3.42***	7.00***	7.19***	5.18***

$$\bar{P}_{zi}^{*,Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{*,Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 5.2.4 shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). The intercept represents the acquisition-induced performance. The intercept represents the acquisition-induced performance. The $\bar{P}_{zi}^{*,Pre}$ is the control-adjusted performances before the acquisition. The IFRS-dummy, the value of 1 if post-IFRS, shows the change in acquisition performance between the two sample periods 1993-2001 and 2005-2013. See section 3.7 for control variable definitions.

The pre-performance factor explains the high R² values for ROCE and CF/CE. For ROCE, 68% of the variation in the control-adjusted performance after acquisition can be explained by the model. However, ROE and CF/MV show considerably lower R². One reason for this is that net income is measured further down in the income statement allowing for more non-operating posts to influence thus creating more variability over time. This is reinforced by the *Raw model* in 5.2, where no further explanatory value is found. Thus, the low explanatory value is due to the measure itself, rather than the matching methodology. However, a much higher R² is found for CF/MV in the *Raw Model*, in 5.2. A matching procedure based on industry and size may be poor indicators for similar market values. As market values are more or less firm-specific and forward-looking, our relative method may not be suitable for a ratio containing market values such as CF/MV.

In line with hypothesized impact, both SIZE and RELATED are positive across all return measures although the latter is not significant. Financing acquisitions with CASH show insignificant inconclusive results.

5.2.5 Control Adjusted Model with Interaction variable

Our results from the *Control-Adjusted Model* show that SIZE significantly ameliorates acquisition performance, i.e., the larger the acquisition is in relation to the acquirer, the better. As an additional step, we insert an interaction variable for IFRS and SIZE in the *Control-Adjusted Model* to see if this relationship has changed in the post period. If acquirers are prone to spend more and acquire larger companies when the amortization hurdle is removed, size may behave differently than before. Results are shown in Table 5.2.5.

Table 5.2.5 The Control Adjusted Model with Interaction Variable

	ROE	ROCE	CF/CE	CF/MV
Intercept	-0.046 (0.111)	-0.038 (0.038)	-0.033 (0.363)	-0.041 (0.036)
$\bar{P}_{zi}^{*,Pre}$	0.690** (0.269)	0.928*** (0.201)	0.899*** (0.207)	-0.019 (0.136)
IFRS	-0.086 (0.133)	-0.058 (0.053)	-0.011 (0.053)	0.070 (0.044)
CASH	-0.059 (0.122)	0.015 (0.038)	-0.009 (0.039)	-0.006 (0.032)
RELATED	-0.004 (0.109)	0.012 (0.042)	0.006 (0.041)	-0.002 (0.034)
SIZE	0.116 (0.073)	0.015 (0.031)	0.025 (0.031)	0.125 (0.025)
SIZE*IFRS	0.124 (0.111)	0.158*** (0.048)	0.117 (0.056)	-0.009 (0.052)
Industry fixed-effects	No	No	No	No
Observations	57	60	60	59
Adjusted R ²	0.249	0.701	0.695	0.251
F statistics	3.80***	8.58***	6.89***	17.54***

$$\bar{P}_{zi}^{*,Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{*,Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \beta_6 IFRS \times SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.
Robust standard errors are shown in brackets.

Table 5.2.5 shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). The intercept represents the acquisition-induced performance. The $\bar{P}_{zi}^{*,Pre}$ is the control-adjusted performances before the acquisition. The IFRS-dummy, the value of 1 if post-IFRS, shows the change in acquisition performance between the two sample periods 1993-2001 and 2005-2013. IFRS*SIZE is an interaction variable between the IFRS-dummy and SIZE. See section 3.7 for control variables.

The SIZE coefficient of (0.015) for ROCE, represents the positive effect of SIZE on post-acquisition performance before IFRS 3. However, by combining the effect of SIZE and the interaction variable SIZE*IFRS, the coefficient amounts to (0.173), suggesting that larger acquisitions generate more value after IFRS 3. However, as the interaction variable is the sole significant variable, we can only conclude that the difference itself is certain, and not the level. Consequently, managers appear to be more thorough when acquiring large firms after IFRS 3, while it is easier to be more negligent when buying

smaller. Thus, for larger firms, IFRS becomes positive, and show that acquisitions are value-generating, even when the price tag is taken into consideration.

5.2.6 Control Adjusted Change model

When employing the Change Model methodology proposed by Ghosh (2001), R^2 values are substantially lower. This is because the regression now aims to explain the change between the pre- and post-acquisition performance rather than the pre- and post-levels.

When using the *Control Adjusted Change model*, the acquisitions are more value destructive compared to the other models (see Table 4.A in Appendix for results). The results are significant for all measures except for ROE. Furthermore, IFRS experience the same tendencies as in previous models and SIZE appears to have a significant effect, thus we include an interaction variable. Results are illustrated in table 5.2.6 below.

Table 5.2.6 Control Adjusted Change model with Interaction Variable

	Δ ROE	Δ ROCE	Δ CF/CE	Δ CF/MV
Intercept	-0.053 (0.121)	-0.042 (0.039)	-0.044 (0.039)	-0.029 (0.04)
IFRS	-0.110 (0.141)	-0.057 (0.051)	-0.015 (0.051)	0.016 (0.047)
CASH	-0.066 (0.134)	0.0187 (0.041)	-0.000 (0.042)	-0.026 (0.038)
RELATED	-0.008 (0.121)	0.011 (0.044)	0.017 (0.046)	-0.008 (0.040)
SIZE	0.143* (0.076)	0.016 (0.032)	0.026 (0.033)	-0.037 (0.024)
SIZE*IFRS	0.176 (0.121)	0.165*** (0.054)	0.125** (0.055)	0.179*** (0.048)
Industry fixed-effects	No	No	No	No
Observations	57	60	60	59
Adjusted R^2	0.066	0.157	0.122	0.326
F statistics	4.67***	3.88***	3.24***	7.81***

$$\Delta \bar{P}_{zi}^* = \alpha + \beta_1 IFRS + \beta_2 CASH_i + \beta_3 RELATED_i + \beta_4 SIZE_i + \beta_5 IFRS \times SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 5.2.6 shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). The dependent variable, $\Delta \bar{P}_{zi}^*$ is the change in performance before and after the acquisition. The intercept represents the acquisition-induced performance. The IFRS-dummy, value of 1 if post-IFRS, shows the change in acquisition performance between two sample periods 1993-2001 and 2005-2013. IFRS*SIZE is an interaction variable between the IFRS-dummy and SIZE. See section 3.7 for control variables.

When using an interaction variable for the *Control Adjusted Change Model*, we can further support the claim that managers appear to be more thorough when acquiring large targets after IFRS 3, while more negligent for small targets, as the Interaction variable between *SIZE* and *IFRS* show significant positive results ranging from (0.125**) to (0.179***).

5.2.7 Hypothesis results: H2a

All in all, we are able to reject the null hypothesis and conclude that IFRS 3 has an effect on acquisition performance when using CF/MV. This is evident in both our control adjusted models at a 5% significance level. However, we fail to reject the null hypothesis for ROE or ROCE where amortization is taken into account, but observe a neutral to negative tendency. We can further see that IFRS is associated with increased acquisition performance for larger companies by observing our interaction variable that is significant at a statistical level, ranging from 1% to 5% depending on model and performance measure.

5.3 Market study performance

In this section, we will complement the results from our accounting models with the results of the stock market performance after the announcement of an acquisition. This will be presented in sections 5.3.1 using the short-term stock performance and in 5.3.2 using a long-term stock performance.

The introduction of IFRS 3 has had an effect on acquisition performance in Sweden, shown by stock market performance.

5.3.1 Short-term stock performance

The total sample of 59²⁰ acquisitions indicates that M&A transactions generate a (0.47%) average return over the event window -5 to 30 days of the announcement for the full period. However, by observing the sub-periods, we see that acquisitions pre-IFRS generated an average return of (4.39%) while the period after generated a negative average return of (-3.86%). Consequently, we see a difference of (8.2 %**) over the event window (For further illustration see density plot for CAR in Graph 5.A in Appendix).

Table 5.3.1.A Descriptive Statistics Short-term Stock performance

Event Window	PRE-IFRS				POST-IFRS				FULL PERIOD	
	Mean	Median	SD	Obs	Mean	Median	SD	Obs	Combined	Diff
(-5,5)	2.13%	1.94%	0.10	31	-0.04%	-0.25%	0.09	28	1.10%	2.17%
(-5-30)	4.39%	3.54%	0.14	31	-3.86%	-2.80%	0.13	28	0.47%	8.24%**
(-5,60)	2.17%	3.05%	0.18	31	-1.44%	-3.05%	0.18	28	0.46%	3.61%

Table 5.3.1.A summarizes mean, median and standard deviation statistics for the various performance measures employed. The pre-IFRS sample period is between 1993-2001, while post-IFRS is 2005-2013.

To state if the cumulative abnormal returns in the different periods can be separated from zero on a significant level of 10%, a z-test is conducted on each of the short-term event window lengths for each period separately and combined. We fail to reject the null hypothesis of cumulative abnormal returns being equal to zero for any of the periods.

²⁰ One acquirer is excluded due to insufficient trading data.

Although no rejection of the null hypothesis, we conduct a regression where CAR is used as the dependent variable to investigate if there is a change in acquisition performance after the implementation of IFRS 3. A dummy variable, IFRS, is used to make comparison possible.

Looking at the coefficients for IFRS, they all appear to be negative with a significant effect for (-5,30) of (-0.124**) indicating that acquisitions in the post-IFRS period have a negative effect on the stock price performance. From the IFRS coefficients we also see that the market is unable to react to the announcement during the short event-window fully, but subsequently are able to do so within the 30-day window. However, as the event window is extended the effect is likely affected by other events occurring in the longer event-windows, thus the effects fades away (-5,60).

Table 5.3.1.B Regression Short-term model

Event window length	(-5,60)	(-5,30)	(-5,5)
Intercept	0.087 (0.050)	0.072 (0.052)	-0.004 (0.029)
IFRS	-0.070 (0.066)	-0.124** (0.044)	-0.023 (0.043)
CASH	-0.070 (0.067)	-0.029 (0.019)	0.031 (0.045)
RELATED	0.003 (0.033)	0.008 (0.043)	0.037 (0.026)
SIZE	0.067 (0.050)	0.014 (0.032)	0.039** (0.013)
GLOOMY	-0.098 (0.056)	-0.022 (0.041)	-0.038 (0.035)
IFRS*SIZE	-0.076 (0.060)	-0.002 (0.050)	-0.043 (0.027)
Industry fixed-effects	Yes	Yes	Yes
Observations	59	59	59
R ² Within	0.210	0.233	0.152
F statistic	106.32***	10.62***	36.76***

$$CAR_i = \alpha + \beta_1 IFRS + \beta_2 CASH_i + \beta_3 RELATED_i + \beta_4 SIZE_i + \beta_5 GLOOMY_i + \beta_6 IFRS \times SIZE_i + \varepsilon_i$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test. Robust standard errors are shown in brackets.

Table 5.3.1.B shows the results from the OLS regressions of the dependent variable, cumulative abnormal return, using an event window size of (-5,60), (-5,30) and (-5,5) respectively. The IFRS-dummy, value of 1 if post-IFRS, shows the change in acquisition performance between two sample periods 1993-2001 and 2005-2013. The GLOOMY dummy takes the value of 1 if OMX30 < -5% on an annual basis during the year of the acquisition. IFRS*SIZE is an interaction variable between the IFRS-dummy and SIZE. See section 3.7 for control variables.

5.3.2 Long-term Stock Performance results

Table 5.3.2 shows the results from our equal weighted²¹ calendar times portfolio. The dummy for the IFRS indicates that the standard has no effect in the long run, or the effect is crowded out by other

²¹ Tests using a value-weighted portfolio have been performed and show results mostly in line with the above although weaker and less significant. However, as our hypothesis state, we only test for differences, not based on the size of the acquirer, which is why we only see this as a soundness test in our study.

events. The latter seems more probable as we saw a negative effect in the event window (-5,30) which was no longer evident when extending the window to (-5,60). The Jensen's alpha in the table shows that there is a statistically significant average monthly abnormal return of (-1.0%***) or (-12%) annualized, explaining that companies that engage in acquisitions on average perform worse than the market during the two years following the transaction.

Table 5.3.2 WLS Regression Long-term model

	FULL PERIOD	PRE-IFRS	POST-IFRS
JENSEN'S ALPHA	-0.010** (0.032)	-0.015** (0.014)	-0.003 (0.533)
IFRS	0.005 (0.345)	- -	- -
MARKET RISK PREMIUM	0.907*** (0.000)	0.890*** (0.000)	0.986*** (0.000)
SMB	0.142*** (0.009)	0.185*** (0.111)	0.126* (0.090)
HML	0.036*** (0.529)	0.060 (0.533)	-0.114 (0.382)
MOM	-0.109** (0.016)	-0.096 (0.122)	-0.163 (0.089)
GLOOMY	-0.008 (0.193)	0.000 (0.970)	-0.015* (0.087)
Industry fixed-effects	-	-	-
Observations	234	104	130
Adjusted R ²	0.662	0.714	0.592
F statistics	77.13***	52.64***	38.40***

$$R_{p,t} - R_{f,t} = \alpha + \beta_1 IFRS + \beta_2 (R_{m,t} - R_{f,t}) + \beta_3 SMB + \beta_4 HML + \beta_5 MOM + \beta_6 GLOOMY + e_{p,t}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test. Robust standard errors are shown in brackets.

Table 5.3.2 shows the results from the WLS regressions of the dependent variable, the event portfolio. The intercept (Jensen's alpha) represents the acquisition-induced performance. The IFRS-dummy, value of 1 if post-IFRS, shows the change in acquisition performance between the two sample periods 1993-2001 and 2005-2013. The model consists of RM-RF (monthly return of market portfolio less the risk-free rate, the market risk premium), SMB (Small minus big, the monthly size premium), HML (High minus low, the monthly premium of market to book ratios), MOM (the 1 year monthly premium of past winners minus losers). The factor portfolios are constructed as zero-investment portfolios, mimicking the excess market return, size (small minus big), market-to-book (high minus low) and the momentum for stock returns over one year (Carhart 1997). The GLOOMY dummy takes the value of 1 if OMX30 < -5% on an annual basis during the year of the acquisition.

The positive IFRS dummy does not show any significance for the period in full. However, we can observe a negative abnormal return in the first period. Although we do not have any significant results for the period after IFRS 3, there are indications that the mean abnormal return for acquirers is less negative after IFRS 3.

The market risk premium, SMB and Momentum factors all have a significant impact on the performance of the portfolio as illustrated in table 5.3.2. The fact that the general market risk premium and small minus big have an impact is not surprising considering that the risk associated with investing in stocks

and especially small stocks compared to larger stocks is riskier than investing in T-bills and warrant a higher expected return. Furthermore, the momentum factor shows significant negative results in the whole period and the period after IFRS 3. Thus, this means that acquirers in our portfolio that have performed well in previous periods will not continue to do so in the next period as the coefficient is negative.

5.3.3 Hypothesis results: H2b

To conclude, in the short-term, the market assesses acquisitions as less value generating after IFRS 3 was implemented. However, when investigating the long-term effect, the effect is no longer evident as IFRS no longer show significant results. Thus, we are able to reject the null hypothesis at a 5% significance level in the short-term and establish that IFRS 3 is associated with lower acquisition performance.

6. Analysis and Discussion

We commence this section by analyzing the results of the empirical tests. Additional tests for sensitivity purposes for our accounting model are then presented in section 6.2. The section ends with an evaluation of the research method in section 6.3.

6.1 Analysis of test results

This thesis intends to investigate, through various test methods, to what extent the introduction of IFRS 3 has influenced how companies transact and subsequently perform on the Swedish market. Compared to the results above, this section seeks to consolidate the different results to answer the aforementioned investigation question.

6.1.1 Analysis of Target Characteristics

As the methodical amortization of goodwill was abolished in IFRS 3, two opposing camps were formed. The Agency theory camp of IFRS 3 state that a contained discretion potential allows managers to conceal the performance of acquisitions thereby reducing accountability. The signaling theory camp however, states that an increased transparency results in limited agency costs where managers are limited from making acquisitions that do not make economic sense for shareholders. As a result, we hypothesize that managers acquisition behavior changed for example with regard to their risk appetite or what they consider reasonable to pay for an acquisition.

We can conclude that contrary to our predictions, targets are more mature by our definition. However, we are not able to state any differences concerning investors' attitude towards risk-taking, as the target characteristics such as volatility, leverage, and performance all show insignificant results. All in all, we do not find indications that targets with more uncertain cash flows or cash flows located further into the future are acquired as a result of the dropped amortization requirement. However, the usage of capital expenditures and research and development expenditures as a proxy for immaturity, may not capture the level of the targets immaturity. For example, the new wave of IT companies and start-ups may not be as heavy in these two aspects, and the variable may therefore not be representative.

However, we can identify a change in the way firms transact and in their value assessment of companies. The Market-to-Book values are lower after IFRS 3 was implemented, indicating that less value of the acquired companies lies in the future or is identified by the market. Irrespectively of the lower Market-to-Book values, we find that acquirers are more generous in their valuation of targets. They pay a higher price for less operating performance; thus, acquirers seem to be more generous after IFRS 3. This is in line with Ayers et al. (2002) that showed that when accounting methods without goodwill or amortization charges were used, the acquisition premiums went up.

In total, we can conclude that in some respects it seems like the targets in the two periods experience differences in their characteristics and how they are valued. This further supports an investigation if IFRS 3 also has affected acquisition performance.

6.1.2 Analysis of Acquisition performance

Initially, we employed three models to test for changes in acquisition performance, given the implementation of IFRS 3 using accounting ratios. Across all models, acquisitions generate more value on a cash flow basis than they did before IFRS 3. These predictions coincide with *the signaling theory*, where the new standard intends to convey the subsequent performance of acquisitions better. As *agency theory* predicts, increased disclosure quality and accountability pressure managers to conduct better transactions less guided by self-utility maximization (Hope, Thomas 2008).

However, these results are not to be assessed in isolation. When comparing the cash flow results with the results from the two earnings measures, IFRS is no longer significant and the effect is neutral or even negative. The two earnings measures provide a better picture of the effects of IFRS 3 as they take the price paid into consideration. However, in the absence of a significant result, we can only make tentative inferences that the premium paid offsets the increased cash flow generating ability in the period after IFRS 3. This is in line with our findings regarding increased premiums in the target characteristics. Thus, the negative or neutral IFRS coefficients are more in line with findings of Ramanna and Watts (2012) showing that discretion retained in the standard may be used opportunistically. The negative acquisitions in both periods, irrespective of IFRS, is aligned with *The Agency theory*, predicting that managers astray from maximizing shareholder value in favor of their own utility.

However, we note that the contained discretion is offset when conducting larger acquisitions. As supported by both of the *Control Adjusted Models*, our interaction variable *IFRS*SIZE* show positive values confirmed with a significance level of 1%. Managers appear to be more thorough when making larger acquisitions after IFRS 3. We believe this is the result of larger acquisitions being put under more scrutiny by investors thus, limiting the managerial discretion potential. Therefore IFRS 3 could induce more transparency and accountability when acquiring larger companies resulting in more profitable acquisitions.

When complementing our accounting results with the stock market studies, we find at a 5 % confidence level, that in the short term, the market has a more pessimistic view of acquisition after IFRS 3. However, when we expand the event window to two years, we are not able to distinguish any effects of the new regulations. Our results contradict earlier studies that showed consistent results between operating cash flows and stock market returns (Healy et al. 1992). The market's perception of acquisitions following IFRS 3 is more in line with the results from the earnings-based measures. For

ROE and ROCE, inconclusive results of either not generating any value or in fact destroying value was evident in our accounting studies warranting the negative CARs.

6.2 Sensitivity tests and additional tests

Three additional tests will be conducted to assess the results of our accounting based study. We will start off by questioning the use of mean values and then move on to the independent variable RELATED. The last test will assess the assumption of useful economic life of goodwill, which is used for the “synthetic” amortization expenses. Lastly, we will test for heteroscedasticity in our models.

6.2.1 Median values

Throughout the thesis, mean values have been used to get a more representative value for the company. However, mean measures are subject to extreme values. Thus, we have also used the median values²² of the performance measures ROE, ROCE, CF/CE and CF/MV in line with Healy et al. (1992). We find similar results when using median values with all coefficients having the same signs and only slight deviations in beta values. The results of these regressions are shown in table 6.A in Appendix.

6.2.2 Related

As stated in section 3.7, acquisitions, where target and acquirer operate in related fields, are assumed to create more value through synergies. In our employed models, “related fields” is defined as target and acquirer sharing same two-digit SIC codes. Our alternative model test for four-digit SIC code relatedness. Our results are not altered by the changed control variable. The results of these regressions are shown in table 7.A in Appendix.

6.2.3 Assumed useful economic life

Throughout the first sample period of acquisitions, 1993-2001, the Swedish market has been subject to several recommended regulations regarding estimated useful economic life for acquisitions. RR01:91, RR1:96 and RR1:00 call for an estimated economic useful life ranging from 5 years with a possibility to 20 years, or even an unspecified time horizon. In our test, we used 10 years as a blended economic useful life, which might have been a somewhat conservative number. To test for this assumption, we have conducted sensitivity tests using 5 and 20 years as a foundation for amortization expenses in the second period. Although these results do not show any significant levels, the signs of the IFRS coefficient shifts to negative for ROCE when switching the useful economic life to 5 years. However, this is on the extreme end that should produce the largest effect. If we instead apply a 20-year economic life, producing the smallest effect, we see that the coefficient becomes more positive. Thus, our investigation using 10 years, appears to be on the balancing point of where it weighs either to a negative or more positive effect. The results of these regressions are shown in table 8.A in Appendix.

²² The median value from the three years before acquisition, as well as the median value from the three years after acquisition is used.

6.2.4 Heteroscedasticity tests

For a model to render correct significance levels, the Ordinary Least Squares regression (OLS) builds on the assumption of homoscedasticity. The presence of heteroscedasticity occurs when the error terms in a regression vary with the values of the independent variable. This violation results in bias estimations of standard errors, and while the estimation of coefficients is unaffected, the regression may present incorrect significance levels for the aforementioned.

To control for heteroscedasticity on a statistical level, we test our models using Breusch and Pagan (1979) / Cook and Weisberg (1983) (B-P/C-W) with the null hypothesis of homoscedasticity. If we test for a p -value less than 0.05, we conclude that heteroscedasticity is a problem. As illustrated in Table 9.A in Appendix, we find inconclusive results. When regressing our stock market models as well as CF/MV in the *Control Adjusted Model*, the levels of heteroscedasticity are not considered a statistical problem. However, for ROE, ROCE and CF/CE we reject the null hypothesis of homoscedasticity. As the B-P/C-W test rests on the assumption of normally distributed errors, we review the skewness and kurtosis for our residuals. For the error terms to be normally distributed, skewness should be zero, while kurtosis should be approximately 3. The problem of non-normally distributed errors is most evident when using ROE. This may in its own right be an issue for the OLS results when using a small sample, more specifically for the t-tests for each coefficient and the F-test for the model as a whole.

In addition to the B-P/C-W test, that only test for linear heteroscedasticity and assumes normally distributed errors, we conduct a White test (1980). However, the White test will be considered with caution as it is sensitive to small sample sizes and significant test results may be caused by either heteroscedasticity or misspecification when including an interaction variable. The results of the White test render similar results as the B-P/C-W. As we are not able to reject heteroscedasticity for each model, we use Huber-White's standard errors throughout all regressions. For regressions regarding long-term stock market, we use weighted least squares, as further explained below.

Although the calendar times portfolio, used in our long-term stock market study, solves the problem with cross-sectional dependency²³, it comes at the cost of a few potential issues. First of all, it assumes an equal weight of factor loadings each month, which is problematic since the number of acquirers included in each calendar month varies depending on the event date. As the number of firms included in the portfolio varies through time, it may mean that the portfolio residual variance will vary through time as well, and result in heteroscedasticity. Secondly, as the calendar times weight each month equally it will weight months with low event activity the same as months with high activity. If there are differences of abnormal returns between months, the equal weighting will average these and they may be difficult to detect. We have therefore decided to mitigate this issue in our equal-weighted portfolio

²³ When returns across stocks correlate.

by using the weighted least squares with the number of acquirers in each month as weight ($\sqrt{n}$) (Mitchell, Stafford 2000, Lyon et al. 1999).

6.3 Research method discussion

In this section, we will acknowledge the criticism regarding the use of relative accounting studies to evaluate acquisition performance. We will then proceed to discuss the validity, reliability, and generalizability of our study.

6.3.1 Criticism of relative performance models

The criticism of the relative performance model, such as the two control-adjusted models in this thesis, can be summarized into four areas.

First and foremost, the logic behind a relative accounting model is to compare the performance of the entities involved in the acquisition, to the identical situation where no acquisition took place. This is done through a process of benchmarking the performance to a control sample. Thus, the selection process is crucial for the validity of the study (Mitchell et al. 2001). However, it builds on the heroic assumption that the acquirer would have performed like the control firm in the absence of an acquisition.

Secondly, the benchmarking towards a control sample is contingent on the assumption that the acquiring firms faced the alternative of carrying on as before in the absence of acquiring. In cases where the acquirer would not survive on a stand-alone basis, the control sample is not an adequate comparison (Bild, 1998). In these cases, alternative scenarios would include acquiring another target, being acquired or being exposed for bankruptcy.

Thirdly, the relative performances study says little regarding the absolute success of an acquisition. Hypothesize that both the acquiring firm and the control firm perform inadequately, and they continue to do so after the acquisition although the acquirer succeeds to increase returns. This acquisition would be deemed a successful acquisition, albeit not generating returns above the required rate. An alternative solution proposed by Bild (1998) would have been to classify acquisitions as successful if exceeding the cost of capital.

Fourthly, the investigated time span of three years may not suffice for acquisition gains or losses to materialize, hence three years may not be a representative period for the long-term success or failure of an acquisition (Sharma, Ho 2002).

6.3.2 Validity, reliability and generalizability

The validity of our research refers to the degree it investigated what it intended as well as the possibility to make inferences from our findings. First off, some variables used in our study are proxies. Thus,

uncertainty exists whether these variables measure what they intend. For example, our *IMMATURITY*-variable is a proxy using capital expenditures and R&D expenditures, which might not be representative indicators given today's asset-light start-ups. Furthermore, with regard to the first and second criticism in section 6.3.1, we have deemed all acquirers in our sample, in the absence of acquisition, to be able to continue their operations on a stand-alone basis. Hence, we deem it reasonable to benchmark their performance to a control sample. Furthermore, control sample criteria²⁴ have been selected to make the control firms as suitable as possible. Regarding the third and fourth criticism in section 6.3.1, we have complemented our study using market studies. We do however recognize that the market might experience inefficiency to some degree. Lastly, the use of Z-test throughout the study is based on a normal approximation. This approximation requires a large sample, and although $n=25$ or above is considered sufficient, it also depends on the distribution of the sample means which should be symmetric. If skewed, a somewhat larger sample is advocated. Consequently, our findings may be sensitive to the skewness of our sample means (Newbold et al. 2013).

In terms of reliability, the thesis' capability to generate consistent results and its possibility to be replicated is deemed high as little variation in results are found when conducting sensitivity tests, such as the use of median or changed economic useful life of goodwill. Furthermore, we have used established data sources such as Bloomberg Terminal and Finbas throughout the thesis. However, our accounting results are highly dependent on the matching procedure between acquiring firms and control firms. Although being consistent with our criteria, we recognize that results may diverge if replicated.

The generalizability of our study is restricted to acquisitions of listed targets, as these are only present in our sample. Furthermore, the size of our sample is deemed to reduce the generalizability of our study. For the accounting study, our sample size is comparable to earlier research, carried out in bigger markets, (Healy et al. (1992) $n=50$, Sharma and Ho (2002) $n=36$, Cornett and Tehranian (1992) $n=30$). However, market studies are generally conducted on a larger sample.

²⁴ Control firms are selected based on size, industry and market and are not allowed to engage in any major acquisitions throughout the period investigated. See section 4.2 for more details.

7. Concluding remarks

This thesis aims to answer two questions, has the implementation of IFRS 3 changed the acquisition behavior and does it have an impact on acquisition performance.

We conclude that the implementation of IFRS 3 does, in fact, have an impact on both the characteristics of the targets acquired and the post-acquisition performance. Our results show that the acquired targets have become more mature and show lower Market-to-Book values. However, this does not appear to impact the premiums, where the acquirers, in fact, pay higher premiums for the companies after the standard was implemented. We find a significant positive performance increase when observing our cash flow measures, indicating that acquisitions generate more value post-IFRS 3. This supports the signaling theory where the standard increased the disclosure quality and pressure managers to conduct better acquisitions not guided by self-utility maximization to the same degree.

However, our earnings based measures imply that when the price paid is taken into consideration, the acquisitions are not generating any value but may, in fact, be destroying value. Thus, although not statistically significant, we tentatively show support that the premiums paid offsets the increased cash flows generated by the acquisitions. The neutral or negative effect of IFRS 3 is, therefore, more in line with a contained discretion potential in the standard. By also investigating the stock market's reaction to the transactions we find further support for a contained discretion potential as they consider an acquisition to be even more value-destroying after IFRS 3.

Due to our inconclusive results, we are not able to make a clear-cut settlement in the tug-of-war between the two opposing sides of IFRS. Although, as the cash flow measures do not incorporate the price paid, we are more prone to rely on the results from the earnings-based measures, supported by significant negative stock market reactions. Hence, our results show tendencies of managers being more negligent when acquiring post-IFRS, whereas less so if acquiring larger companies.

Suggestions for future research

We believe our study contribute to an increased understanding of the effects accounting changes has on managers behavior and value assessments in general, but especially on the Swedish market. Although previous research has investigated the effect accounting changes has on managerial behavior, they have mainly been conducted on US-data following the changes in SFAS-141 and SFAS-142. Thus, leaving the Swedish market mainly unexplored.

For future research, we propose a study performed on markets where the quality of accounting reporting has shown a significant increase after the implementation of IFRS 3. This may produce an even clearer result as Swedish financial data have been proved to be of high quality both before and after the implementation. Furthermore, it would be interesting to study if the characteristics and managerial

behavior would be different if private companies also were included in the study. Lastly, an alternative would be to observe industries that have previously been known for a higher level of managerial discretion, for example, sectors known to award managers large stock-based compensation.

8. Bibliography

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9. Appendix

Table 1.A: Implication of acquisition on consolidated Return measurement components.

IS	Implication	BS	Implication of acquisition
Net Income	+Target Net income +Synergies a.t -Restructuring a.t -Interest on liquid assets used for financing - Goodwill amortization - Goodwill impairment -Interest inc. liquid assets used for financing a.t -interest exp. on increased debt for financing a.t	Equity	+Target equity (book value) + Stock financing equity
EBIT	+Target EBIT +Synergies -Restructuring -Interest on liquid assets used for financing - Goodwill amortization - Goodwill impairment	Capital Employed	+Target capital employed -Liquid assets used for financing + Goodwill
EBITDA (Cash flow)	+Target EBITDA +Synergies -Restructuring -Interest on liquid assets used for financing	Market Value + ND + preferred stock	+/- Market reaction to acquisition announcement +Debt raised for financing -Liquid assets used for financing

Table 1.A shows the consequences of M&As on the return measurement components employed in the accounting study.

Table 2.A Sample deal Characteristics

Sample Characteristics	Pre-IFRS	Post-IFRS
<i>Method of payment</i>		
Cash only	13	8
Stock only	10	10
Mix	4	6
Unknown	4	5
Total	31	29
<i>Industrial relatedness</i>		
Related	17	19
Non-related	14	10
Total	31	29
<i>Deal attitude</i>		
Friendly	30	28
Hostile	1	1
Total	31	29

Table 2.A shows the sample deal characteristics in the two sample periods. Pre-IFRS covers the years 1993-2001, and Post-IFRS 2005-2013.

Table 3.A Sample Industry distribution

Industry	Pre-IFRS	Post-IFRS	Total
Consumer Products and Services	1	2	3
Consumer Staples	1	1	2
Energy and Power	1	1	2
Financials	4	5	9
Healthcare	3	2	5
High Technology	7	6	13
Industrials	9	6	15
Materials	1	1	2
Media and Entertainment	0	1	1
Real Estate	2	3	5
Retail	0	1	1
Telecommunications	2	0	2
Total Sample	31	29	60

Table 3.A shows the sample industry distributions in the two sample periods. Pre-IFRS covers the years 1993-2001, and Post-IFRS 2005-2013. Industry classification is based on Thomson Financial Macro Industry Hierarchy.

Table 4.A Control Adjusted Change Model

	Δ ROE	Δ ROCE	Δ CF/ CE	Δ CF/MV
Intercept	-0.096 (0.108)	-0.080* (0.044)	-0.073* (0.041)	-0.071* (0.043)
IFRS	-0.039 (0.118)	0.006 (0.047)	0.033 (0.046)	0.085** (0.041)
CASH	-0.084 (0.128)	0.005 (0.042)	-0.011 (0.042)	-0.040 (0.041)
RELATEDNESS	0.014 (0.115)	0.031 (0.045)	0.032 (0.046)	0.015 (0.041)
SIZE	0.238*** (0.063)	0.106*** (0.039)	0.094*** (0.028)	0.134** (0.057)
Industry-fixed effects	No	No	No	No
Observations	57	60	60	59
Adjusted R ²	0.067	0.086	0.084	0.246
F statistics	3.89***	1.85*	3.05**	2.90**

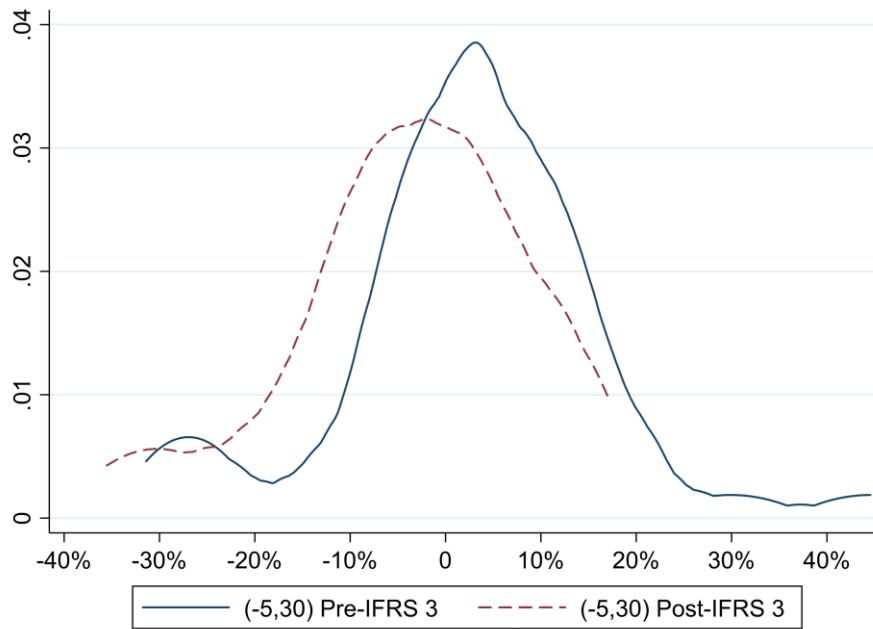
$$\Delta \bar{P}_{zi}^* = \alpha + \beta_1 IFRS + \beta_2 CASH_i + \beta_3 RELATED_i + \beta_4 SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 4.A shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). The dependent variable, $\Delta \bar{P}_{zi}^*$ is the change in performance before and after the acquisition. The intercept represents the acquisition-induced performance. The IFRS-dummy, value of 1 if post-IFRS, shows the change in acquisition performance between two sample periods 1993-2001 and 2005-2013. See section 3.7 for control variables.

Graph 5.A Density plot Short-term CAR (-5,30)



Graph 5.A plots the empirical density of the cumulative abnormal return over the event window (-5,30) for the periods before and after the implementation of IFRS 3. We see that the density shifts from slightly positive before IFRS 3 to negative after.

Table 6.A Median Control Adjusted Model

	ROE	ROCE	CF/ CE	CF/MV
Intercept	-0.036 (0.097)	-0.065* (0.046)	-0.062* (0.044)	-0.015 (0.033)
$\bar{P}_{zi}^{*,Pre}$	0.582*** (0.103)	0.806*** (0.073)	0.841*** (0.068)	0.082 (0.143)
IFRS	-0.024 (0.088)	0.009 (0.042)	0.025 (0.040)	0.026 (0.030)
PAYMENT	-0.027 (0.091)	-0.011 (0.046)	-0.002 (0.043)	0.022 (0.032)
RELATEDNESS	-0.043 (0.091)	0.016 (0.043)	0.021 (0.040)	0.007 (0.031)
SIZE	0.174*** (0.067)	0.093*** (0.0316)	0.085*** (0.030)	0.102*** (0.022)
Industry-fixed effects	No	No	No	No
Observations	57	60	60	60
Adjusted R ²	0.337	0.674	0.715	0.232
F statistics	3.60***	7.34***	8.78***	17.45***

$$\bar{P}_{zi}^{*,Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{*,Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 6.A shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). Where the performance measures before and after the acquisition is calculated using median values.

Table 7.A Four-digit SIC Control Adjusted Model

	ROE	ROCE	CF/ CE	CF/MV
Intercept	-0.092 (0.118)	-0.066* (0.049)	-0.069* (0.048)	-0.073** (0.036)
$\bar{P}_{zi}^{*,Pre}$	0.671** (0.139)	0.909*** (0.081)	0.891*** (0.078)	-0.011 (0.168)
IFRS	-0.034 (0.117)	0.004 (0.053)	.0354 (0.046)	0.067** (0.036)
CASH	-0.060 (0.132)	0.004 (0.053)	-0.007 (0.052)	0.014 (0.040)
RELATED	0.048 (0.126)	0.027 (0.052)	0.048 (0.051)	0.062 (0.039)
SIZE	0.185*** (0.089)	0.102** (0.036)	0.092*** (0.035)	0.128*** (0.027)
Industry-fixed effects	No	No	No	No
Observations	57	60	60	60
Adjusted R ²	0.258	0.676	0.685	0.299
F statistics	3.41***	6.82***	7.12***	15.56***

$$\bar{P}_{zi}^{*,Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{*,Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 7.A shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). RELATED is the dummy variable value of 1 if target and acquirer share the same four-digit SIC codes.

Table 8.A Assumed economic useful life Control Adjusted Model

	10 years ROCE	20 years ROCE	5 years ROCE
Intercept	-0.074 (0.053)	-0.065 (0.053)	-0.119** (0.057)
$\bar{P}_{zi}^{*,Pre}$	0.911*** (0.081)	0.888*** (0.081)	1.048*** (0.087)
IFRS	0.002 (0.048)	0.0129 (0.048)	-0.041 (0.051)
CASH	0.001 (0.051)	-0.003 (0.051)	0.026 (0.055)
RELATED	0.031 (0.049)	0.022 (0.049)	0.079 (0.052)
SIZE	0.099*** (0.036)	0.098** (0.0036)	0.106*** (0.038)
Industry-fixed effects	No	No	No
Observations	60	60	60
Adjusted R ²	0.677	0.665	0.716
F statistics	25.81***	24.48***	30.68***

$$\bar{P}_{zi}^{*,Post} = \alpha + \beta_1 IFRS + \beta_2 \bar{P}_{zi}^{*,Pre} + \beta_3 CASH_i + \beta_4 RELATED_i + \beta_5 SIZE_i + \varepsilon_{zi}$$

***, **, * Denote significance at the 1%, 5%, and 10% levels correspondingly, using a two-tailed test.

Robust standard errors are shown in brackets.

Table 8.A shows the results from the OLS regressions of our four dependent performance measures (see section 3.2.2 for definitions). Using 5, 10 and 20 years as estimated economic useful life for goodwill depreciation.

Table 9.A Robustness tests

Model	Error Distribution		Heteroscedasticity			
	Skewness	Kurtosis	B-P/C-W	Prob.	White	Prob.
<i>Control-Adjusted model</i>						
ROE	-1.10	7.36	20.287	0.000	17.04	0.452
ROCE	0.43	4.43	20.601	0.000	42.52	0.000
CF/CE	0.73	5.54	20.601	0.000	43.76	0.001
CF/MV	0.27	3.82	0.110	0.740	21.39	0.209
<i>Short-term Stock market model</i>						
CAR (-5,30)	0.05	4.09	0.275	0.600	17.00	0.386
CAR (-5,60)	-0.23	3.41	0.352	0.553	11.88	0.752
CAR (-5,5)	0.20	2.63	0.151	0.608	9.71	0.882
<i>Long-term Stock market model</i>						
JENSENS ALPHA	-0.29	5.04	0.773	0.379	15.29	0.935

Table 4.A shows the results for the Breusch-Pagan/Cook-Weisberg test, Whites test and the Skewness and Kurtosis of the errors, for our fours performance measures as well as short-term and long-term regression models. The values in the Prob.-column denote the probability of rejecting the assumption of homoscedasticity.