

WHY DO FIRMS USE EARNOUTS?

Mats Hovland Vikse*

Master's thesis in Applied Finance,

University of Stavanger

Spring 2013

Abstract

This thesis analyses cash flow consequences of earnouts for a sample of 33 Nordic acquisitions. The aim is to find out whether firms use earnouts rationally. From the perspective of fundamental value, margins and the top line of a firm's financials, the thesis examines whether the inclusion of an earnout have an impact on the cash flow consequence of an acquisition. The results report no significant difference, neither gross nor adjusted for with the results of control firms.

Acknowledgements: The author would like to thank Professor Bernt Arne Ødegaard and Tor Erling Gunnerød for their valuable input and support throughout the thesis. Also, thanks to Haakon Jensen, Lars Jacob Bøe, Mikael Norlander and Morten Iversen for interesting discussions on the subject.

* mats.vikse@outlook.com



Universitetet
i Stavanger

**DET SAMFUNNSVITENSKAPELIGE FAKULTET,
HANDELHØGSKOLEN VED UIS
MASTEROPPGAVE**

STUDIEPROGRAM:

ØKONOMISK-ADMINISTRATIVE
FAG - MASTERSTUDIUM

OPPGAVEN ER SKREVET INNEN FØLGENDE
SPESIALISERINGSRETNING:
ANVENDT FINANS

ER OPPGAVEN KONFIDENSIELL?
(NB! Bruk rødt skjema ved konfidensiell oppgave)

TITTEL:

WHY DO FIRMS USE EARNOUTS?

ENGELSK TITTEL:

WHY DO FIRMS USE EARNOUTS?

FORFATTER(E)

Studentnummer:

215524
.....
.....

Navn:

MATS HOVLAND VIKSE
.....
.....

VEILEDER:

BERNT ARNE ØDEGAARD

OPPGAVEN ER MOTTATT I TO – 2 – INNBUNDNE EKSEMPLARER

Stavanger,/..... 2013

Underskrift administrasjon:.....

Table of Contents

1	INTRODUCTION	1
2	BACKGROUND AND OVERVIEW	2
3	THEORY	2
3.1	Steps in an Acquisition	2
3.2	Is a Deal Possible?	5
3.3	Approaches to Valuation	7
3.4	Accounting Considerations.....	9
4	LITERATURE REVIEW	12
4.1	<i>Deal structuring and Earnout Studies</i>	12
4.2	<i>Post-Acquisition Valuation Studies</i>	14
4.3	Accounting Considerations.....	17
5	HYPOTHESES	17
5.1	Fundamental Value.....	18
5.2	Revenue Growth.....	18
5.3	EBITDA Margin.....	18
6	METHODOLOGY	19
6.1	Time Periods.....	19
6.2	Cost of Equity	19
6.3	Residual Income Valuation Approach.....	20
6.4	Estimation Procedure for Fundamental Value.....	20
6.5	Controlling for Acquisitions.....	25
6.6	Measuring Changes in Variables.....	26
6.7	Measuring Differences Between Earnout and Non-Earnout Structures	28
6.8	Statistical Significance	28
7	DATA	29
7.1	Data Collection.....	29
7.2	Control Data	30
7.3	Summary Statistics	30
8	EMPIRICAL RESULTS AND ANALYSIS	31
8.1	H1: Fundamental Value Results	32
8.2	H2: Revenue Growth Results	34
8.3	H3: EBITDA Margin Results	36
9	CONCLUSIONS	39
10	REFERENCES	41
11	APPENDICES	43

Table of Figures

1 Holmen AB Financials.....	22
2 Holmen AB Forecast Summary	24
3 Holmen AB Fundamental Value.....	24
4 Holmen AB Control Firms.....	26
5 Time Distribution Nordic Deals.....	30
6 Summary Statistics.....	30
7 Method of Payment.....	31
8 The effect of acquisition on fundamental value of acquirer.....	33
9 The effect of acquisition on revenue of acquirer	35
10 The effect of acquisition on EBITDA margin of acquirer	37

1 INTRODUCTION

Earlier studies are inconsistent on whether mergers and acquisitions have positive effects for acquiring firms¹. The major risk for shareholders of the bidder is that the target fails to perform up to expectations, thus resulting in overpayment. As a tool intended to resolve challenges related to mispricing, bidders often choose to structure their acquisition agreements as earnouts. An earnout is a deal type where a portion of the purchase price of a firm is contingent on a pre-agreed performance measure.

Talking to deal professionals, earnouts is, among other things, used to bridge the gap between bidder and target value estimates. However, including a contingent payment also has some drawbacks. Due to practicalities regarding measurement of the earnout's performance measure, it is difficult to integrate the target. Given that synergy effects then is postponed, it is interesting that earnouts often are assumed to create more positive cash flow consequences for the acquirer than under terms which allow for immediate integration.

The main purpose of this thesis is to provide empirical evidence on whether the choice of including an earnout can be considered rational. In total, 33 Nordic acquisitions are being investigated from the perspective of the acquirer, looking for changes in fundamental value, revenue and EBITDA² margin. Fundamental value in this context is the result obtained when performing valuation according to residual income valuation approach.

Results suggest that there is no significant difference in cash flow consequence between the two types of structures. This applies to change in fundamental value of acquirers, EBITDA margin and revenue effects.

The remainder of the thesis is organized as follows: Section 2 provide a short background and overview of the Nordic market for mergers and acquisitions. Section 3 provides a basic understanding of the theory on the subject. Section 4 reviews existing research, mainly focusing on deal valuation and earnout studies. Based on the foundation created through section 2 to 4, section 5 presents the hypotheses used in the empirical study. The methodology employed to test these hypothesis is described

¹ Bruner (2002) report 1/3 value increase, 1/3 value destruction and 1/3 value conservation

² Earnings before interest, taxes, depreciation and amortisation

in section 6, and the data used in section 7. Section 8 contains empirical results and findings, while section 9 concludes.

2 BACKGROUND AND OVERVIEW

The Nordic environment is known for having a predictable political and macroeconomic climate. The politicians in the Nordic countries are known for keeping the promises made, and the legal and regulatory environment is considered friendly from the perspective of deal making³.

Levels of announced mergers and acquisitions in the Nordic region have had an increasing trend since mid-90s. Both number of acquisitions and value of transactions peaked close before the financial downfalls around 2000 and 2007, following the trends of the market. However, transaction value trends fell more heavily than number of acquisitions⁴, indicating that mergers and acquisitions remains a supported strategy.

3 THEORY

This section presents the basics of mergers and acquisitions, and provides an understanding of mechanisms in deal structuring. In addition, various valuation approaches will be introduced.

3.1 Steps in an Acquisition

According to Damodaran (2002), there are four steps in an acquisition. First, the acquirer has to develop a rationale and a strategy for doing the acquisition. Second, it need choose a proper target that fulfils the requirements set out in that rationale. As part of this, the acquirer needs to do a valuation of the target firm. This valuation also includes estimates of the potential premiums that can be achieved through synergy effects. The next step is to decide how much to pay for the target, how to best raise these funds, and what form the compensation should take. The final step is to make the acquisition work after the deal is complete.

³ Information backed by a report about the Nordic mid-market M&A by Spencer (2007)

⁴ Source: <http://www.imaa-institute.org/statistics-mergers-acquisitions.html>

3.1.1 *Developing an Acquisition Strategy*

The development of an acquisition strategy is highly dependent on the underlying motive of the acquirer. Motives for doing an acquisition might be to reduce risk, create synergies, take advantage of poor management, or to gain surplus through mispriced targets (Damodaran, 2002).

In order to reduce risk, a strategy that can be employed is diversification. It is an open discussion on whether this type of diversification is the responsibility of firms or investors. Investors have the opportunity to diversify across traded stocks, while the firm needs to acquire other firms to achieve the same effect. It is clear that transaction costs associated with diversification are less for investors than for firms, but exceptions exist. An example of this is where the owner of a private firm has the majority of his wealth invested in one firm. In such a situation, the owner is exposed to all the risk hence improving the argument for letting the firm do diversification.

The second acquisition motive is synergy. Synergy is the additional value that can be obtained from combining two firms, and can be categorized into operating synergy and financial synergy.

Operating synergy is the type of synergy that allows the combined firm to increase operating income, growth or both. Damodaran (2002) describes four sources of operating synergy.

1. Economies of scale, which allow the combined firm to become more cost-efficient and profitable.
2. Greater pricing power, which through increased market share and less competition improves margins and operating income.
3. Combination of different functional strengths; e.g., a highly skilled production company acquiring a skilled marketing firm.
4. Higher growth in new or existing markets; e.g., acquisition of a firm that already has an established distribution network and brand recognition, which the acquirer can utilize to increase sales of its own products.

Financial synergies are the type of synergy whose payoff can take the form of either higher cash flows or a lower cost of capital. Damodaran (2002) mentions the following sources.

- Combination of a firm with excess cash (and limited projects) and a firm with high-return projects (and limited cash). By combining the firms there exist a possibility to increase value by initiating positive NPV projects that otherwise would not have been possible.
- Increased debt capacity, resulting from more stable and predictable cash flows. This permits the combined firm to borrow more than prior to the acquisition, ultimately resulting in a tax benefit. The tax benefit can be in the form of either higher cash flows or lower cost of capital.
- Combining two firms can also yield tax benefits like for example using operating losses to shelter income, or by taking advantage of tax laws. Combination of firms can also result in an increase in depreciation charges lowering the tax base of the combined firm.

There is great potential for achieving synergy effects through mergers. However, it can be challenging to fully show the effects when performing valuation of the target.

The third mentioned motive is that acquirers often base their rationale on the belief that they can run the target firm better than its current managers. Acquiring poorly managed firms and changing either current management or policies and practices should increase the target firm value. This value increase is often referred to as *value of control*.

Fourth, Firms that are undervalued by the financial markets can be subject to acquisition by those who identify this mispricing. The potential surplus that the acquirer can gain on these transactions is the difference between the value and the purchase price.

3.1.2 *Choosing a Target Firm and Estimating the Value of Synergy*

After establishing a motive and a corresponding strategy for the acquisition, the acquirer needs to find a target that fits within the profile. In general, the target has to be in line with the acquisition strategy. If the motive is to take advantage of undervalued firms; find targets which are mispriced by the capital market. If the motive is risk reduction through diversification; find targets which are uncorrelated with your own, etc.

Also, the bidder needs to perform a valuation of the target. When performing valuation from the perspective of potentially acquiring the firm, estimates of synergy and control premiums has to be added.

3.1.3 *Structuring the Acquisition*

The next step in the acquisition process is agreeing on how to structure the acquisition. According to Damodaran (2002), there are three interrelated steps in this phase.

First, figure out how much to pay. Second, figure out how to pay, cash, stock or a combination of the two. Also, determine whether any of the funds needs to be borrowed. Third, decide on accounting treatment of the deal.

3.2 Is a Deal Possible?

When target and bidder are negotiating the deal, it is very likely that they have different perception of the risk associated with the target's cash flow and hence use different discount rates in their valuation. This ultimately causes a situation where it appears that no deal can take place. However, there are possibilities of structuring the deal in ways that can help resolve these issues.

3.2.1 *Risk Shifting Contract Structures*

As mentioned above, two parties in a negotiation process are very often unaligned when it comes to perceived risk and profits. To minimize the gap, resolving mechanisms can be introduced. These include: postclosing price adjustments, contingent value rights and performance related structures like earnouts and staged payouts (DePamphilis, 2011).

One of the more common mechanisms that are applied is escrow accounts and target balance sheet adjustment. Escrow accounts are when the buyer retains portions of the purchase price until a postclosing audit is performed. The escrow payment is done when the underlying agreement is accomplished, hence mitigating risk for the buyer. Balance sheet adjustments are normally used when the time between purchase price agreement and actual closing date is long. The purpose is to control for potential differences in balance sheet items, especially those related to working capital.

Contingent value rights, often referred to as CVRs, are commitments made by the acquirer to pay an extra share of cash or securities if the issued shares fall below a

pre-agreed share price at some future date. The CVRs can be considered put options that are limiting the downside loss for the target.

Under distributed or staged payouts the purchase price is dependent on target managers' ability to deliver pre-agreed milestones. Milestones can be everything from cash flow targets to patent approvals. These mechanisms serve two purposes: reducing risk by limiting uncertainty about future cash flows, and shifting risk to seller regarding its ability to deliver according to predictions.

An earnout agreement is a deal type where a portion of the purchase price is contingent on a pre-agreed performance measure. This type of agreement is normally used when target and bidder cannot agree on forecast performance of the target's business, or when the buyer wants to create incentives by inviting the seller to take part in the upside potential. To resolve the first mentioned, parts of the purchase price is made payable only if the target exceed a certain threshold. Payment terms can also be based on average performance over several periods, or periodic payments dependent on achievements of interim performance measures.

Involving seller in the upside potential creates an incentive for the target to operate the target as efficiently as possible post acquisition. This can be achieved by offering a fixed multiple of the average annual performance of the target.

Clearly, contract design is influenced by principal-agent conflicts. Earnouts are structured to provide seller management incentive to operate the business in the best interest of the buyer. However, long term effects might be different. To boost short term cash flow performance, target management may cut back on investments for future performance (e.g. training, investments in R&D, etc.). One can argue that the challenge can be resolved by introducing several performance measures, but this will complicate the contract and increase the likelihood of conflict. Rule of thumb is that earnouts should be easy to interpret, and leave no room for discussion.

3.3 Approaches to Valuation

The second step presented by Damadoran requires the acquirer to perform valuation of the target. The value of any firm or resource equals the present value of expected future cash flows, discounted at a rate which reflects the risk associated with those future cash flows.

$$V_0 = \sum_{t=1}^n \frac{\text{Expected future payoffs}_t}{(1 + \text{Discount rate})^t} \quad (1)$$

Valuation approaches that use information in accounting numbers, financial statements and related notes to estimate cash flows can be grouped into two categories: wealth distribution approaches and free cash flow realization approaches (Wahlen, Baginski & Bradshaw, 2008).

The wealth distribution approach to valuation discounts the present value of expected future dividends over the lifespan the firm, including liquidating dividend. This is based on the assumption that value of common equity should equal the present value of the expected future dividends that the shareholder will receive.

From a cash flow perspective, the value of a share of common equity should also be equal to present value of future free cash flows. Ultimately, these cash flows will be distributed to the common equity shareholders as dividends. This is called the free cash flow realization approach to valuation. To perform a valuation using this approach, one discounts the expected future free cash flows to present value. This is done over the life of the firm, including the final liquidating cash flows.

Where the above processes mentioned uses future dividends or future free cash flows as the numerator in equation (1), the residual income valuation approach use book value of common shareholders' equity and expected future earnings. Shareholders' equity is a measure on common equity shareholders' claim on the net assets of the firm, hence providing a valid starting point for valuation. Future earnings represent net profit or loss that will be generated for the shareholders, and is therefore a proper measure on total wealth to be created by the firm to the shareholders.

Over sufficient time periods, cash flow distributable to shareholders will equal the shareholders' capital invested in the firm plus the lifetime earnings of the firm

(Wahlen et al., 2008). These estimates will under this condition⁵ be equivalent to valuation using distributable cash flows. Note that the cash flow based valuation approach, as well as the residual income valuation approach is equivalent to the dividends approach.

3.3.1 *Residual Income Valuation*

The market is mainly seeking and acting on information relevant for equation (1). From the perspective of a residual income valuation approach, the information required to provide answers, common shareholders' equity and earnings, needs subsequently to be available. Accounting for the book value of common shareholders equity' is expressed as (Wahlen et al., 2008)

$$BV_t = BV_{t-1} + NI_t - D_t$$

where BV_t is the book value of the common shareholders' equity at the end of year t, and NI_t is the net income of year t. This is considered valid under the assumption that accounting follows the clean surplus assumption. In practice, this means that net income includes all recognized elements of income for common equity shareholders, and dividends include all direct capital transactions between the common shareholders and the firm.

Because of the relationship between dividends, net income and book value,⁶ we can substitute the net income plus the change in book value of common shareholders' equity into the dividend valuation model (Wahlen et al., 2008). By doing some algebraic and substitution, we obtain the residual income valuation model

$$V_0 = BV_0 + \sum_{t=1}^{\infty} \frac{NI_t - (R_E \times BV_{t-1})}{(1 + R_E)^t} \quad (2)$$

Here we have a model that is similar to the dividend valuation approach, fitted for information available in accounting figures. As described above, using account

⁵ Where "this condition" refers to "Over the life of the firm". See Peter D. Easton, Trevor S. Harris, and James A. Ohlson, "Aggregate Accounting Earnings Can Explain Most of Security Returns," *Journal of Accounting and Economics* (1992), pp. 119–142.

⁶ Dividends equal net income plus the change in book value of common shareholders' equity

available information provides valuation results equivalent with cash flow approaches. It is important to note that it is not possible to do precise estimates on the forecasted income statements and balance sheets for a long period into the future. The residual income valuation methodology accounts for this by first forecasting for a short period of time, and then adds a simplified and constant growth rate after the finite horizon. This introduces a third part to the valuation model:

$$\left[\left((NI_t \times (1 + g)) - (R_E \times BV_t) \right) \times \frac{1}{(R_E - g)} \times \frac{1}{(1 + R_E)^T} \right]$$

By adding this term to the residual income valuation model in equation (2), we obtain a finite horizon residual income model as follows

$$V_0 = BV_0 + \sum_{t=1}^{\infty} \frac{NI_t - (R_E \times BV_{t-1})}{(1 + R_E)^t} + \left[\left((NI_t \times (1 + g)) - (R_E \times BV_t) \right) \times \frac{1}{(R_E - g)} \times \frac{1}{(1 + R_E)^T} \right] \quad (3)$$

This residual income valuation model calculates value of common equity based on three parts:

- Book value of common equity at time t=0,
- Present value of residual income over the forecast horizon through year T, and
- Present value of continuing value.

3.4 Accounting Considerations

Both IFRS and U.S. GAAP permit a variety of items to pass through the income statement and to be reported directly in shareholders' equity. Also, off-balance-sheet liabilities or nonoperating and nonrecurring items of income may obscure the performance of the firm. (Pinto, Henry, Robinson & Stowe, 2010). Together with potential violation of the clean surplus accounting assumption, this opens up potential pitfalls for the residual income valuation approach. This part will address the following accounting considerations for the residual income valuation approach (Pinto et al. 2010).

- Violations of the clean surplus accounting assumption
- Balance sheet adjustments for fair value
- Intangible assets
- Nonrecurring items

In addition, accounting considerations that have a direct effect on the earnout will be presented.

3.4.1 *Violations of Clean Surplus Accounting Assumption*

The residual income valuation approach requires the assumption of clean surplus accounting to hold. For IFRS, which is the applicable standard in Nordic countries, some changes in fair value estimates are allowed to bypass the income statement and hence directly have an effect on equity. From the perspective of the residual income valuation approach, the net income will then not be stated accurately. Using a forecast of net income that violates this assumption will result in distorted estimates of residual income, over both finite and infinite horizon. If the net present value of violations of clean surplus accounting is not set to zero, reductions in income from some period may be offsets by increased income in other periods.

3.4.2 *Balance Sheet Adjustments for Fair Value*

In order to have a trustworthy measure of common shareholders' book value of equity, significant off-balance-sheet assets and liabilities needs investigating. These off-balance-sheet items can affect assessments of both book values and net income. Examples may be inventory, deferred tax and liabilities, operating leases and intangible assets. Information about this, together with items that may be unique for the subject firm, is normally found in financial statements and footnotes.

3.4.3 *Intangible Assets*

Under IFRS IAS 38 an intangible asset is an “*identifiable non-monetary asset without physical substance*”⁷. Often, these types of assets are not recognized until they are obtained in an acquisition⁸. Hence, they have an impact on reported book values and consequently the residual income valuation approach.

Another important area that needs consideration is expenses related to R&D. Under IFRS, some costs related to R&D can be capitalized and amortized over time. These expenditures are reflected in the returns of the firm, and for this reason also in the residual income. If the firm has unproductive expenditures related to R&D, the residual income should be lower (expenditures made), and if the R&D expenditures are productive, the residual income should be higher (offset the expenditures made). In-process R&D can be recognized as an acquired finite-life intangible asset or as part of goodwill.

3.4.4 *Nonrecurring Items*

Firms have a tendency to report nonrecurring items as part of earnings or to classify non-operating income as part of operating income (e.g. sale of assets). This will have a consequence in terms of forecasting future residual income since the former is misleading. These types of misclassifications may lead to both under –and overestimates if no adjustments are made. However, there is no need to do any adjustments to book value when it comes to these items because nonrecurring gains and losses are reflected in the value of assets in place. Regardless, these items should be removed from operating earnings if they are not likely to continue contributing to residual income.

3.4.5 *Accounting Considerations for Earnouts*

In 2008, the International Accounting Standards Board’s (IASB’s) and the U.S. Financial Accounting Standards Board’s (FASB’s) released new standards for business combinations and non-controlling interest. Differences between the two standards are minor. After the new release, business combinations are more likely to

⁷ IFRS Technical summary of IAS 38:

<http://www.ifrs.org/IFRSs/Documents/English%20IAS%20and%20IFRS%20PDFs%202012/IAS%2038.pdf>

⁸ However, if the subject firm have been part of an acquisition prior to the valuation, it is very likely that the intangible assets are recognized.

have an immediate impact on reported profits, whereof contingent considerations (e.g. earnouts) are very much affected.

Under the new standards, contingent considerations have to be recognized at fair value at the time of acquisition. This obligation is classified as either a liability or equity, based on the definition in applicable standard⁹. Further, all subsequent changes in fair value estimates have to be recorded in P&L accounts hence affecting reported earnings. This will finally have an impact on the residual income, and therefore needs to be adjusted for.

4 LITERATURE REVIEW

This section provides an overview of the existing literature on the subject. It covers deal structuring and earnout studies as well as consequences of M&A.

4.1 Deal structuring and Earnout Studies

Faccio and Masulis (2005) have studied the choice of payment method in European mergers and acquisition for the period of 1997 to 2000. The data sample contains 3,667 transactions, and of those are 80% pure cash deals and 11.3% pure stock deals¹⁰.

4.1.1 Earnout Characteristics

In terms of earnouts, Kohers and Ang (2000) provide evidence that they serve as a mechanism against misevaluation in cases with high levels of asymmetric information. Kohers and Ang also provide evidence that the earnout serves a purpose of retaining target firm management. Together we can then say that the earnout serves as a risk-hedging mechanism against high information asymmetry and as a retention bonus for securing valuable human capital.

The authors report that earnout structured transactions tend to involve private targets in high technology industries. Targets within this industry contributed for 21.7% of the earnouts in their sample. They also find that the majority of earnouts is between targets and bidders from different industries. Cross-industry takeovers accounted for 68.44% of the earnouts in the sample. All findings correspond to the

⁹ IAS 32 Financial Instruments: Presentation and relevant U.S. GAAP (e.g., FAS 133 Accounting for Derivative Instruments and Hedging Activities, EITF 00-19 Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock, and FAS 150 Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity)

¹⁰ The remainder is either a combination or debt assumed.

ones of Datar et al. (2001). Datar et al (201) also contributes to the subject by providing evidence that choosing earnouts is closely linked to the lack of availability of comparable targets which are already priced.

The results of Kohers and Ang show that on average, the target that is under an earnout receive an estimated 62% of the total earnout amount, and full payment was made in about 46% of the cases.

4.1.2 *Determinants of Earnout Terms*

Cain, Denis and Denis (2006) extended on previous earnout studies by focusing on the impacts caused by

- Size of the earnout consideration
- Performance measure that the earnout payment was based upon
- Interval on which the performance was measured, and
- The form of the earnout payment

They find that greater uncertainty of target value is associated with larger earnouts, shorter earnout periods, the use of sales as performance measure and common stock as the form of payment. Also, high-growth opportunities with the target firm indicate larger earnouts, longer measurement periods and use of stock as payment. When the target operates in another industry than the bidder, they find that it is more likely to use income as performance measure.

Further, the authors succeed in providing evidence on systematic interactions among the contract terms. Earnout size is positively linked to the length of the earnout period and measurement interval, and stock as payment method.

Also, Caselli et al. (2006) states that the performance measure which payment of an earnout is tied to is usually revenue, EBITDA or net income.

4.1.3 *The Role of EBITDA Growth in Mergers*

In line with the findings of Caselli et al. (2006), EBITDA is reported to have value relevance in the period close to the acquisition. Results of a study performed by Christian and Jones (2004) suggest that EBITDA plays a value-relevant role beyond earnings in the year of the merger. These findings suggest that earnings may not be a sufficient performance measure of the combined firm's value during that year. EBITDA is reported as the most value relevant measure in the year of the acquisition,

compensating for the lack of relevance for earnings. However, a significant change is reported from the merger year to the year after. This applies both for earnings (positive change, significant at 0.05 level), and EBITDA (negative change, significant at 0.10 level).

4.2 *Post-Acquisition Valuation Studies*

Robert F. Bruner (2001) summarizes the evidence from 14 informal studies and 100 scientific studies conducted between 1971 and 2001. In addition to reporting findings, Bruner reviews and comments the various research approaches that were employed. Regarding the profitability of M&A, Bruner reports that 1/3 of the research report value destruction, 1/3 show value conservation and 1/3 value creation.

Bruner split the previous research into four categories: Event studies, accounting studies, clinical studies and surveys of executives. Event studies are examinations of abnormal returns to shareholders in the period around transaction announcement. Accounting studies compares pre –and post-acquisition reported results and examines whether performance has changed. Clinical studies are deep diving into one or a few transactions to induce new insights. And down the more subjective road, we have surveys of executives which report answers of executives on whether acquisitions created value.

When looking at the approaches' fit for hypotheses testing, event studies and accounting studies are the proper candidates. Clinical research and surveys aim to describe rather than test. Bruner also reports that the key test used in event and accounting studies is the t-test.

4.2.1 *Accounting Studies*

In a paper published in 2010, Guest, Bild and Runsten examined the financial impact of 303 UK acquisitions using both an event study approach and two types of accounting study approaches.

First, the authors describe an accounting approach. This implies comparing post-acquisition profitability of the acquirer with a weighted average of the acquirer and acquiree, and is in line with the wealth distribution approach mentioned in section 3. The key measure of profitability is in this case return on equity (ROE). ROE consist of net income, scaled by the opening book value of equity. The relevant means used to describe pre –and post-acquisition profitability is ROE year $t-1$ to $t-3$ and ROE year $t+1$ to $t+3$, respectively. The results are compared to control firms to assess abnormal

returns, which represent the consequence of acquisition. However, this approach does not take into account changes in risk. The authors report a significant 2.62% improvement in ROE stemming from takeovers.

As an alternative to the basic accounting approach described above, the authors introduce a new methodology which adopts a residual income valuation approach. They adopt the model introduced in section 3.3.1 to measure the impact of acquisition on what they define as fundamental values of acquirers. Based on this, they calculate the realized fundamental value of the acquirer based on post-acquisition results. This result is then compared with expected fundamental value of the acquirer prior to the acquisition, estimated from previously reported results. Total fundamental value consists of book value of equity, dividends, residual income in year $t+1$ and $t+2$ and a third term representing terminal value. The authors report a significant increase of 20.14% in total fundamental value for acquirers. However, when controlling for the results of the control firms, the change in fundamental value become negative, but insignificant. The authors conclude that acquisitions have an insignificant effect on the fundamental value of acquirers.

4.2.2 *Event Studies*

When performing valuation by share return methodologies, the authors introduce two measures: First, an estimate of buy-and-hold returns is being applied. Second, they use an average cross-sectional abnormal return using a calendar time portfolio technique. Both measures are estimated for both the announcement month, consistent with the approach presented by Bruner, and for the 36-month post-acquisition period following completion.

The buy-and-hold approach is done by first estimating the buy-and-hold abnormal returns and then calculating cross-sectional dependence adjusted t-statistics. The authors report that buy-and-hold abnormal returns of -1.72% over the announcement month, while over the 36-month period they report -15.61%, both significant at one percent. Thus, acquirer's share returns are negative following an acquisition.

The calendar time portfolio technique involves forming a portfolio of event firms for each calendar month and taking the average cross-sectional abnormal returns for the specific month. Using this approach, the authors report an average monthly abnormal return of -0.45%, also significant at one percent. Hence, the authors

conclude that acquisitions have a significant negative effect on the share return of acquirers.

Comparing the conclusions of accounting and event studies, they conclude that the argument that negative share returns can be explained by the stock market's reaction on acquisition on acquirers' fundamental value can be refuted.

4.2.3 *Value of Synergy*

As introduced in section 3, value of synergy is part of the valuation of an acquisition. In a paper published in 2005, Aswath Damodaran examines how much synergy is actually created in corporate mergers. According to Damodaran, existence of synergy can be evaluated from two perspectives. First, he evaluates on a forward looking basis. This explains how the market reacts to announcements, gauging what is the expected synergy value and who is achieving it. The second is to track pre-merger development and evaluate the success of delivering the synergy gains.

Looking at the first, Damodaran refers to a study made by Bradley, Desai and Kim (1988) where 236 inter-firms tender offers were examined. They reported that value of the target and bidder increased by 7.48% on average on the announcement of the merger.

On the second perspective, it is being referred to studies which are evaluating the performance of the merger firms relative to their competitors in the time following the takeover. Damodaran refers amongst other to a study done by McKinsey and Co. where they examined 58 acquisition programs between 1978 and 1983. The study looked for evidence on whether acquirer's return on investment exceeded cost of capital, and whether the acquisition supported the acquirer in outperforming its competitors. They concluded that 28 of the 58 programs failed to provide evidence on both, and additional 6 failed at least one. He also mentions that McKinsey and Co. performed a follow-up study for the 1990s in the U.K. and U.S., providing evidence that only 23% earned excess returns, and as many as 60% of the transactions failed to earn returns according to their cost of capital.

He concludes that synergy effects is seldom achieved in acquisitions, mainly due to misevaluation, bad planning and because it is much more difficult to create in practice than on paper.

4.3 Accounting Considerations

Cadman, Carrizosa and Faurel (2012) provide some interesting evidence on fair value adjustments related to earnouts. By examining a sample of 1,114 quarterly earnout fair value adjustments, derived from 262 acquisitions, they found that average increase in earnout fair value is \$2.6 million, while the corresponding decrease was \$4.7 million. Given the increased availability of information¹¹, they examine the capital market's reactions to these adjustments. They report that large upward earnout fair value adjustments are positively responded to by the market, even after controlling for the direct effect that the adjustments had on earnings. Interestingly, they do not find evidence on the same relationship with downward adjustments. This implies that the market reacts favorably to positive news on the earnout, despite of the negative effect it has on reported earnings.

5 HYPOTHESES

With background in the theory presented in section 3 and previous research in section 4, the main question that needs to be answered is

Why do firms use earnouts?

The goal of the testing is to provide an answer on whether acquirers use earnouts rationally, and if they achieve the expected results. When acquirers use earnouts, do we see an increase in the most used performance measures? And do acquirers experience any cash flow consequences that can be related to the earnout?

Based on the information provided through section three and four, we formulate and test the following hypotheses related to fundamental value¹², EBITDA margin and revenue.

¹¹ Earnout fair value adjustments provide participants in the capital market with valuable information that they can incorporate in their valuations of the acquiring firm.

¹² Under the definition of Guest, Bild and Runsten (2010), where fundamental value is the result of a valuation using the residual income valuation approach.

5.1 Fundamental Value

- *H1: Acquirers using an earnout experience positive change in fundamental value compared to non-earnouts.*

Summarized by Bruner (2002), it is problematic to find clear patterns in terms of returns to the buyer firm. One potential reason for not being able to report positive return on investment is that the initial investment is too high. As a method for resolving differences in valuation estimates between target and bidder, the earnout provision is introduced. Based on this, and under the assumption that the earnout actually do resolve this challenge, it is expected to see a positive change in fundamental value of the acquirer following the acquisition. This measure will also capture the potential effect of net income, which according to Caselli et al. (2006) is one of the main performance figures linked to earnout payment.

5.2 Revenue Growth

- *H2: Acquirers using an earnout experience higher growth in revenue compared to non-earnouts.*

As introduced in section 4, Cain, Denis and Denis (2012) suggest that greater uncertainty is linked to using the top line as performance measure. Based on these findings, revenue is an appropriate measure of success for the earnout. This measure is also in line with the statement of Caselli et al. (2006). If an earnout is successful, the expectation would be to observe an increase in revenue from the year prior to the acquisition to the years where it is likely that the earnout is active. This increase is expected to be stronger than for those who are not using an earnout.

5.3 EBITDA Margin

- *H3: Acquirers using an earnout experience higher growth in EBITDA margin compared to non-earnouts*

According to Christian and Jones (2004), EBITDA plays a compensating role for earnings in the year of the acquisition. In addition, Caselli et al. (2006) reports EBITDA as one of the main figures tied to the earnout contract. If the acquirer using an earnout has been successful, we should find a strengthening of the EBITDA margin from the year prior to the acquisition to the three years where it is likely that the

earnout is active. This strengthening is expected to be stronger than for those who are not using an earnout.

6 METHODOLOGY

This section will present the methods used for testing the hypotheses. To illustrate, the acquisition of Papelera Peninsular SA by Holmen AB will be used throughout the section.

6.1 Time Periods

The data used in the study has been gathered for a total of 7 periods. This includes three years prior to the acquisition, the year where the transaction took place, and three years after the acquisition. The reason for collecting historical data as far as three years back in time as that some of the forecasts estimates done in the valuation is based on an average calculated from year $t-3$ to $t-1$. The year of acquisition is defined as year $t=0$. An earnout period is often three years¹³ and in order increase the likelihood that the measured effects is related to the earnout, not the acquisition itself, the period of measurement is three years.

6.2 Cost of Equity

The cost of equity is calculated using the Capital Asset Pricing Model (CAPM). It is being calculated on a firm specific basis, both for firms in the sample and in the peer groups. The individual firms' beta values are calculated by Datastream, and requires minimum two and a half year of data. The risk premiums for Norway, Sweden, Denmark and Finland are assumed at respectively 5.8%, 5.9%, 5.5% and 6.0%¹⁴. The risk free rate is obtained using year average rates of the respective countries' 10 year government bonds. According to a report issued by PricewaterhouseCoopers in 2013¹⁵, 10-year government bonds is the most common measurement for risk free rate, even after the financial crisis.

In the residual income valuation method, year $t-1$ cost of equity is used when doing pre-acquisition valuation, while the mean cost of equity in years $t+1$ to $t+3$ is being used for post-acquisition calculations.

¹³ Talking to experienced professionals. The means the period where it exist potential payments based on pre-agreed figures.

¹⁴ According to a survey with 7192 responses by Fernandez, P., Aguirreamalloa, J., Avendaño in 2013.

¹⁵ The Norwegian Market Risk Premium 2012 and 2013 (n.d.)

6.3 Residual Income Valuation Approach

Following the definition of Guest, Bild and Runsten (2010), fundamental value is expressed through the residual income valuation approach. The approach in this thesis will employ the same principles.

Based on equation (3), presented in section 3.3.1, the expression for fundamental value is obtained. However, in the model applied here, it is assumed no growth in book value of equity after the last year within finite horizon. Fundamental value in this case is then defined as the sum of book value and present value of future residual income.

$$V_t = BV_t + \sum_{i=1}^{\infty} \frac{E_t [NI_{t+i} - r_e \times B_{t+i-1}]}{(1 + R_E)^i} + \frac{E_{t+T} [NI_{t+T} - r_e \times B_{t+T-1}]}{(1 + r_e)^{t+T-1} r_e} \quad (4)$$

Calculating the infinite horizon estimates as terminal value, reflected in part three of the equation.

6.4 Estimation Procedure for Fundamental Value

As the purpose of the thesis is to compare the difference in the change in fundamental value effects of acquisitions when using different contract structures, a natural place to start is by establishing a procedure on how to measure pre- and post-acquisition fundamental value of the acquirer.

For pre-acquisition valuation, future net income is forecasted with basis in the acquirer's average net income in years $t-3$ to $t-1$. This is in line with previous takeover profitability studies conducted with applications of the RIV model (e.g. Guest, Bild and Runsten (2010)). In this model, the forecasts are done directly on net income and common shareholders' equity. In previous applications, these estimates are done on average return on equity with goal of estimating future earnings-per-share. However, since issuing shares is an often-used method of payment¹⁶ the results in this thesis also need to be adjusted to a per-share basis. After this is done, the difference in approach has no net effect.

¹⁶ As mentioned earlier the dataset of Faccio and Masulis (2005) consisted of 11.3% pure-stock deals. Issuing share will result in an increase of total fundamental value, but a decrease in fundamental value per share.

The value of shareholders' equity is forecasted by adding net profit minus the expected dividends in year $t=0$ to the book value in year $t-1$. The estimated dividend payout ratios are the average dividend payout in years $t-3$ to $t-1$. In other words, the book value of year $t=0$ is estimated by adding expected net income to the previously valued equity, and then subtracting expected dividends in year $t=0$. For year $t+1$, net income is forecasted before subtracting expected dividends for year $t+1$. The same applies for the remaining years.

The model also needs to be secured against potential violations of clean surplus accounting. By replacing book value from year $t-1$ and residual income in year $t=0$ with book value and dividends in year $t=0$ the dirty surplus effects in the estimates are avoided. Now, in year $t=0$ the effect has already happened. Now, any change in future residual income caused by book value is now an only an offset of the year $t=0$ value.

Based on this estimation procedure, we can now establish an equation to determine pre-acquisition fundamental value:

$$V_{pre} = \frac{E_{-1}(D_0)}{(1+r_e)} + \frac{E_{-1}(BV_0)}{(1+r_e)} + \frac{E_{-1}(NI_1 - r_e \times BV_0)}{(1+r_e)^2} + \frac{E_{-1}(NI_2 - r_e \times BV_1)}{(1+r_e)^3} + \frac{E_{-1}(NI_3 - r_e \times BV_2)}{(1+r_e)^3 r_e} \quad (5)$$

where the two first terms are dividends and book value of equity in the year of the acquisition, and the last three terms are the estimated fundamental value in the respective years. The estimates are done under the assumption that the acquisition is not yet known.

For the post-acquisition fundamental value, the same principles are applied but using realised fundamental value instead of estimated fundamental value.

$$V_{post} = \frac{D_0}{(1+r_e)} + \frac{BV_0}{(1+r_e)} + \frac{NI_1 - r_e \times BV_0}{(1+r_e)^2} + \frac{NI_2 - r_e \times BV_1}{(1+r_e)^3} + \frac{NI_3 - r_e \times BV_2}{(1+r_e)^3 r_e} \quad (6)$$

To measure the acquisitions' impact on fundamental value, pre-acquisition fundamental value is subtracted from post-acquisition fundamental value. Positive

results indicate that fundamental value has been created. In order to make the results comparable across firms, the changes are measured in percentages according to equation (7), and control firm adjusted results are calculated according to equation (8)¹⁷. The reported results are means with outliers removed.

$$\left(\frac{(V_{post} - V_{pre})}{V_{pre}} \right)^{Acquirer} \tag{7}$$

$$\left(\frac{(V_{post} - V_{pre})}{V_{pre}} \right)^{Acquirer} - \left(\frac{(V_{post} - V_{pre})}{V_{pre}} \right)^{Control\ firm} \tag{8}$$

6.4.1 Example

In year 2000, Holmen AB, a Swedish firm in the forestry and paper sector acquired Papalera Peninsular SA, a Spanish firm within the same industry. The deal value was total EUR 244 million, and was a combination of cash and debt assumed. There was no contingent consideration (i.e. earnout) connected with the purchase, and the process of integration started immediately. The relevant financial information for years $t-3$ to $t+3$ relative to the year of the acquisition are presented in Table 1.

TABLE 1
Holmen AB financials

Reports financials for Holmen AB both before and after the acquisition of Papalera Peninsular SA. All, that is EBITDA, net income, shareholders' equity and dividends, are reported in thousands.

Year	EBITDA	Net income	Shareholders' equity	Dividends	No of shares	Payout ratio
1997	3391	1434	14345	732	66236	0,51
1998	3981	2504	15896	777	66236	0,31
1999	3598	1814	16825	3661	66236	2,02
2000	5403	3972	15749	969	66236	0,24
2001	3234	2186	15191	4927	57349	2,25
2002	3143	1959	11003	645	57349	0,33
2003	3029	1451	13024	756	57349	0,52

¹⁷ An explanation on the control groups are composed and calculated follows later in the thesis.

Following the estimation procedure described earlier, step one is to forecast future net income. The forecast net income in year $t=0$ equals the average net income in years $t-3$ to $t-1$. For Holmen AB, this is

$$\frac{1434 + 2504 + 1814}{3} = 1\,917$$

The same procedure is followed for years $t+1$ to $t+3$.

Step two is to forecast dividends. This is done by multiplying net income in year $t-1$ by an average of the payout ratio¹⁸ in years 1 to 3. For Holmen AB, $t=0$ forecast dividends are

$$1814 \times \left(\frac{0.51 + 0.31 + 2.02}{3} \right) = 1\,717$$

This is done for years $t+1$ to $t+3$.

The last forecast needed is shareholders' equity. The book value in year $t=0$ is estimated by adding the expected net income to the previously valued equity, minus expected dividends in year $t=0$. For year $t+1$, the forecasted net income is added and expected dividends for year $t+1$ subtracted. The same applies for years $t+2$ and $t+3$. Forecasted common shareholders' equity in year $t=0$ is

$$16\,825 + (1\,917 - 1\,717) = 17\,026$$

A summary of the forecasts on Holmen AB are presented in Table 2.

¹⁸ The payout ratio is calculated by dividing the dividends paid by net income.

TABLE 2
Holmen AB Forecast summary

A summary of the forecasts done on net income, dividends and shareholders equity' All forecasts follow the procedures introduced in section 6.5.

Year	(E) Net income	(E) Dividends	(E)Shareholders equity
2004	1917,33	1716,79	17026
2005	2078,44	2060,44	17044
2006	1936,59	2705,51	16275
2007	1977,46	2119,79	16132

We can now estimate pre- and post-acquisition fundamental value according to equation (5) and (6). The estimation procedure and corresponding results are presented in Table 3.

TABLE 3
Holmen AB: Fundamental value

Panel A report the estimations on each component forming total fundamental value. The calculations are according to equation (5). Panel B report post-acquisition results according to equation (6).

Description	Calculation	Value per share
Panel A: Pre-acquisition fundamental value		
Dividends	$\frac{1716789}{1 + 0.089} / 66236$	23.8
Book value of equity	$\frac{17025669}{1 + 0.089} / 66236$	236.03
Residual income year 3	$\frac{2078444 - 0.089 \times 17025669}{(1 + 0.089)^2} / 57349$	8.27
Residual income year 2	$\frac{1936593 - (0.089 \times 17043675)}{(1 + 0.089)^3} / 57349$	5.66
Terminal value	$\frac{1977457 - (0.089 \times 16274758)}{(1 + 0.089)^3 \times 0.089} / 57349$	80.13
Fundamental value per share	SUM	353.89

TABLE 3 (Continued)

Description	Calculation	Value per share
Panel B: Post-acquisition fundamental value		
Dividends	$\frac{968783}{(1 + 0.089)} / 66236$	13.43
Book value of equity	$\frac{15749421}{(1 + 0.089)} / 66236$	218.3
Residual income year 3	$\frac{2186000 - (0.089 \times 15749421)}{(1 + 0.089)^2} / 57349$	11.48
Residual income year 2	$\frac{1959000 - (0.089 \times 1519497)}{(1 + 0.089)^3} / 57349$	8.15
Terminal value	$\frac{1451000 - (0.089 \times 11003106)}{(1 + 0.089)^3 \times 0.089} / 57349$	71.03
Fundamental value per share	SUM	322.40

The total estimated fundamental value per share of Holmen AB prior to the acquisition is 353.89 against realised 322.40. Holmen AB has experienced a negative change in fundamental value of -8.9%.

6.5 Controlling for Acquisitions

Control firm groups are created for the acquirer using firms that falls within the same Datastream sector as the acquirer. The control measures are means of control group firm's results, calculated following the same procedure as of the firms in the main sample. Outliers are removed from the control groups. Abnormal results are obtained when the mean results of the control groups are subtracted from the results of the acquirer.

6.5.1 Example (continued)

The results gained up to now is limited to measuring the general development of Holmen AB. In order to be able to link the effects to the acquisition made, a comparison with industry peers have to be done. This is meant to be a comparison of how they would have performed in the absence of acquisition. Holmen AB falls in under the Forestry and Paper classification in Datastream. In gathering firms for the control group the same time and geographical criteria as for the acquirers in the main sample are used. When excluding the firms that had been involved in a transaction during the time period, either as bidder or target, it remains three qualified comparable firms. These are subject to calculations according to equations (7) (9) (10) and (10). Results are summarized in Table 4.

TABLE 4**Holmen AB: Forestry and paper control firms**

All values are reported on a per-share basis to secure comparability and to adjust for effects on fundamental value introduced by issuance of shares. In Panel B, changes in revenue and EBITDA margin are percentage change from the last fiscal year prior to the acquisition to a mean value of years t+1 to t+3. Panel C report averages of the changes reported in Panel B.

	Fundamental value		Revenue		EBITDA margin	
	Pre	Post	Pre	Post	Pre	Post
Panel A: Pre- and post-values						
Metsa Board	-2,7	15,09	4235600	6510533	16,90 %	12,80 %
Rottneros	2,47	-2,09	2101000	2538333	10,30 %	10,00 %
Bergs timber	19,47	-18,7	191283	269900	0,026	3,50 %
Panel B: Change in values						
Metsa Board	-118,00 %		54 %		-4,10 %	
Rottneros	-25,99 %		21 %		-0,30 %	
Bergs timber	215,71 %		41 %		1 %	
Panel C: Averages						
Control variable values ^a	24 %		39 %		-1 %	

^ain later analysis, means will be calculated for each component (book value, residual income year 1 and 2 and terminal value)

6.6 Measuring Changes in Variables

To measure the change in variables we measure both gross change and adjusted change. The change is being measured up to three years post-acquisition and compared to the last fiscal year before the acquisition. Gross change are being measured according to equation (8), suitable for comparing across firms. Control firm adjusted changes are being measured by a difference in differences approach according to equation (9). The reported results are means, with outliers removed.

$$\frac{X_{post} - X_{pre}}{X_{pre}} \quad (9)$$

$$\left(\frac{X_{post} - X_{pre}}{X_{pre}} \right)^{Acquirer} - \left(\frac{X_{post} - X_{pre}}{X_{pre}} \right)^{Control firms} \quad (10)$$

In equations (8) and (9), X_{pre} represent the measure in the last fiscal year prior to the acquisition, while X_{post} is an average of year $t+1$ to $t+3$. However, the results will also be presented with annual changes in order to measure trends. In addition, yearly margins will be reported, based on the findings of Christian and Jones (2004) that EBITDA is complementary to earnings in the time around the time of acquisition.

6.6.1 Example (continued)

Moving on with the example with Holmen AB, we need to measure the changes observed in revenue and EBITDA margin. According to equation (9), changes in revenue and EBITDA margin is measured as

$$\left(\frac{16184000_{post} - 20508000_{pre}}{20508000_{pre}} \right)^{Holmen AB} = -0.021$$

and

$$(0.194_{post} - 0.175_{pre})^{Holmen AB} = 0.019$$

where the results indicate that there has been a negative development in revenue but an increase in EBITDA margin.

The industry adjusted changes are measured according to equation (10), and represent the change which can be linked to the acquisition:

$$\begin{aligned} (-0.21)^{Acquirer} - (0.43)^{Control firms} &= -0.64 \\ (0.019)^{Acquirer} - (-0.01)^{Control firms} &= 0.009 \end{aligned}$$

We observe that the acquisition act as an amplifier of the already measured trend.

6.7 Measuring Differences Between Earnout and Non-Earnout Structures

To measure the difference between acquirers using an earnout and those who do not, we compare the mean results of the two groups according to equation (11) and (12)

$$\left(\frac{X_{post} - X_{pre}^{Acquirers}}{X_{pre}} \right)^{Non-earnouts} - \left(\frac{X_{post} - X_{pre}^{Acquirers}}{X_{pre}} \right)^{Earnouts} \quad (11)$$

$$\left(\frac{X_{post} - X_{pre}^{Abnormal}}{X_{pre}} \right)^{Non-earnouts} - \left(\frac{X_{post} - X_{pre}^{Abnormal}}{X_{pre}} \right)^{Earnouts} \quad (12)$$

A transaction is considered an earnout if part of the payment is made contingent. On the other side, a transaction is non-earnout if full payment has occurred at the time of the acquisition.

6.8 Statistical Significance

To test the results for statistical significance, Student's t-test for both paired and unpaired samples are being applied. This test is testing differences in means, and is hence telling us whether the observations prior to the acquisition are statistically different from the observations post acquisition.

One could argue that due to the relatively small dataset, the measurements should be on the median, hence using the Wilcoxon's signed-rank test or similar to test for statistical significance. However, Bruner (2002) suggest that the t-test is the most appropriate test for this type of approach. Anyhow, the data sample is relatively small, large deviations from the mean (outliers) will greatly affect the results. Hence, outliers are removed from both the sample and control groups. The determination of outliers is based on the inner and outer limit rule. The outer limit is defined as quartile 1 minus 1.5 times the interquartile range. The lower limit is quartile 3 plus 1.5 times the interquartile range. If an observation falls without these ranges, it is defined as an outlier.

The paired samples are calculations on differences in time according to equations (7) (8) (9) and (10). The unpaired samples are the measurements of differences between earnout and non-earnout transaction structures according to equations (11) and (12).

7 DATA

Data is collected for the period 2000 to 2009 and include acquisitions done from Nordic countries. In order to fall under the definition of being a Nordic acquisition the bidder firm has to be either from Norway, Sweden, Denmark, Finland or Iceland. The majority of the acquisitions that are subject for analysis in this study are conducted before the introduction of the new standards set out in U.S. GAAP and IFRS¹⁹.

7.1 Data Collection

The list of acquisitions has been extracted from the Zephyr, a database of deal information. It is required that the current status of the deal is ‘Complete’, and that the deal value is equal to or above EUR 10 million. Only acquisitions where the bidder gains 100% ownership after the acquisition have been included in the sample. This includes acquisitions where the bidder firm already had up to 50% control in the target. If the pre-bid ownership is equal to or above 50%, it is omitted from the sample. All acquisitions of assets are also removed from the sample, as it makes less sense to include an earnout in these types of contracts. In addition, all PE firms are removed since they are acquiring with a different rationale and basis than industrial firms. It is also required that each acquirer have a representable group of control firms. Acquirers which are divisions in a group are also removed²⁰. Further, it is required that financial information²¹ is available from year $t-3$ to $t+3$.

In order to be able to link the potential increase or decrease in the variables to the effect of the transaction, all firms which are involved in another transaction between year $t-3$ and $t+3$ are removed from the sample. In addition, all acquirers which did not have available financial information (e.g. firm not established) at least 3 years prior to the transaction are removed. The same applies for firms without financial information in years $t+1$ to $t+3$. Acquirers which go bankrupt or are acquired by another firm within three years after the transaction are also removed. This leaves a sample of 33 transactions, whose time distribution is summarized in Table 5.

¹⁹ The standards were effective in respectively 2009 for IFRS and 2008 for U.S. GAAP. As the transactions in this study are made from Nordic firms, all fall in under IFRS. In the sample, 5 transactions were done in 2008, and none in 2009.

²⁰ TTS Marine was removed from the sample because they are a division in the TTS Group. Hence, representative financial information is not easily available.

²¹ Net income, shareholders’ equity, dividends, number of shares, EBITDA and revenue

TABLE 5**Time distribution of completed deals in the Nordic countries between 2000 and 2009**

Date of transaction	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	N
Firms in sample ^a	5	7	3	2	3	4	2	2	5	0	3

a[^] Firms in sample include all transactions which fulfil the criteria listed, and for which the required pre- and post-data is obtained for respectively -3 and +3 years from the year of the transaction

7.2 Control Data

To get an indication on what the situation would have been if the acquirer didn't perform the acquisition, control groups are created for comparison. Requirements are that firms in the control group need to be within the same sector as the acquirer, as reported by Datastream. The same conditions as described in section 7.1 apply. However, the firms in the control group cannot have been part of a deal during the data period. This is determined by searching the Zephyr database. Maximum five firms are allowed in a control group, but actual number of firms range from one to five.

7.3 Summary Statistics

A summary of the characteristics of the acquisitions included in the sample is presented in Table 6. In the variables that is subject for tests we can see a large difference in size (ranges from min to max). This indicates that there might be many outliers in the sample that need to be removed in order to keep the integrity of the data.

TABLE 6**Summary statistics**

net income, shareholders equity and EBITDA for the sample firms the last fiscal year before acquisition. All numbers reported in thousands.

Variable_direct	Max	Min	Median	Mean	Std. Dev	N
Net income	10880	-60	498	1680	2764	33
Shareholders' equity	71227	21	4134	13540	18496	33
EBITDA	37736	-51	1849	6637	10477	33
Common dividends	3865	0	97	759	1081	33
Revenue	152835	25	6913	22712	35887	33

Table 7 is presenting the characteristics of the deals included in the sample. Cash is the dominant method of payment in the sample, with a few transactions being financed with shares²². This is close to the characteristics reported by Faccio and Masulis (2005)²³.

TABLE 7

Method of payment for the acquisitions in the thesis sample

This table report the method of payment as reported by Zephyr database. The method of payment is determined by the dominant compensation format. This means that some of the transactions that are classified as either cash, shares or debt assumed financed may actually be a combination. Average deal size is calculated from the reported deal sizes of Zephyr.

% of acquisitions made with	
Cash	69.7
Shares	18.2
Debt assumed	12.1
% of acquisitions made with	
Normal contract	78.8
Earnout contract	21.2
Average deal size (th. EUR)	750 976

8 EMPIRICAL RESULTS AND ANALYSIS

In this section, empirical findings and test results will be presented for each of the hypotheses presented in section 5. Results will be presented together with the probability associated with the t-test. The findings are categorized according to section 5:

- Fundamental value
- Revenue growth
- EBITDA margin

Findings are presented as significant at ten, five and one percent levels.

²² The definition follows what the Zephyr database classifies as the main source of compensation. In many of the cases, a various combinations of the three have been used.

²³ They reported that 80% of the deals were pure cash deals, and 11.3% pure stock. The results in this thesis are that 70% cash, and 18% stock, under the definition described in footnote 17.

8.1 H1: Fundamental Value Results

Table 8 reports the results achieved when following the residual income valuation approaches described in earlier sections. The results presented are the ones of equations (4) to (8), together with its individual components. Panel A report pre-acquisition values from equation (5) and abnormal values using equation (8). Panel B reports post-acquisition values according to equation (6). The values in Panel A and B are normalised by the pre-acquisition value by dividing each variable by the total pre-acquisition value and multiplying with 100. This sets the total value to 100 for both the acquirer and control firm in Panel A. Thus, changes are reported as percentage change. The components'²⁴ values are reported as proportions of total value. Panel D and E is showing the same type of values as Panel C for firms using earnouts and firms that do not, respectively. Panel F is showing the differences between the values reported in Panel D and E, where positive values represent more value creation for firms who are *not* using earnouts.

In terms of fundamental value created for acquirers in general, no statistical significant value change is observed. This applies on all component parts as well as total value. Due to the lack of statistical significance, the findings can only be seen as indicative.

This corresponds with the findings of Guest, Bild and Runsten (2010), who fail to provide evidence on an acquisition's effect on fundamental value. However, they do provide evidence on the effect on acquirers, before adjusting for control firms' results²⁵. However, these results fail to provide any evidence on fundamental value effects of acquisitions, even for the acquirer before adjusting.

When exclusively including acquirers which used earnouts, results remain unchanged. Conclusively, there is no evidence that earnouts have a significant cash flow effect on acquirers.

As mentioned in the introduction, earnouts is designed in a way that prevents integration of the target. Damodaran reports that synergy is seldom delivered in acquisitions, but it is still one of the main motives behind an acquisition. Hence, the time value of planned synergy should be part of the cost evaluation of using an

²⁴ The components of total value is book value, dividends, residual income year 1 and 2 and terminal value, ref equation (4)

²⁵ Book value and dividends for acquirer at 5 percent level, residual income in year 1 and 2 plus total value at 1 percent. For abnormal, book value at 5 percent, terminal value at 10 percent.

earnout. With the results showing no significant difference between the two structures, one can say that time value of synergy represent a theoretical loss for acquirers using an earnout. In addition, Damodaran (2005) reported a 7.48% value increase on the announcement of the merger, something that is unattainable when using earnouts.

TABLE 8

The effect of acquisition on fundamental value of acquirer

This table reports the fundamental value for the acquirers in the sample. Each acquirer is matched with its group of control firms, using the mean of the variable under test. Abnormal change in revenue is the acquirers change minus the mean of the control firm's change. The figures reported are means, with outliers removed. For the transactions in the sample, lower limit for outliers is -162 and upper limit 157. For the peer groups, the limits are respectively -174 and 154. Probabilities associated with t-tests are reported for each change, and are computed using the Student's t-test. For panel A to E, a two-tailed paired t-test is computed, while for panel F it is used a two-tailed two-sample unequal variance (heteroscedastic) test, since the number of transactions using an earnout is different from the number of transactions not using an earnout. Also, there are no clear similarities between the two groups. In Table A, the values are normalised by the pre-takeover value by dividing each variable by the total pre-acquisition value and multiplying with 100. This makes the total value 100 in each case, giving us the difference in total value in percentages, and the other variables (the components) as a percentage of total, explaining the how the total value is divided. The changes reported in Panel D and E is calculated the same way as Panel C, but the normalised pre values and post values are not reported. The difference between earnouts and non-earnouts is calculated by subtracting earnout transaction values from non-earnout transaction values, meaning that a positive number indicate higher value for non-earnouts.

Variable	Fundamental value					
	Acquirer	t-test	Control firm	t-test	Abnorm.	t-test
Panel A: Pre-acquisition value						
Book value year 0	110,60		104,74		5,86	0,76
Dividends year 0	9,97		4,24		5,73	0,12
Residual income year 1 and 2	-2,15		4,39		-6,54	0,21
Terminal value	-18,42		-13,37		-5,05	0,78
Total value	100,00		100,00		0,00	
Panel B: Post-acquisition value						
Book value year 0	110,88		102,29		8,58	0,68
Dividends year 0	5,25		5,40		-0,15	0,97
Residual income year 1 and 2	-0,32		0,00		-0,32	0,88
Terminal value	-6,18		1,22		-7,40	0,42
Total value	109,62		108,92		0,71	0,26
Panel C: Difference between post- and pre-acquisition						
Book value year 0	0,28	0,89	-2,45	0,34	2,73	0,38
Dividends year 0	-4,72	0,18	1,16	0,15	-5,88	0,11
Residual income year 1 and 2	1,83	0,51	-4,39	0,44	6,22	0,31
Terminal value	12,23	0,52	14,59	0,07	-2,36	0,91
Total value	9,62	0,62	8,92	0,62	0,71	0,87

TABLE 8 (Continued)

	<i>Acquirer</i>	<i>t-test</i>	<i>Control firm</i>	<i>t-test</i>	<i>Abnorm.</i>	<i>t-test</i>
Dividends year 0	-1,04	0,51	0,18	0,78	-1,22	0,52
Residual income year 1 and 2	16,43	0,51	5,94	0,17	10,49	0,83
Terminal value	67,98	0,45	16,44	0,09	51,54	0,91
Total value	84,66	0,37	19,18	0,30	65,48	0,83
Panel E: Difference between acquirers post- and pre-acquisition w/o earnout						
Book value year 0	0,21	0,92	-2,17	0,44	2,38	0,50
Dividends year 0	-4,97	0,18	1,45	0,16	-6,42	0,12
Residual income year 1 and 2	0,86	0,74	-7,48	0,29	8,33	0,44
Terminal value	8,51	0,66	14,04	0,25	-5,53	0,97
Total value	4,61	0,82	5,85	0,93	-1,24	0,86
Panel F: Difference between earnouts and non-earnouts						
Book value year 0	-1,07	0,98	1,21	0,87	-2,28	0,86
Dividends year 0	-3,93	0,21	1,28	0,28	-5,21	0,15
Residual income year 1 and 2	-15,58	0,32	-13,42	0,10	-2,15	0,69
Terminal value	-59,47	0,89	-2,40	0,84	-57,07	0,95
Total value	-80,05	0,65	-13,34	0,46	-66,71	0,96

8.2 H2: Revenue Growth Results

Table 9 reports the results of the measurements done on annual and total change in revenue. Results are obtained using equations (9) (10) (11) and (12) as described in section 6. Panel A reports annual changes from years $t-1$ to $t+3$. As a measurement of total change in revenue, difference according to equation (9) is reported. Panel B reports the same results, but limited to the firms which used an earnout in the transaction. Panel C provides the same for firms which did not use an earnout. Panel D reports the differences between Panel B and C according to equations (11) and (12). Positive results indicate change in favour of non-earnouts.

The total change in revenue for acquirers is positive by 26%²⁶. In addition, positive change of 20%²⁷ from year $t-1$ to the actual year of the acquisition ($t=0$) are observed. Positive change is also observed for abnormal results, but can only be seen as indicative as it is lacking statistical significance. However, looking at differences between earnout and non-earnout acquirers, no significant differences is observed.

²⁶ Significant at 10 percent

²⁷ Significant at 5 percent

As a suggested by Caselli et al. (2006), revenue is a commonly used performance measure linked to earnouts. The results of this thesis fails to provide evidence that it earnouts have a larger consequence on revenue than non-earnouts. This result is not as one would expect, since target management's biggest incentives are related to the performance measures.

However, if allowing for an insignificant interpretation, it may seem like earnouts have a positive effect on revenue. But, as described in section 3, it is also possible that this are results of acquirer's accounting choices, or nonrecurring items such as sale of assets.

TABLE 9

The effect of acquisition on revenue of acquirer

All reported figures are percentage changes. As the reported revenue is not a relative measure, only changes from year to year are reported. Each acquirer is matched with its group of control firms, using the mean of the variable under test. Abnormal change in revenue is the acquirers change minus the mean of the control firm's change. The figures reported are means, with outliers removed. For the transactions in the sample, lower limit for outliers is -66 and upper limit 124. For the peer groups, the limits are respectively -156 and 198. Probabilities associated with t-tests are reported for each change, and are computed using the Student's t-test. For panel A to C, a two-tailed paired t-test is computed, while for panel D it is used a two-tailed two-sample unequal variance (heteroscedastic) test, since the number of transactions using an earnout is different from the number of transactions not using an earnout. Also, there are no clear similarities between the two groups. The difference between earnouts and non-earnouts is calculated by subtracting earnout transaction values from non-earnout transaction values, meaning that a positive number indicate higher value for non-earnouts.

Variable	Revenue					
	<i>Acquirer</i>	<i>t-test</i>	<i>Control firm</i>	<i>t-test</i>	<i>Abnorm.</i>	<i>t-test</i>
Panel A: Annual changes in revenue						
Revenue -1 to 0	0,20	0,05	0,10	0,05	0,11	0,11
Revenue 0 to 1	0,07	0,40	0,00	0,27	0,07	0,83
Revenue 1 to 2	0,00	0,13	-0,02	0,31	0,02	0,13
Revenue 2 to 3	-0,02	0,43	-0,02	0,31	0,01	0,16
Δ Revenue -1 to avg(1-3)	0,26	0,03	0,07	0,09	0,19	0,26
Panel B: Changes in revenue earnouts						
Revenue -1 to 0	0,32	0,34	0,00	0,37	0,33	0,32
Revenue 0 to 1	0,20	0,21	0,06	0,36	0,14	0,94
Revenue 1 to 2	-0,09	0,33	-0,03	0,36	-0,06	0,31
Revenue 2 to 3	-0,02	0,41	-0,02	0,35	0,01	0,30
Δ Revenue -1 to avg(1-3)	0,44	0,27	0,02	0,49	0,42	0,15

TABLE 9 (Continued)

Panel C: Changes in revenue						
non-earnouts	<i>Acquirer</i>	<i>t-test</i>	<i>Control firm</i>	<i>t-test</i>	<i>Abnorm.</i>	<i>t-test</i>
Revenue -1 to 0	0,18	0,09	0,12	0,08	0,06	0,25
Revenue 0 to 1	0,03	0,99	-0,02	0,62	0,05	0,81
Revenue 1 to 2	0,02	0,26	-0,01	0,31	0,04	0,30
Revenue 2 to 3	-0,02	0,27	-0,02	0,93	0,01	0,25
Δ Revenue-1 to avg(1-3)	0,22	0,08	0,09	0,19	0,13	0,47
Panel D: Difference between earnouts and non-earnouts						
Revenue -1 to 0	-0,15	0,55	0,12	0,61	-0,27	0,52
Revenue 0 to 1	-0,16	0,22	-0,08	0,40	-0,09	0,17
Revenue 1 to 2	0,11	0,41	0,02	0,37	0,09	0,30
Revenue 2 to 3	-0,00	0,19	0,00	0,35	0,00	1,00
Δ Revenue -1 to avg(1-3)	-0,22	0,51	0,07	0,61	-0,29	0,45

8.3 H3: EBITDA Margin Results

Changes and differences in change in EBITDA margin are reported in Table 10. Again, changes are reported according to equations (9) (10) (11) and (12). Panel A reports realised EBITDA margins in the sample years. Panel B to E reports the same type of measures as Table 5 Panels A to D, but on EBITDA margin in place of revenue.

As EBITDA is one of the more commonly used performance measures in an earnout, it is expected that acquirers using one experience better results than others. As mentioned in section 3.2, exclusively trying to increase the performance measure may cause target management to cut back on investments for the future (e.g. training, R&D etc.). Because this is a risk introduced solely by the inclusion of an earnout, one would expect that growth in performance measure (i.e. EBITDA) should compensate for the increased risk exposure.

The observed abnormal EBITDA margin in year $t=0$ is 12.5%²⁸, a result that according Christian and Jones (2004) plays a compensating role for earnings in explaining value of acquisition in year $t=0$. But, looked at isolated this measure provides no measure of change. From year $t=0$ to $t+1$ however, it can be observed a negative change of 2%²⁹ before adjusting. Further, it can also be observed a decrease in EBITDA margin for the whole period. Compared to control firms, none of the observations are significant.

The only significant difference between earnouts and non-earnouts is a positive change of 8.1% in favor of non-earnout acquirers from year $t+2$ to $t+3$ ³⁰. The remainder of the observed differences are however not statistical significant, and the results obtained is only indicative. Thus, no evidence pro earnout can be found. Interestingly, the acquirers which used an earnout experienced significantly lower earnout margins than its counterparts in $t+2$ to $t+3$. Damodaran (2005) reported that approximately 40% of acquirers manage to create synergy, and this might be a result of that.

Looking at the findings of Kohers and Ang (2000), targets that are under earnouts receive on average 62% of the total earnout. Combined with the statements of Caselli et al. (2006) that EBITDA are one of the more common used performance measures, the lack of findings may be a a surprise.

²⁸ Significant at 1 percent

²⁹ Significant at 10 percent

³⁰ Significant at 5 percent

TABLE 10

The effect of acquisition on EBITDA margin of acquirer

Reported figures in Panel B to D are percentage changes, while in Panel A it is the observed margin in the respective years. Each acquirer is matched with its group of control firms, using the mean of the variable under test. Abnormal change in revenue is the acquirers change minus the mean of the control firm's change. The figures reported are means, with outliers removed. For the transactions in the sample, lower limit for outliers is -26 and upper limit 8. For the peer groups, the limits are respectively -24 and 27. Probabilities associated with t-tests are reported for each change, and are computed using the Student's t-test. For panel A to D, a two-tailed paired t-test is computed, while for panel E it is used a two-tailed two-sample unequal variance (heteroscedastic) test, since the number of transactions using an earnout is different from the number of transactions not using an earnout. Also, there are no clear similarities between the two groups. The difference between earnouts and non-earnouts is calculated by subtracting earnout transaction values from non-earnout transaction values, meaning that a positive number indicate higher value for non-earnouts.

Variable	EBITDA margin					
			<i>Control</i>			
	<i>Acquirer</i>	<i>t-test</i>	<i>firm</i>	<i>t-test</i>	<i>Abnorm.</i>	<i>t-test</i>
Panel A: EBITDA margins						
EBITDA% year -1	0,168		0,028		0,140	0,33
EBITDA% year 0	0,168		0,043		0,125	0,01
EBITDA% year 1	0,148		0,058		0,090	0,38
EBITDA% year 2	0,174		0,032		0,142	0,04
EBITDA% year 3	0,153		0,057		0,096	0,55
Panel B: Annual changes in EBITDA margin						
			<i>Control</i>			
	<i>Acquirer</i>	<i>t-test</i>	<i>firm</i>	<i>t-test</i>	<i>Abnorm.</i>	<i>t-test</i>
EBITDA% -1 to 0	0,000	0,28	0,015	0,40	-0,015	0,26
EBITDA% 0 to 1	-0,020	0,09	0,015	0,80	-0,035	0,39
EBITDA% 1 to 2	0,027	0,11	-0,026	0,96	0,052	0,23
EBITDA% 2 to 3	-0,022	0,21	0,025	0,49	-0,047	0,27
Δ EBITDA% -1 to avg(1-3)	-0,010	0,00	0,037	0,48	-0,047	0,03
Panel C: Changes in EBITDA margin earnouts						
EBITDA% -1 to 0	-0,012	0,69	0,015	0,81	-0,027	0,57
EBITDA% 0 to 1	-0,041	0,56	0,015	0,03	-0,056	0,44
EBITDA% 1 to 2	0,050	0,42	-0,026	0,40	0,076	0,36
EBITDA% 2 to 3	-0,088	0,05	0,025	0,62	-0,113	0,18
Δ EBITDA% -1 to avg(1-3)	-0,049	0,01	0,021	0,70	-0,070	0,19

TABLE 10 (Continued)

Panel D: Changes in EBITDA margin non-earnouts	<i>Control</i>					
	<i>Acquirer</i>	<i>t-test</i>	<i>firm</i>	<i>t-test</i>	<i>Abnorm.</i>	<i>t-test</i>
EBITDA% -1 to 0	0,021	0,20	-0,054	0,49	0,076	0,22
EBITDA% 0 to 1	-0,034	0,08	0,013	0,72	-0,047	0,46
EBITDA% 1 to 2	0,021	0,18	0,005	0,52	0,017	0,43
EBITDA% 2 to 3	-0,007	0,86	0,024	0,28	-0,031	0,57
Δ EBITDA% -1 to avg(1-3)	-0,001	0,00	-0,030	0,36	0,029	0,15
Panel E: Difference between earnouts and non-earnouts						
EBITDA% -1 to 0	0,033	0,33	-0,069	0,50	0,103	0,24
EBITDA% 0 to 1	0,006	1,00	-0,002	0,89	0,008	0,76
EBITDA% 1 to 2	-0,028	0,67	0,030	0,91	-0,059	0,70
EBITDA% 2 to 3	0,081	0,04	-0,001	0,63	0,082	0,58
Δ EBITDA% -1 to avg(1-3)	0,048	0,30	-0,052	0,55	0,099	0,34

9 CONCLUSIONS

By examining a sample of 33 Nordic transactions, I have investigated what motivates firms to choose an earnout in their acquisition agreement. From the perspective of fundamental value, EBITDA margin and revenue I find no statistical evidence that there exist any difference in changes for firms who use earnouts and firms who do not. As representatives for earnout performance measures, I would expect that firms using earnouts experienced a more positive change in EBITDA margin and revenue compared to firms who do not. The only observed difference however, is the change in EBITDA margin from year $t+2$ to $t+3$, in favor of non-earnouts. All other observed differences between the two contract structures are insignificant.

This is interesting because in the case of an earnout, acquirers take on additional costs. The additional costs derives from both facilitating the earnout, and because it prevent integration of the target. If the motive of acquisition is more positive cash flow consequences, my results suggest that earnouts are not being used rationally. However, looking back on previous literature the earnout serve purposes which might provide gains in the long run, especially in terms of retaining human

capital. Thus, I fail to provide clear answers on why firms use earnouts in their acquisition agreements.

But, readers need to be aware that this study has limitations. The data set being examined is relatively small, increasing the likelihood of being affected by non-relevant changes. For example, nonrecurring items that are not captured by, or affect the min/max range for outlier determination may have an effect on the total result. In addition, by only including one to five firms in the control groups, it is less likely that these groups manage to capture market and industry trends. Also, the model is not capturing changes in risk for individual acquirers, only for the market as whole³¹. This is due to lack of time series beta values for individual firms.

For further research, I would recommend to increase the size of the dataset. Also, as earnouts is a tool for shifting risk, the development in risk for acquirers should be examined. It would be interesting to see whether the situation changes during the earnout period. In addition, by expanding the time period, it may be possible to examine whether earnouts have a long term effect on the combined firm. However, by introducing years beyond the earnout period it is more likely that effects which cannot be linked to the actual earnout is captured. This will require in-debt analysis of a large number of transactions, especially considering the new, potential consequences of earnout fair value adjustments on earnings.

³¹ Through changes in risk free rates, determined by 10-year government bonds

10 REFERENCES

Bradley, M., Desai, A. & Kim, E. (1988). Synergistic gains from corporate acquisitions and the division between stockholders of target and acquiring firms. *Journal of Financial Economics*, 21, 3-40.

Bruner, R.F. (2002). Does M&A Pay? A Survey of Evidence for the Decision-Maker. *Journal of Applied Finance*, 2, 48-68.

Cadman, B.D., Carrizosa, R. & Faurel, L. 2013. Economic Determinants and the Information Environment Effects of Contingent Considerations: New Insights from SFAS 141(R). *SSRN eLibrary* (April 2013). <http://ssrn.com/abstract=2035536>.

Cain, M., Denis, D., Denis, D. (2011). Earnouts: A study of financial contracting in acquisition agreements. *Journal of Accounting and Economics*, 51, 151-170.

Caselli, S., Gatti, S., Visconti, M. (2006). Managing M&A Risk with Collars, Earn-Outs, and CVR's. *Journal of Applied Corporate Finance*, 4, 91-104

Damodaran, A. (2002). *Investment Valuation* (2nd ed.). John Wiley & Sons.

Damodaran, A. (2005). The Value of Synergy. *Damodaran Online*. <http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/synergy.pdf>

Datar, S., Frankel, R, Wolfson, M. (2001) Earnouts: The effects of adverse selection and agency costs on acquisition techniques. *Journal of Law, Economics & Organization*, 17, 201-238

DePamphilis, D. (2011). *Mergers and Acquisitions Basics: Negotiation and Deal Structuring*. Elsevier.

Easton, P. D., Harris, T.S., & Ohlson J.A. (1992). Accounting earnings can explain most of security returns: The case of long event windows, *Journal of Accounting and Economics*, 15, 119-142.

Faccio, M., Masulis, W. (2005). The Choice of Payment Method in European Mergers and Acquisitions. *Journal of Finance*, 3, 1345-1388.

Fernandez, P., Aguirreamalloa, J., Avendaño, L.S. (2013). Market Risk Premium Used in 82 Countries in 2012: A Survey with 7,192 Answers. *SSRN eLibrary* (June 2013). <http://ssrn.com/abstract=2084213>

Guest P, Bild M, Runsten M. (2010) The Impact of Takeovers on the Fundamental Value of Acquirers. *Accounting and Business Research*, 40 (4), 1-20.

Kohers, N., Ang, J. (2000). Earnouts in mergers: Agreeing to disagree and agreeing to stay. *Journal of Business*, 73, 445-476.

Pinto, J.E., Henry, E., Robinson, T.R., Stowe, J.D. (2010). *Equity Asset Valuation* (2nd ed.). John Wiley & Sons.

Spencer, C. (2007). Nordic mid-market M&A. *FW Global Middle Market 2007*, 4-5.

The Norwegian Market Risk Premium 2012 and 2013 (n.d.) Retrieved May 2013, from <http://www.pwc.no/no/publikasjoner/deals/risikopremie-eng.pdf>

Technical Summary: IAS 38 Intangible Assets (n.d.). Retrieved April 2013, from <http://www.ifrs.org/IFRSs/Documents/English%20IAS%20and%20IFRS%20PDFs%202012/IAS%2038.pdf>

Wahlen, J.M., Stephen, B.P., Bradshaw, M.T. (2008). *Financial Reporting, Analysis and Valuation: A Strategic Perspective* (7th ed.). South-Western, Cengage Learning.

11 APPENDICES

APPENDIX A: List of transactions

TABLE 1
List of transactions

Acquirer	Orig	Target	Orig	Deal year	Deal value thEUR	Earnout
Stora enso oyj	FI	Consolidated papers inc.	US	2000	5 025 510	No
Fortum oyj	FI	Birka energi ab	SE	2002	3 657 175	No
Danske bank a/s	DK	Realdanmark a/s	DK	2001	3 561 967	No
Norsk hydro asa	NO	Vaw aluminium ag	DE	2002	3 024 000	No
Dsv a/s	DK	Xb luxembourg holdings 1 sa	LU	2008	750 000	No
Modern times group mtg ab	SE	Nova television ead	BG	2008	620 000	No
Carlsberg a/s	DK	Feldschlösschen getränke holding ag	CH	2000	563 399	No
Hafslund asa	NO	Viken energinett as	NO	2002	413 125	No
Outokumpu oyj	FI	Sogepar spa	IT	2008	335 000	No
Electrolux ab	SE	Email ltd's household appliance making unit	AU	2001	293 155	No
Svenska handelsbanken ab	SE	Midtbank a/s	DK	2001	280 694	No
Holmen ab	SE	Papelera peninsular sa	ES	2000	244 043	No
Prosafe asa	NO	Nortrans offshore ltd	SI	2001	223 966	No
Hexagon ab	SE	Brown & sharpe manufacturing company's metrology business	US	2001	202 338	Yes
Atlas copco ab	SE	Ingersoll-rand drilling solutions	US	2004	184 523	No
Scania ab	SE	Beers nv	NL	2001	142 800	No
Odfjell asa	NO	Seachem	NO	2000	125 093	No
Alfa laval ab	SE	Tranter phe inc.	US	2005	123 450	No
New wave group ab	SE	Cutter & buck inc.	US	2007	117 062	No
H lundbeck a/s	DK	Synaptic pharmaceutical corporation	US	2003	110 413	No
Sjælsø gruppen a/s	DK	Ikast byggeindustri a/s	DK	2006	107 256	No
Norske skogindustrier asa	NO	Pan asia paper co., pte ltd	SG	2005	775,404.00	Yes
Swedbank ab	SE	Tas commerzbank ag	UA	2007	722,990.00	Yes
Cybercom group ab	SE	Plenware oy	FI	2008	54,900.00	Yes
Tomra systems as	NO	Orwak group ab	SE	2005	21,407.69	Yes
Vmetro asa	NO	Transtech dsp ltd	GB	2004	17,400.43	Yes
Birdstep technology asa	NO	Alice systems ab	SE	2004	12,482.12	Yes
Farstad shipping asa	NO	International offshore services	GB	2003	73 647	No
Vbg group ab	SE	Edscha ag's sliding roofs for trucks and trailers division Tb wood's corporation's	DE	2005	37 622 19 700	No
Vacon oyj	FI	adjustable speed drivers business	US	2008		No
Elanders ab	SE	Kape com ab	SE	2000	15 532	No
Tulikivi oyj	FI	Kermansavi oy	FI	2006	13 100	No
Beijer alma ab	SE	Elimag industri ab	SE	2001	11 781	No

APPENDIX B: List of control firms

TABLE 2
Control firms

Acquirer	Ctrl firm 1	Ctrl firm 2	Ctrl firm 3	Ctrl firm 4	Ctrl firm 5
Stora enso oyj	Metsa Board	Rottneros	Bergs Timber		
Fortum oyj	Arendals Fos.				
Danske bank a/s	Nordea	Sandnes Sb.			
Norsk hydro asa	Hoganas	Profilgr.	SSAB		
Dsv a/s	Belships	EMS	NC Carriers	Solvang	Concordia
Modern times group mtg ab	Gyldendal	Ilkka	North Media		
Carlsberg a/s	Harboes	Royal unibrew			
Hafslund asa	Arendals fos.				
Outokumpu oyj	Hoganas	Profilgr.	SSAB		
Electrolux ab	Lammhults	Martela	Fiskars	Expedit	
Svenska handelsbanken ab	Nordea	Sandnes Sb.			
Holmen ab	Metsa Board	Rottneros	Bergs Timber		
Prosafe asa	Ganger Rolf	PGS	Subsea7		
Hexagon ab	OEM	Pricer	Efore	Roblon	
Atlas copco ab	Rias	SMigratronix	Skako	Kesl	
Scania ab	Rias	SMigratronix	Skako	Kesl	
Odfjell asa	Belships	EMS	NC Carriers	Solvang	Concordia
Alfa laval ab	Rias	SMigratronix	Skako	Kesl	
New wave group ab	Gabriel	Saga			
H lundbeck a/s	Alk-Abello	Active biotech	Artimplant		
Sjælsø gruppen a/s	Asgaard	Atrium Lj.	Castellum	Fastpartner	
Norske skogindustrier asa	Metsa Board	Rottneros	Bergs Timber		
Swedbank ab	Nordea	Sandnes Sb.			
Cybercom group ab	Oniva	Ind&Fin	MSC		
Tomra systems as	Rias	SMigratronix	Skako	Kesla	
Vmetro asa	OEM	Pricer	Efore	Roblon	
Birdstep technology asa	Oniva	Ind&Fin			
Farstad shipping asa	Ganger Rolf	PGS	Subsea7		
Vbg group ab	Haldex	Mekonomen	Nokian	Scan. Brake	
Vacon oyj	OEM	Pricer	Efore	Roblon	
Elanders ab	B&B tools	Intermail			
Tulikivi oyj	NIBE	Byggma	Uponor	Dantherm	
Beijer alma ab	Rias	SMigratronix	Skako	Kesla	