Joel Takala

The effect of acquisitions on the performance of Nordic initial public offerings

School of Accounting and Finance
Master's thesis in Finance
Master's Degree Program in Finance

Vaasa 2021

VAASAN YLIOPISTO
School of Accounting and Finance
Author: Joel Takala
Topic of the Thesis: The effect of acquisitions on the performance of Nordic initial public offerings
Degree: Master of Science in Economics and Business Administration
Program: Master´s Degree Program in Finance
Supervisor: Janne Äijö
Year: 2021 **Sivumäärä:** 75

ABSTRACT:
Initial public offerings (IPOs) are an increasingly more popular way to gain capital for private companies. Standard academic theory suggests that companies go public to lower their cost of capital, to climb the pecking order or for strategic reasons. In the empirical literature these theoretical predictions are not found. Literature finds companies to go public to make acquisitions. When the company goes public, they are infused with cash and the uncertainty around their valuation is removed. This leads to acquisitions by newly listed companies. Initial public offerings are a widely studied subject. The negative stock performance of the companies going public in the long run is named as the IPO anomaly. This thesis studies the IPO long-term performance in the Nordic countries and considers the effect of acquisitions on the stock returns.

The sample consists of 201 Nordic IPOs from 2001 to 2016. These returns for these IPOs are benchmarked against a market index and style matching companies. The buy-and-hold return methodology is used to analyze the returns. To further confirm the findings calendar time regressions are used. The Fama and French three factor model is regressed on the calendar time portfolio of IPOs. This thesis finds IPOs to outperform the market index clearly. They do not however outperform their style matches. This is explained with the outperformance of smaller growth stocks in recent years as IPOs are smaller stocks with lower book-to-market. When controlled for style, the outperformance of IPOs disappears. Acquisitions during the first year of the company going public are on average value destroying. First-year acquirers underperform when controlled for style while non-acquirers overperform. When the acquisition period is extended to three years, acquirers overperform significantly and companies not making acquisitions underperform. First year acquirers' managements might suffer from empire building or entrenchment and rush to make acquisitions which are value destroying. If investors invest in IPOs making acquisitions after one year of being public, there are significant abnormal returns available. These abnormal returns also appear ex-post the acquisition period.

KEY WORDS: initial public offering, acquisitions, IPO, M&A, IPO performance

VAASAN YLIOPISTO
Laskentatoimi & Rahoitus
Tekijä: Joel Takala
Tutkielman nimi: The effect of acquisitions on the performance of Nordic initial public offerings
Tutkinto: Kauppatieteiden maisteri
Oppiaine: Rahoituksen maisteriohjelma
Työn ohjaaja: Janne Äijö
Valmistumisvuosi: 2021 **Sivumäärä:** 75

TIIVISTELMÄ:
Listautumisannit ovat yhä suositumpi tapa yksityisille yrityksille pääoman keräämistä varten. Akateemiset teoriat toteavat yhtiöiden listautuvan laskeakseen heidän pääoman kustannustaan, saaden pääsyn pääomarahoitukseen tai strategisista syistä. Empiirisessä kirjallisuudessa näille teoreettisille syille ei löydetä todisteita. Kirjallisuus löytää yritysten listautuvan, jotta he voivat tehdä yrityskauppoja. Kun yritys listautuu pörssiin, se kerää uutta pääomaa ja epävarmuus yrityksen arvosta poistuu. Tämä johtaa listautuneiden yhtiöiden yrityskauppoihin. Listautumisannit ovat laajalti tutkittu ala. Listautuneiden yhtiöiden negatiivisia tuottoja pitkällä aikavälillä kutsutaan listautumisanomaliaksi.

Tämä pro gradu tutkii listautumisantien osaketuottoja pitkällä aikavälillä pohjoismaissa ja keskittyy yrityskauppojen vaikutukseen listautumisten tuotoissa. Otos koostuu 201 pohjoismaisesta listautumisannista vuosilta 2001 vuoteen 2016 asti. Otoksen yhtiöiden tuottoja verrataan markkinaindeksiin, sekä ominaisuuksiltaan samanlaisiin yhtiöihin. Tuottojen analysointiin käytetään osta ja pidä metodia. Vahvistaakseen tuloksia analysoidaan myös listautumisista muodostettujen kalenteri portfolioiden tuottoja. Fama ja French kolmen faktorin mallia käytetään kalenteri regressiossa riippumattomina muuttujina ja riippuvana muuttujana toimii listautumisista muodostettu kalenteri portfolio. Tutkimuksessa havaitaan listautumisantien tarjoavan ylituottoa markkinaindeksiin verrattuna. Ylituotto kuitenkin katoaa, kun listautumisanteja verrataan ominaisuuksiltaan vastaaviin yhtiöihin. Tätä selittää pienempien kasvuyhtiöiden vahvat tuotot viime vuosina. Listautumisannit ovat keskimäärin pienempiä yhtiöitä, joiden B/M-arvo on matalampi. Kun huomioidaan yhtiöiden ominaisuudet, listautumisten ylituotot katoavat. Ensimmäisenä vuonna listautumisen jälkeen tehdyt yrityskaupat ovat keskimäärin arvoa tuhoavia. Ensimmäisenä vuonna yrityskauppoja tekevät häviävät verrokeilleen, kun listautumiset, jotka eivät tee yrityskauppoja voittavat ne. Kun yrityskauppojen tarkasteluperiodi pidennetään kolmeen vuoteen, yrityskauppoja tekevien osakkeiden tuotto on selvästi korkeampi kuin listautujien, jotka eivät osta muita yhtiöitä.

AVAINSANAT: listautumisanti, yrityskauppa, ylituotto

Table of contents

Tables

Figures

1 Introduction

In the growth stage of the company lifecycle the operating capital is usually not enough to pursue the growth strategies aspired. Early-stage companies need cash to product innovation, capital investments and marketing. These can require large investments that the incumbent owners cannot finance and the access to credit might be restricted. The need for external funds can be solved by going public and gaining new owners from the market. Initial public offerings (IPOs) are a way for private companies to raise external funds. The company is infused with cash and the investors gain ownership of the company. IPOs are seen as a compelling way to raise capital and investors see them as attractive investments with over 600 billion dollars raised in total in IPOs of 2021 (Bloomberg, 2021). According to Jain and Kini (1999) after the IPO there are three possible outcomes for the future of the company. It can become a target and be acquired, fail, and go bankrupt or succeed as an independent company.

To succeed after an IPO, companies need to grow and grab market share to stabilize their position in the market. The new equity raised in the IPO process is used to grow and this can be done with mergers and acquisitions (M&A). Inorganic growth has become an efficient way for companies to grow fast and to enhance their business. The number of M&A deals has constantly grown with over 3.5 trillion dollars in yearly deal values (Thomson Reuters, 2021). M&A has advantages over organic growth as the company can grow faster and diversify their business to new geographical locations or to new industries. With acquisitions they can buy out their competitors or gain synergies with other targets that form competitive advantages over rivals.

Standard academic theory offers multiple reasons for IPOs. Academic textbooks and early theories (e.g., Scott, 1976; Myers and Majluf, 1984; Zingales, 1995) claim IPOs to be conducted to lower the cost of capital, climb the pecking order of financing or for strategic reasons. Empirical studies (e.g., Brau and Fawcett, 2006; Celikuyrt et al., 2010; Hsieh et al., 2011) on the subject show alternative evidence. Companies go public mainly to pursue acquisitions. When a private company goes public it is injected with cash which

is often used in acquisitions. Going public also gives better access to credit and removes valuation uncertainties. The empirical studies find little support for the theoretical reasons to go public and support the acquisition hypothesis of IPOs.

In the financial markets investors are constantly looking for abnormal returns. This search has led to the discovery of different market anomalies. These anomalies include the IPO anomaly. Multiple studies (e.g., Ritter, 1991; Loughran and Ritter, 1995; Ritter and Welch, 2002) show IPOs to underperform and Loughran and Ritter (1995) define this as the "new issues puzzle". The early studies of IPO underperformance are continued with papers explaining this underperformance. One of the explanations for the bad performance of new issues are value destroying acquisitions. Brau et al. (2012) find IPOs that acquire to underperform non-acquirers and explain the IPO anomaly partly with new issues making value destroying acquisitions. Non-acquirers also underperform, so the value destroying acquisitions do not explain all the anomaly.

1.1 Purpose of the study

The purpose of this thesis is to study the post-IPO performance of new issues in the Nordic countries. The overall IPO performance is examined but the focus is to examine the effect of acquisitions on returns of new issues. The major contribution to the existing literature is by conducting a more current study to see if the implications of previous results are still found in the market. Most of the major IPO studies were published in the 1990s and early 2000s containing all samples from similar periods. A more recent sample may provide different results as the market changes all the time which can influence the performance of IPOs.

The Nordic market has also been subject to only few studies focusing on Finland and Denmark, so this thesis will provide new evidence on the IPO performance in a different geographical market environment. The effect of acquisitions on returns is widely research subject but the effect of acquisitions to the performance of new issues is new topic in the financial literature. The findings of this thesis look to complement the

findings of previous studies on the subject to make more robust conclusions. As Fama and French (2008) state, financial market phenomena should be studied in different market settings as the results can be sample specific and most of the studies examine the U.S market.

1.2 Hypotheses

This thesis studies the predictability of post-IPO acquisitions, performance of initial public offerings in the and the effect of acquisitions on this performance. The focus is to see if investors can anticipate post-IPO acquisitions and capture the return for investors from investing in new issues in the Nordics and to provide new evidence on the subject. The hypotheses are as follows:

H1: IPOs underperform in the long run

The first hypothesis is based on the findings of major IPO studies (e.g., Ritter 1991; Loughran and Ritter 1995) and the studies in the Nordic countries (e.g., Keloharju 1993; Jakobsen and Sørensen 2001) which find underperformance of IPOs. These studies are relatively old and this thesis studies if the underperformance of IPOs persists in a newer sample.

H2: IPOs acquiring in their first year of being public underperform non-acquirers

The second hypothesis is formed from the study of Brau et al. (2012) who find acquiring IPOs to underperform non-acquirers significantly. This thesis looks to complement the findings by providing evidence of the performance of acquiring new issues in a different market setting from a different period.

H3: IPOs acquiring during the first three years of being public overperform non-acquirers

As Brau et al. (2012) study the first-year acquirers and find underperformance of first year acquirers, they explain this with agency issues. The authors also compare the returns for companies who acquire during the first years of being listed and find this group to perform significantly better to first year acquirers. This suggests that the underperformance of acquirers concerns only the companies which acquire during the first year of being public.

1.3 Possible contribution

This thesis contributes to the literature in two ways. The effect of acquisitions to the performance of IPOs has not been studied extensively in the financial literature. The thesis plans to complement the findings of Brau et al. (2012) who are the first to study the subject. As the study only focuses on the U.S market, this thesis plans to test the same phenomena in a new market setting. Other studies close to the subject (e.g., Amor and Kooli, 2016; Anderson and Huang 2017) also study the U.S market focusing on serial acquirers and institutional IPO investments respectively. As Fama and French (2008) point out, financial market phenomena should be studied in other markets than the U.S as well and this thesis contributes by examining the same issue in the Nordic markets. With 2021 being a new record year for global IPO volumes (Bloomberg, 2021), the performance of IPOs is a relevant issue.

This thesis also studies the overall performance of IPOs, not just the effect of acquisitions on them. There are major U.S studies (e.g., Ritter, 1991; Loughran and Ritter, 1995; Ritter and Welch, 2002) which have thoroughly examined the IPO performance anomaly. There are also Nordic studies on the subject (e.g., Keloharju, 1993; Jakobsen and Sørensen 2001; Westerholm, 2006; Hahl et al. 2014). The U.S studies and the Nordic studies use samples from mostly in the 1990s before the techno bubble. As the studies are conducted with similar sample periods this thesis contributes by examining the IPO performance issue with a more recent sample. This allows to examine if the previous findings in the Nordic market are still current. As Ritter and Welch (2002) note, IPO performance should be studied with different sample periods as sample timing can alter the results.

1.4 Structure of the study

First, this thesis introduces the relevant theoretical concepts and empirical findings on the subject. The second chapter discusses initial public offering process and the theory surrounding IPOs. The cyclicality of IPOs and the studies related to IPO performance are also presented. In the third chapter mergers and acquisitions are introduced and the concepts related to them presented. Third chapter also examines the theories regarding the value in acquisitions and reviews the literature on M&A returns. In the fourth chapter literature is reviewed around IPOs connection to M&A to provide grounds for the purpose of the study. The effect of acquisitions on IPO returns are examined here based on previous findings. The fifth chapter discusses efficient markets and different pricing models are briefly introduced before moving to the empirical part of the thesis. In the sixth chapter the data and methodology for this study are argued for and the results are discussed in chapter seven. The last chapter provides conclusions and suggestions for future research.

2 Initial public offerings

In this chapter, initial public offerings are introduced. The IPO concept is explained, and the listing process presented. The concept of underpricing is explained, and literature related to it reviewed briefly as underpricing is a key concept in the IPO performance anomaly, which consists of high initial returns and poor long-term performance. The chapter continues by presenting the standard academic theories on IPOs. These theories explain why companies choose to go public in the first place. The cyclicality of the economy is shown to affect the timing of IPOs and the concept of "hot issue markets" is presented as it has implications also for the M&A market. As this thesis studies the returns of IPOs the literature on the subject is reviewed on this chapter to present the previous findings and the basis of the IPO performance anomaly, which is tested in the empirical part of this thesis.

2.1 IPO process

Early-stage companies wanting to grow have two choices. They can issue debt or sell their own shares to gain capital for investments. This issue of their own share happens in an initial public offering (IPO) when companies sell new shares for the first time in the primary market. These shares continue to trade in the secondary market between investors and companies can later sell more shares to the market in seasoned equity offerings (SEO). IPOs are marketed by underwriters who arrange the offering. Underwriters are investment banks who are responsible for the issue of shares. They advise the company in the process and publish a preliminary registration statement called prospectus which has information about the company and the issue. (Bodie et al., 2018 p. 57-62.)

Typically, investment banks purchase the shares from the company and sell them to the public in a firm commitment. They purchase the shares slightly lower than the offer price which they sell them with but take the risk in case the whole offer does not sell out. Investment bankers begin a process called bookbuilding in which they provide information about the IPO to investors and investors express their interest towards the

offering and the issue price. Based on this feedback and interest bankers revise the offering price and the number of shares offered. (Bodie et al., 2018 p. 57-62.)

IPOs also impose new regulation to the issuer. The company must be more transparent about their operations and investor relations need to match the market expectations. The company might have to change their accounting standards to reflect the regulation. There are also requirements regarding the company. Usually, three years of business is required and some minimum amounts of net income or cash flow. There are requirements in the continuity of management and the stock exchange can require changes to the share equity. Other criteria require enough liquidity and transaction size. (Espinasse, 2014 p. 1-6.)

2.2 IPO underpricing

Bodie et al., (2018 p. 57-62.) define underpricing as the percentage difference in the final price on the first trading day compared to the offering price. Underpricing basically means an extra cost to the issuer since they could have issued the offering with a higher price. Engelen and Essen (2010) study the underpricing in different countries around the world. The overall underpricing in their sample is 24,97 percent which means a significant indirect cost to issuing companies and as Loughran and Ritter (2002) define it “money left on the table”. Loughran and Ritter (2004) find underpricing in the U.S to be 15 percent during the 90s before jumping to 65 percent during the techno bubble and settling down to 12 percent in the early 2000s. In the Nordic countries Keloharju (1993) and Jakobsen and Sørensen (2001) find the underpricing to be 8,7 percent and 3,9 percent in Finland and Denmark respectively. As seen from Figure 1, the underpricing in the U.S is around 10 percent over time but rises swiftly during a market peak. These “hot” IPO markets have more listings and higher underpricing. Underpricing seems to have a base level around 10 percent.

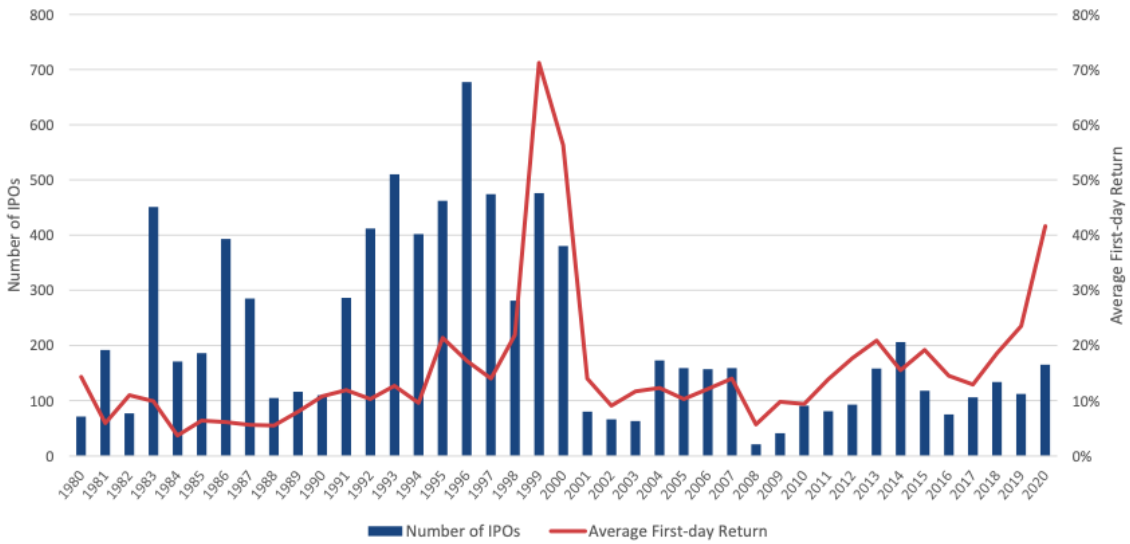

Figure 1. Number of U.S Offerings and Average Percentage First-day Return, 1980-2020. (Ritter 2020).

In the long-run performance studies, underpricing is ignored as the performance is calculated from the returns after the first trading day. High underpricing can lead to poor performance if the underpricing is caused by an overreaction which reverts later in the period. In the literature there are several causes identified for underpricing. Asymmetric information models are mostly used to explain underpricing. The winner's curse theory of Rock (1986) states that some investors have more information than others regarding the new issue. The informed investors only participate in attractive listings and ignore bad issues. To avoid uninformed investors ignoring the listing, the company must price the shares lower than the expected value. This leads to underpricing. Baron (1982) proposes underpricing to be caused by underwriters. If there is uncertainty regarding the price of the issue, the owners need to trust investment bankers in pricing. Investment bankers are incentivized to set the price lower as the issue requires less marketing and to ensure the issue attracts investors, leading to underpricing.

Another explanation for the underpricing is the lawsuit-avoidance hypothesis. Tinic (1988) argues that underpricing occurs due to companies wanting to protect themselves against legal liabilities. They use underpricing as an insurance against litigation which is expensive and damages the reputation of the company. In the listing process legal liabilities can arise from the due diligence and the lawsuit-avoidance hypothesis states that

higher initial returns reduce the risk of lawsuits. As seen from Figure 1, during market highs, underpricing rises as well. Ljungqvist and Wilhelm (2003) state that this extreme underpricing is not explained by asymmetric information or lawsuit-avoidance but with behavioral of investors. During these hot markets investors behave irrationally and are overoptimistic of new issues which causes extreme underpricing.

2.3 Theory of IPOs

Standard academic theory suggests several reasons for companies to go public. Scott (1976) proposes that companies go public when gaining external equity will lower their cost of capital, which increases the value of the company. Myers and Majluf (1984) explain IPOs with pecking order theory. Cash and debt are preferred over equity in the financing of investments. If a company is high in the pecking order it has higher probability for costs of financial distress and higher probability that investments with positive net present value (NPV) will be overlooked because the company is not willing to issue equity to finance them. Companies want to climb down the pecking order to gain liquid assets by issuing stock. This reduces the costs of financial distress and positive NPV investments will not be passed. Also, issuing debt gets more expensive after a certain point and it becomes cheaper for the highly leveraged company to issue equity especially when interest rates are high.

There might also be a diversification or strategic motives to go public. Pagano (1993) hypothesizes that by going public the owners diversify their holding and increase the liquidity of the shares. Chemmanur and Fulghieri (1999) conduct a theoretical analysis where they show that companies go public to gain more diverse ownership, which diversifies risk of founders. When companies go public to grow, they can capture market share from competitors who are private. Maksimovic and Pichler (2001) discuss that first mover advantages are a strategic motive for going public. Companies raise capital by IPO when there are significant risks for new entries. Companies might also go public so early-stage investors can cash out on the IPO.

Zingales (1995) argues that companies go public so insiders can exit the investment. Incumbent owners want to maximize their gains from selling their control rights. There is evidence of high turnover in control of companies that have recently gone public, suggesting the cash out of incumbent owners. Black and Gilson (1998) support this by demonstrating that IPOs are a way for venture capitalists to cash out of their investment. For venture capital funds, the exit is a crucial stage in their investments. IPOs are a more profitable way for venture capitalists to exit the investment compared to direct sales or leveraged buyouts by the entrepreneurs. Gompers (1995) shows that on average venture capitalists earn a 60% annual return on IPO exits compared to a 15% return from a direct sale of the company.

IPOs also increase the access to credit financing as Rajan (1992) states. By going public the company presents their credit worthiness to the public. This lowers the cost of credit as banks cannot take advantage of their private information regarding the credit worthiness of the company and charge higher cost of credit. Holmström and Tirole (1993) discuss that the monitoring of management by owners. The owners can monitor the management better by going public, which allows the feedback of managerial decisions from the market. When the shares are publicly traded, the owners can reduce agency issues by tying the compensation of management to the share price.

Merton (1987) examines the publicity the company gains by listing. When going public the company gains attention and gains a larger base of potential investors as the company becomes more known. By gaining more investors who are aware of the company, the share price can increase as there are more potential buyers of the shares. Ritter (1991) argues that companies go public to take advantage of misvaluations. When companies think their shares to be overpriced, they can exploit this and go public. By going public with higher valuation, the company is injected with more cash than in a normal situation. This is discussed further in the next chapter of IPO cyclicality.

Brau et al. (2003) state that there are multiple factors that play a role in the decision to go public. In less concentrated industries companies are more likely to go public as the survival of the company is more likely than in more competitive industries. Cost of debt also influences the decision to go public. When cost of debt is high companies are more likely to go public to gain equity. During periods of optimism in the markets IPOs are valued higher and they tend to cluster during these periods. Underwriters and company executives want to bring IPOs to the market when the sentiment is optimistic and valuations high. IPOs are also costly and larger firms are more likely to go public as the costs are relatively lower for them compared to smaller companies. Pagano et al. (1998) claim that companies go public to rebalance their accounts after they have invested to grow substantially. The author argue that companies do not go public to finance future investments.

2.4 IPO cyclicality

Ibbotson and Jaffe (1975) show that IPOs are cyclical. Waves of new issues are linked to stock market highs and IPO waves diminish in recessions. These are defined as “hot markets” for IPOs when a lot of companies are going public and the initial returns for IPOs are high. Pastor and Veronesi (2005) find support to IPO waves and manage to explain the reasons behind them. Private firms go public during favorable market conditions. High returns precede IPO waves and low returns follow these waves. Low returns post-wave indicate that companies go public during periods of overvaluation.

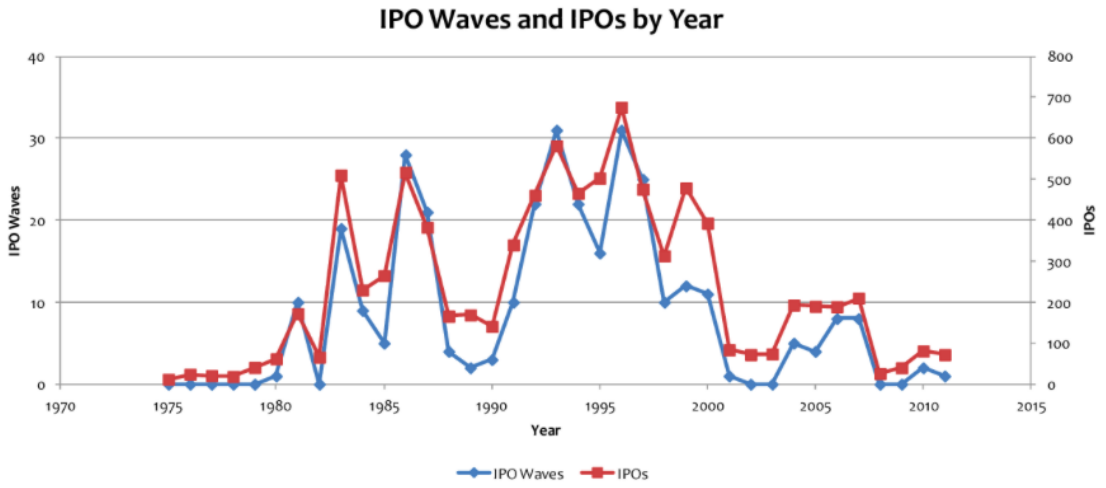

Figure 2. IPO Waves and IPOs by Year 1975-2011. (Baxamusa and Jalal, 2018.)

Lowry (2003) explains IPO waves with the demand for capital by private companies and the investor sentiment. Pagano et al. (1998) also study IPO waves. They find IPO volume to fluctuate based on market valuations. When market-to-book ratios are higher, there are more listings. The study argues that companies go public when there are overvaluations in the industry. Brau et al. (2003) also find evidence of these "hot markets", increasing the probability of an IPO. Yung et al. (2008) also find support for the underlying economic conditions as the reason behind IPO waves. When the economy expands and there are positive demand shocks, the need for investment capital increases. Companies go public to gain capital and IPO volume rises. IPOs during "hot issue markets" are also more likely to delist in the future. In the study of Boeh and Dunbar (2014) market conditions are the main reason for the fluctuation in IPO volumes as they signal the future demand for companies. Baxamusa and Jalal (2018) show IPO waves to be created by the strong demand in a certain industry, causing the need for capital investments to meet the demand.

Lowry and Schwert (2002) show strong correlation between the number of listings and periods of high underpricing. When the initial returns are high, the number of IPOs increases. As explained before, underpricing means "money left on the table" as defined by Loughran and Ritter (2002). From the period of high initial returns companies gain information from the valuation of IPOs and decide to take advantage of it by going public.

The study finds investment bankers advising the private companies to take account the valuation of recent listings and. Çolak and Günay (2011) examine the strategic waiting of private companies when making the decision to go public. Companies wait to go public until a positive signal about the economic conditions by other listing companies. This causes IPOs to cluster when some companies wait for IPO volumes to increase before going public themselves. They argue that companies do not time the IPOs to overvaluations in the market. When these companies wait for positive signals about the market conditions, they start the IPO process after the stock market is higher due to the positive signals about the market. This causes IPOs to naturally peak during market overvaluations, but the authors argue that companies do not go public because of the overvaluations.

Lee (2021) uses asymmetric information to explain the market timing of IPOs. Contrary to previous studies Lee (2021) studies the misvaluations caused by insider information of managers and not the irrationality of investors. The causes of asymmetric information in the study are the predisclosed purchase orders (PO), which are managerial information. The disclosed insider ownership of managers suggests that managers believe changes in POs to forecast mispricing. Managers prefer issuing debt when the company is undervalued and to issue equity when it is overvalued. This leads to IPO waves as more IPOs are conducted when the market valuations are high.

2.5 IPO returns

The first major IPO study and one of the most citated ones by Ritter (1991) provides findings from the United States from 1974-1985 of significant IPO underperformance for their first three years in the market. Smaller IPOs perform even worse. The underperformance is explained by underpricing and IPO timing. IPOs have high first day returns and the study suggests IPO pricing to be correct but the first day returns being too high leading to weaker returns in the long run. IPO timing can affect the returns if the company goes public during an industry peak which results in a downturn in the performance of

the company. Ritter (1991) also suggests that the underperformance of IPOs is only limited to the three-year period post-IPO as Ibbotson (1975) finds previously.

Loughran and Ritter (1995) examine IPOs in the United States from 1970-1990 and find significant underperformance to persist for five years post-IPO. Even after controlling for size and book-to-market, non-issuers outperform issuers. They suggest market timing as the only explanation for this poor performance. Companies go public when their equity is overvalued. Investors overestimate the probability of the company becoming a big winner and purchase this overvalued equity. As Jain and Kini (1994) show the average operating cash flow for a newly public company plummets after listing. When investors value a company highly and the growth in the cash flows does not meet the expectations it leads to poor performance of new issues. This “hot markets” issue is confirmed by subsequent studies (e.g., Brau and Fawcett 2006; Ang and Chen 2006).

Ritter and Welch (2002) show similar findings to previous studies that IPOs are underpriced but they underperform in the long term. The underperformance is much more severe when benchmarked against a market index than with style matching firms. They find many periods to even have positive style adjusted returns and argue that the results of studies of long run performance of IPOs are highly sensitive to changes in sample period. They advise to be cautious when making conclusions on IPO performance as the changes in methodology and sample selection can alter the results, especially if the sample period contains financial crises. Brav and Gompers (1997) provide supportive evidence as they show that after controlling for style and size there is no IPO underperformance and suggest using multiple benchmarks when examining IPO performance.

Gompers and Lerner (2003) find no significant underperformance and even positive abnormal returns for IPOs. They argue against the IPO underpricing phenomena and support the use of multiple methodologies. The study questions the findings of previous studies and states that they depend noticeably on the methodology used. Carter et al. (1998) examine IPO returns and underwriter quality. IPOs underperform, but with

quality underwriters the underperformance is less severe. This suggests that quality underwriters get the IPO pricing right more often and there is less underpricing. Boulton et al. (2010) find pre-IPO M&A activity to increase underpricing. High underpricing leads to IPO underperformance as the high initial return is an overreaction from investors leading to long run reverse in the returns.

Most of the European studies also find the same underperformance suggesting that it is a wider phenomenon. Keloharju (1993) shows underperformance in a sample of Finnish IPOs. Finnish IPOs underperform the market index significantly. Another Nordic study by Jakobsen and Sørensen (2001) finds over 30 percent underperformance to the market in Danish IPOs after five years. The underperformance is reduced by half when controlling for style effects. Westerholm (2006) shows Nordic IPOs to overperform the market index in Norway and Denmark. High valuations lead to poor long-term performance and companies going public during a hot IPO market with high valuations underperform in the long run. Thomadakis et al. (2012) provide alternative evidence from a sample of Greek IPOs. They find overperformance from a sample of IPOs and attribute the performance to the timing of the IPOs during a good market. They argue that the overperformance is due to hot market for new issues. This turns to underperformance few years after the IPO and the overperformance is short lived. In a sample of Finnish IPOs Hahl et al. (2014) find the overall IPO underperformance to be caused by severe decline in IPOs that are growth stocks. They attribute the underperformance of IPOs to the effects of size, momentum, and market-to-book for stock returns. As these factors are accounted for, the performance of IPOs is close stocks that are similar in style.

3 Mergers and acquisitions

This chapter presents mergers and acquisitions. The reasons behind and the M&A process are introduced first. As this thesis studies the effect of acquisitions on IPO returns the theories related to acquisition returns are presented. There are several value enhancing and value destroying theories predicting the post-M&A performance. The chapter continues by discussing M&A cyclicality. M&A cyclicality is shown to be similar as in IPOs and the reasons behind the cyclicality are also the same. Lastly, the previous literature of the value effect of M&A is presented here. The literature is reviewed to gain understanding of how M&A creates or destroys value to more mature companies and what are the returns previous studies find. This gives implications on what to expect from the effect of M&A to IPO returns.

3.1 M&A process

Mergers and acquisitions are a means in the market of corporate control. Companies can act as acquirors or bidders to bid for target companies. The ownership of the target changes either through merger or acquisition. In a merger the target company merges with another and in acquisition the acquiror buys the target. In both mergers and acquisitions acquiring company buys shares or assets of the target. If the acquiror and the target are in the same industry it is called a horizontal merger. If the acquirer's industry purchases from the target's industry the deal is a vertical merger and if they are in individual industries a conglomerate merger. When acquiring a company, the acquiror usually pays an acquisition premium for the shares. It is the difference between the acquisition price and the pre-deal price of the target. According to Eckbo (2008 p. 355.) the average premium over 1980-2005 is 43% over the pre-deal price. (Berk and DeMarzo 2014; 931-934.)

3.2 Value enhancing acquisitions

As acquirers usually pay a premium for the target there needs to be value in the deal as it should be positive in net present value (NPV). Acquirors can have different types of synergies with the target that bring value. They might benefit from economies of scale since with larger production volumes comes lower unit costs. Also, economies of scope are enjoyed when a company can combine distribution and marketing for different products. One synergy can be vertical integration. Two companies in the same industry that have products in different phases of the production cycle. This can enhance the product as you have more control over the inputs and deliver value or in the other end of the cycle, they can enhance the distribution of their product. In human capital-intensive industry, it can be difficult to hire experienced employees. More efficient solution can be to acquire the talent from another company by acquiring the whole firm. (Berk and DeMarzo 2014; 935-937.)

Merging with or acquiring a rival can be a major way to increase profits by reducing competition. This is monitored by the competition authorities so there will not be a monopoly but with smaller market shares companies can still gain value through less competition. Acquirers can also have efficiency synergies as they can fire overlapping employees or get rid of extra resources. If the acquirer's management thinks that they can operate the target more efficiently than the existing management, there is value in the deal. However, there can also be resistance to takeover in the new organization and fixing the inefficiencies can be difficult. Merger benefits can be also gained in diversification. It reduces non-systematic risk as the company operates in multiple industries. More diversified companies have also lower probability of bankruptcy meaning that they can increase their leverage and have greater tax deductions. (Berk and DeMarzo 2014; 937-938.)

3.3 Hubris hypothesis

Mergers and acquisitions can also be value decreasing. Roll (1986) presents the hubris hypothesis. According to the hypothesis managers of the acquirer are overconfident and overvalue the targets. Due to systematical bias in the managers, they value targets over the market price and value decreasing acquisitions happen. Even if there are synergies, the deal is not value enhancing since there is a misvaluation over the market price and they end up paying too much for the target. In the study the indicators for chief executive officer (CEO) overconfidence (hubris) are associated with higher acquisition premiums paid.

Malmendier and Tate (2008) show support for the hubris hypothesis of CEO overconfidence leading to value decreasing acquisitions. Overconfident CEOs overpay for targets and the announcement returns for these acquisitions are negative. Overconfidence increases the amount of deals and decreases the quality of them. Overconfident CEOs think they are acting in the best interest of the shareholders and believe the outcome of the acquisitions are under their control.

3.4 Agency motives

Jensen and Meckling (1976) presents the principal agent issue. Agents who act on behalf of principals might not have the same motives. A manager of the company might not have the same value maximizing motives as the shareholders and therefore can act in a way that is value destroying to them. Amihud and Lev (1981) study the risk aversion of managers. Usually, the income of managers is tied to the performance of the company with different types of compensation for example options or bonuses. The risk of the company is related to the risk of the manager's income. In this situation management can do acquisitions to diversify the business and reduce the variability in the income of the company and at the same time lower the risk in their own income.

Jensen (1986) shows that managers want to increase their own income and power. This empire building means that executives disregard the interests of shareholders and make decisions that maximize their own utility. Executives building an empire grow the company over the optimal size causing decline in operating performance. By using free cash flow to acquisitions instead of dividends to shareholders, the managers' own benefit is maximized even if the acquisitions are value decreasing. The free cash flow hypothesis predicts managers to realize the personal gains from empire building and for companies with excess funds this leads to value decreasing investments. Harford (1999) finds empirical evidence for the hypothesis. Companies with a lot of cash are more likely to acquire. These acquisitions are however value decreasing and the acquirers experience negative announcement returns and their operating performance declines.

Sheifler and Vishny (1989) examine the value destruction caused by the management entrenchment. Managers want to solidify their positions and make themselves costly to replace. This is shown in acquisitions that the management does. They invest in assets which value is maximized under their management. These investments are not always value enhancing to the company, but the value is maximized under current management compared to alternative managers. This makes the managers harder to replace and they can earn higher compensation. The value decrease from entrenchment with acquisitions is shown for example when a CEO invests in business that they have a lot of experience from, even though the investment does not bring value to the company.

DeAngelo and Rice (1983) suggest companies to adopt anti-takeover provisions due to their management wanting to protect their jobs. These provisions are a way for executives to entrench themselves. Masulis et al. (2007) show companies with more anti-takeover provisions to make to make value destroying acquisitions. The entrenched executives of these companies are less monitored and more likely to participate in empire building leading to bad acquisitions. Harford et al. (2012) manage to find the reasons behind value destruction of acquisitions by entrenched managers. Entrenched managers prefer the acquisition of public companies over private ones. As Fuller et al. (2002) show

the acquisition of private companies leads to more value than the acquisition of public ones due to liquidity discounts in the valuations of private companies. Entrenched managers also overpay and find targets with less synergies to their business.

3.5 M&A waves

The cyclicality of economy also applies in M&A and there are similar waves than in IPOs. During times of high economic activity, M&A activity peaks. These so-called waves happen due to shocks in economy, technology, and regulation. During high economic growth companies want to grow to meet the demand of the booming economy. Organic growth is also slower than growing by M&A, so high number of deals follow bull markets. Technological and regulatory shocks change industries and remove existing barriers of growth increasing corporate activity. Total of six M&A waves have been identified from 1897 to the financial crisis of 2009. As seen from Figure 1 below, M&A activity took half a decade to recover from the crisis and began again in 2013. (Gaughan, 2015 p.41-42.)

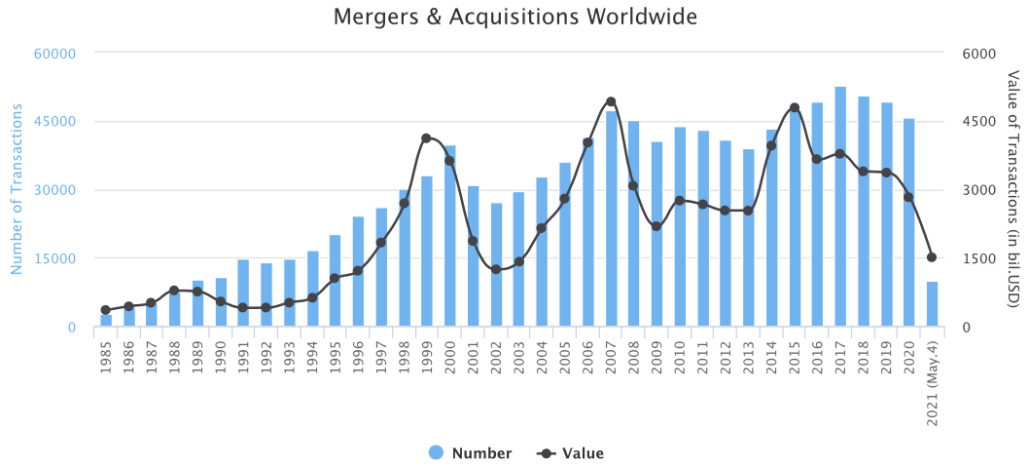

Figure 1. Mergers & Acquisitions Worldwide 1985-2021. (Institute for Mergers, Acquisitions and Alliances 2021.)

The first wave beginning in the 1897 was characterized by horizontal mergers. In many industries companies acquired their competitors and monopolies began to form. The wave ended when regulators introduced laws to prevent monopolies for forming. The second wave began after the First World War in the 1910s. During the wave competition

was increased in many industries and oligopolies formed. Smaller companies grew with mergers to compete with the monopolies. The wave ended in the Great Depression of 1929. (Stigler 1950.)

After the Great Depression it took two decades for the third merger wave. New antitrust laws were put in place to increase competition. This led to companies diversifying to new industries for growth to avoid sanctions. Due to this, large conglomerates began to form during the third wave. The third wave ended to the oil crisis of 1973 which led to recession and ten years of low M&A activity. After the economy recovered from the recession of 1981 the fourth wave began during 1980s. Easing of the regulation and changes in technology and financial markets led to high economic activity which lasted till the recession of 1990. (Martynova and Renneboog, 2008.)

The fifth wave surged in the 1990s after the recession. Fast technological growth and globalization caused an exceptional bull market that boosted M&A activity. As the economy collapsed in the early 2000 the wave ended. It took few years to recover, and M&A activity started to pick up again. This has been explained by global industry consolidation. The wave ended in the financial crisis of 2009. All the waves have similar characteristics. They move along with the stock market and peak simultaneously. All the cycles start after recessions and end in recessions. (Martynova and Renneboog, 2008.)

Mitchell and Mulherin (1996) show that mergers and acquisitions happen in waves and Harford (2005) shows similar findings. M&A waves happen in periods of high liquidity, supporting the findings of Maksimovic et al. (2010) that liquidity is linked to higher M&A activity. Rhodes-Kropf and Viswanathan (2004) show that high valuation periods lead to M&A waves. Overvalued equity is used to finance M&A as stock offers are more common than cash offers. Misvaluations lead to increased amount of M&A without other underlying reasons for the deals.

Ang and Cheng (2006) provide further evidence. Their results support the theory that M&A is driven by the market valuations. Overvaluation of equity is a key factor in the acquisition decisions of a company. Overvaluation leads to higher probability of acquisitions and completed mergers. Stock owners of overvalued acquiring companies have better returns compared to similarly overvalued non-acquirers. Dong et al. (2006) find the same effect. Companies with high valuations are more likely to exploit it to finance acquisitions with equity. Savor and Lu (2009) present evidence that acquisitions during high valuations provide value for shareholders. Using overvalued stock to finance acquisitions created value for shareholders. This provides motivation for executives to attempt market timing and use the misvaluation to their benefit.

3.6 M&A returns

Datta et al. (1992) show that in acquisitions it is the shareholders of targets who benefit. The announcement returns for bidders are small with only half a percent increases in value. For targets the announcement effect is substantially more with over 20 percent increases. This can be explained with the acquisition premiums which acquirers pay over the target price. The bidder value increase consists of synergy gains. If the acquisition is financed with stocks the value effect is worse for both groups. Acquisitions from related industries to the bidder's business are more valuable. The shareholders of the targets are also better off if the bidder is from an industry related to theirs.

Loughran and Vijh (1997) examine the post-acquisition returns for acquirers and targets. For mergers the average return compared to matching companies is -15.9 percent and for tender offers there is a 43 percent return compared to style matches. The weak performance of mergers comes from mergers where shares are used as payment since their return is -25 percent and cash mergers perform similarly to their style matches. These significant positive and negative returns violate the market efficiency principle. The return patterns suggest that investors consistently underestimate or overestimate the added value from acquisition synergies.

According to Loughran and Vijh (1997) cash acquirers having positive abnormal returns and stock acquirers negative is consistent with the asymmetric information and market underreaction hypotheses. When their shares are overvalued managers use them for acquisition and when undervalued they use cash. This under- or overvaluation can unravel in the long run if investors do not react efficiently to the announcement of acquisition payment terms. For acquisition targets, their shareholders gain positive abnormal returns if they sell their shares after the acquisition. Target shareholders lose in the longer run. If they hold the acquirer's shares used for payment the returns are close to zero and even negative for targets that are close to the acquirer in size.

Fuller et al. (2002) show that acquirer shareholders gain abnormal returns when the target is a private company and negative when the target is a public company. Positive returns from acquisitions of private companies are due to liquidity discount in their valuation since the private markets are illiquid. Even higher returns from private companies are achieved if the acquisition is made with shares, since there are tax benefits in share financed deals. Jaffe et al. (2015) find this same phenomenon. In their sample, acquisitions of public companies provide no returns while acquiring subsidiaries or private companies does. This acquirer return differential is left unexplained in the literature.

Wiggerhorn et al. (2007) examine the acquisition announcement returns. Newly listed companies have positive returns on their acquisition announcements compared to more mature ones. The positive effect is attributed to the growth opportunities that newly listed companies use acquisitions for. This announcement return effect however diminishes in the longer run. When comparing the returns of newly listed companies there is no significant difference between acquirers and non-acquirers. There are no abnormal returns for these companies for up to 12 months after the acquisition announcement. There seems to be an overreaction to the acquisition announcements of new issues. As Brau et al. (2012) find this overreaction reverses to underperformance in the long run and acquiring new issues underperform.

4 IPOs and M&A

Previous chapters present the basic concepts related to IPOs and M&A. In this chapter the two are shown to be closely related. The previously explained theoretical predictions on IPO decisions are not supported in the empirical literature. The literature related to IPOs is reviewed here and the acquisition hypothesis of IPOs is presented. Previous chapters present IPO and M&A waves and here they are shown to be connected. The studies are discussed which find IPO characteristics to predict future M&A activity, further solidifying the connection between IPOs and M&A. Lastly, the chapter concludes by presenting the previous studies examining the effect of acquisitions on the performance of IPOs.

4.1 Acquisition hypothesis of IPOs

The theoretical background of IPOs suggests pecking order, lowering cost of capital and strategic motives for the reasons to go public. The empirical literature (e.g., Brau and Fawcett, 2006; Celikuyrt et al., (2010); Hsieh et al. (2011) contradicts these findings and finds no evidence for the theoretical predictions. In the literature there is a clear relation between IPOs and M&A. Brau et al. (2003) show that IPOs are done so companies can gain capital for acquisitions. When the interest rates are high, companies are more likely to go public since debt financing is more expensive option. This finding can explain the IPOs of early 2000s when interest rates where high but in the current negative interest rate environment it cannot explain the popularity of IPOs. Brau and Fawcett (2006) study the main reasons for IPOs in practice. They survey chief financial officers (CFOs) on why they conducted an IPO and find that the theoretical predictions are not consistent with reality, as facilitating M&A is the main reason for companies to go public. Almost 60 percent of CFOs answer that the main reason for IPO is issuing equity to use in future acquisitions. CFOs analyze market returns and time their listings during “hot markets” which have been documented in previous literature as a period of active IPO market with high returns.

Brau and Fawcett (2006) also find that companies which go public are more likely to acquire than the ones staying private. Over 80 percent of CFOs also consider the overall stock market conditions when timing the IPOs suggesting that they want to take advantage of the periods of high valuation. Traditional explanations for IPOs like lowering the cost of capital and pecking order are a lot less important to CFOs with only 40 percent for cost of capital and 15 percent for pecking order considering them relevant reasons to go public. In the survey the most important motivations for an IPO after gaining capital for acquisitions are establishing a market price and enhancing reputation.

The study of Brau and Fawcett (2006) provides insight to the decision making of company executives considering IPO. Their survey is informing but conducted in 2000-2002 when the IPO and M&A markets were especially active, as a lot of high growth companies went public and pursued aggressive growth strategies which can limit the relevance of the CFOs answers. This limitation is supported by Schultz and Zaman (2001) who observe that technology companies went public to gain capital for acquisitions which they used to capture market share. There is no evidence that technology companies wanted to take advantage of high valuations as they sold only small proportion of total equity in the offering, but they used the IPO to issue equity for acquiring other technology companies and grabbing market share as they wanted to grow fast. Even though the survey of Brau and Fawcett (2006) can be limited due to its timing there are other studies showing similar results and supporting the acquisition hypothesis.

Celikuyrt et al. (2010) show that companies going public use mainly M&A to grow for 5 years after listing. Newly listed companies are more active in the M&A market compared to mature companies and these companies use the funds from the IPO to finance their acquisitions. Acquiring other companies more important in their growth strategies as capital expenditures (capex) and research and development (R&D). Their expenditures on acquisitions exceed the amounts they spend on R&D and capex combined. The acquisition activity of these companies multiplies after going public compared to their activity prior listing, which show the IPO as an inflection point for the rise in M&A activity.

IPOs do not only provide capital for acquisitions but also better access to credit. This increase in debt is linked strongly to acquisition activity. Not only do IPOs lead to acquisitions but they also remove uncertainty about valuation. This increases the gains from a takeover and leads to more acquisitions.

Hsieh et al. (2011) introduce two theories on why companies go public to acquire: asymmetric information theory and cash infusion theory. When companies choose to go public, they make their value observable to the public and removes valuation uncertainty. Newly listed companies also go public to gain cash for future acquisitions. These theories are not able to explain acquisitions done with cash by companies that raise almost zero external funds.

Hsieh et al. (2011) create their own model, which shows that IPOs reduce valuation uncertainty and lead to more optimal acquisition strategies by enhancing restructuring policies. Companies are motivated to go public to optimize their acquisition strategies by learning the true value of their equity, which shows the potential gains in future takeovers. Post-IPO M&A is more likely and takes less time if there are valuation surprises and less likely and takes more time with valuation uncertainties and higher costs of going public. Their model manages to explain the cash acquisitions from companies that raised only a little external capital and thus complement the existing theories.

Hovakimian and Hutton (2010) complement the previous findings. Their study observes IPOs as facilitators of M&A. IPOs are a key factor in M&A activity as companies use the proceeds for financing. Going public also increases financing possibilities by providing access to more funding. Public companies also use market timing to reduce costs of acquisition. They do acquisitions during periods of overvaluation of their own stock and can acquire more highly valued targets. This possibility of timing and reducing acquisition costs gives public companies more advantage over private ones and provides further incentives to go public.

Hovakimian and Hutton (2010) find larger proceeds from an IPO to increase future acquisitions. Companies use IPOs to gain capital for acquisitions and the amount of proceeds is a significant factor in financing them. IPO underpricing and initial stock returns increase the probability of M&A. This finding is significant especially in stock financed M&A. Higher leverage is also a factor contributing to more deals as companies use debt to finance the cash part of their acquisitions. Other significant control variable is the company size. Larger companies are more transparent and less risky which give them better access to funds from debt and equity markets. The backing of a venture capitalist in the IPO is insignificant but other studies find it to indicate more acquisitions.

Bonaventura et al. (2018) show acquiring IPOs to have better operating performance than their peers after listing up to five years. Non-acquiring new issues show a reduction in their operating performance. If the company acquires the effect is reversed and their operating performance jumps up. This suggests acquisitions after listing to be value enhancing. The higher operating performance of aquirers is likely to be rewarded by investors with higher returns indicating overperformance of acquiring new issues over non-acquiring ones.

4.2 IPO and M&A timing

Both IPOs and M&A are cyclical and related to each other through valuations. High valuations lead to more IPOs and to more M&A. This leads to M&A waves following IPO waves. Rau and Stouraitis (2011) confirm this correlation and show that IPO waves are followed by M&A waves. They find evidence for the misvaluation hypothesis that companies go public to acquire with overvalued equity. As companies go public during high valuations and are also more likely to acquire when their valuations are high this can lead to acquiring IPOs underperformance. There is a high frequency of acquiring IPOs during a stock market high and their future returns are likely to be low when the market cycle shifts. The change in the market cycle causes the whole market to experience low returns but if the IPOs are especially overvalued, they can have even worse performance.

The link between M&A and IPO waves is consistent with the acquisition hypothesis of IPOs. Maksimovic et al. (2010) present evidence that publicly listed companies are more active in M&A than private companies because they have more access to liquidity. Public companies are more active acquirers than private companies especially during M&A waves. Public companies have more liquid stock and improved access to financing from credit and financial markets. These lead to more acquisitions and supports the hypothesis that companies go public to acquire. Companies with higher valuations are also more likely to acquire. Pastor and Veronesi (2005) find companies to go public during periods of high valuations leading to IPO waves preceding M&A waves when the misvalued companies go public and pursue acquisitions.

Shleifer and Vishny (2003) show that companies use their high valuations to finance their acquisitions with overvalued stock. Overvalued companies are more likely to acquire and undervalued more likely to become a target. This market timing effect supports the findings of Brau and Fawcett (2006) that CFOs time their IPOs. As companies go public during high valuations and make acquisitions during the same period, IPOs are a way for the companies to take advantage of misvaluation in the market to pursue growth. As IPO waves exist when there are positive demand shocks in the economy, (e.g., Yung et al., 2008; Baxamusa and Jalal, 2018) it causes investment needs when companies rush to meet the demand. Companies need capital for investments and go public to gain it. As there is need to invest, rather than expanding their own production with the cash they can acquire. This can cause M&A waves to follow IPO waves as the need to meet the strong demand causes companies to go public to gain capital and acquire.

4.3 IPO characteristics predicting M&A

To further prove the link between IPOs leading to M&A there are several studies finding IPO characteristics to be predictive of future M&A activity. Celikuyrt et al. (2010) provide first results on the subject. In their sample primary proceeds, leverage and SEO capital indicate higher probability of future cash acquisitions. For stock financed acquisitions underpricing, price revision and IPO costs are predictive variables. These suggest

companies to use the proceeds from the listing for acquisitions providing a motivation to go public.

Anderson et al. (2017) present further evidence. They manage to show that multiple variables are predicting M&A activity after an IPO. There are variables suggesting that the pricing, ownership, promotion, and market conditions all have some effect on the probability of future M&A. On pricing they find that with severe underpricing companies are more likely to participate in M&A and the amount and structure of proceeds also indicates higher probability. Companies with higher growth are more likely to acquire or be acquired. Their findings support the cash infusion and market timing theories as higher proceeds and “hot markets” predict more acquisitions.

Amor and Kooli (2017) find that IPOs that are backed by more reputable venture capitalists (VCs) are more likely to be an acquirer post-IPO. A one percent increase in the VC reputation resulted in 5,13 percent increase in the probability of engaging in M&A. Higher dilution of inside ownership from the IPO results in higher probability of M&A. The more underpriced the IPO is, it is also more likely to acquire using stock to finance the acquisitions.

4.4 The effect of acquisitions on IPO returns

The fundamental study about the performance of acquiring new issues is by Brau et al. (2012). They explain the overall underperformance of IPOs with acquisition decisions. Companies that acquire one year after the IPO, underperform significantly through holding periods from one to five years. Non-acquiring IPO companies do not underperform during the same period. Acquiring companies lose to both the market index and style matching companies. First year acquirers experience abnormal returns in the short run and overperform non-acquirers in first two years. This is due to their high acquisition announcement returns during their first year of being public. This overreaction to the acquisitions turns to long run underperformance. If the first-year returns are excluded IPOs perform significantly worse suggesting first year acquisitions to be value destroying

in the long run. Acquiring IPOs underperform their benchmarks by 30 percent in the five-year period while non-acquiring IPOs underperform by only 10 percent.

Amor and Kooli (2016) find the performance of frequent acquirers to be significantly worse from single acquirers. IPOs acquiring during the first-year show underperformance for five years following the listing. They explain the underperformance of first-year acquirers and serial acquirers with hubris hypothesis. Executives overpay for the targets and decrease the value of their own companies. The hubris hypothesis does not explain all the value destruction. There is also investor overoptimism regarding the first-year acquisitions as investors could prevent the value destroying bids. Investors overestimate the growth potential of the acquirer in the first year of being public and support the management suffering from hubris in their decisions to acquire leading to value decreasing deals. Anderson and Huang (2017) show that the IPOs that institutes invest in overperform more often, which is due to institutions choosing more IPOs with future M&A participants. Institutional investors manage to pick out the IPOs that are going to acquire or be acquired and these contribute to the superior returns. Institutions are better to identify future acquirers and can monitor their management better.

5 Efficient markets and asset pricing models

In the financial markets investors are constantly looking for abnormal returns. Abnormal returns are defined as returns over some benchmark, usually the market index. Investors try to beat the market with different strategies and models and the search for abnormal returns has been a central part of academic research. The theory of efficient markets and different pricing models are discussed in this chapter. The pricing models are relevant to the methodology presented later. The concept of efficient markets is examined as this study examines abnormal returns related to IPO anomaly, which according to the finance theory should not exist.

5.1 Efficient markets

Fama (1970) presents the efficient markets theory and defines it. Markets are efficient when all information is priced in the equities. Efficient markets contain three forms. The weak form which states that all the historical information is in the equity prices, and it is not possible to gain abnormal returns using past data. The semi-strong form states that all public information is fully reflected by the prices, and it is not possible to earn abnormal returns using public information. In the strong form all the information regarding the stock is reflected in the price. This includes public and private information, and no one can earn abnormal returns. This would suggest that there should be no underpricing in IPOs as the underpricing should be in the IPO price and there would be no initial returns. Underpricing still exists, showing that there are inefficiencies related to IPO pricing. The IPO long-term underperformance anomaly is another that should not exist as investors could earn abnormal returns by going short IPOs. The efficient market concept states that it should be impossible, so the performance anomaly is a clear violation to the hypothesis.

Fama (1970) defined the conditions for the efficient markets as: 1) there are no transaction costs 2) all information is available to all investors in the market 3) all investors react to implications of current information rationally. These conditions are not met in the real

market, but Fama (1970) states that the conditions are not necessary. If there are enough investors who react to the information accordingly and most of the investors have access to information the market can be efficient. Keown and Pinkerton (1981) show this in acquisition announcement returns. After the acquisition announcement the stock price quickly reacts to the new information. As there is usually an acquisition premium paid the price goes up during the announcement. The graph by Keown and Pinkerton (1981) as presented in Bodie et al. (2018, p.335) is shown below. It displays the swift reaction to new information which is immediately priced to the asset.

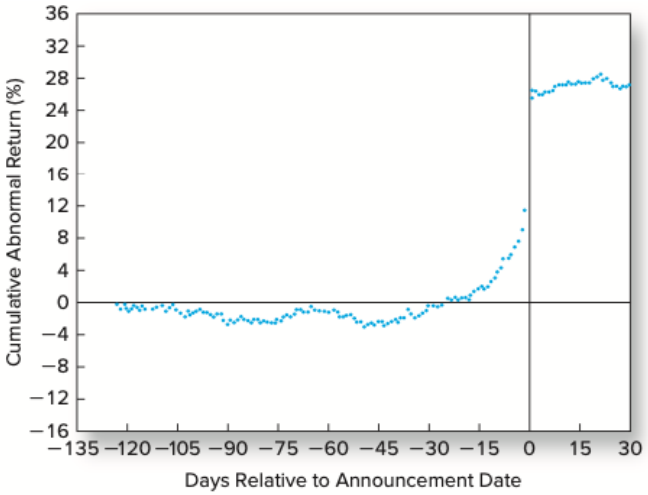

Figure 3. Cumulative abnormal returns before takeover attempts. (Bodie et al., 2018, p. 335)

After the presentation of efficient market hypothesis, it has been empirically tested numerous times. The general implication is that the markets are not efficient and abnormal returns can be achieved. There are inefficiencies in the market, for example IPO underpricing and underperformance, which should not exist. This thesis tests the IPO underperformance anomaly to see if there are abnormal returns available by investing to IPOs. The effect of acquisitions to this anomaly is also examined. (Brodie et al. 2018 p. 333-359.)

5.2 Capital asset pricing model

Capital asset pricing model (CAPM) based on the portfolio theory of Markowitz is a model used in calculating the prices for individual securities or portfolios. The model was

independently presented by Sharpe (1964), Lintner (1965) and Mossin (1966). It is to date still widely used to calculate the returns for financial assets. The model calculates the expected return for an asset calculated as the market risk premium times the sensitivity of the asset to market risk (beta). The formula of the CAPM by Brodie et al. (2018, p.285) is presented below:

$$E(R_i) = R_f + \beta_i\big(E(R_m) - R_f\big), \quad (1)$$

where E(R_i) is the expected rate of return for an asset i, R_f is the risk-free rate, B_i is the beta of the asset i and E(R_m) the expected return of the market.

5.3 Fama-French three factor model

Fama and French (1993) argue against the CAPM and propose a new model to explain stock returns. Historically, small companies and high book-to-market companies have earned higher returns than the CAPM predicts. The Fama French three factor model includes the market factor from the CAPM but adds size and book-to-market factors. The factors are like beta as they measure the sensitivity of a certain asset to the size and book-to-market portfolios. The small minus big (SMB) portfolio is calculated as the return on stocks with small market capitalization minus the return on stocks with big market capitalization. The high minus low (HML) portfolio is calculated as the return on high boot-to-market stocks minus the return on low book-to-market stocks. The model equation is as follows as presented in Brodie et al. (2018, p.408):

$$E(r_i) - r_f = b_i\big[E(r_M) - r_f\big] + s_i E[R_{SMB}] + h_i E[R_{HML}], \quad (2)$$

where E(r_i) is the expected return for the asset i, r_f is the risk-free rate, b_i is the beta from the CAPM, $E(r_m)$ is the expected market return, s_i is the size factor, E[R_{SMB}] is the expected return on the size portfolio, h_i is the book-to-market factor and $E[R_{HML}]$ is the expected return on the book-to-market portfolio.

6 Data and methodology

In this chapter the data and methodology of the empirical studies are presented. The purpose is to explain the data selection process, chosen methodology for the study and why these have been used. Also, possible limitations of the study are discussed.

6.1 Data

The selected IPO data is from the SDC Platinum database with additions from the Orbis database. The IPO sample is collected from January 2001 to July 2016 for IPOs in the Nordic countries that meet the criteria of stock price information and market-to-book data available in the database. The period ends in 2016 to be able to study the returns up to five years post-IPO. Iceland is excluded from the sample due to low number of listings and smaller overall market. Similarly, to recent studies of IPOs (e.g., Brau et al. 2012; Anderson et al. 2017) special purpose acquisition companies (SPACs) real-estate investment trusts (REITs), spin-offs, equity carve-outs, closed-end funds, unit offers, and foreign issuers are excluded from the sample. A total of 201 IPOs for the period are obtained for which the M&A data is collected. This study observes the M&A activity for up to three years after the listing date and separates companies to acquirers and non-acquirers. Of all the IPOs 33% have acquired during their first year being public and 48% during first three years.

Focus on the Nordic data provides a possibility to contribute to the existing literature which lacks information about the performance of new issues in the Nordic countries. The returns for the IPO sample companies are observed for five years after their listing date with newest data from 2021. Another dataset from the Refinitiv database is collected for stock information of the Danish, Finnish, Norwegian and Swedish stock exchanges. This sample contains the returns of all the shares listed in these exchanges and their market-to-books as well as market capitalizations from the period of 2001-2021. This sample is used to create style matches for the newly listed companies to compare

their performance. The geographical and yearly distribution of IPOs examined in this study are presented in the table below.

Table 1. Initial Public Offerings**.** Year 2016 only contains 7 months.

	Finland	Denmark	Norway	Sweden	Total
2001	0	0	1	5	**6**
2002	1	0	0	4	**5**
2003	0	0	1	0	**1**
2004	0	0	3	1	**4**
2005	1	0	17	2	**20**
2006	3	3	12	8	**26**
2007	2	6	18	4	**30**
2008	0	0	4	2	**6**
2009	0	1	0	0	**1**
2010	0	3	6	10	**19**
2011	0	1	4	4	**9**
2012	1	0	1	1	**3**
2013	1	0	5	0	**6**
2014	5	1	6	5	**17**
2015	9	0	3	24	**36**
2016	2	0	2	8	**12**
Total	**25**	**15**	**83**	**78**	**201**

The IPO cyclicality is seen from Table 1 as there are specific periods of higher IPO activity. The cyclicality of IPOs is seen after the techno bubble in 2000 when there are several years until the IPO activity picked up again. The euro crisis of 2012 halted the IPO market briefly, but the activity has been rising since. Most of the new issues are in Sweden and Norway which have significantly higher activity in their IPO markets. Due to this the results are mainly driven by the Swedish and Norwegian IPOs.

As seen in Table 2 industry distribution of IPOs by the Refinitiv Business Classifications the IPOs mostly concentrate on health care, consumer goods and technology. Technology companies and industrials are relatively most common first year acquirers in the sample for higher frequency industry classes.

Table 2. IPOs by industry class and first year acquirers.

	All	Acquirers	Non-acquirers
Energy	29	6	23
Basic Materials	7	3	4
Industrials	20	8	12
Consumer Goods & Services	46	14	32
Financials	24	9	15
Health Care	38	9	29
Technology	35	16	19
Telecommunications	2	1	1

IPOs in the sample are frequent acquirers with third of them engaging in acquisition activities during their first year of being public. From Table 3 it is seen that the returns for acquirers are higher in the short run, but non-acquirers perform better in the last two years. The underpricing is similar in both groups but companies pursuing acquisitions in the first-year experience much higher returns especially in the short run. These sample statistics would indicate that non-acquirers perform better especially in the long run, but the IPOs are from different years with different market conditions, so the performance needs to be benchmarked before making conclusions. The underpricing of IPOs is smaller compared to previous studies. High underpricing suggests worse long run performance of IPOs. The low initial return in this sample could indicate better performance of IPOs as there is smaller overreaction after the listing.

Table 3. IPO sample statistics.

Variable	All	1st year acquirers	1st year non-acquirers
Number of IPOs	201	66	135
Underpricing	5,44 %	5,61 %	5,35 %
1-Year Return	4,92 %	8,43 %	3,20 %
2-Year Return	11,25 %	10,13 %	11,80 %
3-Year Return	12,43 %	11,55 %	12,86 %
4-Year Return	24,01 %	12,25 %	29,76 %
5-Year Return	40,41 %	21,99 %	49,41 %

Table 4 presents the descriptive sample statistics. Overall, there are not significant differences between first year acquirers and non-acquirers. All IPOs have a market capitalization of 300 million euros on average, with non-acquirers being slightly larger companies. Book-to-market ratios for the subsamples are close and on average lower than for example the average book-to-market of MSCI Nordic index of 0,36 (MSCI 2021). IPOs are infused with 182 million euros on listing. Acquirers seem to gain more proceeds, consistent with the cash infusion theory of Hsieh et al. (2011). The difference is however not very notable. Non-acquirers seem to have higher return on assets and are more leveraged companies. The leverage ratio is almost 10 percent higher showing significantly more leverage for non-acquirers. Age wise both groups are similar.

Table 4. Descriptive sample statistics.

Mean	All	Acquirers	Non-acquirers
Market cap (M€)	298	272	310
Book-to-market	0,19	0,22	0,18
Proceeds (M€)	182	201	173
ROA	10,10 %	8,12 %	11,11 %
Age (years)	13,55	13,49	13,58
Leverage-%	32,30 %	26,71 %	35,03 %

6.2 Methodology

To measure the performance of the IPOs this study uses the buy and hold abnormal return (BHAR) methodology. It is the standard methodology in IPO studies (e.g., Ritter 1991; Lyon et al. 1999; Ritter and Welch 2002; Brau et al. 2012) for testing long time performance. BHAR method is used since it captures the actual investment experience of investing in all the event companies and selling at the end of the period. This method parallels the investment experience better than the standard periodic re-balancing approaches (Lyon et al. 1999). According to Mitchell and Stafford (2000) the BHAR method is defined as the return from a strategy of investing in all the event companies from the

event date and selling at the end of the event period. These returns are compared to nonevent companies and the abnormal returns for the period are calculated.

Similarly, to Brau et al. (2012) the BHARs are calculated for different periods up to five years after the company goes public. The IPO returns are compared to MSCI Nordic index and matching style companies. Returns are calculated for acquirers and non-acquirers to compare the performance of the two groups. The BHAR method is presented in the equation below:

$$BHAR = \frac{1}{N}\sum_{i=0}^{n}[(\prod_{t=1}^{T}(1 + r_{it})) - (\prod_{t=1}^{T}(1 + r_{bt}))], \quad (3)$$

where r_{it} is the return of company i for the period t and r_{bt} is the return of the benchmark b in period t. Using the approach of Loughran and Ritter (1995) if an IPO delists the last return is used for all longer time periods.

The benchmarks used are MSCI Nordic index and style matching companies. Brav and Gompers (1997) find that when measuring IPO returns the results are sensitive to changes in the benchmark and using more than one strengthens the robustness of the findings. Kothari and Warner (1997) suggest style matching to measure the performance more accurately. Previous studies (e.g., Ritter and Welch 2002; Brau et al. 2012) use these two methods, and using the same approach enhances the comparability of the results. Barber and Lyon (1997) also argue for the use of style matching companies to improve the results. Using the method of Lyon et al. (1999) the style matches are found using market capitalization and book to market value. The style matches are created by choosing the company with closest book to market value with ± 30% market capitalization compared to the IPO. The style matches should have been listed at least for five years. If a style match delists before the end of the period, the next closest company that meets the criteria replaces it.

To test for the robustness of the returns a t-statistic is calculated to get the statistical significance of the results. The t-test measures if the BHAR means are significantly different from zero. Barber and Lyon (1997) show that when measuring buy and hold abnormal returns there is a positive skewness in the long run. This skewness can lead to biased t-statistics and an advanced t-test should be employed. Kothari and Warner (1997) show that style matching corrects some skewness issues, but the use of advanced t-statistic is recommended. Lyon et al. (1999) point to using skewness adjusted t-statistic which eliminates the bias. The skewness adjusted t-statistic used in this study is presented in the equation below:

$$t_{sa} = \sqrt{n}\,(\,S + \tfrac{1}{3}\,\hat{\gamma}S^2 + \tfrac{1}{6n}\,\hat{\gamma}\,), \tag{4}$$

where

$$S = \frac{\overline{AR}_t}{\sigma(AR_t)}, \text{ and } \hat{\gamma} = \frac{\sum_{i=0}^{n}(AR_{it} - \overline{AR}_t)^3}{n\sigma(AR_t)^3}, \tag{5}$$

where $\overline{AR}_t$ is the abnormal buy and hold return for the event period, $\sigma(AR_{\mathrm{t}}\,)$ is the standard deviation of the buy and hold returns and AR_{it} is the abnormal buy and hold return for the IPOs in the event period and n is the sample size. In the equation $\hat{\gamma}$ is an estimate of the skewness and $\sqrt{n}\,S$ represents the conventional t-statistic.

The BHAR method has received criticism in the literature. Fama (1998) notes that the BHAR method does not account for cross-sectional correlation. This correlation in the sample can produce biased t-statistics. Mitchell and Stafford (2000) argue against BHAR due to cross-sectional correlation and skewness. Eckbo et al. (2000) criticize the usage of the BHAR as a portfolio strategy since the number of stocks is unknown. Although the skewness is corrected by using the skewness adjusted t-statistic of Lyon et al. (1999) the results of BHAR methodology needs to be confirmed with other tests.

The chosen method is the Fama and French (1993) three-factor model which is widely used in calendar time regressions. Fama (1998) suggests the usage of calendar time approach to complement BHAR methodology. The monthly returns on this approach are less skewed and account for cross-correlation. Mitchell and Stafford (2000) also advocate the use of calendar time portfolios. Calendar time regression assumes the returns for the event companies to be independent, contrary to the assumptions in the BHAR method.

Fama (1998) suggests that since the number of companies in the portfolio change constantly, weighted least squares regression should be used to eliminate heteroskedasticity. Loughran and Ritter (1995) also criticize the standard approach since there are equal weights for every month regarding the number of events and advocate to use weighted regression. Following Mitchell and Stafford (2000) the monthly returns are weighted with $\sqrt{N_t}$, where N is the number of companies each month t. This makes the factor model results more reliable. The Fama-French 3-factor model used is presented below:

$$R_{pt} - r_{ft} = AR_t + \beta_1(R_{mt} - r_{ft}) + \beta_2 SMB_t + \beta_3 HML_t + \varepsilon_t, \qquad (6)$$

where the dependent variable R_{pt} is the monthly return of the equal weighted calendar time portfolio of Nordic IPOs and r_{ft} is the risk free rate proxied with the average of the 3-month treasury bill of all four countries, AR_t is the constant which measures the mean monthly abnormal return on the calendar time portfolio, R_{mt} is the return on the market index MSCI Nordic, thus $R_{mt} - r_{ft}$ is the market risk premium factor. SMB_t is the monthly difference between the returns on small and big market capitalization Nordic stocks excluding the IPOs. HML_t is the monthly difference between the returns on high and low book to market Nordic stocks excluding the IPOs. The three-month risk-free rate used is like Brau et al. (2012) who use the three-month treasury bill. This study uses the average of the treasury bills of the sample countries as the returns are also compared against a Nordic index containing stocks from all of the countries.

6.3 Possible limitations of the study

An obvious limitation is the sample size. Nordic markets are relatively small which makes the sample smaller compared to major studies in the United States. However, in Europe there are numerous studies (e.g., Keloharju 1993; Jakobsen and Sørensen 2001; Chahine 2008; Thomadakis et al. 2012) of IPO performance which employ similar sample sizes with significant results. The small sample can be an issue when style matching companies as there are less options and the style matches might not be that close compared to previous studies. When examining the returns versus the benchmark index several studies (e.g., Brav and Gompers 1997; Ritter and Welch 2002) note that the performance of IPOs is highly sensitive to the selection in the benchmark index. MSCI Nordic is chosen as it captures the performance of the Nordic markets well. As the sample companies are from different countries there can be differences between the representation of countries in the index and in the sample. To counter these limitations multiple statistical methods are used to confirm the results. It should be noted that this thesis does not study the reasons behind the possible differences between the subsamples of acquirers and non-acquirers and to make robust conclusions regarding the difference in performance, other factors regarding the acquiring and non-acquiring companies need to be investigated. This thesis provides only the grounds for it and following Brau et al. (2012) examines the performance of these two groups.

7 Results

In this chapter the empirical results of this thesis are presented and interpreted. Buy and hold abnormal returns for different periods are examined separately versus index and style matching companies. Lastly, the calendar time model regression results are presented to further strengthen the robustness of the results.

According to hypotheses of this study there are several implications expected from the empirical studies. IPOs are expected to underperform in the long run like previous studies on IPO returns. First year acquiring IPOs are hypothesized underperform in the long run against non-acquirers during the five-year period. The third hypothesis states that IPOs that acquire during the first three years overperform non-acquirers, limiting the poor performance of acquiring IPOs to the ones that rush to acquire during their first year of being public.

7.1 Buy and hold abnormal returns vs index

In Table 4 are presented the buy and hold abnormal returns calculated for one to five years and benchmarked against the MSCI Nordic index. Overall, IPOs have outperformed the market with economical and statistical significance. IPOs overperform both in the short and long-run with 26 percent abnormal returns compared to the MSCI Nordic index. This finding is contrary to previous findings of IPO underperformance in the long-run and Nordic IPOs seem to clearly overperform in all periods.

Table 5. Market adjusted returns. The abnormal returns are calculated with equation 3 and p-values with equation 4. The p-values are marked with *, ** and *** to represent the statistical significance at the levels of 10%, 5% and 1% respectively.

Abnormal Returns for All IPOs

Variable	Mean	p-value
AR(0-1)	4,15 %	0,257
AR(0-2)	13,62 %	0,018**
AR(0-3)	11,66 %	0,083*
AR(0-4)	17,92 %	0,020**
AR(0-5)	26,32 %	0,006***

Abnormal Returns for 1-Year Acquirers and Non-acquirers

	Acquirers			**Non-acquirers**	
Variable	Mean	p-value	Variable	Mean	p-value
AR(0-1)	3,41%	0,557	AR(0-1)	4,59 %	0,363
AR(0-2)	6,20%	0,471	AR(0-2)	17,39 %	0,061*
AR(0-3)	5,70%	0,636	AR(0-3)	14,70 %	0,156
AR(0-4)	4,29%	0,728	AR(0-4)	24,68 %	0,001***
AR(0-5)	4,98%	0,723	AR(0-5)	36,87 %	0,001***

The abnormal returns for all IPOs are positive meaning that on average IPOs beat the benchmark index MSCI Nordic. This finding is contrary to the major IPO studies of Ritter and Welch (2002) and Brau et al. (2012) who find underperformance of IPOs in market adjusted returns. The result is complementary to the market adjusted positive abnormal returns in European study Thomadakis et al. (2012). IPOs provide a significant abnormal return over the benchmark index making them attractive investments.

Acquiring IPOs perform well during their first years of being public but in the longer run their abnormal returns are stagnated and they perform similarly to the index. The p-values of the acquirer returns are insignificant so no conclusions can be made. Non-acquiring IPOs outperform the benchmark index greatly. The long-term return is over 36 percent for the five-year period and the findings are statistically significant at one percent. Non-acquirers seem to outperform first year acquirers in all periods.

To better examine the performance of acquiring IPOs the returns are calculated for IPOs that acquire 3 years after being listed. This makes it possible to study whether the poor performance of acquirers is due to them making acquisitions during the first year of being public as Brau et al. (2012) find. Following the methodology of Brau et al. (2012) the

three-year acquirers subsample also contains the acquirers during the first year. The results are presented in Table 5.

Table 6. Market adjusted returns for 3-year acquirers and non-acquirers. The abnormal returns are calculated with equation 3 and p-values with equation 4. The p-values are marked with *, ** and *** to represent the statistical significance at the levels of 10%, 5% and 1% respectively.

Abnormal Returns for 3-Year Acquirers and Non-acquirers

Acquirers			Non-acquirers		
Variable	Mean	p-value	Variable	Mean	p-value
AR(0-1)	9,61 %	0,069*	AR(0-1)	-1,04 %	0,882
AR(0-2)	17,64 %	0,056*	AR(0-2)	9,80 %	0,115
AR(0-3)	17,04 %	0,098*	AR(0-3)	6,55 %	0,111
AR(0-4)	20,53 %	0,070*	AR(0-4)	15,43 %	0,013**
AR(0-5)	30,25 %	0,031**	AR(0-5)	22,59 %	0,054*

Newly listed companies that do not acquire in their first three years of being public underperform significantly acquiring ones. This underperformance is more severe in the short term where companies not pursuing acquisitions experience negative returns in their first year of being public. It should be noted that non-acquirers also beat the benchmark index in the long run even though they lose to acquirers. Acquiring companies are rewarded from their non-organic growth by substantial abnormal returns. The change of the acquisition period is significant as first year acquirers perform worse to acquirers during the first three years suggesting that companies who rush to acquire after going public is the worse option.

As the three-year acquirers perform much better compared to first year acquirers it can be concluded that first year acquirers make worse acquisitions. This finding supports Brau et al. (2012) who find similar results. If the management waits until they acquire the company makes value enhancing acquisitions. Waiting to acquire signals that the management does not suffer from empire building or entrenchment, but they gain more experience leading a public company and acquire later, making better acquisitions. The longer run overperformance of three-year acquirers over non-acquirers can be due to acquisitions leading to higher growth rates. There can also be overoptimism towards an

IPO as Ritter and Welch (2002) show. Investors can be overoptimistic about the growth potential of newly listed companies and when these companies acquire investors become more optimistic about their growth leading to overperformance over non-acquirers.

Next, the focus is on different types of time intervals during the five-year period. Similarly, to Brau et al. (2012) the returns are calculated for different periods for acquiring and non-acquiring companies during the first and three years after their listing. These returns are compared to see if there are differences between the performance of acquirers and non-acquirers on different periods and how the exclusion of the acquisition years influences the results. The acquisition period is excluded as investors cannot know which companies are going to acquire and this methodology allows to present the performance of IPOs after the acquisition.

Table 7. Market adjusted returns for different time frames. The abnormal returns are calculated with equation 3 and p-values with equation 4. The p-values are marked with *, ** and *** to represent the statistical significance at the levels of 10%, 5% and 1% respectively.

Abnormal Returns for 1-Year Acquirers and Non-acquirers

Acquirers			Non-acquirers		
Variable	Mean	p-value	Variable	Mean	p-value
AR(1-2)	-1,23 %	0,373	AR(1-2)	5,93 %	0,269
AR(1-3)	-2,41 %	0,168	AR(1-3)	10,23 %	0,009***
AR(1-4)	-4,88 %	0,177	AR(1-4)	30,89 %	0,000***
AR(1-5)	-6,89 %	0,297	AR(1-5)	43,79 %	0,004***

Abnormal Returns for 3-year Acquirers and Non-acquirers

Acquirers			Non-acquirers		
Variable	Mean	p-value	Variable	Mean	p-value
AR(3-4)	2,74 %	0,091*	AR(3-4)	2,51 %	0,004***
AR(3-5)	4,86 %	0,225	AR(3-5)	8,12 %	0,44

When excluding the acquisition year, the performance of acquirers is turned negative but without statistical significance. Non-acquirers however outperform clearly with

statistical significance to one percent level in the longer term. This result is like the findings of Brau et al. (2012) who show acquirers to underperform substantially to non-acquirers on all periods when excluding first year returns. Non-acquirers show strong performance in all periods to the benchmark index. The first-year abnormal returns are reversed to long run negative abnormal returns. For the three-year acquisition period acquirers outperform non-acquirers in all periods if acquisition period is included. Here when examining the returns after the period there is no significant overperformance over non-acquirers anymore.

7.2 Buy and hold abnormal returns vs style

To confirm the findings from the previous chapter the style returns are examined. Brav and Gompers (1997) suggest that when examining IPO returns multiple benchmarks should be used to confirm the results. Style comparison method by Lyon et al. (1999) has been the standard for previous IPO studies like Ritter and Welch (2002) and Brau et al. (2012). Using the same method makes the results more comparable.

When examining buy and hold abnormal returns versus the benchmark index there is outperformance on the overall level of IPOs. Acquiring IPOs seem to underperform non-acquiring ones in the long run. The overperformance to the index of acquiring IPOs is mainly from their substantial first year returns. For the three-year acquisition period companies deciding not to acquire lose in all periods. The three-year acquirer group outperforms the first-year acquirers suggesting that first year acquirers make worse acquisitions or have overvalued equity.

Table 8. Style adjusted returns. The abnormal returns are calculated with equation 3 and p-values with equation 4. The p-values are marked with *, ** and *** to represent the statistical

significance at the levels of 10%, 5% and 1% respectively.

Abnormal Returns for All IPOs

Variable	Mean	p-value
AR(0-1)	-3,62 %	0,97725
AR(0-2)	0,91 %	0,57642
AR(0-3)	-3,26 %	0,38172
AR(0-4)	-0,17 %	0,43155
AR(0-5)	6,28 %	0,15873

Abnormal Returns for 1-Year Acquirers and Non-acquirers

	Acquirers			**Non-acquirers**	
Variable	Mean	p-value	Variable	Mean	p-value
AR(0-1)	-9,05 %	0,74193	AR(0-1)	-1,17 %	0,72898
AR(0-2)	-3,49 %	0,34419	AR(0-2)	2,90 %	0,91848
AR(0-3)	-5,99 %	0,32346	AR(0-3)	-2,02 %	0,67754
AR(0-4)	-4,34 %	0,24112	AR(0-4)	1,71 %	0,72102
AR(0-5)	0,68 %	0,12726	AR(0-5)	8,81 %	0,58864

When controlling for size and style effects the results for IPO returns are drastically different. The overperformance of IPOs with market adjustments disappears when style effects are controlled for. This suggests that the overperformance of IPOs against market is explained by their lower market capitalization and lower book-to-market value. Acquirer returns show abnormal returns for all IPOs to fluctuate but to be positive in the long run. Acquirers seem to underperform non-acquirers greatly during all periods, but these findings are not statistically significant, and no conclusions can be made.

Table 9. Style adjusted returns for 3-year acquirers and non-acquirers. The abnormal returns are calculated with equation 3 and p-values with equation 4. The p-values are marked with *, ** and

*** to represent the statistical significance at the levels of 10%, 5% and 1% respectively.

Abnormal Returns for 3-Year Acquirers and Non-acquirers

Acquirers			Non-acquirers		
Variable	Mean	p-value	Variable	Mean	p-value
AR(0-1)	-0,52%	0,522	AR(0-1)	-6,53 %	0,387
AR(0-2)	9,58%	0,105	AR(0-2)	-7,19 %	0,465
AR(0-3)	4,27%	0,089*	AR(0-3)	-10,29 %	0,781
AR(0-4)	7,96%	0,053*	AR(0-4)	-7,78 %	0,751
AR(0-5)	18,14%	0,031**	AR(0-5)	-4,81 %	0,798

For 3-year acquirers the performance resembles the benchmark index returns. There are abnormal returns but for style matches they are not as sizeable. Acquirers outperform their style matches by 18,14 percent in the five-year period. Acquirers outperform non-acquirers clearly. Non-acquirers experience negative returns, but these findings are in-significant. It can be confirmed that acquiring newly listed companies outperform non-acquirers in all periods if the acquisition period is three years. Newly listed companies use acquisitions to grow and the ones not acquiring experience underperformance.

Table 10. Style adjusted returns for different time frames. The abnormal returns are calculated with equation 1 and p-values with equation 2. The p-values are marked with *, ** and *** to represent the statistical significance at the levels of 10%, 5% and 1% respectively.0000q0

Abnormal Returns for 1-Year Acquirers and Non-acquirers

Acquirers			Non-acquirers		
Variable	Mean	p-value	Variable	Mean	p-value
AR(1-2)	0,99 %	0,401	AR(1-2)	-3,58 %	0,606
AR(1-3)	-5,89 %	0,285	AR(1-3)	1,14 %	0,145
AR(1-4)	-5,33 %	0,184	AR(1-4)	22,32 %	0,018**
AR(1-5)	-6,58 %	0,303	AR(1-5)	31,63 %	0,081*

Abnormal Returns for 3-year Acquirers and Non-acquirers

Acquirers			Non-acquirers		
Variable	Mean	p-value	Variable	Mean	p-value
AR(3-4)	1,50 %	0,541	AR(3-4)	16,18 %	0,793
AR(3-5)	2,54 %	0,439	AR(3-5)	30,62 %	0,689

After excluding first year returns the results are similar than the index benchmark returns show. Acquiring companies underperform in the long run but for the first-year non-acquirers experience negative returns. The statistically significant findings of non-acquirer overperformance in the longer periods confirm the findings of investors of first year acquirers being worse off than investors of non-acquirers. Investing in an IPO that acquires during its first year of being public yields negative returns if the style effects are taken account for. This shows that ex-post the acquisition period of one year, investors could make significant abnormal returns of over 30 percent by investing in newly listed companies which do not acquire during the first year.

7.3 Calendar time factor model regressions

To further confirm the results, calendar time regressions are used. The results from these regressions are presented in Table 10. The Fama French 3-factor model is calculated from returns of 0-5 years and 1-4 years. The returns are calculated for acquiring and non-acquiring samples for first year acquirers. As the BHAR method finds there are differences between performance of first year acquirers and non-acquirers in the long run. First year acquirers appear to lose in long run. If the first-year returns are excluded the performance of acquirers is even worse and due to acquisition announcements for newly listed companies yielding substantial returns. These two regressions allow to collect further evidence to see if the previous findings can be confirmed.

Following Brau et al. (2012) the dependent variables are the returns for the IPO portfolio. The regressions investigate the monthly returns of IPOs that went public in the last five years prior to current month and the returns of IPOs that went public between one to four years prior to current month. The latter regressions thus exclude the returns for IPOs during their first year of being public and last year from the five-year observation period. When dividing the portfolio to acquirers and non-acquirers the event period is one year after the IPO date to study the first-year acquirer's performance further.

The significant slope coefficients for the factors have their expected signs in all regressions. When small stocks outperform, the IPO portfolio does well since SMB is positive. When value stocks outperform, the portfolio does worse. IPOs are mostly smaller stocks with low book-to-market, so these are in line with the expectations. Positive SMB factor is significant at 1 percent level in all regressions but one meaning that the smaller size of IPO stocks explains a lot of their returns.

Table 11. Calendar time regressions. The monthly returns are calculated for 2002-2021 consisting of 240 observations. The dependent variable is the monthly return for the IPO portfolio. The intercept term is the mean monthly return for the calendar time portfolio, MRP is the monthly market risk premium, SMB is the mean monthly return for small stocks minus big stocks and HML is the mean monthly return for high book-to-market minus low book-to-market. The t-statistics are marked with *, ** and *** to represent the statistical significance at the levels of 10%, 5% and 1% respectively.

Non-Acquiring (0-5)			**Acquiring (0-5)**		
Variable	Estimate	t-Statistic	Variable	Estimate	t-Statistic
Intercept	0,008 %	1,54	Intercept	-0,01%***	2,38
MRP	0,683%***	10,39	MRP	0,237%***	2,97
SMB	0,398%***	4,11	SMB	-0,023%	0,23
HML	-0,175 %	1,61	HML	-0,301**	1,97

Non-acquiring (1-4)			**Acquiring (1-4)**		
Variable	Estimate	t-Statistic	Variable	Estimate	t-Statistic
Intercept	0,002 %	0,58	Intercept	-0,019%**	2,55
MRP	0,672%***	10,65	MRP	1,09%***	10,68
SMB	0,247%***	3,12	SMB	0,48%***	3,31
HML	-0,131 %	1,23	HML	-0,329%**	2,17

When looking at the statistically significant results the findings confirm the BHAR results. The acquiring IPO portfolios have negative intercepts meaning negative monthly performance. This finding is statistically significant. The returns for non-acquiring portfolio are positive which is in line with previous findings but there is no statistical significance. The intercepts in the regressions have similar signs as the findings of Brau et al. (2012). Acquiring IPOs have similar magnitude of negative returns indicated by their intercepts in both regressions. First year acquisitions lead to negative monthly returns and the BHAR

findings can be confirmed. When excluding the first year returns acquirers underperform non-acquirers in all periods. The Fama-French method controls for both the small and growth factor of IPO stocks. The effect of acquirers is negative on this sample indicating first year acquirers to make value destroying acquisitions when controlled for style effects as the BHAR style returns are also negative for acquirers.

8 Conclusions

This thesis provides new evidence on the performance of new issues in the Nordic market. The effect of acquisitions to the performance of newly listed companies is less examined subject in the literature with only few studies. The performance of IPOs in the recent years has not been studied and most of the major studies date back to the early 2000s. The findings of this thesis contribute to the literature by re-opening the IPO performance anomaly and presenting evidence from a new period that is left untouched. The acquisition perspective of this study complements the scarce literature on the subject by increasing the information about the effect of acquisitions to the performance of new issues.

Overall, IPOs outperform the market. There are substantial abnormal returns earned from the buy and hold approach of IPOs. IPOs outperform the benchmark index by 26 percent in five years post-IPO. When controlling for style effects the BHAR model finds negative returns and the 3-factor model positive but without statistical significance. The clear overperformance over the benchmark disappears after controlling for style, indicating that the overperformance over the index is due to small and growth factors. Nordic markets provide abnormal returns for new issues in this sample and IPOs in the Nordic can be seen as attractive investments due to their strong performance. The underpricing of IPOs in this sample is also smaller compared to previous findings. Lower underpricing leads to better returns as high initial returns indicate overreaction which can reverse to poor performance in the long run.

The first research hypothesis can be rejected as there is IPO overperformance in this sample. Contrary to the previous findings IPOs overperform the market. With all measurements the performance of all IPOs is significantly positive. IPOs experience abnormal returns, but this is not so significant after controlled for style and size effects. The performance over the market is partly attributed to IPOs being smaller size and lower book-to-market companies. As Hahl et al. (2014) show, the underperformance of IPOs is because of their growth style, and the whole IPO anomaly is caused by the effects of size

and book-to-market on returns. The average market value of the company in the MSCI Nordic index is 16 billion and the average book-to-market 0,36. As seen from Table 4 the average market value in this sample is 300 million and book-to-market 0,19. The sample contains smaller growth companies compared to the index. Growth companies have performed better over value in the 2010s and small cap Nordics have overperformed in the IPO sample period. For the last ten years growth stocks have outperformed value by 5,25 percent annually (Morningstar Direct 2021). Since 2000 the MSCI Nordic Small Cap Index has annual returns of 12,92 percent compared to 6,27 percent of MSCI Nordic Index (MSCI 2021). The overperformance of these factors leads to IPOs overperforming and the first research hypothesis can be rejected. The use of standard market index as a benchmark can be questioned and alternative methods should be considered in the future studies. Previous studies on the subject are mostly done with samples from 1980-1990s and are subject to different market conditions. As Ritter and Welch (2002) argue, the sample period can alter the results greatly. The market conditions have changed, and it changes the performance of IPOs due to their style.

When examining the differences between the returns of first year acquirers and non-acquirers the study finds acquirers to underperform in every significant result. First year acquirers experience positive returns against the market but negative when controlled for style effects. The bad performance of acquirers is due to their first-year acquisitions as for acquirers in the three-year period the returns are highly positive and the overperformance over non-acquirers substantial. Acquiring IPOs beat the market index due to their style but both tests that control for style effects show underperformance not only to non-acquirers but against benchmark as well. As investors cannot know before which IPOs acquire the returns are also calculated for periods excluding the acquisition period. This shows acquiring IPOs to experience significant negative returns indicating that investors should stay away from new listings which acquire during the first year and invest in ones they do not see rushing to acquisitions.

The second research hypothesis of first year acquiring IPOs underperforming non-acquirers in the long run can be confirmed as there is evidence to present of acquiring IPOs underperformance. Both groups overperform the market but when comparing their performance to each other non-acquirers beat acquirers in every test. First year acquirers seem to make value destroying acquisitions as they experience even negative returns after controlled for style effects. The agency theories can explain this finding. As Sheifler and Vishny (1989) hypothesize, managers want to entrench their position and make acquisitions that are not value maximizing to the company but solidify the position of the managers making them harder to replace. In the IPO there is a cash infusion to the company for the management to use and they can use it to entrench themselves with acquisitions. These acquisitions can be value destroying leading to negative returns for shareholders.

The empire building hypothesis states that managers want to maximize their power and personal wealth. This leads to them making value destroying acquisitions. The management uses the cash from the IPO to acquisitions so they can boost their own power and compensation. The entrenchment and empire building theories can explain why first year acquirers make value destroying acquisitions and when the acquisition period is three years the acquiring companies are better off. If the management wants to entrench themselves or to build an empire they want to do so quickly and the acquisitions happening later suggests that the management does not suffer from these biases. The timing of the IPO can also explain the poor first year acquirer returns. If the first-year acquirers are companies that are overvalued when going public and their managers rush in to make acquisitions with the overvalued equity, when the overvaluation unravels, it can lead to worse returns for first year acquirers. This might not explain the performance as acquiring with overvalued equity is linked to shareholder value as Savor and Lu (2009) show. Using the overvalued equity provides value to shareholders but participating in overvalued IPO can lead to value destruction, so the effect of overvaluation on returns is unclear.

The underperformance of acquirers only applies to first year acquirers. If the group is expanded to companies that acquire in the first three years post-IPO, the results are different. Acquirers outperform significantly. Companies not acquiring during their first three years of being public experience negative abnormal returns. Companies not rushing to acquisitions might not suffer from the same agency issues than first year acquirers do and there might be less overvalued companies since they can wait to make acquisitions. Their acquisitions lead to growth which is rewarded by investors with abnormal returns. The negative returns for companies not acquiring can also be explained by the overoptimism theory regarding new issues by Ritter and Welch (2002). Investors are overoptimistic about the growth potential of new companies, and they might expect acquisitions. When there are no acquisitions, this optimism is reversed leading to negative returns. With these results the third hypothesis can be confirmed as the overperformance of acquirers three years post-IPO is clear. Acquirers during the first three years are earning substantial abnormal returns showing that investors should be interested in these companies which do not rush to acquire but do so after a few years. As investors cannot know about the acquisitions beforehand, the returns here are also examined after the acquisition period. The acquirers still overperform showing that there are abnormal returns available from investing in companies acquiring after the first year of being public.

Overall, the results regarding IPO performance are different from previous studies from the U.S (e.g., Ritter, 1991; Loughran and Ritter, 1995; Ritter and Welch, 2002) and from the Nordics (Keloharju, 1993; Jakobsen and Sørensen, 2001) who find underperformance of IPOs. The IPO performance is drastically better in this sample. As the IPO performance disappears after controlled for style and size effects, the findings are complementary to Hahl et al. (2014), who find IPO performance to be driven by book-to-market and size factors. For the acquiring IPO performance, there are similar results than the findings of Brau et al. (2012). They find first year acquirers to perform worse to non-acquirers. While Brau et al. (2012) find both groups to underperform contrary to this study, the finding of first year acquirer underperformance to non-acquirers is similar.

The results of this thesis related to three-year acquirer overperformance over non-acquirers are also in line with the findings of Brau et al. (2012). Their study has been tested in a new market setting but the same results are shown in the Nordics as well regarding the effect of acquisitions on IPO performance when compared to non-acquiring ones.

These results are for one specific market the Nordics and for one sample period, so the results should be confirmed in future research. And as Ritter and Welch (2002) and Fama and French (2008) state multiple markets and time frames should always be used when studying certain financial market phenomena. Most of the IPO issues suggesting underperformance is relatively old and new papers could be written on the subject from more recent periods. The market has changed after the last two financial crises and as this thesis finds the performance of IPOs has also changed. For the effect of acquisitions on returns, future research could investigate the reasons behind the poor performance of first year acquirers and if the entrenchment and empire building factors are behind it as suggested by Brau et al. (2012) or if the poor performance is caused by other factors for example, profitability or riskiness.

References

Anderson, C. W., & Huang, J. (2017). Institutional investment in IPOs and post-IPO M&A activity. *Journal of empirical finance, 41*, 1–18. https://doi.org/10.1016/j.jempfin.2016.12.003

Anderson, C. W., Huang, J., & Torna, G. (2017). Can investors anticipate post-IPO mergers and acquisitions? *Journal of corporate finance, 45*, 496–521. https://doi.org/10.1016/j.jcorpfin.2017.05.006

Ang, J. S., & Cheng, Y. (2006). Direct evidence on the market-driven acquisition theory. *The Journal of financial research, 29*(2), 199–216. https://doi.org/10.1111/j.1475-6803.2006.00174.x

Amihud, Y., & Lev, B. Risk reduction as a managerial motive for conglomerate mergers. *The Bell journal of economics, 12*(2), 605–617. https://doi.org/10.2307/3003575

Amor, S., & Kooli, M. (2016). Do acquisitions affect IPO long-run performance? Evidence from single vs. multiple acquirers. *Journal of International Financial Markets, Institutions & Money, 40*, 63–79. https://doi.org/10.1016/j.intfin.2015.05.017

Amor, S., & Kooli, M. (2017). From IPO to M&A: Further evidence. *The Journal of Wealth Management, 20*(3), 75–93. https://doi.org/10.3905/jwm.2017.20.3.075

Bade, M. (2020). Determinants of IPO-firms' merger appetite. *Review of Managerial Science, 14*(1), 193. https://doi.org/10.1007/s11846-018-0291-2

Barber, B.M., & Lyon, J. D. (1997). Detecting long-Run abnormal stock returns: The empirical power and specification of test statistics. *Journal of Financial Economics, 43*, 341–372. https://doi.org/10.1016/S0304-405X(96)00890-2

Baxamusa, M., & Jalal, A. (2018). Industry networks and IPO waves. *Journal of Banking and Finance,* 88, 129–146. https://doi.org/10.1016/j.jbankfin.2017.11.015

Berk, J., & DeMarzo, P. M. (2014). *Corporate finance* (3rd global ed.). Pearson. ISBN 978-0-273-79202-4

Berkovitch, E., & Narayanan, M. P. (1993). Motives for takeovers: An empirical investigation. *Journal of financial and quantitative analysis, 28*(3), 347–362. https://doi.org/10.2307/2331418

Black, B. S., & Gilson, R. J. (1998). Venture capital and the structure of capital markets: Banks versus stock markets. *Journal of financial economics, 47*(3), 243–277. https://doi.org/10.1016/S0304-405X(97)00045-7

Bloomberg (2021). Global IPOs blow past $600 million mark in best year on record. https://www.bloomberg.com/news/articles/2021-11-20/global-ipos-blow-past-600-billion-mark-in-best-year-on-record

Bodie, Z., Kane, A., & Marcus, A. J. (2018). *Investments* (Eleventh edition, international edition.). McGraw-Hill Education. ISBN 978-1-260-08339-2

Boeh, K., & Dunbar, C. (2014). IPO waves and the issuance process. *Journal of corporate finance, 25*, 455–473. https://doi.org/10.1016/j.jcorpfin.2014.02.001

Bonaventura, M., Bonini, S., Capizzi, V., & Giudici, G. (2018). Does post-IPO M&A activity affect firms' profitability and survival? *Journal of Financial Management, Markets and Institutions, 6*(1). https://doi.org/10.1142/S2591768418500058

Boulton, T. J., Smart, S. B., & Zutter, C. J. (2010). Acquisition activity and IPO underpricing. *Financial Management, 39*(4), 1521–1546. https://doi.org/10.1111/j.1755-053X.2010.01121.x

Brau, J. C., Couch, R. B., & Sutton, N. K. (2012). The desire to acquire and IPO long-run underperformance. *Journal of Financial and Quantitative Analysis, 47*(3), 493–510. https://doi.org/10.1017/S0022109012000233

Brau, J. C., & Fawcett, S. E. (2006). Initial Public Offerings: An analysis of theory and practice. *Journal of Finance, 61*(1), 399–436. https://doi.org/10.1111/j.1540-6261.2006.00840.x

Brau, J. C., Francis, B., & Kohers, N. (2003). The choice of IPO versus takeover: Empirical evidence. *The Journal of Business, 76*(4), 583. https://doi.org/10.1086/377032

Brav, A., & Gompers, P. A. (1997). Myth or Reality? The long-run underperformance of initial public offerings: Evidence from venture and non-venture capital-backed companies. *Journal of Finance, 52*(5), 1791–1821. https://doi.org/10.1111/j.1540-6261.1997.tb02742.x

Carter, R., Dark, F., & Singh, A. (1998). Underwriter reputation, initial returns, and the long-run performance of IPO stocks. *Journal Of Finance, 53*(1), 285–311. https://doi.org/10.1111/0022-1082.104624

Celikyurt, U., Sevilir, M., & Shivdasani, A. (2010). Going public to acquire? The acquisition motive in IPOs. *Journal of financial economics, 96*(3), 345–363. https://doi.org/10.1016/j.jfineco.2010.03.003

Chahine, S. (2008). Underpricing versus gross spread: New evidence on the effect of sold shares at the time of IPOs. *Journal of multinational financial management, 18*(2), 180–196. https://doi.org/10.1016/j.mulfin.2007.08.001

Chan, K., Cooney, J., Kim, J., & Singh, A. (2008). The IPO derby: Are there consistent losers and winners on this track? *Financial Management, 37*(1), 45–79. https://doi.org/10.1111/j.1755-053X.2008.00002.x

Chemmanur, T. J., & Fulghieri, P. (1999). A Theory of the going-public decision. *The Review of financial studies, 12*(2), 249–279. https://doi.org/10.1093/rfs/12.2.249

Chemmanur, T. J., & He, J. (2011). IPO waves, product market competition, and the going public decision: Theory and evidence. *Journal of financial economics, 101*(2), 382–412. https://doi.org/10.1016/j.jfineco.2011.03.009

Çolak, G., & Günay, H. (2011). Strategic waiting in the IPO markets. *Journal of corporate finance, 17*(3), 555–583. https://doi.org/10.1016/j.jcorpfin.2011.02.007

Datta, D. K., Pinches, G. E., & Narayanan, V. K. (1992). Factors influencing wealth creation from mergers and acquisitions: A meta-analysis. *Strategic management journal, 13*(1), 67–84. https://doi.org/10.1002/smj.4250130106

DeAngelo, H., & Rice, E. M. (1983). Antitakeover charter amendments and stockholder wealth. *Journal of financial economics, 11*(1), 329–359. https://doi.org/10.1016/0304-405X(83)90016-8

Dong, M., Hirshleifer, D., Richardson, S., & Teoh, S. H. (2006). Does investor misvaluation drive the takeover market? *The Journal of finance (New York), 61*(2), 725–762. https://doi.org/10.1111/j.1540-6261.2006.00853.x

Eckbo, B. E. (2008). *Handbook of Empirical Corporate Finance SET*. North Holland. https://doi.org/10.1016/B978-0-444-53265-7.X5001-X

Eckbo, B., Masulis, R. W., & Norli, Ø. (2000). Seasoned public offerings: Resolution of the 'new issues puzzle'. *Journal of financial economics, 56*(2), 251–291. https://doi.org/10.1016/S0304-405X(00)00041-6

Engelen, P., & van Essen, M. (2010). Underpricing of IPOs: Firm-, issue- and country-specific characteristics. *Journal of banking & finance, 34*(8), 1958–1969. https://doi.org/10.1016/j.jbankfin.2010.01.002

Espinasse, P. (2014). *IPO: A Global Guide, Expanded Second Edition*. Hong Kong University Press. https://ebookcentral-proquest-com.proxy.uwasa.fi/lib/tritonia-ebooks/detail.action?docID=1785221.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of finance, 25*(2), 383–417. https://doi.org/10.1111/j.1540-6261.1970.tb00518.x

Fama, E. F. (1998). Market efficiency, long-term returns, and behavioral finance. *Journal of financial economics, 49*(3), 283–306. https://doi.org/10.1016/S0304-405X(98)00026-9

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of financial economics, 33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (2008). Dissecting anomalies. *The Journal of finance, 63*(4), 1653–1678. https://doi.org/10.1111/j.1540-6261.2008.01371.x

Field, L. C., & Lowry, M. (2009). Institutional versus individual investment in IPOs: The importance of firm fundamentals. *Journal of Financial and Quantitative Analysis, 44*(3), 489–516. https://doi.org/10.1017/S0022109009990032

Fishman, M. J. (1989). Preemptive bidding and the role of the medium of exchange in acquisitions. *Journal of Finance, 44*(1), 41–57. https://doi.org/10.1111/j.1540-6261.1989.tb02403.x

Fuller, K., Netter, J., & Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *The Journal of finance, 57*(4), 1763–1793. https://doi.org/10.1111/1540-6261.00477

Gao, X., Ritter, J., & Zhu, Z. (2013). Where have all the IPOs gone? *Journal of Financial and Quantitative Analysis, 48*(6), 1663. https://doi.org/10.1017/S0022109014000015

Gaughan, P. A. (2015). Mergers, Acquisitions, and Corporate Restructurings. John Wiley & Sons, ProQuest Ebook Central. https://ebookcentral-proquest-com.proxy.uwasa.fi/lib/tritonia-ebooks/detail.action?docID=1896028.

Gompers, P. A. (1995). Optimal investment, monitoring, and the staging of venture capital. *The Journal of finance, 50*(5), 1461–1489. https://doi.org/10.1111/j.1540-6261.1995.tb05185.x

Gompers, P. A., & Lerner, J. (2003). The really long-run performance of initial public offerings: The pre-Nasdaq evidence. *The Journal of finance, 58*(4), 1355–1392. https://doi.org/10.1111/1540-6261.00570

Hahl, T., Vähämaa, S., & Äijö, J. (2014). Value versus growth in IPOs: New evidence from Finland. *Research in international business and finance, 31*, 17–31. https://doi.org/10.1016/j.ribaf.2013.11.004

Harford, J. (1999). Corporate Cash Reserves and Acquisitions. *The Journal of finance (New York), 54*(6), 1969–1997. https://doi.org/10.1111/0022-1082.00179

Harford, J. (2005). What drives merger waves? *Journal of financial economics, 77*(3), 529–560. https://doi.org/10.1016/j.jfineco.2004.05.004

Harford, J., Humphery-Jenner, M., & Powell, R. (2012). The sources of value destruction in acquisitions by entrenched managers. *Journal of financial economics, 106*(2), 247–261. https://doi.org/10.1016/j.jfineco.2012.05.016

Holmström, B., & Tirole, J. (1993). Market Liquidity and Performance Monitoring. *The Journal of political economy, 101*(4), 678–709. https://doi.org/10.1086/261893

Hovakimian, A., & Hutton, I. (2010). Merger-motivated IPOs. *Financial Management, 39*(4), 1547-1573. https://doi.org/10.1111/j.1755-053X.2010.01122.x

Hsieh, J., Lyandres, E., & Zhdanov, A. (2011). A Theory of Merger-Driven IPOs. *Journal of Financial and Quantitative Analysis, 46*(5), 1367–1405. https://doi.org/10.1017/S0022109011000421

Ibbotson, R. G., & Jaffe, J. F. (1975). "Hot issue" markets. *The Journal of finance, 30*(4), 1027–1042. https://doi.org/10.1111/j.1540-6261.1975.tb01019.x

Jaffe, J., Jindra, J., Pedersen, D., & Voetmann, T. (2015). Returns to acquirers of public and subsidiary targets. *Journal of corporate finance, 31*, 246–270. https://doi.org/10.1016/j.jcorpfin.2015.02.005

Jain, B. A., & Kini, O. (1999). The Life cycle of initial public offering firms. *Journal of business finance & accounting, 26*(9-10), 1281–1307. https://doi.org/10.1111/1468-5957.00298

Jakobsen, J. B., & Sørensen, O. (2001). Decomposing and testing long-term returns: An application on Danish IPOs. *European financial management, 7*(3), 393–417. https://doi.org/10.1111/1468-036X.00162

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review, 76*(2), 323–329. http://dx.doi.org/10.2139/ssrn.99580

Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kothrari, S. P., & Warner J. B. (1997). Measuring long-horizon security price performance. *Journal of financial economics*. 43, 301–339. https://doi.org/10.1016/S0304-405X(96)00899-9

Lerner, J., Shane, H., & Tsai, A. (2003). Do equity financing cycles matter? Evidence from biotechnology alliances. *Journal of financial economics, 67*(3), 411–446. https://doi.org/10.1016/S0304-405X(02)00256-8

Lintner, J. (1965). Security prices, risk, and maximal gains from diversification. *The Journal of finance, 20*(4), 587–615. https://doi.org/10.1111/j.1540-6261.1965.tb02930.x

Loughran, T., & Ritter, J. R. (1995). The New Issues Puzzle. *Journal of Finance, 50*(1), 23–51. https://doi.org/10.1111/j.1540-6261.1995.tb05166.x

Loughran, T., & Ritter, J. (2004). Why has IPO underpricing changed over time? *Financial Management, 33*(3), 5–37. https://www.proquest.com/scholarly-journals/why-has-ipo-underpricing-changed-over-time/docview/208184761/se-2?accountid=14797

Loughran, T., & Ritter, J. R. (2002). Why don't issuers get upset about leaving money on the table in IPOs? *The Review of financial studies, 15*(2), 413–443. https://doi.org/10.1093/rfs/15.2.413

Loughran, T., & Vijh, A. M. (1997). Do long-term shareholders benefit from corporate acquisitions? *The Journal of finance 52*(5), 1765–1790. https://doi.org/10.1111/j.1540-6261.1997.tb02741.x

Lowry, M. (2003). Why does IPO volume fluctuate so much? *Journal of financial economics, 67*(1), 3–40. https://doi.org/10.1016/S0304-405X(02)00230-1

Lowry, M., & Schwert, G. W. (2002). IPO market cycles: Bubbles or sequential learning? *The Journal of finance, 57*(3), 1171–1200. https://doi.org/10.1111/1540-6261.00458

Lyon, J. D., Barber, B. M., & Tsai, C. (1999). Improved methods for tests of long-run abnormal stock returns. *The Journal of finance, 54*(1), 165–201. https://doi.org/10.1111/0022-1082.00101

Maksimovic, V., Phillips, G., & Yang, L. (2013). Private and public merger waves. *Journal of Finance, 68*(5), 2177–2217. https://doi.org/10.1111/jofi.12055

Maksimovic, V., & Pichler, P. (2001). Technological innovation and initial public offerings. *The Review of Financial Studies, 14*(2), 459–494. https://doi.org/10.1093/rfs/14.2.459

Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of financial economics, 89*(1), 20–43. https://doi.org/10.1016/j.jfineco.2007.07.002

Martynova, M., & Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand? *Journal of banking & finance, 32*(10), 2148–2177. https://doi.org/10.1016/j.jbankfin.2007.12.038

Masulis, R. W., Wang, C., & Xie, F. (2007). Corporate governance and acquirer returns. *The Journal of finance, 62*(4), 1851–1889. https://doi.org/10.1111/j.1540-6261.2007.01259.x

Megginson, W. L., & Weiss, K. A. (1991). Venture capitalist certification in initial public offerings. *Journal of Finance, 46*(3), 879–903. https://doi.org/10.1111/j.1540-6261.1991.tb03770.x

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. *The Journal of finance, 42*(3), 483–510. https://doi.org/10.1111/j.1540-6261.1987.tb04565.x

Mitchell, M. L., & Mulherin, J. (1996). The impact of industry shocks on takeover and restructuring activity. *Journal of financial economics, 41*(2), 193–229. https://doi.org/10.1016/0304-405X(95)00860-H

Mitchell, M. L., & Stafford, E. (2000). Managerial decisions and long-term stock price performance. *The Journal of Business*, *73*(3), 287–329. https://doi.org/10.1086/209645

Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review*, 53(3), 433–443. http://www.jstor.org/stable/1809167

Morningstar Direct. (2021). https://www.morningstar.com/articles/1017342/value-vs-growth-widest-performance-gap-on-record

Mossin, J. (1966). Equilibrium in a capital asset market. *Econometrica, 34*(4), 768–783. https://doi.org/10.2307/1910098

MSCI. (2021). https://www.msci.com/documents/10199/1234563b-784c-4675-8d79-44840f10fe72

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics, 13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

Pagano, M. (1993). The flotation of companies on the stock market: A coordination failure model. *European economic review, 37*(5), 1101–1125. https://doi.org/10.1016/0014-2921(93)90111-M

Pagano, M., Panetta, F., & Zingales, A. L. (1998). Why do companies go public? An empirical analysis. *The Journal of finance, 53*(1), 27–64. https://doi.org/10.1111/0022-1082.25448

Pástor, Ľ., & Veronesi, P. (2005). Rational IPO waves. *Journal of Finance, 60*(4), 1713–1757. https://doi.org/10.1111/j.1540-6261.2005.00778.x

Savor, P. G., & Lu, Q. (2009). Do stock mergers create value for acquirers? *The Journal of finance, 64*(3), 1061–1097. https://doi.org/10.1111/j.1540-6261.2009.01459.x

Rajan, R. G. (1992). Insiders and Outsiders: The Choice between informed and arm's-length debt. *The Journal of finance, 47*(4), 1367–1400. https://doi.org/10.1111/j.1540-6261.1992.tb04662.x

Rau, P. R., & Stouraitis, A. (2011). Patterns in the timing of corporate event waves. *Journal of Financial and Quantitative Analysis, 46*(1), 209–246. https://doi.org/10.1017/S0022109010000694

Rhodes-Kropf, M., & Viswanathan, S. (2004). Market valuation and merger waves. *The Journal of finance, 59*(6), 2685–2718. https://doi.org/10.1111/j.1540-6261.2004.00713.x

Ritter, J. (1991). The long-run performance of initial public offerings. *The Journal of Finance, 46*(1), 3. https://doi.org/10.2307/2328687

Ritter, J. (2020). Initial public offerings: underpricing. https://site.warrington.ufl.edu/ritter/files/IPOs-Underpricing.pdf

Ritter, J. R., & Welch, I. (2002). A review of IPO activity, pricing, and allocations. *Journal of Finance, 57*(4), 1795–1828. https://doi.org/10.1111/1540-6261.00478

Rock, K. (1986). Why new issues are underpriced. *Journal of financial economics, 15*(1), 187–212. https://doi.org/10.1016/0304-405X(86)90054-1

Roll, R. (1986). The hubris hypothesis of corporate takeovers. *The Journal of business, 59*(2), 197–216. https://doi.org/10.1086/296325

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of finance, 19*(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

Schultz, P., & Zaman, M. (2001). Do the individuals closest to internet firms believe they are overvalued. *Journal of financial economics, 59*(3), 347–381. https://doi.org/10.1016/S0304-405X(00)00090-8

Scott, J. (1976). A theory of optimal capital structure. *Bell Journal of Economics, 7*(1), 33. https://doi.org/10.2307/3003189

Shleifer, A., & Vishny, W.R. 2003. Stock Market Driven Acquisitions. *Journal of Financial Economics*, 70(3), 295–311. doi:10.1016/s0304-405x(03)00211-3.

Stigler, G. (1950). Monopoly and oligopoly by merger. *The American Economic Review, 40*(2), 23–34. http://www.jstor.org/stable/1818020

Thomadakis, S., Nounis, C., & Gounopoulos, D. (2012). Long-term performance of Greek IPOs. *European Financial Management, 18*(1), 117-141. https://doi.org/10.1111/j.1468-036X.2010.00546.x

Thomson Reuters. (2021). https://www.reuters.com/business/global-markets-ma-2021-08-12/

Tinic, S. M. (1988). Anatomy of initial public offerings of common stock. *The Journal of finance, 43*(4), 789–822. https://doi.org/10.1111/j.1540-6261.1988.tb02606.x

Tolmunen, P., & Torstila, S. (2005). Cross-listings and M&A activity: Transatlantic evidence. *Financial management, 34*(1), 123–142. https://doi.org/10.1111/j.1755-053X.2005.tb00094.x

Westerholm, P. J. (2006). Industry clustering in Nordic initial public offering markets. *International review of finance, 6*(1-2), 25–41. https://doi.org/10.1111/j.1468-2443.2007.00058.x

Wiggenhorn, J., Gleason, K. C., & Madura, J. (2007). Going public to pursue acquisitions. *The Quarterly review of economics and finance, 47*(2), 331-351. https://doi.org/10.1016/j.qref.2005.12.002

Yung, C., Çolak, G., & Wang, W. (2008). Cycles in the IPO market. *Journal of financial economics, 89*(1), 192–208. https://doi.org/10.1016/j.jfineco.2007.06.007

Zingales, L. (1995). Insider ownership and the decision to go public, *The Review of Economic Studies*, 62(3), 425–448. https://doi.org/10.2307/2298036