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Private Equity Firms' Exit Decision in the Nordic Market

An Empirical Study on Factors that Influence Private Equity Firms' Divestment Strategy

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Abstract

This paper investigates which factors determine how a private equity backed fund exits their investment in a portfolio company located in the Nordic markets. A total of 397 Nordic portfolio company private equity exits occurring between January 2005 and December 2017 have been analyzed in this paper. The three main exit strategies in this study are Secondary Buyouts, Trade Sales, and IPOs. The majority of research conducted on private equity firms' divestment strategy focuses on American and European Union portfolio company investments. The aim of this paper is to fulfill the gap within academia by focusing on the Nordic region and specific factors influencing divestment routes unique to this PE environment. Our findings support the idea that specific PE firm and fund characteristics, portfolio company characteristics, and macroeconomic factors all play a role in determining if a PE firm exits a Nordic investment via SBO, trade sale, or IPO. The most significant factors influencing the decision are the size of the PE fund, the age, total sales, and profitability of the portfolio company (measured as EBIT margin), and the current state of the local stock market and credit market.

Keywords: private equity, divestment strategy, secondary buyouts, trade sales, IPOs

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Index of Abbreviations

AUM	Assets under Management
GP	General Partners
IPO	Initial Public Offering
IRR	Internal Rate of Return
LP	Limited Partners
LBO	Leveraged Buyout
PE	Private Equity
PME	Public Market Equivalent
SBO	Secondary Buyout
VC	Venture Capital

All monetary values are expressed in USD 1,000,000

1.0 Introduction

Private Equity investors' return on investment is mainly driven by the success of the release of portfolio companies. Hence, deciding on what divestment strategy to use and when to exit an investment in a portfolio company are the most crucial decisions a PE firm faces. Yet, there exists a limited amount of academic research on the topic covering timing and factors that influence the choice of the exit route. This paper contains an extensive study based on a regression analysis on what specific factors determines Nordic PE firms' chosen exit route. For the purpose of this study, the term Nordic refers to Denmark, Finland, Norway, and Sweden.

1.1 Background

Private equity (PE) and venture capital (VC) has played an increasing role as sources of finance for companies with high growth potential all across the globe (PitchBook, 2017). The scope of the European PE industry has experienced tremendous growth over the last five years, raising 295 billion euros (PitchBook, 2017). In total, PE firms across the globe raised \$3 trillion in funding over the past five years¹. Due to the rapid growth and high levels of activity within the sector, private equity as an asset class has become a more common alternative investment for institutional investors (Fraser-Sampson, 2015). Cendrowski et al. (2012) defines private equity as a "medium or long-term equity investment that is not publicly traded on an exchange." A key characteristic of private equity finance is that PE firms only hold their investments for a limited period of time within the lifespan of the fund (Povaly, 2006). PE and VC firms' aim is to help businesses achieve their growth ambitions by providing the portfolio company with capital, strategic advice, and expertise regarding operational performance (EVCA, 2007). The ultimate goal for the PE investor is to increase the value of the portfolio company to make it as attractive as possible for potential buyers (Cendrowski et al. 2012).

The importance of private equity has historically been prevalent in all the Nordic countries' economies. A large number of well-known Nordic companies have had PE firms as their owners (BVCA, 2017). The Nordic region is the home to some of the leading businesses in the world

¹ Bain & Company's Global Private Equity Report 2018

with a historically strong and stable economy. Further, the region is characterized by high level of digitalization and skilled human capital (Urwitz, 2017). According to the European Commission's *Digital Economy and Society Index (DESI)*, Denmark, Finland, and Sweden were ranked as the most advanced digital economies in the EU in 2017. The high level of PE activity in the region is closely correlated to the large number of Nordic tech companies since these companies often need to raise capital to expand their businesses. Nordic-based PE fund managers had \$69.2 billion assets under management (AUM) in November 2017². Furthermore, Groh, Liechtenstein, and Lieser (2009) ranked Denmark, Sweden, and Norway among the top performers in their study where they developed a PE/VC attractiveness index by looking at characteristics that attract institutional investors. The combination of a historically strong economy, high level of digitalization, skilled human capital together with an attractive investment environment point towards a continuous bullish outlook for the Nordic PE market.

1.2 Problem Statement

PE firms' ability to achieve a successful exit when divesting a portfolio company is considered to be the most crucial decision for its financial performance (Strömberg, 2008). Furthermore, the success of an exit greatly affects the PE firm's ability to raise capital for future funds (Chung et al. 2010). Ultimately, the return realized at the date of the exit has a huge impact on the private equity firm's reputation (Schmidt, Steffen, & Szabó, 2008). Hence, the success of the exit is strongly correlated with building a good reputation within the industry. In an industry with fierce competition, having a strong track record and a good reputation is essential for PE firms to stay competitive and raise future funds from limited partners.

Giot and Schwienbacher's (2007) study shows that the type of exit used and the timing of the exit are the two key components reflecting the success of a divestment. PE firms have multiple different ways to exit a portfolio company investment. Previous research shows that private equity-backed leveraged buyouts are primarily exited via Secondary Buyout (SBO), Trade Sale; and Initial Public Offering (IPO) (Jenkinson & Sousa, 2015; Povaly, 2006). An SBO transaction involves selling the portfolio company to another private equity firm, whereas a Trade Sale refers to a transaction where a strategic investor purchases the portfolio company. Exiting a

² Private Equity & Venture Capital in the Nordics 2017 - British Private Equity & Venture Capital Association

Nordic portfolio company by taking it public is known for being very costly and risky compared to the other two methods (Jebsen Anker & Stärk-Johansen, 2015). Furthermore, previous studies have shown that buyout-backed IPOs also tend to be very cyclical, peaking during economic booming periods (Hertervig & Sevonius, 2014; Schmidt, Steffen, & Szabó, 2008).

In light of the tremendous importance of the divestment decisions, very limited amount of research on what particular key drivers influence PE firm's choice of exit route is currently available. Moreover, the majority of studies on PE to date concentrate geographically on the United States. Spliid (2013) shows that although PE firms in the Nordic countries and in the U.S. share a few similarities, there are still more discrepancies relative to similarities. These discrepancies are mainly derived by cultural differences, different welfare system as well as the degree of governmental control in each respective market. Further, taxation and regulation differences regarding investment protections are two other areas that make it impossible to draw the conclusion for Nordic PE firms using American frameworks and theories (Spliid, 2013).

To the best of the authors' knowledge, only two papers on the topic of European PE firm's exit procedures exist. Povaly's (2006) paper consists of both a quantitative and a qualitative study exclusively focusing on European buyout firms. 215 European buyout firms were covered in the study, whereas 56 PE buyout firms participated in the survey. A similar study was conducted by Jenkinson and Sousa (2015), where the authors analyze 1,022 European private equity exits to determine factors affecting the chosen exit strategy. The authors conclude that various portfolio company characteristics combined with conditions in the debt and equity markets have a strong influence on European PE firms' exit choice. However, due to the large number of country and cultural specific differences among the Nordic countries relative to the rest of Europe, it would be ill-advised to assume that all of the same factors affect Nordic PE firms' choice of exit route.

Considering the historically high PE activity in the region, relatively little academic research exists on the Nordic PE market. The majority of research available is on the topic of underpricing among IPOs issued by Nordic private equity sponsors (Dajakaj, Jacobsson, & Wilsby, 2016; Hertervig & Sevonius, 2014; Mathisen & Ornelas Camas). Further, Flyborg & Holmström's (2012) study looks at the performance of post PE-owned firms. Jebsen Anker and

Stärk-Johansen (2015) paper consists of both a qualitative and a quantitative study of Nordic PE firms. The focus of their quantitative study is on underpricing of IPOs issued by buyout firms, whereas the emphasis of their qualitative study is on preferred exit strategies among Nordic PE firms. The qualitative study consists of in-depth interviews with six PE firms based across the region. Although the qualitative section of their study touches upon the preferred exit strategy among Nordic PE firms, to the best of the authors' knowledge, no academic research on the topic of what key determinates affecting the timing and choice of exit route among PE firms in the Nordics currently exists.

1.3 Research Question & Purpose

The aim of this study is to determine what specific factors affect the PE firms' decision regarding the divestment strategy used. By analyzing PE firm and fund characteristics, portfolio company characteristics, and macroeconomic factors, the goal is to come to a conclusion regarding the chosen PE divestment strategy. In other words, what specific factors affect private equity firms' decision regarding exit route in a Nordic portfolio company?

So far, very little research has been conducted on what specific factors that determine the timing and the preferred exit method among private equity firms. Furthermore, there currently exist a limited amount of studies examining the Nordic PE market (Spliid, 2013). Due to the uniqueness of the Nordic PE market, the purpose of this paper is to conclude what particular factors that have the largest influence on PE firms' choice of exit strategy. Considering the many discrepancies in the corporate environment in the Nordic markets, there is a need to further research on whether American- and European-based findings apply to the Nordic market (Spliid, 2013).

1.4 Academic Contributions

By exclusively focusing on factors affecting the exit route decision used in private equity investments in the Nordics, we believe to the best of our knowledge that this paper addresses a gap in academia never addressed before. Considering the fact that previous research shows that the Nordic PE market is uniquely different compared to other PE regions across the world (Spliid, 2013), we believe our paper adds value to the field of research. The main contribution of our study is that we determine a set of variables that have a significant impact on a PE firms' exit

strategy decision. Moreover, our study complements previously conducted research on the Nordic PE market, specifically, Jebsen Anker and Stärk-Johansen's (2015) qualitative study on Nordic PE firm's preference of exit strategy. Furthermore, our result is in line with Jenkinson & Sousa's (2015) study, which also shows a similar set of variables related to PE firm and fund characteristics, portfolio company characteristics and macroeconomic factors significantly influence the exit route chosen by European PE firm.

1.5 Outline

The structure of this paper is divided into eight main sections; introduction, theoretical framework, literature review & hypotheses, data construction, methodology, results & discussion, and conclusion. The initial section, the introduction, describes the background of the study, the problem addressed in this paper and the research question of this study. The second section, the theoretical framework, provides an overview of the structure of PE firms as well as an explanation of terminology and performance measures widely used within the PE industry. The third section constitutes the literature review and hypotheses to the research question addressed. The fourth and fifth section, the data construction & methodology, constitutes a detailed description of how the data collection process took place as well as what sources and databases were used in the paper. The sixth section, regression results & discussion, elaborates and interprets the results from the trinomial logit model. Lastly, the thesis is concluded, summarizing the findings of the research conducted.

2.0 Theoretical Framework

2.1 Structure of PE Funds

A private equity firm raises capital through a private equity fund in which investors commit to providing a certain amount of money to pay for investments in companies as well as management fees to the private equity firm (Kaplan & Strömberg, 2009). PE firms normally spend 0.5 to 1.5 years to raise capital for a fund (Cendrowski et al. 2012). The people in charge of managing the PE fund are referred to as the General Partners (GP), whereas investors providing capital to the fund are referred to as Limited Partners (LP). Normally, the LPs provide the bulk of the committed capital, whereas the GPs only contribute a smaller portion of the invested capital (Kaplan & Schoar, 2005). LPs include institutional investors, such as corporate and public pension funds, endowments, and insurance companies, as well as wealthy individuals (Kaplan & Strömberg, 2009). The reasoning behind why these investors are referred to as limited partners is due to the ownership structure of the fund. Both buyout funds and venture capital funds are set up as limited partnerships with a fixed life, usually ten-years (Ljungqvist, Richardson, & Wolfenzon, 2017; Metrick & Yasuda, 2010). Due to the limited partnership structure of the fund, the GPs have great freedom to maneuver all the committed capital in the fund, whereas LPs only have a limited measure of control (Arcot et al. 2015; Kaplan & Strömberg, 2009; Marnick & Ramsén, 2016). The LPs are required to sign a contract during the fundraising process, where they agree to tie up their capital for the same amount of years as the life of the fund. LPs exiting the fund prior to the date stated in the contract are required to pay large penalty fees and often also requires the GPs approval (Kaplan & Strömberg, 2009).

The life of a PE fund is typically categorized in two different periods, the investment period and the harvesting period (Arcot et al. 2015). The investment period refers to the initial years of the fund's life when the PE firm purchases target companies, whereas the harvesting period makes up the remaining years of the fund's life. The length of the investment phase varies but normally encompasses year 1 to 4 of the fund's life (Cendrowski et al. 2012).

After the final fundraising round is finalized the investment phase begins. The GPs are responsible for screening the market to identify target companies that they believe they can sell at a higher price in within the span of the fund's lifetime. Part of the investment process involves

developing a value creation plan to have a set strategy for how to improve the targeted company's performance. The value creation plan in a leveraged buyout is typically split into three drivers: operational, governance, and financial engineering (Achleitner, Figge, & Lutz, 2014; Kaplan & Strömberg, 2009).

2.1.2 How PE Firms Add Value to Portfolio Companies

There are multiple ways for the GPs to add value to the acquired company by optimizing operational performance. Some examples of common operational changes to optimize performance include cost-cutting and productivity improvements, strategic changes, and acquisitions (Acharya et al. 2010). In addition, the GPs will replace senior managers that have been underperforming with industry experts or experienced executives with a strong track record. Hellmann and Puri (2002) find that VC firms often replace the CEO and more frequently hire a VP of sales and marketing in their portfolio companies.

Adding value through governance engineering relates to changes related to the Board of Directors. Typically, one or more of the GPs take a position on the Board of Directors to better influence the direction of the company. Furthermore, Acharya et al. (2010) find that PE firm's portfolio companies' boards are smaller relative to comparable public company boards and meet more frequently. Since the GP alongside other members of the board commonly have a significant stake in the companies, their interests are aligned.

In accordance with the Miller–Modigliani theorem, companies can increase the value of the company by taking on debt (Titman, 2002). Effective usage of the tax shield plays a tremendously important role in the PE firm's attempt to increase the value of the target company. Furthermore, leverage acts as a governance mechanism and creates pressure on managers not to waste money, due to the fact that they must make continuous interest and principal payments to pay off the loan (Kaplan & Strömberg, 2003). Optimization of operational, governance, and financial engineering all together typically contributes to add-on value to the investment.

2.2 Terminology

The terms private equity firms and leveraged buyout firms are widely used interchangeably in previous academic research. These specialized investment firms were previously more frequently referred to as leveraged buyout investment firms. However, today, these firms are more commonly referred to as private equity firms (Kaplan & Strömberg, 2009). In this paper, the terms private equity firms and leveraged buyouts firms are used interchangeably. Furthermore, for the purpose of this paper, private equity refers to the asset class that includes both PE buyout funds and venture capital (VC) funds. Although the size of the investment typically differs among PE firms and VC, both types of firms are using privately raised equity to either entirely buyout or purchase a stake in the target company. Thus, PE firms tend to invest in mature cash-flow-stable companies and exit their investment within three to seven years, whereas VC firms tend to only take a minority stake in smaller companies during the start-up phase (Schöber, 2008). Hence, VC firms are generally associated with higher levels of risk relative to PE firms.

2.2.1 Leveraged Buyout

A leveraged buyout (LBO) is when a company is acquired by a specialized investment firm using a relatively small portion of equity and a relatively large portion of outside debt financing (Kaplan & Strömberg, 2009). In general, PE firms target mature companies with strong reliable cash flows with the ability to generate financial surplus (Schmidt, Steffen, & Szabó, 2008). By acquiring companies with historical stable cash flows, the PE firm is able to collateralize future cash flows. According to Kaplan & Strömberg (2009), the normal level of outside leverage used in an LBO transaction varies between 60-90%. Further, Strömberg (2008) finds that the majority of LBO activity across the globe consists of acquisitions of private rather than public firms and that LBOs provide a net positive flow of firms to public markets over the long-run.

2.2.2 Performance Measures & Holding Period

Holding period refers to the time period from when the PE firm first acquires the target company until it realizes the investment through an exit. Most PE firms hold their portfolio companies between three to seven years (Kaplan and Strömberg, 2009). Companies held for less than two years are commonly referred to as “quick flips” (Cao, 2011). Historically, these “quick flips” have most frequently been exited via IPOs (Gottschalg, Lopez de Silanes, & Phalippou, 2013; Schöber, 2008). The total number of “quick flips” peaked prior to the global crisis outbreak in 2008, which lowered the median holding period for portfolio companies to less than four years³. Prior to the crisis, approximately 40% out of all PE buyouts were exited in less than three years. However, Bain & Company Inc. reported that the median holding period in 2017 is close to its historical average of five years, whereas deals exited within three years was approximately 20%. Bain’s data suggests that PE firms are working longer to create value in their portfolio companies prior to divesting. Further, Bain reports that many PE firms form exit committees to ensure that they are exiting their portfolio companies at the optimal time to generate the best return possible. This recent phenomenon of creating exit committees emphasizes the importance of choosing the optimal exit strategy.

There are few studies available regarding the relationship between holding period and return on investments. Internal-Rate-of-Return and Public Market Equivalents (PME) are two measures widely used within the PE industry to evaluate fund performance (Schmidt, Steffen, & Szabó, 2008). IRR is an absolute performance measure used to calculate a project’s yield, (Goedhart, Levy, & Morgan, 2015). PME is a benchmark performance metric, which compares the private equity fund(s) performance against an index (Henly, 2013). Acharya et al. (2010) finds a negative relationship between performance and duration. Further, their study shows that investments with less than two years of holding period generated a median internal-rate-of-return (IRR) of 85% and a market adjusted performance (PME) of 1.94, whereas investments longer than six years had a median IRR of 8% and PME of 0.79. Cao (2011) discusses how PE firms’ LBO duration is affected by favorable market conditions. He finds that PE firms tend to exit their portfolio companies faster during bull markets, which supports the *market timing hypothesis*.

³ Global Private Equity Report 2018 | Bain & Company, Inc.

Schmidt, Steffen, and Szabó (2008) show that the IRR of buyouts is clearly driven by the market sentiment.

3.0 Literature Review

3.1 Secondary Buyouts

SBOs constitute more than one-third of all leveraged buyout exits (Arcot et al. 2015). Hence, there exists a great deal of current literature dedicated specifically to SBOs. Achleitner and Figge (2014) compare the value creation profile and equity returns of secondary buyouts to primary buyouts. Their research finds no evidence that secondary buyouts generate lower post equity returns or post lower company operating performance as compared to primary buyouts. Private equity sponsors aim to raise a new fund every three to five years, and the ability to do so depends heavily on the PE firm's track record and reputation (Chung et al. 2010). With that in mind, empirical analyses show SBOs allow the general partners to quickly exit an investment at a set exit price, locking in a return and enhancing the PE firm's track record to improve their chances to raise new capital (Arcot et al. 2015). Further, Arcot et al. (2015) finds that funds under pressure engage more in SBOs, particularly when selling pressures on private equity firms exist due to funds approaching the end of their life, makes an exit via SBO more likely, while greater fund specialization (size or industry) does not make SBOs more likely. Similarly, Achleitner and Figge (2014) find that the buying PE firm in an SBO often can find significant value if the other PE firm is forced to sell the portfolio company in circumstances when the fund is approaching the end of its lifetime. Achleitner and Figge (2014) also shed light on the agency conflict between the GPs and the LPs, when GPs often are under pressure to invest all the capital raised in their fund. This is due to compensation structure, where the GPs only earn management fees on invested capital (Degeorge, Martin, & Phalippou, 2015). As a result, the PE firm may not always act in the best interest of the investors. This finding is in line with Schmidt, Steffen, and Szabó (2008), who show that GPs under pressure to spend tend to overpay when they buyout portfolio companies from other PE firms. Consequently, this results in value destruction for investors. In addition, Degeorge, Martin, & Phalippou (2015) also concludes that once a company enters the SBO route, it tends to stay there. Their research finds that SBOs are much less likely than primary buyouts to be exited through an IPO (8% vs 21%) or a trade sale (27% vs 38%). However, SBOs are much more likely than primary buyouts to be exited through an SBO (43% vs 20%).

3.2 IPO

Cao's (2011) research contributes to the literature on "optimal IPO timing" and concludes that sponsoring private equity investment holding periods are affected by favorable IPO conditions and high industry valuations. Cao's research supports the *market timing hypothesis* and Pastor and Veronesi's (2005) research shows that IPO volumes tend to cluster positively with recent market returns and IPO waves tend to be preceded by high market returns and then followed by low market returns. In a similar manner, Schmidt, Steffen, and Szabó (2008) find that both IRR and valuation of buyouts are cyclical as well. Further, their study shows that returns are significantly higher for IPOs than for exits via sales during periods when the economy is booming.

Similarly, Hertervig and Sevonius (2014) show that first-day returns of buyout-backed IPOs are also driven by market conditions. IPOs issued during periods with high IPO activity as a result of good market conditions tend to experience higher first-day returns. They exclusively look at Nordic IPOs issued between January 1997 and December 2010. Their dataset consists of 443 Nordic IPOs in total, where 53 IPOs were backed by PE firms, 70 backed by VC firms, and 320 IPOs were non-sponsored. Further, their result indicates that PE-backed IPOs experience lower first-day returns on average relative to IPOs backed by VC firms. A similar study was conducted by Mathisen and Ornelas Camas (2012), who also exclusively looked at first-day returns of IPO backed by private equity entities in the Nordics. Their results show that first-day performance of VC backed firms are overpriced by 1.1%, while PE-backed firms were underpriced by 8.4% on average. However, their results go on to show that venture capital-backed firms outperform PE sponsored entities in the long run by 1.3% per month on average.

3.3 Trade Sales

Relative to research covering exits via SBOs and IPOs, there exists a very limited amount of literature on the comparison of trade sales (strategic buyers) versus the other exit routes. Prijcker, et al. (2013) examines the effects of the target company's value created under the private equity investment and how that can determine the type of exit route the private equity firm takes. They conclude that an SBO is more likely if the target company has proven to work efficiently (defined as increased profitability) under the preceding private equity firm, while a trade sale exit is more likely if the target company achieved substantial growth under the preceding private equity firm. Jebesen Anker and Stärk-Johansen (2015) conducted a qualitative study involving interviewing six Nordic PE firms. 83.3% of the respondents expressed a strong preference for trade sales over other exit routes. The strong preference for trade sales was driven by the fact that strategic buyers' willingness to often pay a larger premium for potential synergies.

3.4 Private Equity Activity Related to Market Factors

Kaplan and Strömberg (2009) found strong evidence regarding the existence of boom and bust cycles in private equity activity, which mainly has been driven by high returns as well as by the level of interest rates relative to earnings. The impact of market conditions on private equity activities has been addressed in multiple other papers (Axelson et al. 2013; Ljungqvist & Richardson, 2003; Ljungqvist, Richardson, & Wolfenzon, 2017). Results show that PE firms tend to accelerate their investment pace when interest rates are low. This finding is consistent with the notion that availability of debt-financing is highly correlated to the booms and busts in the private equity market. Private equity funds generally make acquisitions when investment opportunities are good, their bargaining power is high, and debt is cheap.

Axelson et al. (2013) conducted a study using a sample size of 1,157, where 60 % of the firms exited where North American firms and the remaining 40% of the firms were based in 24 countries outside the U.S. Two main conclusions were reached; the main determinant causing the pro-cyclicality in the LBO market is economy-wide credit conditions and there exists a negative correlation between fund returns and the amount of leverage used. This finding is consistent with Riben and Warg (2013), who found that the leverage effect was the most significant factor contributing to Swedish PE investments outperforming domestic indexes.

3.4 Hypotheses

As stated in the purpose section, the aim of this paper is to examine what factors influence the exit route decision chosen by a PE firm of its portfolio company investment. Specifically, investigating the following three categories: private equity firm and fund characteristics, portfolio company characteristics and macroeconomic factors. All of the following hypotheses were developed based on research described in the literature review section. A brief description of the most relevant literature is mentioned under each hypotheses category.

Hypothesis 1: The closer the investment exit date is to the fund's maturity date, the more likely the exit strategy used is an SBO.

This hypothesis is based on the findings by Arcot et al. (2015), which shows that fund managers under pressure to divest an investment tend to utilize SBOs as a quick exit strategy. Jenkinson and Sousa (2015) conclude that trade sales are more likely to be utilized at an earlier stage of the fund life. Considering both of these findings, it is reasonable to assume an investment held in the late stage of the fund life would be exited via an SBO.

Hypothesis 2a: An ideal company for an SBO exit would be a mature company with high-profit margins, low investment requirements, and high turnover ratio.

Hypothesis 2b: In contrast, the probability of an exit via IPO increases if the portfolio company is young and has larger sales volumes as compared to high-profit margins.

Hypothesis 2a and 2b are based on the idea that some of the most prominent factors determining an exit via an SBO or IPO are specific company characteristics. Jenkinson and Sousa (2015) highlight the importance of portfolio company characteristics in determining the exit route. They concluded that the attractiveness of an SBO increases for mature portfolio companies with higher margins and lower capital investment requirements. Given this conclusion, it is reasonable to assume the opposite company characteristics would increase the likelihood of an IPO as stated in Hypothesis 2b. In addition, Prijcker et al.'s (2013) study shows SBOs are more likely if the target company has improved margins under the sponsoring PE firm. On the other hand, their

findings show an exit via trade sale is more heavily influenced by sales growth rather than margin growth.

Hypothesis 3a: The probability of an exit via an IPO significantly increases during periods of IPO clustering and high stock market returns.

Hypothesis 3b: The availability of credit combined with low cost of borrowing increases the probability of an exit via SBO/trade sale versus IPO.

Multiple previous works of literature emphasize the significant influence macroeconomic conditions have on PE firms' divestment strategy. Pastor and Veronesi (2005) conclude that IPO volume is positively related to recent market returns, suggesting PE firms wait for optimal IPO market conditions before taking a portfolio company public to maximize investment return. Jenkinson and Sousa (2015) find that the decision between taking a portfolio company public or exiting via an SBO is heavily determined by the current stock market and credit market conditions. Further, they state that the probability of an IPO increases significantly following high returns in the stock market.

4.0 Data Construction

The sample used in this paper is manually constructed and assembled together using multiple databases and sources. S&P Capital IQ transaction screening reports are utilized to build a sample for each exit strategy. First, transactions are screened based on the seller company type and transaction type. For all exit strategies, the seller company type is defined as private investment firms within S&P Capital IQ, which includes private equity firms, buyout funds, and venture capital funds. Transaction types are then screened separately for the following three categories in Capital IQ's database: public offerings (IPO), secondary LBOs (SBO), and merger/acquisitions (trade sale). For the purposes of this paper, the date of the public offering and the transaction close date for the secondary LBO and merger/acquisition is considered the investment exit date. Note, due to lockup provisions⁴ and differing private equity firm strategies, the public offering date is not the actual complete investment exit date. According to Schöber (2008), the main reason for an IPO is to start the divestment process. Therefore, for simplicity purposes, the date of the public offering is considered the investment exit date. Previous literature such as Skogsholm and Strann (2016) and Fürth and Rauch (2014) empirically research what determines the post IPO exit process for private equity firms.

Next, transactions are screened based on the geographic location of the target company, which only includes companies with headquarters located in Denmark, Finland, Norway, and Sweden, and the transaction close date, which only includes transactions closed between January 2005 and December 2017. This paper focuses on Nordic countries only due to the availability of accounting data and information regarding PE transactions as well as the countries' similarities in business environments, welfare systems, and cultures (Spliid, 2013). The time frame January 2005 to December 2017 spans over both periods of hot and cold equity markets and changing credit markets. This time frame allows for investigation of the influences of macroeconomic factors on the exit strategies chosen by PE firms. This paper considered going back further in time, however, available accounting data is severely limited beyond 2005.

⁴ Lockup provisions are defined as when a firm's shareholders are restricted from selling or transferring their shares in order to keep the selling shareholders committed to the successful transitions of the business to new owners.

Furthermore, the sample is restricted to those exits where the following data is attainable relating to the investment: (i) the private equity firm(s) and fund(s) involved are identifiable, (ii) the initial private placement/ investment date is known, and (iii) the accounting data for the year before the exit is available. S&P Capital IQ, Bloomberg, Crunchbase, and private equity firms' websites are used to identify the selling private equity firm, the year the firm was founded, the investment entry date, the fund involved, along with the fund's vintage date and size. Note, in the case when more than one private equity firm or fund was involved, only the lead firm/fund characteristics are used in the sample. Accounting data is predominately collected from ORBIS and S&P Capital IQ. Target company websites and Bloomberg are also used in various transactions to supplement the previously mentioned databases in gathering accounting data and other necessary information.

The S&P Capital IQ screening reports identified a total of 62 IPOs, 161 SBOs, and 544 trade sales. Of this sample, it was possible to obtain the appropriate data as described above for 56 IPOs, 121 SBOs, and 227 trade sales, which results in a total of 404 private equity investment exits. An additional 7 trade sale exits were excluded to adjust for significant outliers in accounting data to improve the distribution properties of the sample bringing the total amount of exits in the sample to 397. These 7 outliers reported minimal sales and significant negative margins, which lead to considerable misrepresentation of the mean in the EBIT accounting variable. Adjusting for these outliers potentially lowers the statistical power of the regression results, however, as discussed in the regression results section the EBIT variable is already highly significant. Including these outliers would only increase the significance of the results already concluded.

4.1 Potential Selection Bias

The process of manually excluding certain exits based on the availability of data raises the question of selection bias in the sample. The concern is that the sample selection does not accurately reflect the population in the case that all investment exits were included in the sample. The following are three potential selection biases: PE investment exits for all three exit routes may be biased towards large PE sponsors due to the fact that PE and PE fund information is more readily available for larger PE firms. Secondly, portfolio companies exited via IPO and

SBO are significantly larger than the average trade sale portfolio company. Typically, the larger the portfolio company, the more likely prior years accounting data is available. Lastly, the sample may be biased towards more recent investment exits as the further the investment exit date is from the end of 2017, the less likely the appropriate accounting data is available. Additionally, the statistical power of the analysis could suffer from the relatively small IPO sample size as compared to the SBOs and trade sales sample size. Overall, these concerns are seen as limitations to the sample and study as a whole.

4.2 Sample Description

Descriptive statistics are presented in this section for the total sample based on a number of characteristics. **Table 1** reflects the private equity exits by both route and target company nationality. **Figure 1** displays the number of private equity exits in the sample by year and exit route. The figure shows the potential effects of cyclicalities in the mergers and acquisitions market while also reflecting the inherent problem of obtaining appropriate data the further away the exit occurred. For comparison purposes, the distribution of **Figure 1** closely resembles the distributions of total European PE exits by type by year from 2008 – 2017 (PitchBook, 2017). In both graphs, the highest number of exits occurred in 2015 and the lowest number of exits occurred in 2009. However, an exception to this comparison is the recent increased popularity in SBO exits in Europe. **Figure 1** shows that trade sale exit is the most common exit route in the Nordic sample in recent years despite the European trend of SBOs increasing to a similar popularity level (PitchBook, 2017). This could be explained by Nordic PE firms' exit preference differing from other regions in Europe. Jebsen Anker and Stärk-Johansen (2015) report five of six large Nordic PE firms prefer trade sale exits versus any other strategy. This preference seems to be one reason for the relatively large number of trade sale exits compared to SBOs and IPOs. **Table 2** shows the private equity exits summarized by route and industry, while **Table 3** displays the private equity exits by the private equity firm. The sample set is a comprehensive set which reflects an appropriate representation of each Nordic country, various industries, and 89 different private equity firms throughout the entire sample time period.

Table 4 provides summary statistics on specific characteristics regarding to the private equity firms and funds involved, portfolio company characteristics and accounting data, and macroeconomic variables based on exit route for all 397 exits. A Wilcoxon Rank Sum Test (z-column) is performed on each variable to determine if the medians are statistically equal for each exit strategy, meaning the distributions of the variables are statistically equal. The table shows that IPO exits have the longest average and median investment holding period, however, the z-stat (-1.273) reflects the distribution is not statistically different than the distribution of SBO exits. On the other hand, the investment holding period distribution for trade sales is statistically shifted to the right on a 10% significance level (z-stat of -1.924). Investment holding periods by exit route and the timing of exits along the life of the fund are examined in further detail in the following section. The trade sale variables: fund maturity, fund size, portfolio company age at exit, total assets, EBIT margin, and cost of borrowing all have statistically different distributions at a 1% significance level compared to SBO exits. The IPO variables: total assets, sales, and IPO volume are statistically different at a 1% significance level. For example, **Table 4** demonstrates that private equity firms that exit via an SBO raise significantly larger funds (\$1,206 mil) than those using a trade sale (\$735.1 mil) and almost the same average amount for firms that exit via an IPO (\$1,205 mil). The meaning and conclusions to be drawn from this table coincide with the empirical results discussed in detail in the regression results & discussion section.

4.3 Analysis of Investment Holding and Exit along the Fund Life

Table 5 displays the timing of the divestment by exit route over the investment holding period. The sample suggests that IPOs are the most likely early exit strategy, consistent with the idea of quick flips, and also the most likely to extend past a holding period of 10 years. IPO exits have the longest average (65.1 months) and median (62.8 months) investment holding period of the three exit routes. Giot and Schwienbacher's (2007) competing risk model showed that the probability of an exit via an IPO is very high at the beginning of the holding period and decreased as time goes by, while the probability of a trade sale exit is more consistent over time. Fürth and Rauch's (2014) research shows that the investment holding period for IPO exits is driven mainly by portfolio company characteristics, such as the size, profitability, and intensity of the restructuring process before the exit. It is interesting to note, Fürth and Rauch (2014)

report an average investment holding period for IPO exits of approximately 36 months and Jenkinson and Sousa (2015) a holding period of 44.7 months. This significant difference in average to the results in this paper could be due to the difference in sample characteristics, both in the portfolio company characteristics and time frame differences used in their researches. The reasoning for this difference is beyond the scope of this paper but a few potential explanations could be the private equity firms were waiting for a “hot” IPO market (Cao, 2011) to generate higher returns or the companies in the sample required a longer “restructuring” phase to grow/increase profitability under the private equity sponsor. In contrast, Mäkiäho (2016) found significant evidence that the average PE holding period lengthened from approximately 56 months before 2008 to an average holding period of approximately 70 months after 2008. This finding comes from a sample of 2,328 European PE exits and falls more in line with the results of this paper. Jebesen Anker and Stärk-Johansen’s (2015) survey of six Nordic PE firms provides some insight on the timing of a PE firms’ exit. Respondents noted the timing of exits were mainly driven by when the PE firm achieved or failed to satisfy predetermined goals rather than considering a certain time frame and if the opportunity for a highly profitable deal presented itself at any time over the holding period.

Table 6 summarizes the distribution of each exit route over the life of the fund. It is interesting to note that the secondary buyout route along the fund life is used as an early exit strategy compared to the other two methods. 40% of secondary buyout exits occur within six years of the fund vintage date compared to just 27% of trade sales and 30% of IPOs. Consistent with the holding period analysis above, IPOs are still utilized most for exits within four years of the fund vintage date. Arcot et al. (2015) finds that private equity funds under sell pressure tend to exit via an SBO due to the relative ease and timeliness of the transaction and therefore have a lower percent of investments exceeding the average ten-year life of a fund. Sell pressure can be from the fund approaching the maturity date, the need to show activity before fundraising or the need to realize a gain on an investment. Further, Arcot et al. (2015) observes that fund general partners resort to SBOs because it offers a quick exit with a guaranteed sale price, which is consistent with the low distribution of SBOs in the late stage of the fund life.

5.0 Methodology

The focus of this paper investigates which factors influence the exit route decision chosen by sponsoring private equity firms. The regressions and methodology in this thesis are largely based on the work performed by Jenkinson and Sousa (2015), who hypothesized that the exit route decision depends on three categories of factors including factors relating to the private equity firm and fund, the portfolio company, and macroeconomic conditions. In order to investigate the relationship of these three categories against the exit route chosen, significant data and information were collected on the involved private equity firms and funds, accounting data on the portfolio company, and market condition variables. The process and method for collecting sufficient data are discussed in detail in the data construction section.

5.1 Trinomial Logit Model

A trinomial logit model is used to regress the three categories of explanatory variables on the exit routes, the dependent variable. A logit model allows the model to establish a relationship between the exit routes and the explanatory variables by transforming the probabilities of an outcome to the log odds and then modeling the log-transformed probabilities as a linear relationship with the explanatory variables. The dependent variable takes on the value 0 if the exit route is a secondary buyout, 1 if the investment is exited via trade sale, and 2 if via an IPO. The idea behind a trinomial logit model is to choose a baseline (reference) outcome and then calculate and compare log-odds for the two other dependent variables relative to the baseline (reference) outcome. The secondary buyout route acts as the baseline (reference) outcome for all regressions in this paper and therefore, the model calculates the odds that a trade sale or IPO is chosen as opposed to a secondary buyout. A trinomial model estimates parameters by maximum likelihood and requires two equations to describe the explanatory variables, represented by the following equations in which $\ln \Pr(y = 1)/\Pr(y = 0)$ is the logit probability of a trade sale versus a secondary buyout and $\ln \Pr(y = 2)/\Pr(y = 0)$ is the logit probability of an IPO versus a secondary buyout.

$$\ln \frac{\Pr(y_i = 1)}{\Pr(y_i = 0)} = \alpha_1 + x'_{ik}\beta_{1k} + w'_{ik}\gamma_{1k} + z'_{ik}\delta_{1k} + u_1 = \Omega_{1i}$$

$$\ln \frac{\Pr(y_i = 2)}{\Pr(y_i = 0)} = \alpha_2 + x'_{ik}\beta_{2k} + w'_{ik}\gamma_{2k} + z'_{ik}\delta_{2k} + u_2 = \Omega_{2i}$$

The probabilities of the three different outcomes are computed as follows:

$$\Pr(y_i = 1) = \frac{\exp(\Omega_{1i})}{1 + \sum_{h=2}^M \exp(\Omega_{hi})}$$

$$\Pr(y_i = 2) = \frac{\exp(\Omega_{2i})}{1 + \sum_{h=2}^M \exp(\Omega_{hi})}$$

$$\Pr(y_i = 0) = \frac{1}{1 + \sum_{h=2}^M \exp(\Omega_{hi})}$$

The \mathbf{x} variable comprises of the private equity and fund characteristics: fund maturity, which is measured as the number of months between the exit date and the fund vintage date, fund size, and the age of the private equity firm at the exit date. The \mathbf{w} variable consists of the portfolio company characteristics: total sales (measures the size of the company), EBIT margin (measures the profitability of the company), turnover ratio (measures the capital intensity of the company), and CAPEX-total assets ratio (measures the investment intensity of the company). The calculations of these accounting variables are described in detail in the definition of variables table located in the appendix. Lastly, variable \mathbf{z} acts as a proxy for current market conditions at the time of the exit and consists of: local stock market returns (dependent on the country location of the portfolio company), the S&P European Leveraged Loan Index (measures the state of the LBO market), volume of IPOs in the Nordic market (proxy for the current state of the IPO market), the Fed tightening index (proxy for the availability of capital in the credit market, Jenkinson and Sousa (2015)), and the cost of borrowing for corporations in the EU area. All macroeconomic variables associated with an exit were collected between the three and six month period before the investment exit date. The assumption behind this method is that PE firms make the divestment decision approximately three to six months before the exit closed. Although each deal is independent and limited empirical results on the average duration of the divestment process exists, this assumption seems reasonable based on communication with an associate at a large Nordic PE firm.

By including fixed effects dummy variables, the model controls for the average differences across countries and industries. This step greatly reduces the threat of omitted variables that are correlated with the explanatory variables included in the regression. The trinomial logit models were also run with robust standard errors to take into account potential heteroscedasticity. **Table 7** is a correlation matrix of all the independent variables. Note at first, the log of total assets was also included as an explanatory variable however, total assets was found to be strongly correlated with total sales. It is not surprising that these variables are strongly positively correlated as both variables can be used to measure the size of a company. In order to address this potential multicollinearity problem, all regressions were performed both with and without the total sales and total assets variables. The results showed total sales as a more significant variable and therefore, total assets was removed as an explanatory variable due to the strong positive correlation it has with total sales.

5.2 Robustness Check

The decision of selecting observable macroeconomic variables is judgmental and often dependent on the availability of data in certain geographic areas. In circumstances where multiple measurements could potentially serve as a macro-economic proxy, multiple model regressions were performed to observe the difference in coefficient estimates. This process allowed for the assessment of the robustness of our results. For example, the variable RETURN is represented by each country's specific total return index. In order to assess this variable, RETURN was replaced with the OMX Nordic 40 index. The coefficient estimate results and significance levels for both models were nearly identical. The same process was utilized for the variable COST. The variable COST is measured by using the cost of borrowing rate for all EU area corporations. However, to assess this variable, COST was replaced with the Swedish Riksbanken's average lending rate. The reasoning behind selecting the Swedish Riksbanken's rate is due to the large representation of Swedish portfolio companies in the sample. In all cases, interchanging the variables led to similar regression results.

6.0 Regression Results & Discussion

Table 8 shows the results for the trinomial logit model. As discussed in the methodology section, the secondary buyout exit is used as the baseline reference in all the models in the table. Note, the interpretation of the coefficients is not as straightforward as a standard OLS regression. Since the parameter estimates are relative compared to secondary buyout exits, the interpretation of the trinomial model coefficients is that for a one unit change in the explanatory variable, the log odds of an IPO or trade sale are expected to change by the estimated coefficient. An intuitive interpretation of the model coefficients is when comparing SBO exits vs trade sale/IPO exits (0 vs 1 or 2), a positive coefficient signals as the explanatory variable increases by one unit, the ratio probability of a trade sale/IPO increases in relation to the probability of an SBO, while holding all other variables in the model constant. The opposite holds true for a negative coefficient. It is possible to compare trade sale vs IPO by subtracting the trade sale coefficient from the IPO coefficient. If this number is positive, the probability of an IPO increases in relation to the probability of a trade sale. In order to assist with the interpretation and understanding of the coefficients, marginal effects for each explanatory variable are calculated in **Table 9**. The marginal effects can be interpreted as the change in the probability (measured in %) of an outcome based on a one unit increase in the explanatory variable. **Models 1-3** compares the probability of a secondary buyout with both the probability of a trade sale and an IPO based independently on the private equity and fund characteristics, the portfolio company characteristics, and macroeconomic variables. **Model 4** includes all the explanatory variables in the model and is consistent with the results generated from the first three models. The model outputs suggest that macroeconomic factors and portfolio company characteristics are the strongest indicators of whether a private equity firm will exit their investment via an SBO, trade sale, or IPO. The following paragraphs draw empirical conclusions from the regression results and discuss and compare these conclusions to the hypotheses formed previously in the paper and to prior literature results.

According to **Model 1 and 4**, the longer the investment exit date is from the fund vintage date, the larger the probability of a trade sale exit. This result is significant at the 5% significance level for both models and contradicts Hypothesis 1. The fund size variable is also a determining factor in the exit decision and is interpreted as the fund size increases, the likelihood of an exit via an

SBO increase. According to the average marginal effects in **Table 9**, if the variable fund size increases by one unit, the probability of an exit via an SBO increases by 5.7%. In addition to these results, no significant conclusions about the age of the PE firm at the exit date can be made based on the model.

Results from the trinomial model are mixed in relation to Hypothesis 2a and 2b. **Model 2 and 4** show the significance of the age of the portfolio company and EBIT margin variables on the decision to exit via an SBO, while the sales and asset turnover ratio variables statistically differentiate between the exit routes IPO versus SBO. The more mature (measured by portfolio company age) and profitable (measured by EBIT margin) the portfolio company is, the more likely the investment is exited via SBO compared to both other routes at 1% and 5% significance levels. This finding provides valid support that corroborates with Hypothesis 2a. Stable and recurring cash flows is a key portfolio company characteristic when private equity firms are searching for leveraged buyout candidates. Consequently, companies can take on substantial amounts of debt and be able to make interest payments and principal payments without putting undue financial distress on the company. Instinctively, a company that was a good candidate for an LBO in the first place and further reduced expenses/increased EBIT margins under the PE-sponsor, would be an ideal candidate for taking on even more debt and attracting other PE buyers. Prijcker, et al. (2013) developed similar conclusions in their research differentiating between trade sales and SBO exits of cross-border LBOs. They concluded if the portfolio company increased sales growth under the sponsoring PE firm the probability of a trade sale exit increased, while if the portfolio company increased profit margins (efficiency) during the investment period, the probability of an SBO exit increased. By providing results that support Hypothesis 2a, **Model 2 and 4** also support Hypothesis 2b, considering the opposite interpretation of the regression results. Due to the significant negative coefficient for the portfolio company age and EBIT margin variables and the significant positive coefficient for total sales, the results suggest that younger, high growth and less profitable portfolio companies tend to have a greater probability of being exited via an IPO. This result complements the surveys conducted by Pavoly (2006) and Jebsen Anker and Stärk-Johansen (2015) in that buyout firms responded that portfolio company size, as measured by total sales, is an important factor on whether to divest an investment via an IPO. Unfortunately, the CAPEX variable does not

contribute to the statement that the likelihood of an SBO increases if the portfolio company has low investment requirements and the asset turnover ratio contributes minimally to Hypothesis 2a (**Model 4** shows at a 10% significance level that as the asset turnover ratio increases, so does the probability of an SBO).

Model 3 and 4 reflect the importance of the current state of the market and other macroeconomic factors on a PE firm's exit decision. Significant results reinforce the empirical studies of IPO clustering, "hot" IPO markets, and the *market timing hypothesis* (Cao, 2011), as well as Hypothesis 3a. The IPO volume variable is highly significant at the 1% significance level meaning historically, IPOs have occurred in waves in the Nordic markets. The tendency for IPO waves to develop as a result of improving market conditions is consistent with the research results from Pastor and Veronesi (2005). They state that improvements in market conditions weaken the incentive to delay IPOs and therefore IPO waves follow as PE firms try to take a private company public at the optimal time. Similarly, Schmidt, Steffen, and Szabó (2008) used the number of worldwide IPOs as a proxy for the stock market environment. Their research found a significant relationship between the number of IPOs and the increased probability of an exit via IPO. The results from **Model 4** indicate that IPO exits have a tendency to be utilized after a quarter of strong returns. The average cumulative prior quarter returns on the local stock market for IPO exits was 3.7%, compared to 2% for SBOs and 1.3% for trade sales (**Table 4**). This result is consistent with Jenkinson and Sousa's (2015) finding that the state of the local stock market is a significant determining factor. They reported on average, stock markets increased by 4.5% in the quarter before an IPO exit.

Furthermore, **Model 3 and 4** results suggest that conditions in the credit market also play a huge determining factor as to whether a private equity firm exits via SBO or trade sale. PE firms are more likely to exit via a trade sale when the cost of borrowing for corporations is low. Interpreting the coefficient for the cost of borrowing variable is a little unintuitive. The significant negative coefficient for the trade sale column can be interpreted as a one unit increase in the cost of borrowing, increases the ratio of the probability of an SBO related with the probability of a trade sale. In other words, the results suggest a higher cost of borrowing rates increases the probability of an SBO, contradicting the second part of Hypothesis 3b. However,

this result is consistent with the fact that corporations fund acquisitions with debt and as the buyer in the PE sponsor exit, corporations tend to wait for more favorable credit terms before engaging in an acquisition.

The Fed tightening index is used as a more comprehensive proxy for the availability of capital in the credit market (Jenkinson and Sousa, 2015) and **Model 3 and 4** results suggest as the tightening index variable constricts (an increase in the index), the probability of an exit via trade sale versus SBO increases. This finding is consistent with the first part of Hypothesis 3b and with the empirical fact that SBOs require even higher leverage than initial LBOs (Achleitner & Figge, 2014) and therefore, an increase in available capital in the credit market would be favorable for PE firms to engage in LBOs. Axelson, et al. (2013) concludes that LBO deals are pro-cyclical, meaning variations in economy-wide credit conditions is the main determinant of LBOs. PE sponsors' main constraint is then how much they are able to borrow as they attempt to maximize leverage to generate optimal returns. SBOs are simply LBOs, therefore as the availability of capital in the credit market increases, intuitively the probability of an exit via SBO also increases. Additionally, Ljungqvist, Richardson, & Wolfenzon (2017) investigates the determinants of buyout funds' investment decision and finds that loosening credit markets leads to more investments in LBOs.

The empirical results discussed above also complement relevant qualitative research findings. Povaly (2006) concluded from a sample of 48 European buyout investors that the state of the capital market is considered the most important factor in determining the choice of exit routes. Povaly (2006) defines the state of the capital market as the availability of attractive debt financing and whether there is a favorable equity market environment. This paper captures both of these components through the use of the local stock returns and the number of IPOs variables as a proxy for favorable equity market environments and the cost of borrowing and Fed tightening index variables as a proxy for availability of attractive debt. Considering all of these variables are significant in the trinomial logit model, this paper supports the case that the state of the capital market is one of the most important factors in determining the choice of the exit route.

7.0 Conclusion

This paper studies specific factors influencing the divestment strategy chosen by PE firms. Our findings support the idea that specific PE firm and fund characteristics, portfolio company characteristics, and macroeconomic factors all play a role in determining if a PE firm exits a Nordic investment via SBO, trade sale, or IPO. The most significant factors influencing the decision are the size of the PE fund, the age, total sales, and profitability of the portfolio company (measured as EBIT margin), and the current state of the local stock market and credit market. The findings suggest that SBOs are more likely to be used when the PE fund size is larger and the portfolio company is mature, profitable, and has higher turnover ratios relative to IPOs and trade sales. This supports the idea that PE firms on the buy side look for mature companies with stable cash flows that can support high amounts of leverage. On the contrary, IPOs are more likely to be used when the portfolio company is young and less profitable but reports high total sales relative to SBOs. Portfolio companies reporting low-profit margins are also more likely to be exited via a trade sale relative to SBOs. This is consistent with the idea that strategic buyers typically buy in order to grow market share, gain access to technologies, or realize synergies, and do not necessarily target only highly profitable companies.

The current state of the local stock market and credit market significantly influence the exit route chosen by PE firms. Periods of high market returns and IPO volumes greatly increases the probability, relative to SBOs and trade sales, of a PE firm divesting by taking the portfolio company public. This finding is consistent with the *market timing hypothesis* and the empirical fact of “hot” IPO markets. The state of the credit market, measured as both the availability of credit and the rate of borrowing, influence the exit route decision made by PE firms. Interestingly, as credit becomes more widely available, the probability of an SBO exit increases relative to a trade sale. While on the other hand, as the cost of borrowing decreases for corporations across Europe, a PE firm is more likely to exit via a trade sale relative to an SBO.

These findings are interesting for the following reasons: i) a comparison between PE exits of Nordic portfolio companies and PE exits of European portfolio companies can be made by comparing the results in this study to the conclusions made by Jenkinson and Sousa, 2015. ii) Jebsen Anker & Stärk-Johansen's (2015) survey of Nordic PE firms concludes that PE firms spend substantial amounts of time evaluating and considering potential exit opportunities prior to investing. Considering the empirical findings in this study, Nordic PE firms can potentially utilize the results during the screening process to evaluate future exit strategies based on the three categories of characteristics described in this study.

7.1 Future Research

After conducting this study, the authors suggest complementing this study by adding variables analyzing the return on investment by exit route. It would be interesting to investigate which routes historically return the highest average return on investment and also whether past returns realized by PE firms influence the future decisions on divestment strategies. The authors note, however, the process of collecting the appropriate data to conduct this suggested extended research would require gaining access to information that is not readily available.

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Appendix A

Definition of Variables

The log function is used on variables not represented as a percent.

Variable	Definition
MATURE	$\ln(\text{exit date} - \text{fund vintage date}) / 30$
SIZE	$\ln(\text{\$ closed fund size})$
PE AGE	$\ln(\text{exit year} - \text{pe firm founding year} + 1)$
PC AGE	$\ln(\text{exit year} - \text{pc founding year} + 1)$
SALES	$\ln(\text{total sales value in the last annual P\&L statement before the exit date})$
EBIT	$(\text{total EBIT value in the last annual P\&L statement before the exit date} / \text{total sales}) \times 100$
TURNOV	$(\text{total sales} / \text{total assets in the last annual accounting statements before the exit date})$
CAPEX	$(\text{total fixed assets value in the last annual accounting statement before the exit date} - \text{previous period total fixed assets value} + \text{depreciation and amortizations value in the last P\&L statement before the exit date}) / \text{Total assets} \times 100$
RETURN	local country index stock exchange return x 100 between six and three months before the exit
LEV LOAN	$\ln(\text{S\&P European LBO Index between six and three months before the exit})$
IPO	$\ln(\text{number of IPOs in the Nordics between six and three months before the exit})$
FED INDEX	$(\text{quarterly net percentage of tightening standards for C\&I loans} \times 100 \text{ in the quarter before the exit})$
COST	$(\text{average quarterly cost of borrowing for corporations in the EU} \times 100 \text{ in the quarter before the exit})$

Note: All values converted to USD at historical exchange rates.

Appendix B

Summary Statistics

Table 1

Nationality of portfolio companies by exit route.

Country	Exit route			
	SBO	TS	IPO	Total
Denmark	26	24	8	58
Finland	22	53	8	83
Norway	18	38	14	70
Sweden	55	105	26	186

Figure 1

Exits by year and exit route.

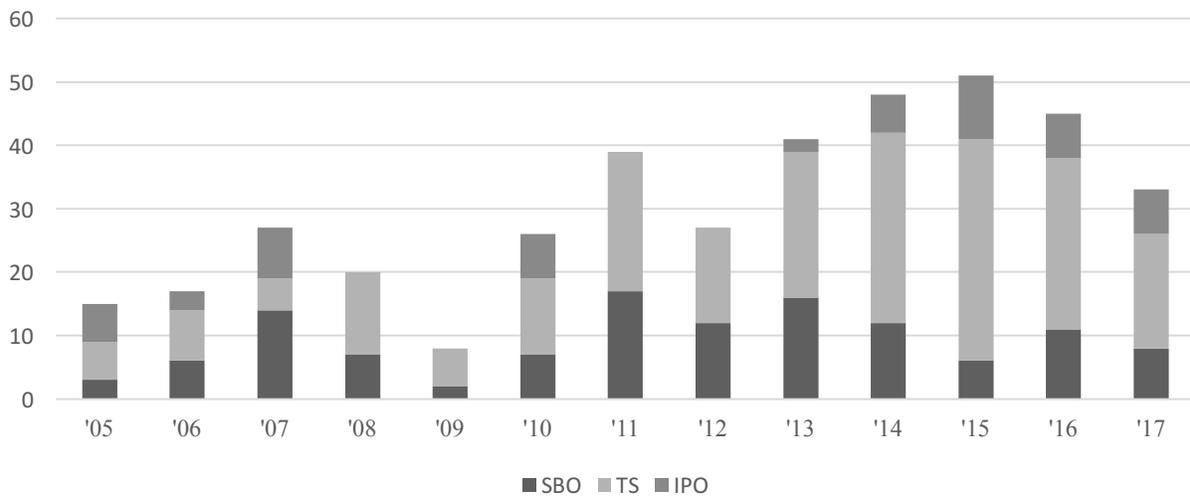


Table 2*Industry classification of portfolio companies by exit route.*

Industry	Exit route			
	SBO	TS	IPO	Total
Manufacturing	38	64	7	109
Services	15	35	5	55
Retail and Wholesale	12	26	13	51
Tech	13	24	9	46
Healthcare	11	18	5	34
Construction	7	8	2	17
Various other industries	16	38	15	69

Table 3*Sponsoring PE firms by exit route.*

Private equity firm	Exit route			
	SBO	TS	IPO	Total
EQT Partners	13	14	5	32
Verdane Capital	-	20	1	21
Nordic Capital	3	13	3	19
Accent Equity Partners	8	7	2	17
Altor Equity Partners	2	11	3	16
Herkules Capital	5	8	1	14
Segulah Advisors	7	7	-	14
Sentica Partners	2	11	1	14
FSN Capital Partners	4	6	2	12
Norvestor Equity	4	5	2	11
Various other 78	69	109	36	214

Table 4

Summary statistics for private equity firms and funds involved, portfolio company characteristics and accounting data, and macroeconomic variables based on exit route (, **, *** indicate significance level at 10%, 5% and 1%). SBO exit is the reference outcome for each z-column.*

Variables	SBO		TS			IPO		
	Average	Median	Average	Median	z	Average	Median	z
PE firm and fund								
Holding period (months)	56.3	52.7	62.1	59.6	-1.924*	65.1	62.8	-1.273
Fund maturity (months)	79.3	76.2	89.8	88.7	-3.015***	86.5	83.1	-1.334
Fund size (\$ mil)	1,206.4	364.7	735.1	199.5	3.036***	1,205.4	337.8	0.445
PE age at exit (years)	18.5	18.0	18.0	17.5	0.128	18.2	17.0	0.685
Portfolio company								
Age at exit (years)	34.8	25.0	26.2	15.0	3.647***	26.4	16.0	2.466**
Total assets (\$ mil)	190.3	54.9	506.6	29.9	2.909***	786.3	158.5	-3.173***
Sales (\$ mil)	181.1	54.7	363.0	37.1	1.943*	1,066.8	191.0	-3.645***
EBIT margin (%)	9.4	9.2	1.2	4.9	4.615***	4.9	6.6	1.770*
Asset turnover ratio	1.5	1.2	1.6	1.4	-1.771*	1.5	1.1	0.760
CAPEX/ total assets (%)	4.0	4.0	5.0	2.0	1.463	10.0	3.0	-0.107
Macroeconomics								
Local stock returns (%)	2.0	2.9	1.3	1.5	1.545	3.7	3.6	-1.038
Lev loan volume (\$ mil)	14.0	12.2	12.6	11.9	0.345	14.4	13.3	-0.673
IPO volume	11.0	9.0	13.5	10.0	-2.124**	17.7	16.5	-4.056***
Fed tightening index (%)	-3.7	-7.1	-1.9	-7.0	-0.721	-5.0	-5.5	-0.750
Cost of borrowing (%)	3.4	3.0	3.0	3.0	3.171***	3.0	2.8	2.568**

Table 5*Investment holding period by exit route.*

Investment holding period	Exit route		
	SBO	TS	IPO
1-2	.08	.08	.14
3-4	.37	.28	.27
5-6	.31	.28	.16
7-8	.15	.24	.27
9-10	.09	.10	.07
10+	.00	.02	.09

Table 6*Exit distribution along the private equity fund life by exit route.*

Years since the vintage year	Exit route		
	SBO	TS	IPO
1-2	.02	.00	.02
3-4	.10	.08	.11
5-6	.29	.19	.18
7-8	.30	.32	.34
9-10	.18	.26	.17
10+	.11	.15	.18

Appendix C
Correlation Matrix
Table 7

Correlation matrix of all explanatory variables.

	MATURE	SIZE	PE AGE	PC AGE	SALES	EBIT	TURNOV	CAPEX	RETURN	LEV LOAN	IPO	FED INDEX	COST
MATURE	1.000												
SIZE	-0.062	1.000											
PE AGE	0.165	0.391	1.000										
PC AGE	0.003	0.149	0.041	1.000									
SALES	0.019	0.546	0.112	0.156	1.000								
EBIT	-0.034	0.248	0.103	0.129	0.359	1.000							
TURNOV	0.019	-0.104	-0.029	0.057	0.104	0.011	1.000						
CAPEX	-0.075	0.095	0.098	-0.017	0.062	0.072	-0.010	1.000					
RETURN	-0.016	0.049	0.060	0.011	0.079	0.030	-0.042	0.032	1.000				
LEV LOAN	-0.136	0.022	-0.001	-0.010	-0.006	0.096	-0.070	0.094	0.104	1.000			
IPO	0.049	0.097	0.120	-0.047	0.014	0.037	-0.020	-0.006	-0.061	0.248	1.000		
FED INDEX	-0.076	-0.056	-0.036	0.026	-0.046	-0.044	0.023	-0.008	-0.198	-0.159	0.022	1.000	
COST	-0.287	-0.158	-0.209	0.152	-0.212	-0.030	0.030	0.075	0.022	0.309	-0.397	0.315	1.000

Appendix D

Regression Results

Table 8

Trinomial logit model results (, **, *** indicate significance level at 10%, 5% and 1%). This table reports the maximum-likelihood regression results for the 397 exits. The dependent variable is the exit route and the SBO exit is the base (reference) outcome.*

Variables	Model 1		Model 2		Model 3		Model 4	
	IPO	TS	IPO	TS	IPO	TS	IPO	TS
PE firm and fund								
MATURE	0.726	0.701**					0.441	0.509
SIZE	-0.024**	-0.234***					-0.493***	-0.302***
PE AGE	-0.552	0.094					-0.444	-0.052
Portfolio company								
PC AGE			-0.572**	-0.477***			-0.552**	-0.370**
SALES			0.472***	0.009			0.764***	0.150*
EBIT			-0.023**	-0.013*			-0.028***	-0.012*
TURNNOV			-0.155	0.043			-0.273*	-0.004
CAPEX			0.542	-0.109			1.056	0.138
Macroeconomic								
RETURN					0.061**	-0.007	0.074**	-0.009
LEV LOAN					-0.367	0.219	-0.340	0.293
IPO					0.869***	0.036	1.069***	0.052
FED INDEX					-0.012	0.021**	-0.029	0.021**
COST					-0.163	-0.531***	-0.099	-0.459**
Country fixed effects	Included		Included		Included		Included	
Industry fixed effects	Included		Included		Included		Included	
LR Chi2	73.54		104.63		84.47		153.18	

Table 9

Average marginal effects. Used to determine the effect of a variable on the probability of each exit route (, **, *** indicate significance level at 10%, 5% and 1%). The numbers below are interpreted as the average change in probability of exit route when the explanatory variable in the left column increases by one unit. For example, in column 2 row 2, a one unit increase in the variable MATURE decreases the probability of an SBO exit by 8.7%.*

Variable	SBO	TS	IPO
MATURE	-.087*	.079	.007
SIZE	.057***	-.033	-.025*
PE AGE	.019	.017	-.036
PC AGE	.069**	-.043	-.025
SALE	-.042***	-.016	.058***
EBIT	.003**	-.000	-.002**
TURNOV	.007	.016	-.024**
CAPEX	-.047	-.037	.084
RETURN	-.000	-.006*	.007**
LEV LOAN	-.035	.083	-.048
IPO	-.035	-.056*	.091***
FED INDEX	-.002	.006***	-.004**
COST	.071**	-.091***	.020