Value creation in corporate divestments

An empirical study of European sell-offs and spin-offs

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Abstract

Frasalg af forretningsenheder er et strategisk værktøj inden for virksomhedsomstrukturering, der historisk har fået mindre opmærksomhed sammenlignet med andre strategiske værktøjer så som opkøb (M&A). Formålet med denne afhandling er at undersøge værdiskabelsen i europæiske virksomheders frasalg af forretningsenheder. Herudover undersøges en række forskellige motiver for virksomheder til at gennemføre et frasalg.

Værdiskabelse undersøges ved hjælp af en trefoldig metodisk tilgang til at måle værdiskabelse baseret på et eventstudie af kortsigtet aktieafkast, en analyse af langsigtet aktieafkast ved en køb-og-hold strategi samt en analyse af langsigtet ændringer i operationel performance hos den frasælgende virksomhed. Undersøgelsen tager udgangspunkt i et datagrundlag bestående af 1,244 *spin-off* og *sell-off* transaktioner, annonceret af europæiske børsnoterede virksomheder mellem 2000 og 2020.

Resultatet af eventstudiet viser klare signifikante over-normale afkast i forbindelse med annoncering af et frasalg, hvilket indikerer, at gennemførelse af et *sell-off* eller *spin-off* er forbundet med væsentlig værdiskabelse for aktionærerne. Eventstudiet viser derudover klare indikationer på, at annonceringen af *spin-off* genererer et signifikant højere kortsigtet afkast end *sell-off*. Herudover viser vores analyse af udvalgte motiver, at den relative størrelse på den frasolgte enhed og den sælgende virksomheds grad af informationsasymmetri har indflydelse på værdiskabelsen omkring annonceringstidspunktet, mens fokusering af virksomhedens strategi og sælgers finansielle status indikeres at have mindre betydning for værdiskabelsen.

Undersøgelsen af over-normale afkast ved køb-og-hold strategien viser, at virksomheder, der frasælger forretningsenheder, realiserer signifikante over-normale afkast over både en et-, to- og treårig periode fra *completion* datoen. Dette gælder både når lande specifikke aktieindeks og det brede MSCI Europa indeks anvendes som sammenligningsgrundlag.
Analysen af langsigtede ændringer i operationel performance målt ved *Return On Assets (ROA)* viser, at selskaberne som frasælger forretningsenheder, opnår signifikante over-normale ændringer i performance i forhold til deres respektive kontrolgrupper af sammenlignelige selskaber.

På baggrund af vores undersøgelse kan det konkluderes, at frasælgende selskaber genererer både kort- og langsigtet værdi for deres aktionærer.

Vi vil gerne takke vores vejleder Christian Aarosin, ekstern lektor ved Institut for Regnskab hos Copenhagen Business School, for værdifulde input og idéer til afhandlingens udformning.

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1. Introduction

In a continuously changing world, flexibility and responsiveness have emerged as important key competitive factors for businesses (Silva & Moreira, 2019). The globalisation of industries has intensified the competitive environment in which corporates are operating. In today's disruptive environment, corporate restructuring through an active and ongoing portfolio management strategy is required to continuously adapt business operations to ensure value creation for shareholders and stakeholders (Bowman, et al., 1999). However, the natural behavioural norm of executives has created a bias towards restructuring through merging and acquiring rather than divesting.

> *"Most executives are not naturally inclined toward breaking things up; they would rather grow and create value through building than through dividing"* (Kengelbach, et al., 2014).

As a result, executives tend to value firm size and empire building *(Jensen, 1986)*. Acquisitions have historically been associated with growth and development whereas divestments have been associated with failure (Dranikoff, et al., 2002). Thus, many executives have historically sticked to mergers and acquisitions (M&A) in the restructuring toolbox for increasing shareholder value creation. However, empirical findings indicates that up to nine out of ten M&A deals does not create value for the acquiring firm (Christensen , et al., 2011). Specifically, firms acquiring only to diversify activities often appear to destroy value. Consequently, large, diversified firms are often trading at a conglomerate discount, relative to comparable single-business firms (Berger & Ofek, 1995). Hence, executives have faced an increasing pressure from a growing number of activist investors, whose prescription for a lagging stock often is a breakup or a deconglomeration strategy (Zuckerman, 2000).

Today, an increasing number of firms look beyond the historical stigma of divesting. According to EY's Divestment Study Report from 2020, 84% and 72% of the firms asked in 2019 and 2020 expected to divest within the next two years. The perception of divestments is changing towards how divestitures strengthen and rejuvenate companies by releasing time, talent, energy, and capital tied up in nonstrategic businesses (McKinsey & Company, 2016 & Dranikoff, et al., 2002). Thus, corporate divestments are increasingly perceived as complementary to corporate restructuring through M&A.

As firms are increasingly considering corporate divestments it is interestingly to understand the underlying motives and how different types of divestitures materialize in shareholder value creation. Several different types of divestments exist for firms to dispose a division whereas sell-offs and spin-offs are the two divestiture methods enabling a 100 percent separation of ownership between the parent and the subsidiary. In a sell-off transaction, the parent firm sells a business unit in an interfirm transaction in exchange for cash, equity, or other payments (Hearth & Zaima, 1984). In a spin-off

transaction, the parent firm is spinning out an independent business unit through a pro rata distribution of shares to existing shareholders (Miles & Rosenfeld, 1983). As evident, a sell-off and spin-off differentiates in terms of proceeds involved in the transaction. Thus, sell-offs might be pursued to generate cash for other investments or debt repayment which are not relevant for spin-offs. However, many motives for divestitures can to some degree be applied to both sell-offs and spin-offs. The existing literature comparing different types of divestments has been limited as shareholder value creation associated with the different types are often analysed in an isolated setting focusing on either sell-offs or spin-offs.

Previous research of shareholder value creation in connection to corporate divestments is mainly focused on short-term announcement effects. Limited research papers have investigated long-term excess stock returns or changes in operating performance. In continuation, existing empirical findings for European samples are more limited compared to US samples.

1.1. Research question

We find it motivating and relevant to further examine the value creation in connection with European divestments. Simultaneously, we find it relevant to provide additional empirical evidence on the differences in value creation between different types of divestments, namely sell-offs and spin-offs. Consequently, the objective of this thesis is to examine the following research question:

> *Does European firms engaged in corporate divestments through either spin-offs and sell-offs create shareholder value, and what are the primary motives?*

To answer the research question, we have formulated specific hypotheses based on a literature review. The hypotheses are analysed and tested on a sample of European corporate divestments comprising subsamples of sell-offs and spin-offs, enabling us to examine any significant differences in value creation between the two. Three different methodologies of measuring shareholder value creation are applied. First, we examine short-term stock market reactions upon announcement of a corporate divestments indicating the initial value attributed by investors and capital markets. Secondly, we examine the shareholder value creation through long-term stock returns to examine potential value effects not captured by the announcement effect. Third, we examine accounting-based measures to identify potential improvements in operating performance. Each method has respective advantages and disadvantages. Hence using all three different methods should provide a more holistic interpretation of the shareholder value creation in corporate divestments. In addition, a selected number of identified motives for completing corporate divestments are tested to determine whether the motives are affecting value creation.

1.2. Scientific research approach

A real world driven by natural causes exists out there, but the underlying truth is unreachable and unobservable due to human biases and their imperfect sensory (Guba 1990, p. 20). We acknowledge that it might be impossible to determine the objective truth to the research question. Therefore, the research approach is designed to increase validity and reliability, and thus come closer to the underlying truth (Guba, 1990).

The approach to find the approximated truth is to be as neutral and objective as possible by outlining the methodology and scientific choices applied. The specific methodology and the data gathering process is described and discussed in detail increasing transparency, reliability, and replicability. This allows other researchers to replicate the study employing a similar approach and to make their own adjustments to the obtained results. In addition, our approach follows previous literature and associated approaches to investigate the shareholder value creation in corporate divestments. Thus, the methodology applied rely on traditional methods accepted in previously peer-reviewed academic articles increasing reliability and validity. However, subjectivity in the final selected data sample is unavoidable.

The formulated research question guides the scientific approach and methodology in this thesis as prescribed by AMJ Editorial (2011). We apply a *theory testing* research design through a *deductive* approach (Saunders, et al., 2016). The hypotheses are formulated based on a review of existing literature and previous empirical findings reducing the risk of omitted variable bias and distorted results. The hypotheses are then tested empirically on a new sample of European corporate divestments resulting in either a rejection or confirmation of the hypotheses. To provide more clarified conclusions, the formulated hypotheses will be classified as either strongly rejected/accepted or weakly rejected/accepted based on level of statistically significance.

Primarily, we apply quantitative methods where *constructs* and *variables* are used to test the hypotheses and reach statistical generalisations (Saunders, et al., 2016). This implies a focus on distributions, averages, and medians rather than the individual firm in the data sample. Ultimately, the objective is to draw generalisable conclusions from a sample of divestments. However, generalization implies dilemmas of internal and external validity. The use of more qualitive methods to capture every nuances of corporate divestments could have been applied to increase internal validity. Though, the use of qualitive methods would provide less generalisable results and decrease external validity. Instead, we apply several different quantitative methods and test statistics to increase robustness of the findings. To provide a more exhaustive view on value creatin, this thesis triangulates the methodology of measuring shareholder value creation by using three different *constructs*. In

addition, we apply several strict screenings criteria in the data selection process to ensure high internal validity when measuring and analysing value creation of corporate divestments. However, these criteria might reduce external validity and generalisability to other divestments not included in the final data sample.

1.3. Delimitations

The existing literature on corporate restructuring and divestments is broad and comprehensive making it impossible to cover all relevant aspects. Therefore, the scope subject to examination has been adjusted to reflect the resources available and the academic level of the authors. As a result, our thesis is based on several limitations, which is elaborated and discussed in the section below.

Many types of *corporate* divestments exist. Each type has different characteristics affecting the underlying motives for initiating the divestment. A complete overview of corporate divestments is presented in **Section 2**. The rest of this thesis focuses solely on sell-offs and spin-offs with a hundred percent separation in ownership implying that partial divestments are not included. The delimitation is motivated by the fact that sell-offs and spin-offs are often perceived as the two most used types of divestment. In addition, the criteria regarding hundred percent separation in ownership enhance comparability of sample firms improving the analysis of motives for divestments.

Value creation is measured using stock prices and accounting-based performance measures. The methodology implies important requirements regarding data availability of the sample firms. The final data sample only includes publicly listed firms with an available stock price. Thus, the results might not be applicable for private firms. The applied data selection criteria also require a deal value excluding a substantial number of divestments without a public value. Thus, the results might not be applicable for all corporate divestments.

Most of the analyses conducted include performance comparison with various selected benchmarks. Thus, the applied benchmarks are of great importance for the results. However, we are aware that the literature endorses a variety of ways to determine benchmarks, control groups and peer-groups. Therefore, we have delimited our thesis to use those, that we assessed to be most accessible and reliable producing robust results.

This thesis only investigates sell-offs and spin-offs completed by firms located in Western Europe. The results might not be applicable to other geographical regions. We acknowledge that accounting principles might still differ between firms in the final sample due to local GAAP. However, we do not account for potential differences. To the best of our knowledge, no previous peer-reviewed literature has done this, despite that this could lead to biased results, if not adjusted for.

The hypotheses in this thesis are developed based on review of the existing literature. Only the most relevant existing literature regarding corporate divestment have been included keeping the literature narrowed and focused. In accordance, we have applied selected statistical tests commonly used in the existing literature. We are aware that more advanced test statistics exists could have been applied. Particularly for the analysis of long-term stock returns, more advanced models for determining abnormal returns might increase robustness and reliability of the results. However, the methodology used is perceived as solid to provide reliable results comparable to existing literature within the field of research.

As a concluding remark, we must emphasize that the purpose of thesis is not to create a framework or guidance to assess divestments on a firm-by-firm basis. Nor to understand the decision-making process and structure related to a divestment. On the contrary, we investigate and assess value creation and value driving motives in relation to spin-offs and sell-offs, primarily on an aggregate level.

1.4. Structure of the thesis

Figure 1: Thesis structure

2. Fundamentals of corporate divestment

The objective of this chapter is to describe the fundamentals of corporate divestments providing the reader with a clear understanding of the phenomena. The first subsection provides a short overview of corporate restructuring to outline and distinguish corporate divestments from the wide range of restructuring tools available to management. Subsequently, a short overview of the common types of corporate divestments is presented.

2.1. Corporate restructuring

In 1943, Schumpeter introduced the theory of *creative destruction* recognizing that economies and corporations are required to continuously develop and innovate as new markets and products are entering the sphere (Schumpeter & Stiglitz, 2010). Corporate Restructuring is the process of optimizing and realigning the strategy of a firm. Corporate restructuring is a field of great interest to corporate strategy, finance, and organizational scholars and practitioners (Bowman & Singh, 1993). Corporate restructuring is a rather complex phenomena without a widely accepted definition. Hence, it can be difficult to conceptualize. According to Bowman and Singh (1993), corporate restructuring can be divided into three subcategories:

- ***Organizational Restructuring***: Substantial changes in the organizational structure of the firm
- ***Financial Restructuring***: Substantial changes in the capital structure of a firm
- ***Portfolio Restructuring:*** Substantial changes in composition of assets or line of businesses owned by a firm

Table 1: Overview of corporate restructuring instruments

Corporate restructuring		
Organizational Restructuring	**Financial Restructuring**	**Portfolio restructuring**
• Change of organizational structure, processes, systems, practices • Downsizing of workforce (Lay-offs)	• Share buy back • Recapitalization • Debt for equity swaps	• **Divestment** • Dissolutions - closure of business lines • Mergers and acquisitions

Corporate divestment is part of portfolio restructuring and is defined as a "*firm's decision to dispose of a significant portion of its assets*" (Duhaime & Grant, 1984, p. 301). Thereby, divestitures relate to the separation of assets transferring the direct ownership either completely or partly. Here, divestiture is "*an essential part of a creatively destructive and continually self-renewing corporate strategy*" (Sudarsanam, 2010, p. 273). Thereby, divestiture is a tool to manage the total portfolio of business activities maximising the value of the total firm.

2.2. Types of corporate divestments

On a high level, the process of divesting a business unit is a two-step process requiring the management to 1) decide on a business unit to exit and 2) determining the most optimal way of exiting (Depamphilis, 2013).

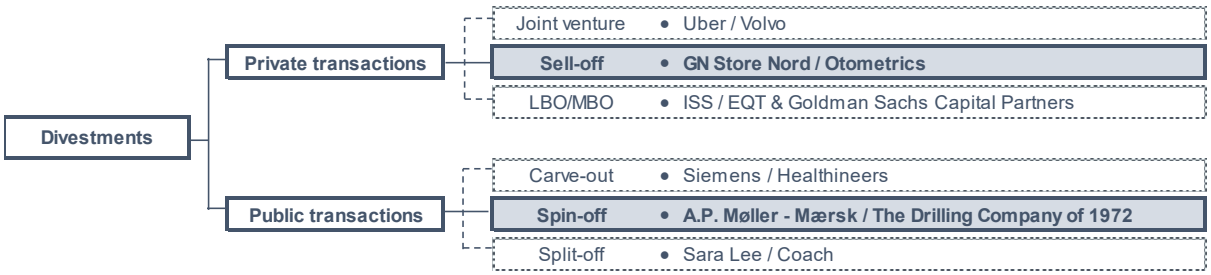
The first step of deciding to divest a business unit should be the result of exhaustive analyses of the composition of the total business portfolio. Voluntary divestments are often driven by value creating motives to maximise the value of the total firm.[1] However, firms might be forced to divest a business unit. Involuntary divestments are forced by the judicial system or antitrust authorities requiring the parent firm to dispose the business unit (Boudreaux, 1975). Involuntary divestitures can also be the result of a previous acquisition leading to an anticompetitive market structure.

Voluntary divestments can further be divided into *strategic*, *tactical* and *distress* divestitures (Montgomery & Thomas, 1988). The strategic rationale is typically driven by a refocusing strategy in which the management takes a broader view on the firm's business units i.e., through re-evaluation or reconfiguration of the corporate strategy. According to Dranikoff, et al. (2002), regularly divesting business units - even some profitable and healthy ones - ensures that remaining units reach their full potential. Tactical and distress divestitures appear to focus directly on the short-term performance issues by improving a firm's financial standing (Montgomery & Thomas, 1988). Tactical divestments are seeking to utilize occasional market opportunities, boosting share price development, or exploiting potential tax benefits. Distress divestments are completed by firms in need of immediate cash to repay debt and avoid bankruptcy.

The second step in the divestment process is to determine the most optimal and value creating method of divesting. The optimal divestment method is influenced by the rationales behind the decision to divest. Firms choose among different divestment methods considering their strategy, the degree of synergies involved, the future relationship with the divested unit, the need of cash, and the expected value of the divested unit (Depamphilis, 2013). Corporate divestments involve many different processes and timing considerations. The divesting firm should consider the broader financial environment impacting the interest and the value of the business unit. At high level, the different types of corporate divestments can be divided into private and public transactions.

[1] Other motives for voluntary divestments might be managerial incentives to finance new investment projects which capital markets might be unwilling to fund - see **Section 4.2.5**.

Figure 2: Overview of corporate divestments



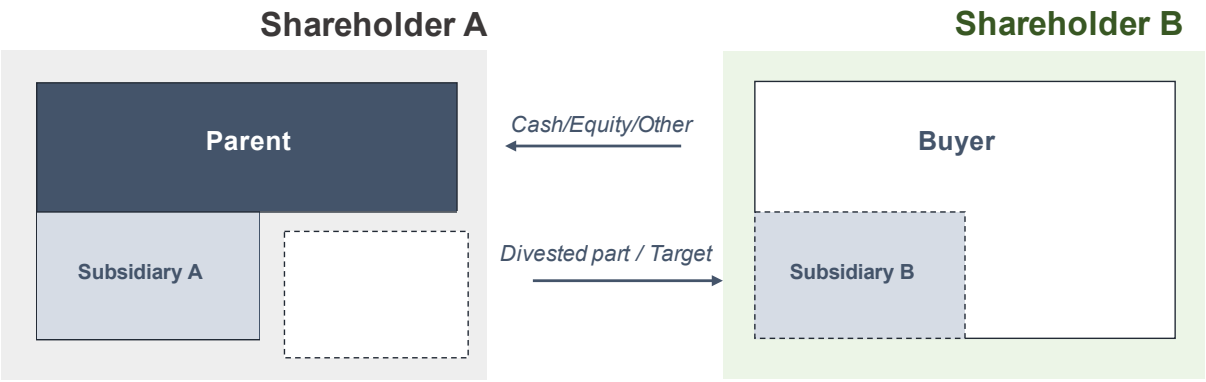
Private transactions

Private transactions refer to agreements of asset ownership transfer between two parties. Such transactions do not involve the stock exchange and the transactions are primarily announced after an agreement between the buyer and the seller has been made. Some public listed firms announce the intend to divest a subsidiary before such an agreement has been made. In other cases, a listed company might receive a public offer for a subsidiary. However, those transactions are still considered as corporate divestments in private settings. Private transactions involve *Sell-Offs*, *LBO/MBO*, and *Joint Ventures*.

The most common type of private transactions is **Sell-Off**.[2] A sell-off is defined as the sale of a portion of a firm's assets, generally resulting in a cash infusion to the parent (Depamphilis, 2013). Thus, a sell-off involves a partly or fully transfer of ownership to a third-party receiving cash, equity, or other combinations of assets from the buyer (Cumming & Mallie, 1999). Thus, sell-offs convert real assets into liquid assets. Commonly, a sell-off is completed as an interfirm transaction between two independent corporations. Primarily, these sales are privately negotiated with little information available to the public (Nixon, et al., 2000). Sell-off transactions are subject to capital gain taxes for the parent firm in contrary to some of the other transaction types later examined (Rosenfeld, 1984). The proceeds from the sale can either be used for corporate purposes or paid out as dividends to the shareholders.

[2] In the academic literature, sell-offs are sometimes referred to as asset divestiture or asset sale.

Figure 3: Illustration of sell-offs



Other private transactions include **Leveraged Buyouts (LBO)** and **Management Buyouts (MBO).** An LBO refers to an acquisition of a company, subsidiary, or division paid in cash, predominantly comprising debt raised by the acquirer. The majority of all leveraged buyouts are performed by Private Equity (PE) funds (Sudarsanam, 2010). MBO refers to a transaction, where the management of the firm acquires the assets and operations of the firm they manage, either partly or completely. MBO and LBO are often seen in situations where the parent firm has limited access to debt. In those case, the PE funds can unlock substantial value gains by acquiring a business unit and optimise the capital structure often leveraging higher levels of debt to reduce cost of capital (Berk & DeMarzo, 2020).

The last type of private transactions is **Joint Venture** divestments where the parent firm separate assets by establishing a new entity jointly owned with one or several partners. The assets are divested or transferred to the new entity to exploit strategic synergies. Joint venture can also be established with venture capitalists to secure financing of new development projects. The transaction is considered as a partially divestment since the parent firm retain interest in the divested business unit.

Public transactions

Corporate divestments defined as public transactions are carried out on the stock exchange involving the distribution of new shares to either current or new shareholders. The primary public transactions are *equity carve-outs*, *spin-offs*, and *split-offs*.

An **equity carve-out**, or carve-out, is a partial divestiture, where the parent company divests a minority of a subsidiary to an outside party, typically up to 20-25% due to taxation matters (Kovács, 2008). This is done through an IPO involving sales of shares on the stock market to new investors. In most cases, the divesting firm retains controlling interests in the business unit carved out, while the transaction simultaneously allows the parent to raise cash, both via the IPO and then later by

offloading more of the shares to the stock market (Sudarsanam, 2010). The public sale of equity changes the shareholder base of the subsidiary, and new shareholders are often investing as minority shareholders. The cash raised from the transaction might be transferred to the parent firm or retained in the subsidiary firm to fund new investments (Depamphilis, 2013).

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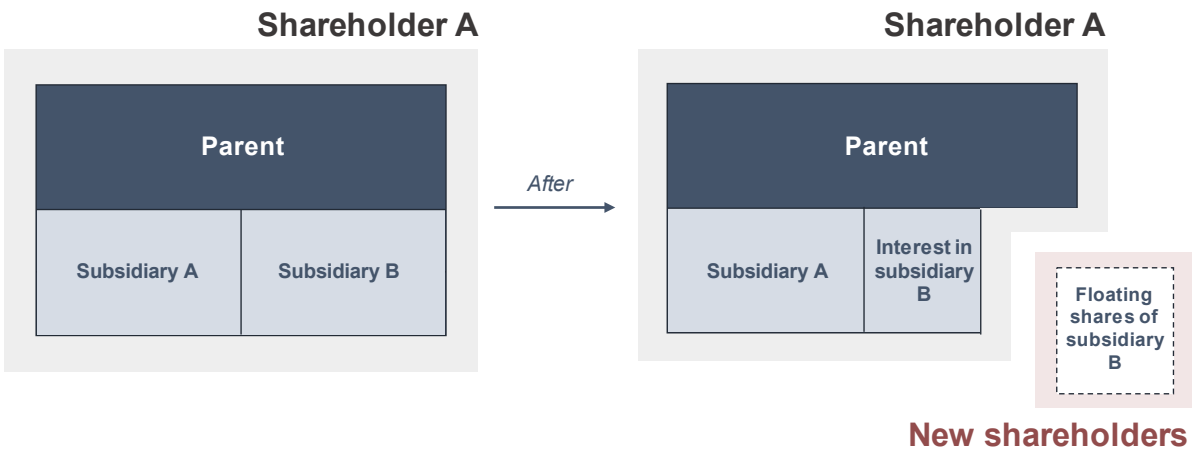
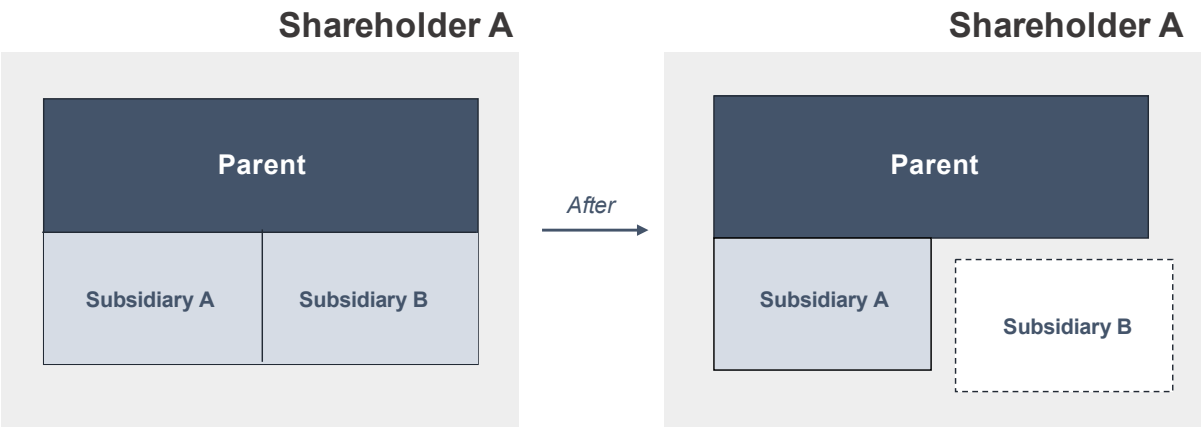
Figure 4: Illustration of Equity carve-out



A **spin-off** occurs when a firm distributes all common stocks in a controlled subsidiary to its existing shareholders on a pro rata basis, thereby creating a separate publicly traded entity. The distribution can be considered as non-cash dividends from the parent company, why it often is a tax-free exchange for the owners/shareholders (Veld & Veld-Merkoulova, 2004). The spin-off transaction does not involve any cash proceeds. Hence the transaction is not motivated by immediate cash flow generation. The spun-off business unit becomes an independent firm, and the existing shareholders become direct shareholders of both the parent firm and the subsidiary. The indirect ownership of the subsidiary changes to a direct ownership (Kovács, 2008), hence no change in ownership/shareholder base.

Figure 5: Illustration of spin-offs



A **split-off** is somewhat similar to a spin-off, except that shareholders are given a choice of whether they want to a) exchange some or all the existing shares with shares in the subsidiary, or b) continue to hold all the existing shares in the parent firm. Therefore, shareholders have a free choice of whether to participate in the split-off or not, and the distribution of shares in a split-off are not pro rata (Kovács, 2008). To incentivize the current shareholders to make the stock exchange, there is often a gain in exchanging parent shares for the subsidiary shares. The parent firm ends up with a larger amount of its own shares from the shareholders switching their parent shares to the subsidiary shares. From the perspective of the parent firm, it has the characteristics of a share buyback, except that the shares are bought with equity from the subsidiary. After the split-off, the subsidiary becomes independent from the parent, except in cases where the parent firm decides to keep a share of the subsidiary.

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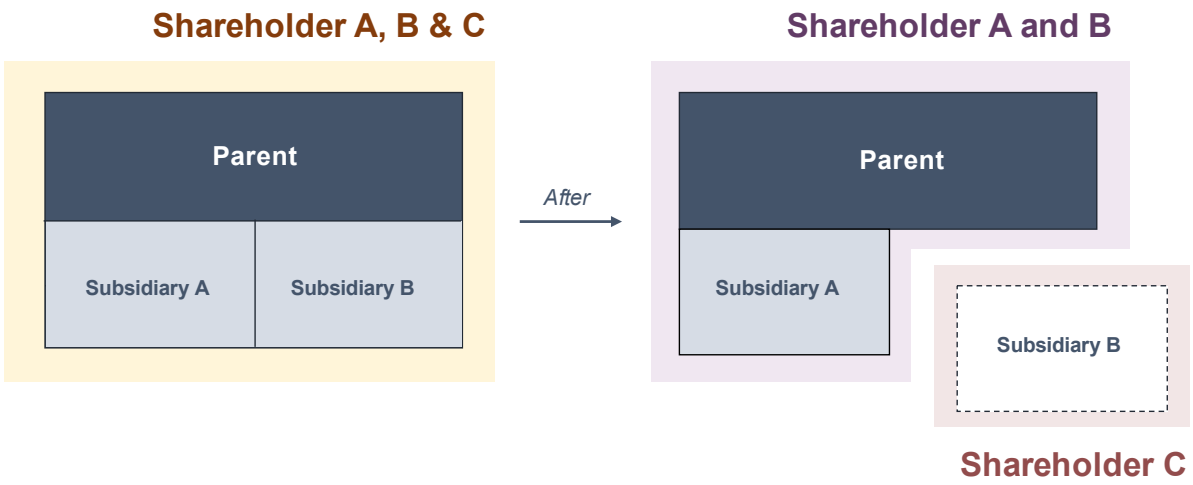
Figure 6: Illustration of split-offs



As evident from the discussion above, the common corporate divestiture methods have both similarities and differences. The common denominator for all divestments is the fully or partly separation of an assets from the parent firm, implying of loss of control. The asset is typically sold or traded for cash and/or equity. The remaining part of thesis focuses solely on voluntary sell-offs and spin-offs with complete separation of ownership between the parent firm and the subsidiary after the transaction is completed.

3. Theoretical framework

The objective of this chapter is to establish a theoretical foundation for the remaining part of the thesis. Specifically, this concerns efficiency in capital markets and the recognition of shareholder value creation.

3.1. Efficient Market Hypothesis

An efficient market can be defined as "*a market in which prices always "fully reflect" available information*" (Fama, 1970, p. 383). The *Efficient Market Hypothesis (EMH)* is based on the rationale that competition between investors is eliminating all positive Net Present Value trading opportunities. Thereby, all securities are trading at their intrinsic price. According to Fama (1970), the role of the capital markets is to allocate capital ownership between market participants. In an efficient market, stock prices provide investors and corporations with accurate signals of resource allocation since all available information is reflected in the price of any security at any point in time. An investor would not be able to earn a risk-adjusted abnormal return using trading strategies based on publicly available information. Thus, the expected return of any security is based on the market performance. However, Fama recognised that market prices might deviate from intrinsic values. Therefore, Fama introduced three different levels of EMH to explain the adjustment of security prices reflecting new available information.

Table 2: Overview of Efficient Market Hypotheses

Efficient Market Hypothesis	
Form	**Definition**
Weak	Reflects all information contained in historical security prices
Semi-strong	Reflects all publicly available information
Strong	Reflects all public and non-public available information

The strong form EMH is perceived as a rather extreme form, however unrealistic to obtain in practice. Two main observations are opposing the strong form, both relating to monopolistic information access. First, market makers have access to unexecuted customer orders, which is utilized through trading strategies to gain profits. Secondly, corporate employees have access to monopolistic insider information, which can be used to gain profits. According to Fama, the strong form EMH is best viewed as a benchmark from which actual market efficiency can be judged. Oppositely, the weak form has extensively been empirical tested and is documented to be present (Fama, 1970). Instead, Fama suggests capital markets take the semi-strong form wherein market prices equal the fundamental value reflecting all publicly available information. In this case, the capital markets start reacting immediately after new information becomes publicly available. Examining the semi-strong form primarily concerns the speed in which prices are adjusting to new publicly available information (Fama, 1970).

The theory of efficient markets has been challenged by other researchers providing evidence that capital markets are not always efficient. Schiller (2003) has contributed to the literature of behavioural finance arguing that market prices differ from fundamental value due to common biases and human mistakes. The relation between the fundamental and market values can be somewhat weak or disconnected, exemplified in situations of speculative bubbles within the market. The American economist Paul Samuelson argued that while the aggregate market might be wildly inefficient, some individual stock prices correspond to the efficient market theory (Samuelson, 1965a). This phenomenon is phrased as *micro efficient but macro inefficient*. On the other hand, Schiller (2003) claims, that no supporting evidence has been presented to the assertion of specific stock movements being less irrational than aggregate market movements. Despite of pervasive irrationality, Schiller (2003) concludes that one should not expect immediate profits to be available on continuous basis implying the market as an intermediate between efficiency and inefficiency. Including aspects of both EMH and behavioural finance theories, Pedersen (2015) argues that capital markets can only be efficient to the extent, where costs of additional information analysis equal the value obtained. At this point, the capital markets are efficiently inefficient.

Overall, the consensus of market practitioners leans toward an intermediate between strong and weak form. However, determining the specific level of market efficiency is an impossible task. This implies that capital markets react when new information becomes publicly available enabling an examination of price reactions in connection to corporate divestment announcements, both in matter of magnitude and time.

3.2. Shareholder value

This thesis investigates value creation, why it is essential to determine what value is and how value creation is measured. In this sense, we will only be focusing on quantitative value measures, as the primary methodology is based on statistical tests. In addition, value creation is to be understood from a shareholder perspective. Quantitative measures of shareholder value can overall be categorized into two main groups: 1) market measures and 2) accounting measures. Theoretically, an analyst would be indifferent in which value measure to use in perfect capital markets. The stock price and financial performance would articulate, and so the valuation of a firm would be equal across all valuation models (Petersen, et al., 2017). As discussed in **Section 3.1**, this is not always the case in practice. Therefore, the market and accounting measures of shareholder value creation are discussed below.

In terms of market measures, the ultimate measure is *Total Shareholder Return (TSR)*. TSR comprises both capital gains and dividends of a firm's stock. Hence, it is a complete measure of changes

in shareholder wealth (Burgman & Van Clieaf, 2012). TSR is perceived as an objective performance measure since it is based on observable market values making it difficult for the management to manipulate. Simultaneously, TSR is an objective measure for analysts to use requiring no assumptions or other actions. As opposed to accounting measures, TSR includes expectations about future performance (Merchant, 2006). Therefore, TSR is a useful performance measure to estimate the value of a corporate divestment announcement. However, the presence of inefficient markets might have an impact on the use of TSR as a measure of shareholder value creation. Market imperfections impose the risk that changes in stock prices are not congruent with changes in the underlying true fundamental value of the firm (Merchant, 2006). Thereby, improvements in business processes and financial performance might not be reflected in the share price development. Simultaneously, stock prices might fluctuate despite no changes in the fundamental value. As discussed in **Section 3.1**, extant literature demonstrates that irrational investors tend to react on non-fundamental factors due to common cognitive biases, such as conservatism, representative heuristic, and overconfidence (Tversky & Kahneman, 1974). Thereby, stock price movements to corporate events might sometimes appear hysterical and excessive (Qian, 2006). This complicates the use of TSR when analysing and interpreting value creation related to divestment announcement, as this might not reveal the true value creation.

Accounting measures can be presented in either nominal terms, e.g., EBITDA and Net Income, or ratios, e.g., ROE and ROA. The advantage of accounting measures is that they are often simple and easily calculated. However, accounting measures are highly dependent on accounting principles, and can be subject to manipulation by management due to accounting flexibility. According to Stewart (1991), *Economic Value Added (EVA)* is the most optimal measure for shareholder value creation accounting for all complex trade-offs tangled in value creation. The assumption of EVA is that shareholder value is created when a firm's profit exceeds cost of capital. Merchant (2006) points to EVA as the superior shareholder value measure whereas the vast majority of other regular accounting measures are insufficient in different ways. The disadvantages of EVA are the comprehensive calculations and the rather subjective items, such as shareholder return requirements. Other researchers have questioned the superiority of EVA. In an empirical study of one thousand firms, Biddle, et al. (1997) provide no evidence that EVA significantly outperform *Earnings Before Special Items (EBEI)*. Instead, the researchers propose EBEI as a better and more applicable performance measure in many circumstances. Therefore, the more straight-forward accounting measures based on figures from the income statement and balance sheet are often applied as approximation for value creation in practice.

In this thesis, both market and accounting measures are applied to obtain different perspectives on value creation associated with divestitures. The practical advantage of market measures is, that there is access to stock price data at various time frames, i.e., daily stock prices. This is beneficial for

our analysis of both short- and long-term value creation. Accounting measures of publicly listed firms are publicly available, but typically only as quarterly, half yearly or annually numbers, thus these types of accounting measures are mainly suited for long-term analyses.

4. Literature review

This chapter provides an overview of previous academic literature on corporate divestments, particularly focusing on spin-offs and sell-offs. As previously described, corporate divestment has received less academic and practical attention compared to other fields of corporate restructuring. Therefore, the first section provides a short overview of the development within corporate divestment. Subsequently, selected motives for initiating corporate divestments are presented, and lastly, an overview of previous empirical findings is provided. The existing literature is primarily based on divestments of US firms with limited studies completed on European samples. Most of the research for the literature review is conducted using the database of CBS library to determine relevant peer-reviewed articles. In addition, the reference list of recognised and widely accepted academic articles are used to identify other relevant empirical findings. The literature review will form the basis of the formulated hypotheses presented in **Section 5**.

4.1. The evolution of corporate divestment

During the 1950s and 1960s, an increasing number of corporations executed widespread diversification strategies resulting in a wave of M&A's (Berger & Ofek, 1995). The merger wave and the accompanied increase in huge conglomerate firms spiked in the late 1960s. Particularly in the US, the conglomerate corporate strategy was widely implemented resulting in a wave of conglomerates, called the *conglomerate fad*. Large corporations were seeking growth through diversification by acquiring related and unrelated businesses. The conglomerate fad was substituted by a wave of divestments in the 1980s. Many diversified corporations were divesting non-core business units to focus on core businesses (Berger & Ofek, 1995). Often, diversified corporations tried to reverse unsuccessful acquisition strategies by selling off business units acquired a few years before. In a study of 33 large U.S. firms in the period 1950-1986, Porter (1987) identified that most of the firms had divested more acquired businesses than they had retained.

The high number of firms divesting previously acquired business units led to the misconception that a corporate divestiture was essentially an admission of a previous poor investment decision. Executives had an incentive to avoid divesting as this could adversely affect perceptions of an executive's ability to make appropriate investment decisions (Boot, 1992). In addition, divestments were perceived as an instrument to compensate for previous value destroying acquisition strategies more than a strategic tool to increase shareholder value (Markides & Singh, 1997). This view has been described as *the stigma of corporate divestment* reflecting the widespread perception of divestitures as a signal of weakness and failure compared to acquisitions signalling strong, growth-focused executives (Dranikoff, et al., 2002). Thereby, the context in which the first research was developed implied a negative view on corporate divestment. The misconception of divestments resulted in at least

three challenges for researchers and practitioners to fully understand the value of divestments (Brauer, 2006).

First, divesting a previously acquired business unit does not necessarily mean that the acquisition was a failure. An acquired business might consist of several minor units not all fitting into the organization. These units are not integrated in the post-acquisition process and subsequently sold short after the acquisition (Brauer, 2006). Second, a divestment of a previously acquired business unit could simply be the result of a new strategic plan to exploit new market opportunities, which were not available before the acquisition. Third, some of the first researchers erroneously conceptualized divestments as *the mirror-image of mergers of acquisitions,* which was the case in Boudreaux (1975). The misconception was a consequence of a widespread simplifying assumption that the divestiture of a subsidiary becomes the acquisition of another firm (Brauer, 2006). As described in **Section 2**, this assumption disregards several types of divestments, such as spin-offs, which do not include external buyers.

The described misconceptions might be one of the reasons why corporate divestments have received less academic attention from researchers compared to other types of corporate restructuring, i.e., M&A (Lee & Madhavan, 2010). However, corporate divestments have been identified as an important element in the *third industrial revolution,* defined by Jensen (1993). Divesting has showed to be an important strategic tool for firms independent of scope, size, age, and industry background (Brauer, 2006). In the next section, the primary motives of corporate divestments will be elaborated.

4.2. Motives for conducting spin-off and sell-off

In perfect capital markets, the value of a firm's securities is equal to the market value of the discounted future cash flows generated by its assets, independent of capital structure (Modigliani and Miller, 1958). Based on the theorem presented by Modigliani and Miller, a corporate divestment transaction itself does not create shareholder value. Given the assumption of perfect capital markets, the price of a divested subsidiary equals the present value of all future expected cash flows. Whether a subsidiary is divested in a non-cash spin-off or through a sell-off involving cash, the divestment transaction itself has no effect on the expected future cash flow. However, the underlying assumption of perfect capital markets has shown to be rather problematic in the real world. The existence of taxes, bankruptcy costs, agency costs, and asymmetric information resulting in market imperfections imply that corporate divestments might affect total firm value.

The existing academic literature has identified a wide range of potential motives for conducting spin-off and sell-offs including both internal and external motives. Although suitable for direct comparison in the sense that both spin-offs and sell-offs allow for fully transfer of ownership and control, the two

divestiture forms differentiate on specific parameters (Prezas & Simonyan, 2015). As a result, many of the same motives can be applied with different underlying rationales. Based on a comprehensive review, we have focused on the most referred motives for voluntary divestments.[3]

4.2.1. Corporate refocusing

Corporate refocusing is the most cited motive for firms divesting a business unit (Kaplan & Weisbach, 1992). Increasing focus on the core business is a common corporate strategy among large firms coping with performance declines (Kose, et al., 1992). Refocusing is close related to the trend of firms shifting focus from diversification towards specialization resulting in increasing number of firms revaluating their corporate strategy and disposing unrelated business units interfering with the parent's core operations. According to Berger and Ofek (1995), diversification has both value enhancing and value reducing effects.

Several scholars have investigated the benefits of diversification. Historically, the basic synthesis of diversification within classic strategic, financial, and organizational theory has been that conglomerates can operate related and unrelated business units more efficiently than those business units could independently (Lang & Stulz, 1994). The primary benefits of diversification can be summarized to 1) *operational synergies*, 2) *internal capital allocation,* and 3) *capital structure advantages*.

First, diversified firms can benefit from synergies of combining related and unrelated business units. Synergies emerge through complementary activities or the carry-over of managerial capabilities between different businesses within the firm (Weston, 1970). By coordinating activities of specialized entities, the central management of a diversified firm can increase the efficiency of the total firm compared to single-line businesses. Ultimately, the result of combining activities should be that 2 + 2 = more than 4 (Weston, 1970). Diversification benefits also arise when firms can exploit customer loyalty, brand awareness or other excess firm-specific assets on new markets (Markides, 1992). In addition, diversified firms might experience enhanced market power by utilizing opportunities of cross subsidization across different industries involving predatory pricing behaviour and increased reciprocity[4] (Weston, 1970).

Second, diversified firms benefit from larger internal capital markets, as resources can be allocated internally between different business units. In perfectly efficient markets, a firm has unlimited access to capital raised at the firm's cost of capital. However, firms might experience difficulties in funding new investment projects as capital markets may not always be efficient. According to Weston (1970), internal capital allocation is sometimes more efficient than utilizing external capital mar-

[3] Other motives for corporate divestments not included in this thesis might be considerations regarding regulation, corporate/shareholder governance, take-over defenses or tax optimizations.
[4] Purchase agreements which are agreed upon signing related sales agreements to other parties.

kets. Diversified firms can utilize their larger internal capital market to deploy capital to those segments or projects earning the highest returns (Berger & Ofek, 1995). Thereby, diversified firms are less dependent on external funding when initiating new investment projects reducing the problems of underinvestment. The benefit of internal capital markets can also be related to the *Pecking Order Theory* presented by Myers and Majluf (1984). Since managers have an incentive to issue equity when the firm's stock price is overvalued, investors and market participants tend to react negatively upon issue of new equity resulting in increased transaction costs. Therefore, internal capital from retained earnings is preferred rather than *Seasoned Equity Offerings*.[5]
Third, firms engaged in diversification reduce risk as earnings and cash flows from unrelated business units are often imperfectly correlated (Berger & Ofek, 1995). The advantage of operating in multiple industries or segments is that a reduction in earnings capacity in one part of the firm can be counterbalanced by improvements in other business units. Combining imperfectly correlated earnings streams creates coinsurance decreasing idiosyncratic risk and ultimately the total risk of the firm. Lower idiosyncratic risk provides greater access to debt. Thus, the debt capacity of diversified firms is larger compared to single-line businesses of the same size (Lewellen, 1971). In relation to the *trade-off theory* of optimal capital structure, increased debt capacity is value creating due utilization of tax-shields reducing weighted cost of capital. In addition, diversified firm can use negative earnings in one business unit to deduct the tax payment of positive earnings in other business units. In this way, diversified firms have higher debt and lower tax expenses than their separate business units would have (Majd & Myers, 1987).

However, the benefits of diversification are not infinite and a limit to optimal firm size and the degree of diversification exists. According to Markides (1992), the marginal benefits of diversification decrease as a firm becomes more diversified from their core business. At a certain point, the costs of additional diversification exceed the value of the benefits. Firms exceeding the optimal point of diversification will experience corporate inefficiencies. The boundary of firm diversification can be viewed as the point where the cost of allocating resources internally higher than completing the same allocation using external capital markets or organizing the business units as independent entities (Coase, 1937). Improvements of the capital markets and lower transaction costs have enhanced possibilities to raise capital in the market reducing the comparative advantage of large conglomerates utilising intra-organisational capital allocation (Haynes, et al., 2003).

Other researchers have questioned the efficiency of internal capital markets. The *Agency Cost Theory* presented by Jensen (1986) implies that managers with unused debt capacity and large free cash flows are more likely undertake negative NPV projects destroying value. The risk of manage-

[5] Seasoned Equity Offering is the issue of new shares by an already listed firm to raise capital (Berk & DeMarzo, 2020).

ment investing free cash flows on organizational inefficiencies or below cost of capital are significantly higher for diversified firms compared to focused single-line businesses (Jensen, 1986). In in continuation hereof, diversification strategies might also be the result of self-serving motives such as management empire building (Amnihud & Lev, 1981) or top management featherbedding (Myers, 1983) rather than maximizing shareholder value. Stulz (1990) argues that the result of cross-subsidization is overinvesting in unprofitable business units with poor future growth opportunities. Thereby, unprofitable business units tend to destroy more value for shareholders in diversified firms than the business units would as standalone firms (Meyer, et al., 1993). Rather than cross-subsidizing unprofitable business units, Weston (1970) argue for disposing those units improving the overall performance.

Many of the theoretical identified operational benefits of diversification are often more constrained in practice. Economies of scope has proved to be more difficult to realize particularly for unrelated diversification where managers are often trying to apply their existing logic to newly acquired units with different characteristics (Markides, 1992). The exploitation of advanced market power is often constrained by competitive authorities or changing entry barriers increasing risk of new entrants. Other costs of diversification relate to the internal complexities resulting in inefficient corporate governance and suboptimal behaviour of management in business units. The size of diversified firms often involves diseconomies of scale due to costs of coordination and executives' information-processing limits (Hoskisson & Turk, 1990).

Capital markets have increasingly adopted a more critical view on large, diversified corporations resulting in a conglomerate discount (Berger & Ofek, 1995). Thus, corporate refocusing can be perceived as divestment decisions taken by the management to balance the positive and negative effects of diversification. For over-diversified firms, sell-offs and spin-offs are strategic tools to reduce diversity of the total business portfolio. Implementing corporate refocusing strategies by spinning or selling off business units improve inadequate governance structure, reduce reliance on corporate control, and improve financial resource allocation (Hoskisson & Turk, 1990). The refocusing motive has been demonstrated by Steiner (1997), indicating higher probability of divestitures as the number of business segments increases. However, the motivation of management to divest business units and reduce size of the parent firm depends on alignment of managerial incentives. Managers focusing on empire building with remuneration based on performance measures affected by firm size have less incentive to divest a subsidiary.

4.2.2. Corporate efficiency

In close relation to the refocusing motive above, increasing operational efficiency is another motive for conducting divestments. This motive is also referred to as the *efficient deployment hypothe-*

sis (Lang, et al., 1995). Existing literature has demonstrated that firms undertake voluntary divestments when suffering from underperformance through inadequate profitability or poor discretionary cash flows (Khan & Mehta, 1996). Management acting on behalf of shareholders with the objective of maximising value creation complete divestments if the efficiency of operating as a combined firm is lower than operating as separate entities, or if other firms can operate specific assets more efficiently. To some degree, the efficiency motive differentiates between sell-offs and spin-offs.

Sell-offs can be used to divest underperforming business units, where proceeds of the sale can be employed more efficiently in other parts of the firm. In other words, the sale should eliminate potential *dissynergies* improving financial performance (Hite, et al., 1987). Value maximising executives will sell off assets as soon as another firm can manage them more efficiently (Lang, et al., 1995). However, the sale only creates value if the sales price is higher than the value of retaining the business unit. The decision to voluntarily sell off a business unit is based on a comparison of the after-tax equity value (EV) of the business unit and the after-tax sale value (SV). If SV is higher than EV, the parent firm is better off divesting the business unit (Depamphilis, 2013). Hence, a firm should divest when a business unit is more valuable to another company resulting in a sales price that is higher than the value of retaining it. A business unit might be more valuable to other firms due to potential synergies or comparative advantages in turning around the business unit (Hite, et al., 1987). The decision to sell can also be initiated by a potential buyer's willingness to overpay resulting in a price higher than the value generated if the business unit is retained.[6] Whether sell-offs actually increase firm efficiency depends on how the management use the proceeds generated from the sale. Sell-offs rarely result in an immediate reduction in a firm's total assets. The divested assets are converted to cash or cash equivalents. Therefore, a firm's reinvestment policies and the management's discretion have an important role in realizing efficiency improvements (Bates, 2005).

Spin-offs increase efficiency if the *dissynergies* of operating as a combined firm are higher than the synergies. The costs of *decision management* and *decision control* increases with firm complexity. Schipper and Smith (1983) argue that spin-offs increase efficiency of the parent firm as reduced firm size and complexity optimize allocation of resources including management's time and improve decision initiation, implementation, and control. By spinning off an underperforming subsidiary, the parent firm is not committed to cross-subsidize. Thereby, additional funds can be invested in more efficient and profitable projects (Desai & Jain, 1999). In addition, spin-offs can be used by management of parent firms to enhance reported accounting performance by separating underperforming subsidiaries. This might create managerial incentives if performance-based compensation plans include nominal accounting-based measures.

[6] Overpayments might be achieved as a result of the *Winners Curse* phenomena emerging in sales processes, where several potential buyers are played off against each other (Capen, et al., 1971).

Schipper and Smith (1983) argue that spin-offs increase efficiency in subsidiaries due to improved incentives alignment and simplified monitoring of management performance. Agency costs include costs of designing, monitoring, and bonding contracts of self-interest agents (Jensen & Meckling, 1976). As managers are maximising their own utility, performance monitoring and alignment of incentives between subsidiary managers and shareholders is necessary. However, performance of individual subsidiaries might not be fully reflected in the combined firm's stock price development. Therefore, performance-based compensation of divisional managers is sometimes based on arbitrarily determined accounting measures involving high degree of subjectivity and negotiation of measures, standards, and benchmarks (Merchant, 2006). Spin-offs enable incentive contracts in which the compensation programs in the divested subsidiary are tied directly to stock market performance ensuring better alignment of value creating performance and compensation. Stock-based performance evaluation create less room for slack and increased pressure to perform resulting in increased operational efficiency (Jensen & Ruback, 1983). The improved ability for shareholders to monitor performance of subsidiary managers reduce total agency costs.

4.2.3. Corporate transparency

Increasing corporate transparency by reducing negative effects of asymmetrical information between insiders and outsiders is another frequently used motive of divestments (Nanda & Narayanan, 1999). The motive is particularly relevant for spin-offs since they only involve restructuring in direct ownership.

The rationale of divestments motivated by increasing corporate transparency is to unlock already existing value, which the market does not recognize. The *Theory of The Firm* prescribed by Jensen and Meckling (1976) involves the agency relationship between the management (agent) acting on behalf of the shareholders (principals). Information asymmetry arises when management has superior information about firm performance and expected future cash flows compared to information available to shareholders and capital markets. The information-based explanation model provided by Habib, Johnsen, and Naik (1997) prescribes that the lack of total firm value can be explained by asymmetric information between informed management and uninformed investors. The level of information asymmetry tends to increase with firm complexity. Therefore, asymmetrical information is closely related to the conglomerate discount of diversified firms operating in multiple industries. Investors in diversified firms have access to cash flows of the total firm but unobservability of divisional cash flows make investors unable to determine the true value of each divisions. Investors and capital markets risk overvaluing poor performing divisions while undervaluing successful divisions. The result is often that the total firm is undervalued in capital markets. The problem of information asymmetry in diversified firms is described by Zuckerman (2000), arguing that diversified firms straddle industry categories making it difficult for industry specialized security analysts and in-

vestors to compare like assets. In association with the refocusing trend, this explains the increased interest of *pure plays* businesses within the capital markets (Brauer & Schimmer, 2010). Miller (1977) argues that firms representing *pure plays* on businesses or industries should be higher valued than firms active in multiple industries. In addition, Sudarsanam and Qian (2007) find that excessive demands for specific *pure play* business models cause temporary abnormal returns.

Corporate divestments can be used to enhance total firm market value by increasing corporate transparency. The transparency motive is closely related to the refocusing motive described above. Particularly, divestment of unrelated business units will decrease complexity of the firm reducing investors' uncertainty about asset values. Divestitures can be used to accommodate increasing pressure from analysts to de-diversify, so that their stock is more easily understood (Zuckerman, 2000). In addition, firms separating activities in two independent entities may attract new investor clienteles increasing the stock's trading volume (Brauer & Schimmer, 2010). In this way, the management can increase attention from industry specialists improving capital market intermediation.

In existing literature, the effect of information asymmetry is primarily tested for spin-offs as they are particularly applicable to increase transparency.[7] Spin-offs transform a single firm into two or more separate listed entities which makes the security pricing more informative and effective. The new stand-alone firms are obligated to prepare independent audited periodic financial reports reducing investors' uncertainty about asset values (Brauer & Schimmer, 2010). The result is often more effective pricing and increased valuation levels. Thereby, the characteristics of spin-offs make them relevant for executives whose primary motive to divest is to unlock value and reduce potential conglomerate discount.

A sell-off can also be driven by a motive to reduce information asymmetry. In relation to the refocusing motive, sell-offs can reduce firm complexity, increasing transparency of a firm's cash flows. In addition, sell-offs can be used to unlock already existing value which the market does not perceive. In a sell-off transaction, the price of the divested subsidiary is negotiated between seller and acquirer. Generally, potential buyers are signing a *Non-Disclosure Agreement (NDA)* as part of the sales process to get access to more comprehensive financially prospects of the subsidiary than the information credibly transmitted to capital markets. Thereby, the seller may be able to negotiate a better price than was valued and expected by capital markets. Theoretically, this would increase the value of the parent firm.

[7] Krishnaswami & Subramaniam (1999) finds that firms that engage in spin-offs have higher levels of information asymmetry about their value than their industry- and size-matched counterparts.

Some of the unlocked value in a sell-off may be captured by the buyer instead of the current shareholders. According to Cusatis, et al. (1993), the motive of reducing information asymmetry favour spin-off over sell-off since the current shareholders are receiving the total increased value from the reduced information asymmetry. In addition, reductions in asymmetrical information through sell-offs are dependent on whether the proceeds from the transaction are retained to pursue new investments in new business areas or paid out as dividends to shareholders.

The information asymmetry motive can be related to signalling theory where the management's actions are interpreted by investors causing a transfer of indirect information from insiders to outsiders. Specifically, the divergent characteristics of spin-offs and sell-offs provide different signals about the valuation of the firm. Rational managers acting on behalf of shareholders with the objective of maximising shareholder value have incentives to spin off undervalued assets and sell off overvalued assets (Myers & Majluf, 1984).[8] Therefore, investors may perceive a sell-off as a signal from management that the firm's stocks are overvalued. Theoretically, investors should therefore react differently due to signalling differences. On a US sample, Prezas and Simonyan (2015) find that the positive effect of selling off underperforming assets is likely to dominate the negative effect of overvaluation signals.

4.2.4. Relative size

Corporate divestments can be motivated by the relative size of the divested unit. A subsidiary can become too big to operate as a subsidiary of another firm. Particularly, in situations where the subsidiary has grown to become market leader in their own industry possessing competitive advantages which makes their products relevant for competitors of the parent. In this situation, competitors might be doubtful sourcing products or services from the subsidiary due to concerns about conflicts of interests with the parent's business. In such situation, the management can unlock untapped potential of both parent and subsidiary by divesting the business unit and maximizing total shareholder value (Dranikoff, et al., 2002).
The relative size motive is also related to efficiency improvements, as the larger the size of the subsidiary, the larger reduction in organizational complexity. The relative size impacts the value of refocusing corporate strategy as well as the value of reducing information asymmetry.

In addition to relative size, Nixon, et al. (2000) argues that the absolute size might be a factor in the decision regarding the optimal type of divestment. Empirical evidence indicates that spin-offs are more likely the larger the divested unit is. The researchers are reasoning that a minimum size is

[8] In practice, the incentive often depends on how long-term performance executive compensation programs are constructed (Tehranian, et al., 1987) or the size of parent managers' equity stakes (Hirschey, et al., 1990).

needed for the newly independent unit to survive providing evidence that the likelihood of survival success is associated with the absolute size.

4.2.5. Corporate financial status

Financing and capital structure considerations are likewise relevant in the decision of divesting a business unit. Firms engaged in sell-offs receives compensation for divesting, often including a substantial cash component. This characteristic implies a financing motive for management to complete sell-offs. According to Lang, et al. (1995), the typical firm is selling assets due to the firm's financial situation rather than optimizing the efficiency in operating the assets. Since spin-offs do not generate immediate cash proceeds, the financing motive seems irrelevant on short-term. However, spin-off transactions might still be a result of capital structure considerations due to redeployment of assets between the separated firms. Therefore, the characteristics of sell-offs and spin-offs provides different motives in regards to financing and capital structure.

The existing literature provides several explanations to why management might choose to raise new capital through sell-offs. Lang, et al. (1995) argue that firms sell assets when doing so provide the cheapest source of financing. Management may have to raise capital and generate liquidity to reduce financial distress costs, to pay dividends to shareholders, to fund new acquisitions, or to undertake investments valued by management (Lang, et al., 1995). Selling off assets might be an efficient source of financing, particularly for firms not able to take out additional low-risk debt due to high leverage and low performance. Firms with high leverage and large debt overhang experience high recapitalization costs when raising capital (Berk & DeMarzo, 2020). In such situation, raising financing might be costly. According to the costs of *adverse selection* and the *Lemons Principle*, capital markets discount the price they are willing to pay for equity offerings, which increases the cost of raising external finance (Myers & Majluf, 1984). In addition, external sources of finance might involve restrictions on the use of the capital raised (Lang, et al., 1995).
The success of selling off assets to obtain cheaper financing depends on the liquidity of the selling firm and the sales process orchestrated. Hearth and Zaima (1984) find that value creation of sell-offs depend on the relative negotiation position of the seller, ultimately affected by its financial status. Sellers of weaker financial status immediately in need of cash are less able to *shop around* obtaining the best price (Hearth & Zaima, 1984). This is consistent with Shleifer and Vishny (1992) documenting that quick asset sales require large liquidity discounts leading to prices below value in best use. Thereby, the value creation in sell-offs is expected to be affected by the financial status of the seller.

A spin-off might also be motivated by capital structure considerations, though the transaction does not generate any cash proceeds. The redeployment of assets between the parent and subsidiary in

a spin-off transaction might lead to a redistribution of wealth between the different security classes. The two primary reasons are possible reductions in debt collateral and higher asset risk (Veld & Veld-Merkoulova, 2008). First, a spin-off implies a redistribution of assets from the parent to the subsidiary with the risk of bondholders experiencing a reduction in assets serving as collateral. In absence of covenants, the bondholders no longer hold claims on the assets in the subsidiary eroding the position of the bondholders, which causes a wealth transfer from bondholders to stockholders (Galai & Masulis, 1976). Secondly, spinning off a division with imperfectly correlated cash flows leads to higher volatility of the firm's assets. This increases the value of the shareholders at the expense of debtholders (Veld & Veld-Merkoulova, 2008).

Another motive for spin-offs is the objective of enhancing future financing opportunities. A spin-off can enhance corporate financing flexibility of both the parent and the subsidiary mitigating underinvestment problems identified by Myers and Majluf (1984). In close relation to the transparency motive, Krishnaswami and Subramaniam (1999) argue that firms tend to mitigate problems of information asymmetry through a spin-off before raising external funds on capital markets. Spin-offs reduce the costs of adverse selection making it less expensive to use the capital markets as source of funding in the future.

4.3. Results from previous empirical studies

Despite of the misconception about divestitures as the mirror-image of asset acquisitions, one of the first pioneering empirical findings of wealth effects in connection to corporate divestments was Boudreaux (1975). In a study of 138 voluntary and 31 involuntary divestitures, Boudreaux identified *"(...) an unusually positive price movement in a firm's common stock*" over a period of three months before to one month after the announcement. The sample did not distinguish between sells-offs and spin-offs, nor did it contain test in significance of the stock returns. Subsequently, empirical research has contributed to the knowledge of corporate divestments effects on shareholder wealth. Even though it is relevant for executives to understand how different divestment types affect shareholder value, most of the existing empirical research has investigated sell-offs and spin-offs in isolated settings. Only a few empirical studies include both sell-offs and spin-offs. This section provides an overview of shareholder wealth effects identified in the existing literature.

4.3.1. Short-term stock return

Announcement of divestitures comprise significant new information to the financial markets (Hearth & Zaima, 1984). As discussed in **Section 3.1**, potential value creation should be observable in the daily stock returns around the announcement. If managers are assumed to act in the shareholders best interests, the announcement effect of a voluntary and appropriate divestment should not be negative (Hearth & Zaima, 1984, and Miles & Rosenfeld, 1983).

Sell-offs

One of the first peer-reviewed articles to examine the effect of a firm's voluntary sell-off announcement on shareholder wealth was Alexander, et al. (1984) analysing a sample of 53 US sell-offs from 1964-1973. The researchers used the *Mean Adjusted Returns* model and found a *Cumulative Average Abnormal Return (CAAR)* of 0.17% in the announcement period, which was not statistically significant. However, by using the *Market Adjusted Returns* model on the same data sample, the researchers found an abnormal return of 0.40% statically significant at the 10% significance level.

In the same year, a study was published by Hearth and Zaima (1984) investigating a sample of 58 sell-offs from 1979-1981. By using the *Market Model* for each firm, the researchers demonstrated a *CAAR* of 3.6% in a ten-day period surrounding the sell-off announcement. In addition, the researchers provided evidence that the financial position of the seller and the size of the divestiture positively affected the abnormal returns.

In the following years, several studies on the wealth effects from corporate sell-off announcements have been published primarily focusing on US data samples. Hite, et al. (1987) present their findings as evidence for asset sales to be associated with the movement of resources to higher valued uses rather than market mispricing before the divestiture announcements. Contrary, Lang, et al. (1995) find that stock-price reactions to sell-offs are strongly related to the use of the proceeds whereas John and Ofek (1995) find greater stock returns for focus-increasing divestitures. **Table 3** summarizes empirical findings of the existence literature indicating a statistically significant CAAR between 0.4% and 1.66% on the parent firm in the period the around sell-off announcement.

Table 3: Overview of previous studies on wealth effects of corporate sell-off announcements

Overview of previous studies on wealth effects of corporate sell-off announcements							
Authors	**Year**	**Region**	**Sample period**	**Sample**	**Estimation period**	**Event window**	**CAAR %**
Alexander, Benson, & Kampmeyer	1984	USA	1964-1973	53	[-150, -31]	[-1, 0]	0.40*
Hearth & Zaima	1984	USA	1979-1981	58	[-200, - 101]	[-5, 5]	3.55***
Jain	1985	USA	1976-1978	1062	[-480, 361]	-1	0.40***
Klein	1986	USA	1970-1979	215	[-100, -51]	[-2, 0]	1.12***
Hite, Owers, & Rogers	1987	USA	1963-1981	55	[-400, -201]	[-1,0]	1.66***
Hirschey, Slovin, & Zaima	1990	USA	1975-1982	75	[-240, -121]	[-1, 0]	1.47***
Sicherman & Pettway	1992	USA	1980-1987	278	[-280, -31]	[-1, 0]	0.92***
Afshar, Taffler, & Sudarsanam	1992	UK	1985-1986	178	[-180, -41]	[-1, 0]	0.85***
John & Ofek	1995	USA	1986-1988	258	[260, -6]	[-2, 0]	1.50***
Lang, Poulsen, & Stulz	1995	USA	1984-1989	93	[-250, -50]	[-1, 0]	1.41***
Kaiser & Stouraitis	1995	UK	1984-1987	76	n.a.	[-1, 0]	1.33***
Lasfer, Sudarsanam, & Taffler	1996	UK	1985-1986	142	[-200, -11]	[-1, 0]	0.82***
Hanson & Song	2000	USA	1981-1995	326	[-300, -60]	[-1, 1]	0.60**
Kaiser & Stouraitis	2001	UK	1984-1994	590	[-300, -61]	[-1, 0]	1.20***
Bates	2005	USA	1990-1998	372	[-250, -51]	[-1, 1]	1.20***

*The table shows abnormal cumulative annual return (ACAR) of spin-off announcements in existing literature. The level of significance is illustrated with asterisks; * for 10% significance, ** for 5% significance and *** for 1% significance.*

As evident from **Table 3**, the majority of the existing literature is based on US data samples while limited European studies have been completed. Afshar, et al. (1992) were some of the first to investigate the shareholder wealth effects of UK sell-off announcement demonstrating a CAAR of 0.85%.

Likewise, Kaiser and Stouraitis (1995) demonstrated a significant CAAR of 1.33% based on 76 UK sell-offs. Subsequently, Kaiser and Stouraitis performed the same analysis on sell-off samples from Sweden, Germany, and France, where only abnormal stock returns of sell-off announcements in Sweden proved to be statistically significant. The effects of sell-off announcement in Germany and France were positive but statistically insignificant.

Spin-offs

Several previous studies on announcement effects of spin-offs document significant positive CAARs. Using different samples of public spin-off announcements, previous peer-reviewed literature indicates an abnormal stock return between 1.32% and 5.4%. The first researchers to present empirical findings on abnormal stock returns were Miles and Rosenfeld (1983). Based on a sample of 55 voluntary spin-offs from 1963-1980, using The *Mean Adjusted Return Model*, the authors demonstrated a CAAR of 3.34% in a two-day event window around the announcement date. Using the same methodology, similar announcements effects were confirmed by Shipper and Smith (1983) and Hite and Owers (1983) on samples of 93 and 123 voluntary spin-off announcements from 1963-1981. Afterwards, several studies investigating different aspects of spin-off transactions in US have confirmed similar CAARs on samples from different time periods. Krishnaswami and Subramaniam (1999) find that pre-divestment level of information asymmetry and relative size of the divested subsidiary is positively correlated to abnormal returns, whereas Daley, et al. (1997) and Desai and Jain (1999) find higher abnormal returns for industry focus increasing spin-offs.

Table 4: Overview of previous studies on wealth effects of corporate spin-off announcements

Overview of previous studies on wealth effects of corporate spin-off announcements							
Authors	Year	Region	Sample period	Sample	Estimation period	Event window	ACAR %
Miles and Rosenfeld	1983	USA	1962-1980	55	[-240, -121]	[0, 1]	3.34***
Schipper and Smith	1983	USA	1963-1981	93	[-280, -161]	[-1, 0]	2.84***
Hite and Owers	1983	USA	1963-1981	123	[-200, -51]	[-1, 0]	3.30***
Linn and Rozeff	1985	USA	1963-1982	53	[-200, -91]	[-1, 0]	2.80***
Copeland, Lemgruber, and Mayer	1987	USA	1962-1982	188	n.a.	[-1, 0]	3.00***
Vijh	1994	USA	1964-1990	113	[-610, -360]	[-1, 0]	2.90***
Slovin, Sushka, and Ferraro	1995	USA	1980-1991	37	[-240, -121]	[0, 1]	1.32***
Allen et al.	1995	USA	1962-1991	94	[-160, -61]	[-1, 0]	2.15***
Seward and Walsch	1996	USA	1972-1987	78	[-200, -51]	[-1, 0]	2.60***
Johnson, Klein, and Thibodeaux	1996	USA	1975-1988	104	[-170, -20]	[-1, 0]	3.96***
Daley, Mehrotra, and Sivakumar	1997	USA	1975-1994	85	n.a.	[-1, 0]	3.40***
Krishnaswami and Subramaniam	1999	USA	1979-1993	118	[-200, -45]	[-1, 1]	3.28***
Desai and Jain	1999	USA	1975-1991	155	n.a.	[-1, 1]	3.84***
Maxwell & Rao	2003	USA	1974-1997	80	[-285, -31]	[0, 1]	3.59***
Kirchmaier	2003	Europe	1989-1999	48	400 days	[-1,1]	5.40***
Veld and Veld-Merkoulova	2004	Europe	1987-2000	156	[-220, -21]	[-1,1]	2.62***
Sudarsanam & Qian	2007	Europe	1987-2005	170	[-220, -21]	[-1,1]	4.82***
Veld and Veld-Merkoulova	2008	USA	1995-2002	91	[-220, -21]	[-1,1]	3.07***
Rüdisüli	2005	USA & Europe	1990-2003	772	[-246, -31]	[-1,1]	2.80***

*The table shows abnormal cumulative annual return (ACAR) of spin-off announcements in existing literature. The level of significance is illustrated with asterisks; * for 10% significance, ** for 5% significance and *** for 1% significance.*

The existing research of announcement effects related to spin-offs has primarily focused on US spin-off transactions. According to Kirchmaier (2003), the limited research on European spin-offs is

caused by the lower frequency of demergers in Europe compared to the US. However, the increasing number of US studies documenting positive returns may have affected the number of European spin-offs (Veld & Veld-Merkoulova, 2004). In the period from 1995 – 2000 more than 170 European spin-offs were completed compared to only 62 spin-offs from 1987-1994. The first studies of European spin-offs conducted by Kirchmaier (2003), Veld and Veld-Merkoulova (2004), and Sudarsanam and Qian (2007) showed similar results as US studies, indicating CAARs between 2.62% and 5.40% upon announcement. Veld and Veld-Merkoulova (2004) find significant larger returns for firms increasing their industrial focus, whereas Sudarsanam and Qian (2007) found corporate focus and glamour stocks to positively affect the announcement returns.

Spin-off versus sell-off

The first empirical evidence regarding the impact of both spin-offs and sell-offs on shareholder value was Rosenfeld (1984). Based on a sample of 35 spin-offs and 62 sell-offs from 1969-1981 and using the *Mean Adjusted Return Model*, Rosenfeld (1984) demonstrates CAARs of 5.56% for spin-offs and 2.33% for sell-offs in the [-1,0] event window. The difference in return of the two types of divestitures was found to be significant at a 1% level. Thereby, the research concluded that returns of spin-offs outperform sell-offs. The article acknowledges that a spin-off strategy is not necessarily superior in terms of shareholder value creation as a sell-off provide liquidity resources into the firm. However, the article found similar results when accounting for the financial strength of sell-off and spin-off parents at announcement, hence unchanged conclusion (Rosenfeld, 1984). In accordance, Mulherin and Boone (2000) demonstrated a CAAR in the [-1,1] event period on 4.51% for 106 US spin-offs and 2.60% for 139 US sell-offs. However, the study did not test whether the difference in returns of the two types of divestments was statistically significant. In a comprehensive study, Prezas and Simonyan (2015) investigate and compare the announcement effects of 3989 US sell-offs and 357 spin-offs announced from 1980-2011. The CAAR of spin-offs in the [0,1] event window was 3.73% compared to 1.12% for sell-offs. The difference between the two types of divestitures was significant at the 1% level demonstrating that spin-offs have significantly larger announcement effects than sell-offs.

4.3.2. Long-term stock return

The positive abnormal stock returns around announcement of both sell-offs and spin-offs described above indicate that investors expect divestitures to create value. Assuming semi-strong EMH, the total effects of investors' new expectations to firm value should be reflected in the share price of the parent shortly after the announcement. Therefore, announcement of divestments should not be associated with any long-term abnormal stock return. However, the capital markets are not always as rational and efficient as theoretically prescribed. Specifically, investors might not be able to estimate the total value of a divestment upon announcement due to common cognitive biases, such as con-

servatism, representative heuristic, and overconfidence (Qian, 2006). In addition, Porter (1997) argues that short-term stock market reactions are highly imperfect measures of the value created through changes in corporate strategy. In the section below, previous empirical findings on long-term stock returns will be presented.

Sell-offs

Unlike M&A, the long-run performance of sell-offs has been far less documented (Lee & Lin, 2008). As one of few studies on shareholder wealth effects, Bates (2005) investigates long-term stock returns of the parent firm. According to Bates, the effects of a sell-off are only partially incorporated into security prices around the sale announcement date since investors are often not fully aware of how the management intends to use the proceeds. Based on a sample of US sell-off transactions, Bates documents positive abnormal returns up to two years after the announcement among firms retaining the funds for future investment opportunities. Thereby, the results of Bates indicate that investors only partially incorporate the total benefits of divestments at announcement. Furthermore, the findings of Bates contradict theories of agency conflicts and free cash flow consumption since only firms retaining the proceeds following the sell-off yield returns significantly different form zero.

Lee and Lin (2008) argue that the initial market reaction to sell-off announcements may not fully reveal their long-run shareholder wealth implications due to an increased degree of information asymmetry during periods of corporate restructuring and increased uncertainty about firms' future performance. Based on a sample of 655 UK sell-offs, Lee and Lin (2008) observe significantly negative CAAR (benchmarked against the *Fama French Three-Factor Model*) over all the examined horizons, e.g. −7.1% over 12 months and −37.9% over 60 months. The results imply that UK sell-offs are systematically associated with reductions in shareholder wealth in the long-run. Thereby, the article contradicted the common perception of corporate sell-offs as value creating.

Spin-offs

Several peer-reviewed articles have demonstrated abnormal stock returns following a corporate spin-off with a few being statistically significant. Due to the characteristics of spin-offs, the existing shareholders benefit from stock returns in both the parent and the subsidiary. The total return is commonly estimated by constructing a proforma firm. The results of the most relevant studies are presented in **Table 5**.

Cusatis, et al. (1993) were some of the researchers to investigate the long-term effect on a sample of US spin-offs from 1965-1988 documenting abnormal returns of both the parent and the subsidiary in up to three years beyond the spinoff announcement date. Using the buy-and-hold and matching firm adjustment methodologies, Cusatis, et al. (1993) demonstrate a two-year abnormal return of

18.9% on the proforma combined firm, 26.7% on the parent firm and 25.0% on the spun-off firm. The abnormal returns were attributed to market underreactions of the enhanced probability for both parent and subsidiary to become M&A targets involving recipients of premiums.

Other articles including Desai and Jain (1999) and McConnell and Ovtchinnikov (2004) have confirmed long-term abnormal stock returns for US spin-offs. Particularly, abnormal returns of the subsidiary have showed to be rather robust across studies. However, later researchers have not been able to demonstrate the same statistically significance of abnormal returns on parent firms. According to McConnell and Ovtchinnikov (2004), differences in results are explained by unusually high returns for parent firms in specific periods such as the period (1964-1988) analysed by Cusatis, et al. (1993).

Table 5: Overview of previous studies on long-term stock return of corporate spin-offs

Overview of previous studies on long-term stock return of corporate spin-offs							
Authors	**Year**	**Region**	**Sample period**	**Sample**	**Event window (BHAR %)**		
					1 year	2 years	3 years
Combined Proforma firm							
Cusatis, Miles, and Woolridge	1993	USA	1965-1988	141	4.7	18.9**	13.9
Desai and Jain	1998	USA	1975-1991	155	7.7	12.7	19.8***
Kirchmaier	2003	Europe	1987-2000	34	-	4.2	-
Veld and Veld-Merkoulova	2004	Europe	1987-2000	45-61	-2.3	4.2	2
Sudarsanam and Qian	2007	Europe	1987-2005	129	-2.3	8.3	8.4
Parent firm							
Cusatis, Miles, and Woolridge	1993	USA	1965-1988	131	12.5**	26.7**	18.1
Desai and Jain	1998	USA	1975-1991	155	6.5	10.6	15.2
McConnell, Ozbilgin, & Wahal	2001	USA	1989-1995	80	13.5	19.2	5.1
Powers	2001	USA	1989-1998	187	2.5	-	-
Kirchmaier	2003	Europe	1987-2000	34	-	-5.9	-
McConnell & Ovtchinnikov	2004	USA	1987-2000	267	5.9	4.6	2.2
Veld and Veld-Merkoulova	2004	Europe	1987-2000	68-106	-0.65	6.5	-0.4
Rüdisüli	2005	World	1990-2003	258-435	7.7	17.3	15.9
Sudarsanam and Qian	2007	Europe	1987-2005	129	-3.9	6.2	7.1
Subsidiary							
Cusatis, Miles, and Woolridge	1993	USA	1965-1988	146	4.5	25.0**	33.6**
Desai and Jain	1998	USA	1975-1991	162	15.7***	36.2***	32.3***
McConnell, Ozbilgin, & Wahal	2001	USA	1989-1995	96	7.2	5.8	-20.9
Powers	2001	Europe	1989-1998	187	6.3	-	-
Kirchmaier	2003	Europe	1987-2000	41	-	17.3*	-
McConnell & Ovtchinnikov	2004	USA	1987-2000	311	10.6**	8.2	2.9**
Veld and VeldMerkoulova	2004	Europe	1987-2000	53-70	12.6	13.7	15.2
Rüdisüli	2005	World	1990-2003	229-336	18.9**	30.9***	55.8**
Sudarsanam and Qian	2007	Europe	1987-2005	142	7.2	17.5	23

*The table shows the buy-and-hold abnormal return (BHAR) in the period up to three yearsh following the announcement of spin-offs demonstrated in existing literature. The level of significance is illustrated with asterisks; * for 10% significance, ** for 5% significance and *** for 1% significance.*

Using the same methodologies, empirical research on European spin-off transactions has not been able to demonstrate the same positive long-term abnormal stock return, and the results are much more scattered. Kirchmaier (2003) demonstrates statistically significant abnormal two-year return of the subsidiary on 17.3%. The researcher found an insignificant negative two-year return of the parent on -5.9% indicating a negative economic impact on shareholder value. The results of Veld and Veld-

Merkoulova (2004) and Sudarsanam and Qian (2007) are comparable to the studies on US spin-off transactions demonstrating minor positively returns on the parent firm exceeded by higher abnormal returns on the subsidiary firm following the spin-off. Neither of the articles provide statistically significant results, but the results indicate a positive impact on shareholder value following a spin-off.

Sell-off versus spin-offs

Prezas and Simonyan (2015) is the only identified existing study on long-term stock returns analysing both sell-offs and spin-offs. The holding period returns of divesting firms are analysed relative to two benchmarks (the value-weighted CRSP index and the S&P 500 index). After the announcement, firms divesting through sell-offs realize larger one-year, two-year and three-year holding period returns compared to firms divesting through spin-offs. The differences in returns are statistically significant at either the 1% or the 5% level. The results indicate that firms divesting through sell-offs perform significantly better than firms divesting through spin-offs in the post divestiture period. Particularly, the realized returns of firms divesting through spin-offs are different from what has been demonstrated in other literature.

In a concluding remark, the validity of the empirical findings regarding long-term stock returns related to corporate divestments presented above have been questioned by proponents of the EMH.[9] Thus, analysis of long-term stock returns implies important methodological choices, which will be elaborated in **Section 6**.

4.3.3. Operating performance

Despite the reasonable number of articles providing empirical evidence on abnormal stock returns on short-term and partially on long-term, limited articles have investigated whether the share price reactions are supported by real operating gains.[10] However, basic Corporate Finance theory expects a firm's stock price and operating performance to correlate and converge, particularly on long-term. The characteristics of spin-offs allow for a direct comparison of the pre-spin-off firm and a proforma combined firm including both the retained and divested business unit. The same is not possible for firms engaged in sell-offs. Therefore, we have focused on results regarding the post divestment performance of parent firms. However, results regarding changes in performance of spin-off subsidiaries are also briefly commented.

One of the pioneering articles providing evidence on changes in operating performance following sell-offs is John and Ofek (1995), analysing a sample of 321 sell-offs from 1986-1988 using three

[9] Specifically, Fama (1998) and McConnell, et al. (2001) have criticized the study methodology and thus the results obtained by Cusatis, et al. (1993) were not adjusting for cross-correlation.
[10] The limited number of studies might be explained by the fact that changes in the way a firm does business is much more likely to materialize from a coordinated series of divestitures rather than from a single divestiture (Brauer, 2006; Berger and Ofek, 1999).

different accounting based profitability ratios. In general, the researchers determine that a sell-off leads to an improvement in the operating performance of the seller's remaining assets in each of the three years following the asset sale. However, the performance improvements identified are primarily concentrated in firms engaged in focus-increasing sell-offs. In addition, John and Ofek demonstrate changes in operating performance to be correlated to the seller's stock return at the divestiture announcement. Thereby, capital markets incorporate the expectations of increased future cash flows in firm value when the sell-off is announced supporting the EMH. In a more recent study of 74 sell-offs reported by UK firms in the period 1985-1991, Gadad and Thomas (2007) provide empirical evidence on improved abnormal operating performance in three years after an asset sale when controlling for industry performance and pre-sale performance of the firm. Similar results are documented by Hillier, et al. (2009) on a sample of 413 sell-offs announced by UK non-financial firms between 1993-2000. The authors identify a significant positive change in industry-adjusted ROA in the year following an asset sale. Furthermore, the changes are significantly positive in each of the three years for subsamples of firms in poor financial condition indicating poor operational performance and high financial leverage as divestment motives.

The primary articles providing evidence on changes in operating performance following spin-offs include Daley, et al. (1997) and Desai and Jain (1999) both examining samples of US transactions. Based on a sample of 85 spin-offs in the period 1975-1994, Daley, et al. document significant improvements in operating performance following cross-industry spin-offs whereas no significant changes are found for own-industry spin-offs. In the study, operating performance is measured by return on assets (ROA), and the researchers compare the ROA of the pre-spinoff firm with the ROA of the combined parent and subsidiary in the post-spinoff period. In addition, the results indicate that performance improvements are primarily driven by enhanced performance in parent firms consistent with the refocusing and efficiency motives for divestments. Desai and Jain (1999) investigate operating performance of firms analysing operating cash flow returns of 155 spin-offs divided on subsamples of 111 focus-increasing and 44 non-focus-increasing spin-offs. The article demonstrates a significant improvement in the operating performance for the focus-increasing parents and their corresponding subsidiaries exhibiting positive operating cash flow returns compared to matching firms. For the non-focus increasing sample, the performance of parent firms is similar to their matching firms while divested subsidiaries significantly underperform their matching firms. This result should be interpreted together with the identified correlation with non-focus-increasing spinoffs to be more likely to include the separation of underperforming subsidiaries. According to Desai and Jain (1999), the management in parent firms have incentives to spin off underperforming businesses if their incentive plans are based on accounting ratios.

The only study identified investigating changes in operating performance of both sell-offs and spin-offs is Prezas and Simonyan (2015), applying three different accounting measures including $\frac{EBITDA}{Total\ assets}$, $\frac{EBIT}{Total\ assets}$ and $\frac{EBITDA}{Sales}$. Based on a sample of US spin-offs and sell-offs, the article provides results indicating that firms divesting through sell-offs unequivocally improves post-divestiture operating performance whereas operating performance of firms divesting through spin-offs mostly deteriorates. On all three accounting-based measures applied, the researchers found that sell-offs are associated with significantly greater changes in post-divestiture operating performance compared to spin-offs.

The literature presented above is primarily focused on US or UK samples, whereas no studies on European samples have been found. This may be explained by historical dispersity in accounting standards between European countries challenging such comparison of firm performance. However, the increasing streamlining of accounting standards within the European area enhance comparability of operating performance.

5. Thesis hypotheses

The objective of this thesis is to determine if European firms divesting through either sell-offs and sell-offs create shareholder value, and what the primary motives are. To provide answers for this research question several hypotheses have been formulated based on the theoretical framework and the literature review. **Table 6** presents an overview of the hypotheses formulated in this thesis.

Table 6: Overview of thesis hypotheses

Thesis hypotheses	
Hypothesis	**Description**
	Short-term stock performance
H1	• Announcement of corporate divestments result in positive short-term abnormal stock returns
H1a	• Announcement of spin-offs result in higher short-term abnormal stock returns than announcement of sell-offs
H1b	• Industry focus increasing divestments are associated with higher short-term abnormal stock returns than non-focus increasing divestments
H1c	• Geographical focus increasing divestments are associated with higher short-term abnormal stock returns than non-focus increasing divestments
H1d	• Parent firms with high idiosyncratic volatility realize higher short-term abnormal stock return around announcement of divestments
H1e	• Parent firms with low Tobin's Q realize higher short-term abnormal stock return around announcement of divestments
H1f	• Relatively larger divestments are associated with higher short-term abnormal stock returns than relatively smaller divestments
H1g	• Parent firms with high Altman Z-score realize higher short-term abnormal stock return around announcement of divestments
	Long-term stock performance
H2	• Completion of divestments result in insignificant long-term stock return to existing shareholders in years the following the divestment
	Long-term operating
H3	• Completion of divestments improve the operating performance of parent firms
H3a	• Industry focus increasing divestments have larger positive impact on the operating performance of parent firms than non-focus increasing divestments

The existing empirical research has primarily focused on short-term announcement effects whereas evidence on long-term stock returns and changes in operating performance is less comprehensive and more equivocal. In addition, the review of existing literature revealed that most studies concern only one type of divestment in isolated settings. A limited number of peer-reviewed papers have analysed and tested the value creation of both sell-offs and spin-offs primarily on US samples.

This thesis differentiates from existing literature by analysing the shareholder value creation of both sell-offs and spin-offs in European firms on multiple performance measures to determine potential differences in value creation. Instead of relying only on short-term announcement effects (H1), we

also analyse long-term stock returns (H2) and changes in operating performance (H3). This provide a more comprehensive picture of the total value creation associated with corporate divestments and increase robustness of our findings.

The hypotheses presented in this section is defined for a total sample of corporate divestments including both corporate sell-offs and spin-offs. Due to the absence of studies comparing the performance of European firms divesting through spin-offs and sell-offs, the hypotheses will be tested on subsamples of sell-offs and spin-offs, respectively, to compare and evaluate potential differences.

5.1. Short-term stock performance

H1: *Announcement of corporate divestments result in positive short-term abnormal stock returns*
In perfectly efficient capital markets, the announcement of corporate divestments should not affect the market value of the parent firm unless the future cash flows of the firm are expected to increase as a result of the transaction, e.g., elimination of negative synergies from low performing or non-related business units. However, **H1** is consistent with previously described motives of completing divestitures. In existing empirical research, the announcement effect is broadly analysed with consensus of significant positive abnormal returns demonstrated on samples of transactions from both US and Europe before the turn of the millennium.

H1a*: Announcement of spin-offs result in higher short-term abnormal stock returns than announcement of sell-offs*
The review of previous empirical findings indicates higher abnormal returns on spin-off announcements compared to sell-off announcements. Sell-offs involve uncertainty about how management actually intend to use the proceeds generated. This uncertainty is not present in spin-off transactions reducing the risk of divestitures motivated by managerial invectives rather than shareholder value maximization. According to Powers (2001), incentives for managers of spin-off parents are likely to be closely aligned with maximizing shareholder value, since spin-offs reduce the size of parent's empire without generating additional cash for new investments (Powers, 2001). **H1a** is also consistent with the findings of Prezas and Simonyan (2015) demonstrating significantly higher abnormal stock returns around announcement for spin-offs compared to sell-offs.

Value drivers of short-term abnormal returns
The objective of the hypotheses described in this section is to test various underlying motives and factors impacting the value creation of corporate divestments. In this thesis, the most important factors have been selected, tested, and analysed.
Corporate refocusing

Corporate refocusing is often cited as the predominantly motive for corporate divestments. Refocusing increase flexibility and agility of the parent firm. In addition, corporate refocusing eliminates potential *dissynergies* of combining unrelated assets. In addition, firms representing *pure plays* on specific businesses and industries are often more highly valued (Miller, 1977). Therefore, parent firms announcing focus-increasing divestments are expected to realize larger short-term abnormal returns than firms announcing non-focus increasing divestments.

H1b*: Industry focus increasing divestments are associated with higher short-term abnormal stock returns than non-focus increasing divestments*

In previous empirical studies, the industry refocusing motive is often measured on the Standard Industry Classification (SIC) code. Focus increasing divestments are transactions where the parent and divested business unit have different SIC codes. In non-focus increasing divestments, the parent and divested business unit have the same SIC code. Several empirical studies demonstrate significantly higher short-term abnormal stock returns for cross-industry divestments including Shipper and Smith (1983), Daley, et al., (1997) and Desai and Jain (1999)[11] for US firms and Veld and Veld-Merkoulova (2004) and Kaiser and Stouraitis (2001) for European firms. The same results were found by Hite and Owers (1983) using official company transaction announcements instead of SIC codes to categorize focus increasing and non-focus increasing divestments.

In addition to industry refocusing, corporate divestments might be motivated by geographical refocusing. Activities in many different parts of the world increases organizational complexity resulting in higher monitoring and coordinating costs (Veld & Veld-Merkoulova, 2004). Management in highly geographical diversified firms risk spending too much time evaluating performance on relatively less important markets. In relation to *Agency Theory*, geographical diversification might be the result of risk reduction and management empire building rather than exploiting economies of scale to increase shareholder value. On the other hand, geographical refocusing might reduce economies of scale if products for different geographical markets were produced together. Thereby, geographical refocusing might cause relative disadvantages to competitors operating internationally.

H1c*: Geographical focus increasing divestments are associated with higher short-term abnormal stock returns than non-focus increasing divestments*

In their study, Veld and Veld-Merkoulova (2004) demonstrated that differences in return of geographical focusing and non-focusing divestments were statistically insignificant showing no explanatory power. The literature presents arguments for both negative and positive effects of geographical focus, which are mainly case-specific considerations. However, the variable is included in this thesis to provide more evidence on the effect of geographical refocusing.

Information asymmetry

[11] Desai & Jain (1999) obtain the same results using a Herfindahl index and the development in number of business segments to identify focus-increasing divestments.

Firms are increasingly facing a pressure from investors and security analysts to de-diversify to increase stock intelligibility since difficulties in valuing firms operating in different industrial sectors often lead to undervaluation (Zuckerman, 2000). According to the conglomerate discount demonstrated by Berger & Ofek (1995), diversified firms characterised by low transparency and high information asymmetry between management and investors are often undervalued in capital markets. If firms with information asymmetry are undervalued, then the wealth effects of announcing a divestment should be positively correlated to the level of information asymmetry. Thus, firms with high information asymmetry are expected to generate more value through divestitures than firms with low information asymmetry.

The level of information asymmetry is difficult to define and observe requiring proxy variables to approximate the specific level of information asymmetry for each firm. The literature does not conclude on any measure of information asymmetry as superior. Thus, a variety of measurements are suggested including forecast errors, standard deviation of forecast errors, idiosyncratic volatility, and Tobins's Q. We approximate the information asymmetry using idiosyncratic volatility and Tobins's Q as proxy variables as formulated in **H1d** and **H1e**.

H1d: *Parent firms with high idiosyncratic volatility realize higher short-term abnormal stock return around announcement of divestments*
H1d is consistent with the study of Krishnaswami and Subramaniam (1999) using residual volatility in daily stock returns as approximation of information asymmetry. The idiosyncratic volatility removes all systematic uncertainty capturing firm-specific uncertainty which firm insiders and the market do not have equal information about. In this thesis, the idiosyncratic volatility deviation of the sample firms is calculated as the residual in the *Market Model* adjusted daily stock returns in the year preceding the announcement of the corporate divestment. Firms with high idiosyncratic asymmetry are expected to have higher information asymmetry about future cash flows and firm value.

H1e*: Parent firms with low Tobin's Q realize higher short-term abnormal stock return around announcement of divestments*
Tobin's Q is used as an alternative measure of information asymmetry. Tobin's Q is calculated as the market value of a firm divided by the replacement value of the firm's assets. As the replacement costs of assets are difficult to estimate, the book value of total assets is used as proxy variable. Lang and Stulz (1994) have previously demonstrated a negative relation between firm diversification and Tobin's Q. Thus, market values of highly diversified firms with low transparency and high information asymmetry are often close to book value indicating undervaluation. Therefore, the firms with low Tobin's Q are expected to realize higher short-term abnormal return as these firms are under-

valued. However, a low Tobin's Q might be explained by firm-specific operational factors such as expected growth rates and earning margins below industry comparables or limited future investment opportunities.

Relative size

Previous literature has demonstrated the relative size of the divested business unit to affect the shareholder value effect at announcement. The smaller the relative size of the divestiture, the smaller the difference between the value of the seller before and after the transaction, and thus the smaller the market reaction to the divestment announcement (Hearth & Zaima, 1984). The relative size effect is also related to the conglomerate discount and the effects of increased transparency. Larger units increase transparency more resulting in larger value enhancements from reducing the conglomerate discount. In addition, corporate divestments make the parent more attractive for takeovers, hence the larger the assets divested, the more attractive (Chemmanur & Yan, 2004).

H1f*: Relatively larger divestments are associated with higher short-term abnormal stock returns than relatively smaller divestments*

H1f is consistent with existing literature including Hearth and Zaima (1984) and Klein (1986) on US sell-offs and Schipper and Smith (1983), Krishnaswami and Subramaniam (1999), and Veld and Veld-Merkoulova (2004) for US and European spin-offs.

Financial quality of seller

Corporate divestments can be implemented to restructure a firm and enhance financial stability. The characteristics of the two types of divestments analysed in this thesis differentiates in one particular manner, as a sell-off brings liquid resources into the firm while a spin-off does not. Therefore, the financial strength of the divesting firm before announcement might be relevant when analysing and comparing shareholder wealth creation of sell-offs and spin-offs. The announcement of corporate divestitures from low quality firms with poor financial strength is more likely to be accompanied by less positive corporate news (Rosenfeld, 1984). Thus, firms with higher financial stability are expected to realize higher abnormal short-term stock returns. In this thesis, Altman Z-score is used as a proxy variable for financial strength.

H1g: *Parent firms with high Altman Z-score realize higher short-term abnormal stock return around announcement of divestments*

H1g is consistent with Rosenfeld (1984) demonstrating significant higher abnormal stock returns of high-quality firms announcing spin-offs and sell-offs compared to medium and low-quality firms. Hearth and Zaima (1984) find that the stronger the financial position of the seller, the larger the positive excess stock return. In addition, Rosenfeld (1984) highlights that accounting for the parent firm's financial strength should yield more accurate comparison between sell-offs and spin-offs.

5.2. Long-term stock performance

H2*: Completion of divestments result in insignificant long-term stock return to existing shareholders in the years following the divestment*

H2 is consistent with the semi-strong EMH assuming efficient markets and fully rational investors, where all relevant information of the assets divested and potential changes in the expected future cash flows will be incorporated into the divesting firm's stock price on announcement. H2 is consistent with previous insignificant results provided by Veld and Veld-Merkoulova (2004) and Sudarsanam and Qian (2007) for European spin-offs and Lee and Lin (2008) for UK sell-offs. However, as questioned by several researchers and practitioners, many investors are only boundedly rational. Thereby, new available relevant information will be incorporated into the divesting firm's stock price over a longer period. Previous studies on corporate divestments have demonstrated these stock price adjustment effects including Cusatis, et al. (1993) and Desai and Jain (1999) for US spin-offs and Bates (2005) for US sell-offs. The existing literature on long-term stock return of corporate divestments is ambiguous demonstrating both significant and insignificant results increasing the relevance of this analysis.

5.3. Long-term operating performance

H3*: Completion of divestments improve the operating performance of parent firms*

H3 is consistent with the argument that divestments can be used to streamline the organization reducing operational inefficiencies. According to Dranikoff, et al. (2002), corporate divestiture is a useful strategic tool to ensure that the remaining businesses reach their full potential resulting in the overall company growing stronger. In line with this argument, both spin-offs and sell-offs are expected to improve operating performance if *dissynergies* of combining two business units are larger than the synergies. By divesting business units, the management increase focus on core business activities which might increase operational efficiency. In addition, sell-offs can be used by management to divest underperforming assets and invest proceeds in expansion of remaining business units with better operational performance and higher return on assets (Kaiser & Stouraitis, 2001). Sell-offs are expected to increase firm value if the premium received for the assets is higher than the synergies of owning the assets (Hite, et al., 1987). Thereby, sell-offs can be used to distribute assets to firms with larger comparative advantages of owning and managing the assets.

H3*a**: Industry focus increasing divestments have larger positive impact on the operating performance of parent firms than non-focus increasing divestments*

The objective of **H3a** is to determine whether focus increasing transactions result in more positive improvements in operating performance compared to non-focus increasing divestments. The rationale of the hypothesis is that focus increasing divestitures reduce diseconomies of scale and op-

erational diversity allowing the management to increase focus on the core business. Ultimately, focus increasing divestments lead to reduced complexity and increasing efficiency which, to some degree, is not expected in non-focus increasing divestitures. **H3a** is consistent with previous findings of John and Ofek (1995) for sell-offs and Daley, et al. (1997) and Desai and Jain (1999) for spin-offs.

We will assess and evaluate each hypothesis one by one in chronological order continuously throughout the presentation of our empirical findings. We have modified the standard binary option of acceptation or rejection, by adding a weak and a strong form. The hypotheses will be concluded by applying the following indicators:

√ = Strong accept (√) = Weak accept (x) = Weak reject χ = Strong reject

The sign of the difference will determine if a hypothesis is accepted or rejected. Whether a hypothesis is accepted or rejected in weak or strong form is a subjective assessment of the significance levels across the various event windows.

6. Methodology

In this chapter, methodological considerations and choices performed in the preparation of this thesis will be presented and explained. The objective is to elaborate on the procedures and assumptions behind the results and conclusions to provide transparency for readers and other researchers. The methodological approach to analyse shareholder value in corporate divestments is presented in the conceptual framework in **Table 7**.

Table 7: Illustration of conceptual framework

Conceptual framework - Tests		
Short-term	Long-term	
Stock returns		Financial returns
i Event study (AR)	ii Buy-And-Hold (BHAR)	iii Return-On-Assets (ROA)
• Abnormal return at announcement • Differences in abnormal returns	• Abnormal return after completion • Differences in abnormal returns	• Abnormal performance after completion

The table above also reflects the structure of this section where the presentation of the methodological approach is divided on three different analyses. First, **i)** an **event study** of short-term abnormal returns, second **ii)** a long-term **Buy-And-Hold** strategy and third **iii)** a long-term **Return-On-Assets** analysis.

6.1. Event study

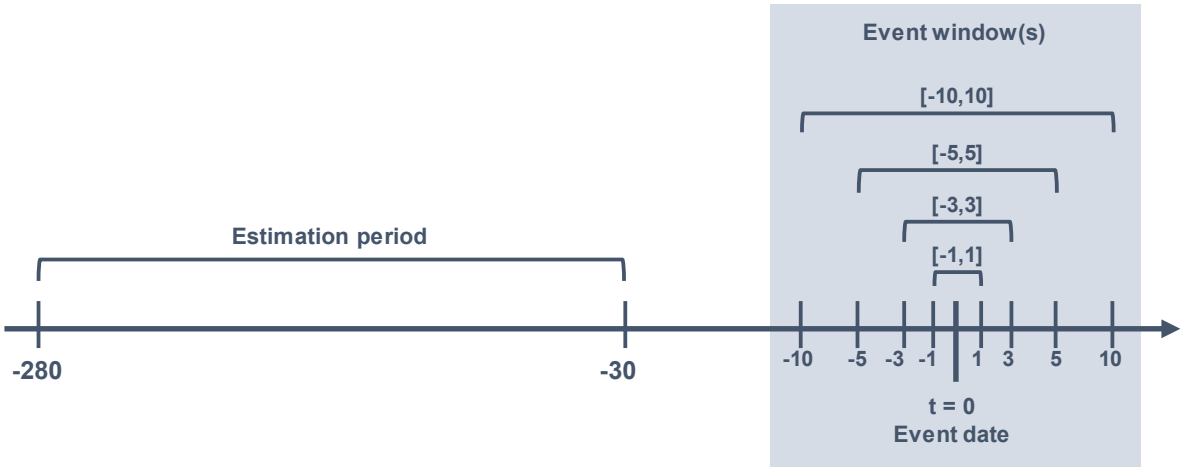
Fundamentally, an event study relates to the exercise of measuring the effects of a given event. In an economical context, this could be to measure potential value effects of an event on one or more firms. We apply a classical approach to event studies presented by MacKinlay (1997), where publicly available financial data is used to measure the impact of an event, such as the announcement of a divestment. This approach is applied by the most dominant and referred studies within the same or similar fields of research, such as Veld and Veld-Merkoulova (2004 & 2008), Sudarsanam and Qian (2007) and many others. The fundamental assumption of an event study is based on the EMH, where the effect of an event will be reflected in the financial markets immediately. Hence, it is possible to measure the economical effect of any given event (MacKinlay, 1997). Fama (1991) argues, that due to the characteristics of the efficient market, event studies are an optimal way of measuring and analyse short-term shareholder value creation.

The process of performing an event study can be described in five steps. We will elaborate on the considerations regarding each step. The five steps are: **1)** Determination of dates, **2)** Calculation of expected returns, **3)** Measuring abnormal returns, **4)** Accumulation of abnormal returns and **5)** Test returns for statistically significance.

Determination of dates (Step 1)

Mackinlay's classical approach to event studies requires a set of dates to be specified. **Figure 7** presents the dates and windows that have been determined in relation to our analysis.

Figure 7: Illustration of event dates



First, in an event study with daily stock prices, a period of days prior to the event must be determined. The period is used to estimate the expected returns for the firms in the sample; hence it can be referred to as the estimation period. In previous literature, the estimation period usually comprises nine to twelve months of trading days equivalent to approximately 200 to 250 trading days (Bartholdy & Peare, 2007). In this thesis, an estimation period of 250 days has been applied. We have assessed the period to be a good proxy for the normal return of the stock, hence the event study is subject to the assumption that the true return is represented by the estimation period. Assuming this, allows us to assume that the model applied to calculate the expected returns does not contain sampling errors.

The purpose of the event window is to capture the effect of the event. Theoretically, in a completely efficient market, the event window would solely need to comprise the announcement date.
In accordance with the discussion in **Section 3.1**, uncertainty remains regarding which specific combination of days that will best capture the effect of the event. Therefore, have we determined several event windows. By applying several event windows, the results are subject to a robustness check which should increase validity of our findings. The literature does not suggest one specific combination of days for the event window. Though, the event window usually covers both a period of days before and after the event to account for the risk of information leaks prior to the actual announcement date. We have determined event windows that enables us to compare the findings with previous studies. We have applied event windows of three days [-1,1], seven days [-3,3], eleven days [-5,5] and twenty-one days [-10,10], visualised in **Figure 7** above.

A general rule of thumb is, that the estimation window and the event window should not overlap in order to *"(…) prevent the event from influencing the normal performance model parameter estimates"* (MacKinlay, 1997, p. 15). We have ensured that our parameter estimates are not biased, by having a gap of 20 days between the estimation period and the first day of the event window.

In our event study, the event date is the announcement of a divestment. During the process of data checking, we found some cases, where the firm announced the divestment on a non-trading day. In these instances, we have corrected the announcement date to the next trading day. E.g., if a divestment was announced on a Sunday, we have corrected the date of the announcement to the following Monday.

Calculation of expected returns (Step 2)

In this section, we will elaborate on the methodological approach to calculate the expected return and the consequences hereof. The expected returns are used to analyse potential abnormal return, which is the actual return deducted from the expected return:

$$\boldsymbol{AR_{i,t} = R_{i,t} - E[R_{i,t}|X_t]}$$

Where X_t represents *"(…) the conditioning information for the return model."* (MacKinlay, 1997, p. 15). Therefore, the choice of return model is of great importance. There exists a variety of expected return models. In **Table 8**, the most commonly used models are presented.

Table 8: Overview of expected return models

Expected return models - Overview	
Return model	**Abnormal return equation**
Constant Mean Return Model	$AR_{i,t} = R_{i,t} - \bar{R}_i$
Index Model	$AR_{i,t} = R_{i,t} - R_{m,t}$
Market Model	$\boldsymbol{AR_{i,t} = R_{i,t} - \bar{\alpha}_i - \bar{\beta}_i R_{m,t}}$
Capital Asset Pricing Model (CAPM)	$AR_{i,t} = R_{i,t} - R_f - \bar{\beta}_i(R_{m,t} - R_f)$
Arbitrage Pricing Theory (APT)	$AR_{i,t} = R_{i,t} - R_f - \bar{\beta}_{1,i}R_1 - (\dots) - \bar{\beta}_{k,i}R_k$
Fama French Multi-Factor Model	$AR_{i,t} = R_{i,t} - R_f - \bar{\beta}_i R_{m,i} - \bar{\beta}_{i,SMB}R_{SMB} - \bar{\beta}_{i,HML}R_{HML}$

By nature, it is not possible to estimate the true return of an asset. The models above all have their advantages and disadvantageous in their attempts to estimate expected returns. MacKinlay (1997) highlights the *Constant Mean Return Model* and the *Market Model*. The *Constant Mean Return Model* uses a simple mean of the returns in the estimation period as the expected return, and thus assumes returns are constant over time. The advantage of the model is the simplicity, however, it does not account for systematic risk, and hence is inappropriate in times of changing volatility. The *Market Model* is a one-factor model accounting for the relationship between the asset return and the market return. The estimation period is used to derive alpha and beta estimations.

Other potential models include *Index Model*, *Capital Asset Pricing Model (CAPM)*, *Arbitrage Pricing Model (APT)* and *Fama French Multi-Factor Model*.

The *Index Model* is very basic and simply assumes that the expected return equals the market return. *CAPM* extend the *Index Model* by accounting for the market development and the risk-free rate. However, the inclusion of the risk-free rate complicates the implementation and leads to many considerations in determining the risk-free rate. In a sample of +1250 firms across 20 years, one would need to consider how the risk-free rate is to be determined across both firms and time. The risk-free rate have direct influence on the expected returns, why the implementation of inaccurate risk free rates threat to do more harm than good. The *APT* and *Fama French Multi-Factor Model* both adds additional factors affecting expected returns. By adding more variables to the equation, the complexity of the model increases, and hence the requirement of quality input likewise rises. The complexity of the results increases too, as more factors have influence on the output.

For our analysis, we have applied the ***Market Model***, as the model accounts for the correlation between the assets and the market, while simultaneously being relatively simple to implement.[12] Also, the studies on divestment announcements from Veld and Veld-Merkoulova (2004 & 2008) and many other prominent studies are using *the Market Model* to calculate expected returns.

The *Market Model* is a statistical regression, an Ordinary Least Square (OLS) regression, which can be used to regress the market return with the return on an asset. Fundamentally, an OLS regression is a statistical way of estimating the relationship between a dependent and an independent variable by minimizing the sum of the squared residuals between the estimated and observed values. In this thesis, the dependent variable is the expected stock return, and the independent variable is the market return. The residual for any observation is the vertical distance from the observed value to the regression trendline line.

[12] The calculation of Beta and Alpha requires a proxy for the broad market portfolio. In this thesis, the market portfolio is approximated using the broad overall MSCI Europe index. The advantage of the Market Model is, that it accounts for differences in systematic risk (MacKinlay, 1997).

The *Market Model* is a static model with time series data on two variables ***y*** and ***z,*** and thus follows the equation (Woolridge, 2009):

$$y_{i,t} = \beta_0 + \beta_i z_{i,t} + \varepsilon_{i,t}, t = 1, 2, \dots, n.$$

The static element arrives from the modelling of a contemporaneous relationship between the variables ***y*** and ***z***, which will be replaced by expected return and market return, respectively.
Five assumptions must be made when using an OLS regression, i.e., the *Market Model*, to estimate stock returns. These are key econometric assumptions presented by Wooldridge (2012), also known as the Gauss-Markov assumptions:

1) Linearity in Parameters
The first assumption is linearity in the parameters, which simply is a linear relationship between the dependent and explanatory variable. By applying the *Market Model* the assumption is not violated.

2) No Perfect Collinearity
The second assumption refers to the phenomenon of either constant data or perfect linear relationships among the explanatory variables. We have found no evidence of such perfect collinearity in our data of daily share prices. Though, the risk of partly constant explanatory variables could occur in days of thin trading, which would show the daily return as zero, as the share price would be the same as the previously trading day. However, we do not consider this a risk in our data sample since the explanatory variable is the market return, which is not subject to thin trading as it comprises of numerous frequently traded shares.

3) Zero Conditional Mean
The third assumption is crucial and implies that the expected value of the error **E** (Epsilon) in all periods of time **t** is zero, both prior to the contained period and at all times after. The assumption can be mathematically expressed as follows:

$$E(u_t|X) = 0, t = 1, 2, \dots, n.$$

The assumption is fundamentally about the error term being uncorrelated to the explanatory variables for all time periods. When the assumption is fulfilled, the data set used can be considered as exogenous. In periods of short-term market reactions, there is a risk that the unsystematic risk will correlate with the explanatory variable, the market. We do not consider this as a risk in our data, due to our total time span of approximately 20 years combined with a sample of +1000 observations, which should eliminate the short-term threat of violating the assumption. The third assumption can in practice be considered unrealistic, as it includes all time periods. However, the assumption is important in order to conclude unbiased estimates from our OLS regression.

4) Homoskedasticity

The fourth assumption relates to the condition, where the variance of the error term is constant at all **t**'s unconditionally. This applies for every observation in our data sample, practically meaning that all firms' unsystematic risk must have a constant variable throughout all observed time periods, without regards to changes in the other parameters. Should the assumption fail, meaning that the data, and hence the model, is subject to heteroscedasticity, the result would be biased standard deviations. Statistically this is prescribed as:

$$\boldsymbol{Var(u_t|X) = Var(u_t) = \sigma^2, t = 1, 2, \dots, n.}$$

5) No Serial Correlation

The fifth and last assumption is that the error terms across all **t**'s are uncorrelated, which can be presented mathematically as:

$$\boldsymbol{Corr(u_t, u_s) = 0, for\ all\ t\ \neq s.}$$

When this does not apply and the errors are correlated across time, it is called serial correlation or autocorrelation (Wooldridge, p. 353, 2012). Serial correlation, or autocorrelation, is detected if $\boldsymbol{u_{t-1} > 0}$ on average is positive, then $\boldsymbol{Corr(u_t, u_{t-1}) > 0}$, and the test is failed.

Overall, we consider our data and model to comply with the five Gauss-Markov assumptions, and thus have confidence in using the *Market Model* for our analysis with unbiased estimators.

Measuring abnormal returns (Step 3)

As explained above, the estimated expected return is the sum of the estimated alpha (α_i), the estimated beta (β_i) times the market return (R_m) and the unsystematic risk/error term (ε_i) at t. Mathematically, we can deduce the formula for the abnormal return from the general OLS regression formula for time series analysis:

$$\boldsymbol{R_{i,t} = \alpha_i + \beta_i R_{mt} + \varepsilon_{i,t}}$$

Where $\boldsymbol{\varepsilon_{i,t}}$ represents the excess return not explained by the market, i.e., the abnormal return.

$$\boldsymbol{\varepsilon_{i,t} = R_{i,t} - (\bar{\alpha}_i + \bar{\beta}_i R_{mt}),} \qquad \boldsymbol{\varepsilon_{i,t} = AR_{i,t}}$$

Hereby the following is derived:

$$\boldsymbol{AR_{i,t} = R_{i,t} - (\bar{\alpha}_i + \bar{\beta}_i R_{mt})}$$

$$\boldsymbol{where\ E(\varepsilon_{i,t}) = 0\ and\ Var(\varepsilon_{i,t}) = \sigma^2_{\varepsilon i}}$$

Abnormal return at time t is represented as $AR_{i,t}$ whereas the actual return at time t is $R_{i,t}$. The estimated alpha and beta are based on the observations in the estimation window, as previously described.

Accumulation of abnormal return (Step 4)

The fourth step considers how the abnormal return above are cumulated. The first step is the accumulation of the abnormal returns in the event window for each firm, which gives the Cumulative Abnormal Return (CAR). The CAR formula applied in the analysis is presented below:

$$CAR_i(t_1 + 1, t_2) = \sum_{t=t_1+1}^{t_2} AR_{i,t}$$

By obtaining the CAR, we can now calculate the Average Abnormal Return (AAR). This is simply done by dividing the CAR with the number of observations (N).

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$$

Where N is the number of firms in the sample. By accumulating the AAR's, we derive the Cumulative Average Abnormal return (CAAR).

$$CAAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AAR_t$$

According to MacKinlay (1997), abnormal returns can be divided into the two dimensions time and firms, respectively. The various abnormal return measures from above can be categorized as presented in **Table 9** below:

Table 9: Overview of abnormal return measures

Abnormal return measures		
	Single point in time	**Multiple periods accumulated over time**
Single firm/Event	Abnormal return *(AR)*	Cumulative Abnormal Return *(CAR)*
Multiple firms/Events	Average Abnormal Return *(AAR)*	Cumulative Average Abnormal Return *(CAAR)*

The purpose of the event study is to understand the value creation on an aggregate level, why the analysis will focus on the CAARs derived from our four event windows. The CAARs allows us to examine the abnormal returns over multiple time periods, e.g., in different defined event windows, and hereby capture potential information leakage or slow market reaction before and after the event date, i.e., the divestiture announcement date.

Test returns for statistically significance (Step 5)

In the fifth step, we test the CAARs to determine whether the event study results are statistically significant. The optimal test statistic is the one that does not make type 1 and 2 errors, which is (1) not falsely indicating an abnormal return and (2) not leaving an abnormal return undetected. There exists a variety of tests methods for event studies, however, the most optimal is determined by the data that is being tested. Therefore, one dominant test does not exist. In the literature of event studies, the statistical tests are generally being divided into two groups, Parametric tests and Non-parametric tests (e.g., MacKinlay, 1997, Bartholdy & Peare, 2007, Corrado & Zivney, 1992, Ahern, 2009). MacKinlay (1997) explains that an event study should at least include a parametric test and preferably also a non-parametric test increasing robustness of the results. Therefore, we apply both a parametric t-test and a non-parametric sign test, which are elaborated below.

Parametric test

The parametric test involves testing whether the abnormal return is significantly different from zero. The test is based on a standard t-test, which is the test of the difference between two means (Bartholdy & Peare, 2007). The variants of parametric tests of abnormal returns primarily differ in the way they account for issues in the data, yet they all require the definition of a null hypothesis[13]:

$$H_0: \mu_i - \mu_j = 0$$

$$H_1: \mu_i - \mu_j \neq 0$$

An important assumption under the t-test is that the abnormal returns follow a normal distribution (Bartholdy & Peare, 2007). The idea of the test is to either reject or accept the null hypothesis at different critical levels. This enables us to detect potential abnormal returns caused by the event.
In this thesis, we will use the parametric test of AAR and CAAR, which is mathematically presented by MacKinlay (1997). The t-test of AAR is expressed as follows:

$$t = \frac{AAR_t}{\sqrt{\sigma_i^2(AAR_t)}}$$

Where the variance, σ_i^2 (AAR), is given by:

$$\sigma_i^2(AAR_t) = \frac{1}{N^2}\sum_{i=1}^{N}\sigma_{\varepsilon_i}^2$$

[13] The statistical definition of H_1 and H_2 is a guidance of statistical accept or rejection of the test. In **Section 5**, we have converted the basic statistical hypothesis into practical hypotheses based on previous empirical findings and practical argumentation presented in the literature review.

As we are interested in investigating returns cross-sectional across multiple time periods, we perform the t-test on the CAAR, which is expressed as follows:

$$t = \frac{CAAR_t(t_1 + 1, t_2)}{\sqrt{\sigma_i^2 CAAR_t(t_1 + 1, t_2)}}$$

Where the variance, σ_i^2 (CAAR), is given by:

$$\sigma_i^2(CAAR)(t_1 + 1, t_2) = \sum_{t=t_1+1}^{t_2} \sigma_i^2 (AAR_t) = \sigma_i^2 (AAR_t) L_2$$

However, according to Brown and Warner (1985), daily stock returns do not follow the required assumption of normal distribution in the parametric tests. Therefore, the non-parametric test is applied as sanity check to increase robustness of the results as this test does not include any assumption of normal distribution (Ahern, 2009).

Non-parametric test

In accordance with the literature, we apply the sign test which is a non-parametric test. The sign test presented by Brown and Warner (1980) is a test of whether the proportion of positive CARs are significantly different from fifty percent. This implies an underlying assumption of an equal amount of positive and negative CARs under normal circumstances. The process of the sign test is simple. First, for each of the firm observations, the sign of AR and CAR is recognized. Hereafter, we find the ratio of positive CAR compared to the total sample. Subsequently, the sign test can be set up as follows:

$$Sign\ test = \sqrt{N} \frac{\bar{p} - 0.5}{\sqrt{0.5(1 - 0.5)}}$$

The proportion of positive CARs, $\bar{p}$, from above is represented by $\frac{Number\ of positive\ CARs}{Total\ number\ of\ CARs}$. One of the advantages of the test is the simplicity in its ease of use and understanding. However, the simplicity constrains the test as it does not take any order of magnitude into consideration, hence all observations are equally weighted according to their sign. Despite the limitations, the test is nevertheless useful as sanity check of our findings.

Test of difference in abnormal returns

In addition to the tests of abnormal returns for spin-off and sell-off, respectively, we test whether the abnormal returns are significantly different from one another. First, the test requires the calculation of the differences in the abnormal returns.

$$CAAR_1 - CAAR_2 = CAAR_{diff}$$

Next, we must determine the pooled variance, which is adjusted for different groups sizes, by the following expression:

$$\sigma_p^2 = \frac{((N_1 - 1)\sigma_1^2) + ((N_2 - 1)\sigma_2^2)}{N_1 + N_2 - 2}$$

Now, the t-test of the two means can now be expressed as:

$$t = \frac{CAAR_{diff}}{\varepsilon_{diff}}$$

Where:

$$\varepsilon_{diff} = \sigma_p^2(CAAR_{diff}) * \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}$$

The test in differences between two CAARs is used both between spin-offs and sell-offs and between the various proxy variable-specific subsamples.[14]

Other considerations

Bartholdy and Peare (2007) address the issue of performing event studies on thinly traded stocks, which are stocks that are unfrequently traded. Especially when using daily data, thin trading can become an issue, if a stock is not traded on daily basis. The issue of thin trading mostly applies to penny stocks with low market value and illiquid stock exchanges, e.g., the Danish OMXC Small Cap. Bartholdy and Peare (2007) present alternative ways to remedy for this issue by calculating different proxies for the days that the stock is not traded. However, we have mitigated this potential issue in our data by ensuring a solid data selection process, further elaborated in **Section 7**.

Another consideration is made regarding problems of non-synchronous trading between the market portfolio and the stock return of individual firms. According to Brown and Warner (1985), the *Market Model* parameters are biased and inconsistent if the return on the stock and the market index are non-synchronous. The bias potentially shows in the estimation parameter for beta and could simultaneously lead to serial correlation in the abnormal returns. However, the problem of non-synchronous trading was assessed as limited when the final dataset was analysed.

[14] The proxy variables used in our analysis are either binary or ternary, meaning, that the data can be divided into two or three subsamples; Focus/Non-focus, Large/Small, etc. We can then test the differences in CAARs of the subsamples.

6.2. Long-term value creation

The existing academic literature has shown different results regarding long-run stock performance of firms completing corporate divestments. As discussed in **Section 3.1**, the field of behavioural finance has challenged the EMH demonstrating some investors exhibiting irrational behaviour by investing on non-fundamental factors. This behaviour creates over-/under market reactions to corporate events which will adjust over time resulting in long-term abnormal returns. In addition, Porter advocates for the necessity to monitor the performance of a company over a longer period to determine the real value corporate divestment strategies (Porter, 1987). Therefore, we investigate the stock performance of firms engaged in spin-offs and sell-offs in a period up to three years after the transaction is completed.

The basic methodology of the study on long-term stock performance is somewhat similar to the event study methodology described above. However, studies on long-term stock performance involve additional considerations and choices of method (Kothari & Warner, 1997). Existing academic literature has shown much more difficulty in obtaining unbiased results in studies of long-term stock performance resulting in several researchers questioning the relevance of measuring long-term abnormal performance (Mitchell & Stafford, 2000). Fama (1998) argues that empirical findings of long-term stock performance are highly sensitive to and affected by the methodology applied. Different methodologies produce substantial different estimates and inferences. Thus, a reasonable change in methodology often causes an anomaly to disappear (Fama, 1998, p. 293). A common problem of previous studies is that researchers are not aware of the *joint hypothesis problem* (Fama, 1991). The analysis of abnormal returns often ends as a joint test of formulated hypotheses and the model applied. Thereby, demonstrating long-term abnormal returns may indicate abnormal performance, but the returns might be the result of an inappropriate model applied. Thus, scholars advocating for the EMH concludes that "*measuring long-term abnormal performance is treacherous"* (Mitchell & Stafford, 2000, p. 288).

Consequently, empirical findings regarding long-term abnormal stock returns in this thesis should be carefully interpreted considering assumptions and consequences of the methodological choices described in the following section. The first section describes the applied measure of long-term stock return. Subsequently, the benchmark for performance of sample firms and the applied statistical tests are elaborated.

Measure of long-term stock return

The variation in expected return estimates across different measures increases over longer time horizons. Therefore, the long-term stock performance analysis is very sensitive to the model applied

to determine abnormal returns (Kothari & Warner, 1997). Different models applied on the same sample to calculate abnormal stock returns might provide substantial different results (Roll, 1983). The most straightforward model is CAR summing the daily or monthly abnormal returns (Barber & Lyon, 1997). CAR is useful in short event windows due to limited effects of positive biased test statistics arising when summing the abnormal returns. However, the method is highly inadequate when the objective is detecting long-run abnormal stock returns. In longer event windows, the positive bias will have larger impact weakening the robustness of the results (Barber & Lyon, 1997).

Instead, Barber and Lyon (1997) suggests the use of buy-and-hold abnormal returns (BHAR) measuring the difference in returns of a buy-and-hold investment in the sample firm and the corresponding benchmark portfolio. Compared to CAR, the advantage of BHAR is that the effect of compounding is included. According to Barber and Lyon (1997), the CAR model is a biased estimator of BHARs leading to incorrect inferences. CAR does not measure the true investor experience over the long horizon. However, the BHAR model has limitations affecting inferences. According to Fama (1998), the *bad-model problem*[15] of BHAR is more critical compared to CAR due compounding effects increasing problems of extreme skewness. Brav (2000) and Mitchell and Stafford (2000) point out that a corporate action such as divesting a subsidiary is not a random event and the sample might not comprise independent observations. If major corporate events cluster through time by industry, this lead to cross-correlation of abnormal returns affecting inferences of the test statistics.

In summary, both CAR and BHAR include multiyear skewness bias with the risk of biased estimates of a firm's abnormal return. The CAR model tends to yield positively biased test statistics whereas the BHAR tends to yield negatively biased test statistics. Barber and Lyon (1997) and Kothari and Warner (1997) favour BHAR to determine long-term abnormal stock return as the model better and more precisely measures *investor experience*. In addition, biases have lower impact on inferences for large samples when applying BHAR. Therefore, we apply the BHAR methodology, which is in line with the methodology of existing literature including Desai and Jain (1999) and Prezas and Simonyan (2015) on US corporate divestments. Another advantage of BHAR is that the method does not restrict the type of stock index that can be applied as benchmark portfolio (Canina, et al., 1998).[16]

The return is calculated as the return of the buy-and-hold investment in the sample firm and the benchmark portfolio, respectively. For each divesting sample firm and their corresponding benchmark portfolio, the buy-and-hold return (BHR) is calculated as:

[15] Fama (1998) argues that all asset pricing models for estimating expected returns are incomplete by nature. Even if a true model existed, the use of sample period implies systematic deviations from the model's predictions with the risk of sample specific patterns emerged by chance. As a result, statistical tests on expected returns are impacted by what Fama defines as the bad-model problem.

[16] Canina, et al. (1998) demonstrated that both value-weighted and equal-weighted benchmark portfolios can be used as proxy for the market return when the buy-and-hold methodology is applied.

$$BHR = \left[\prod_{t=1}^{T_i}(1 + R_{i,t}) - 1\right] * 100\%$$

Where R_{it} is the stock return on the divesting firm i or the corresponding benchmark in the t-*th* year of an event window and T_i is the number of years in the given event window.

After BHR is determined for both the sample firm and the corresponding benchmark portfolio, the abnormal return of the sample firm for each holding period equals the difference between the BHRs:

$$BHAR_{i,\tau} = \prod_{t=1}^{\tau}[1 + R_{i,t}] - \prod_{t=1}^{\tau}[1 + R_{m,t}]$$

Where R_{it} is the stock return on the divesting firm i and R_t^{bm} is the return of the corresponding benchmark in the same period.

The abnormal BHAR (BHAR) is calculated for each sample firm for holding periods of 1, 2, and 3 years following the completion of the transaction. Some of the firms in the sample were delisted requiring decisions whether to include or exclude those firms. Cusatis, et al. (1993) demonstrate that parents and subsidiaries engaged in spin-offs experience unusually high incidence of takeovers after the transaction explaining some of the value creation in spin-offs. Therefore, transactions where the parents or subsidiaries are delisted are included in the final sample. In the respective transactions, the return of the investor from the date of delisting until the end of the holding period is assumed to equal the market return resulting in zero abnormal return in this period.

Thereafter, the BHAR is averaged for the total sample and for the subsamples of spin-offs and sell-offs. The existing statistical literature provides contradictory recommendations on whether to use equal-weighted returns or value-weighted returns. Fama (1998) argues that value-weighted returns more accurately capture the investors' total wealth effects and reduces the *bad-model* problems. On the other hand, Loughran and Ritter (2000) demonstrate that value-weighted returns only capture about half of the abnormal returns that are present when each firm is weighted equally in a random sample of event firms. In that sentence, Loughran and Ritter argues that equal-weighted returns are more relevant from an investor perspective. Therefore, the equal-weighted returns are applied as our objective is to investigate the abnormal returns associated with corporate divestments based on a random sample of events.

The BHARs of all firms across the sample are averaged. Thereby, one average BHAR (ABHAR) is estimated for the total sample and for the subsamples of spin-offs and sell-offs:

$$ABHAR_{t,T} = \frac{1}{N}\sum_{i=1}^{N} BHAR_{i(t,T)}$$

The assumptions of using equal-weighted returns for calculating ABHAR should be emphasized when interpreting the statistical tests in this thesis. The test statistics will provide indications of the expected abnormal returns of randomly selected corporate divestments rather than the total market wealth effect.

Determination of expected stock return

Before analysing a firm's abnormal return, a researcher must be able to define the firm's normal or expected return. The purpose of using a benchmark is to estimate the normal return of a given firm in the sample. This requires the sample firm and the selected benchmark to be comparable on selected characteristics. Several theoretically motivated models within the field of asset pricing have been developed with limited empirical support. Therefore, little consensus exists on how to measure long-term abnormal return most accurately or which relevant factors to include in estimations of expected returns (Loughran & Ritter, 2000). Thus, the existing empirical studies on long-term stock returns related to corporate divestments apply different benchmarks and expected return models.

We apply country specific MSCI market indexes as the primary benchmark for the study of long-term abnormal return. As noted by Veld and Veld-Merkoulova (2004) one shortcoming by using country specific indexes is that some European markets are relatively small with less trading activity. To increase robustness of our findings, we also calculate returns using the broad equally weighted MSCI Europe Index. In addition, we have downloaded 48 industry portfolios from the Kenneth French Library to sanity check the industry-adjusted returns and increase the robustness of the results.[17]

The underlying assumption of using benchmarks is that the stock performance of the sample firms divesting through sell-offs or spin-offs would have been in line with the corresponding market index if firms had not engaged in corporate divestments. The applied **Index Model** of expected returns can be measured as:

$$E[R_{i,t}] = R_{m,t}$$

The *Index Model* is characterized as a relatively simple model of expected returns. The advantage of the *Index Model* is that it does not require any beta estimation compared to the *Market Model*. Calculation of betas to detect long-term expected return is problematic due to fundamental issues of estimating beta. Particularly, the pre-transaction beta does not reflect the risk of the parent company following the transaction when a part of the business is divested. As a result, the *Index Model* assumes that the beta of all sample firms is equal to one. This assumption is rather questionable, but the impact of the assumption decreases as sample size increases.

[17] The industry portfolios are based on US listed firms only which involves a risk of distorted results when used on a sample of European firms. Hence, different legislation, taxes, political activities, and other US individual dynamics risk reduce the accuracy of the benchmark adjustment.

Due to the simplicity, the *Index Model* has some shortcomings, which should be emphasized when interpreting our findings. The model does not account for potential differences in firm and industry characteristics which are not necessarily equally represented in the sample and the index. Thus, the abnormal returns might be caused be differences in firm characteristics rather than completion of corporate divestments. According to Barber and Lyon (1997), the use of reference portfolios based on broad stock market indexes involve *new listing bias* and *skewness bias* potentially affecting the reliability of findings. The *new listing bias* arises as the benchmark index is adjusted when new firms start trading. Previous literature has documented that firms completing an initial public offering (IPO) significantly underperform the comparable firms matched by size and industry (Ritter, 1991).[18] Thereby, the long-term expected returns of the sample firms are negatively biased when the benchmark indexes include new listing firms (Barber & Lyon, 1997). In addition, *skewness bias* emerge as long-term stock returns are positively skewed. The large number of firms in a stock market index implies that index returns are less likely to be large in absolute terms compared to returns on individual sample firms. Thereby, the risk of positive skewness is lower for the market index than for the sample. The result of potential positive skewness is negative biased test statistics if the test statistic does not account for skewness. However, Barber and Lyon (1997) acknowledges that large sample sizes mitigate many of these biases.[19]

Test statistics

The null hypothesis of abnormal returns being equal to zero is tested for a sample of *n* firms using the parametric test statistic (Barber & Lyon, 1997):

$$t_{BHAR} = \frac{ABHAR_{i\tau}}{\sigma_{BHAR}\sqrt{n}}$$

ABHAR are the samples average while σ_{BHAR} is the cross-sectional sample standard deviations of abnormal returns for the sample of n firms (Barber & Lyon, 1997).

Several researchers including Kothari and Warner (1997) and Fama (1998) are documenting that the parametric test statistic provides inadequate results for long-term tests. The risk of negative bias is caused by the positive correlation between sample means and sample standard deviations in positively skewed distributions (Barber & Lyon, 1997). The simple parametric t-test statistic does not adjust the for risk of positively skewed returns in long horizon caused by overrepresentation of extreme observations. As result, the fat right-hand tail of observation would inflate the true standard deviation. Thus, the t-test statistic might indicate abnormal returns even if that is not the case.

[18] The *new listing* bias is particularly relevant for the sell-off sample as the return of spin-offs also include returns of the new listed subsidiary.

[19] In accordance, Ang & Zhang (2015) argues that spending time on understanding and validating the data sample is often more productive to increase the total validity of the study than implementing rather complex and sophisticated statistically testing models.

To accommodate some of the issues, we applied the Wilcoxon signed-rank to test if the median abnormal performance is equal to zero following the approach in previous studies of Sudarsanam and Qian (2007) and Prezas and Simonyan (2015). First, the test assumes that all values are different from zero, and second, that no values are equal. The advantage of the Wilcoxon signed-rank test is that it accounts for both sign and magnitude. The differences in returns between sample firms and the applied index are converted to absolute values and ranked from highest to lowest. Then:

$$W_t = \sum_{i=1}^{N} rank(A_{i,t})^+$$

Where W_t is the sum of the positive ranks of the absolute ranked values of the abnormal returns. The test is defined as:

$$Z_{wilcoxon,t} = \frac{W - N(N-1)/4}{\sqrt{(\frac{N(N+1)(2N+1)}{12})}}$$

This Z-score is converted to a corresponding p-value reported on 10%, 5%, and 1% significance levels.

6.3. Long-term operating performance

In addition to the study of short- and long-term stock performance, we investigate the post-transaction operating performance of firms divesting a subsidiary. In relation to the discussion of how to measure shareholder value creation in **Section 3.2**, the purpose of this analysis is to provide a more comprehensive view on the value creating effects of corporate divestments. Researchers conducting an event study on operating performance are facing three primary methodological choices (Barber & Lyon, 1996):

- Select an appropriate measure of operating performance.
- Select an appropriate benchmark.
- Select an appropriate statistical test.

The three steps of designing a well-organised study of changes in operating performance around a corporate event will be described in the following sections.

Operating performance measure

Early studies on changes in operating performance around a corporate event have often used earnings measures such as net income. However, net operating income is often highlighted as a more appropriate measure of operating performance in the accounting literature. The measure expresses the performance of the underlying business excluding non-core business activities, special items, financing effects, tax considerations and minority interests (Petersen, et al., 2017). Operating income

is favoured by Barber and Lyon (1996) since operating income is perceived as a *cleaner* measure than earnings.

In addition to operating income, firm performance depends on the productivity of operating assets. Therefore, the operating income should be scaled, which increase comparability across firms. The predominant measure is return on invested capital (ROIC) where net operating income is scaled by the net operating assets employed by the firm. Unlike nominal accounting measures, ROIC accounts for both the relation between revenue and expenses and the firm's capital utilization (Petersen, et al., 2017). Though, a common problem in empirical studies is that book value of net operating assets is not reported on a company's balance sheet in the financial statements. Including ROIC in empirical studies requires comprehensive assessments of each firm's balance sheet involving subjective categorization of items as either operating or financial assets. A commonly applied substitute of ROIC is the return on assets (ROA) where the book value of assets is used as a proxy for the book value of net operating assets.[20] We apply ROA as performance measure expressed by the following formulas[21]:

$$ROA\ EBIT_{i\tau} = \frac{EBIT_{i\tau}}{0.5 * (book\ value\ of\ total\ assets_{\tau-1} + book\ value\ of\ assets_{\tau})}$$

And

$$ROA\ EBITDA_{i\tau} = \frac{EBITDA_{i\tau}}{0.5 * (book\ value\ of\ total\ assets_{\tau-1} + book\ value\ of\ assets_{\tau})}$$

The average book value of assets is used to accommodate the inconsistency in how the income statement and the balance sheet is outlined. The income statement presents the cumulating net operating income over the financial year whereas the balance sheet provides a picture of the firm's assets and liabilities at the end of the financial year. The average of beginning and ending year value of assets is an approximation of the average assets used to generate the net operating income in the corresponding year.

Both formulas presented above are applied to calculate ROA for the sample firm and a portfolio of firms within the same industry used as benchmark. The method of calculating abnormal performance using ROA closely follows the procedure suggested by Barber and Lyon (1996).[22] For each firm, the

[20] In situations where transactions are announced and completed in different financial years, the use of total assets bias the ROA since earnings from discontinued operations are not included in the numerator, but the related assets are included in the denominator. As result, the change in ROA EBIT and ROA EBITDA might be overstated for selected firms.
[21] EBITDA and EBIT are collected from Capital IQ where other operating costs are defined as expenses that have a close relation to the regular operations. Thus, unusual items such as costs related to restructuring or M&A's are not included.
[22] This method is also in line with empirical studies on corporate divestments including Daley, Mehrotra, & Sivakumar (1997) and Prezas & Simonyan (2015).

abnormal operating performance referred to as adjusted ROA (AROA) is calculated as the difference between the firm's realized ROA and the median for all firms included in the benchmark portfolio.

$$AROA_{i,\tau} = ROA_{i,\tau} - IROA_{j,\tau}$$

This measure of operating performance is called industry adjusted ROA. Subsequently, the change in industry-adjusted ROA is computed as:

$$\Delta AROA_i = AROA_{j,post} - AROA_{pre}$$

Changes in AROA is applied rather than absolute levels of AROA. Thereby, changes in the sample firms' performance are analysed relative to changes in the industry benchmark. The advantage is that change models include the history of a firm's performance relative to its comparison group's performance. Barber and Lyon (1996) has demonstrated that test statistics using the change in a sample firms adjusted operating performance are consistently more powerful than level models based on absolute levels of a firm's adjusted operating performance.

Afterwards, the median change across all samples and subsamples are found:

$$\overline{\Delta AROA} = Median(\Delta AROA_i)$$

The median change in AROA of sample firms is applied in this thesis rather than the mean change of AROA to reduce effects of extreme observations.

In addition to the analysis of AROA, we investigate changes in the unadjusted ROA. The underlying assumption of this analysis is that the post transaction expected performance of the divesting firm would be equal to the pre transaction performance in absent of the transaction. The objective of this analysis is to determine whether abnormal operating performance is caused by decreased performance of industry comparables or increased performance in the sample firm.

Based on the methodology described above, positive changes in ROA should be the result of increased operating performance indicating that corporate divestments create value. However, there are several pitfalls in interpreting changes in ROA (Petersen, et al., 2017). The ROA performance measure has particularly three drawbacks. First, the measure does not account for differences in systematic risk across firms. Even within the same industry, firms might be exposed to different operational risks (Petersen, et al., 2017). Second, total assets reflect all of a firm's assets including financial and non-operating assets. Consequently, the use of total assets could understate the true productivity of operating assets (Barber & Lyon, 1996). Third, ROA is affected by changes in accounting policies or managerial decisions on financial reporting principles. Operating income is an accrual-based measure with high flexibility which managers can over- or understate by increase or decrease discretionary accruals. Thereby, accrual-based performance measures are exposed to the

risk of earnings manipulation (Petersen, et al., 2017). Operating income might be biased if management manipulates revenue or expense items for personal benefit. Thus, changes in adjusted ROA following a corporate divestment might be explained by earnings management rather than enhanced operating performance.

To increase the robustness of our findings, we include an alternative performance measure. Some of the problems related to accruals-based ROA can be mitigated by applying cash flow-based ROA. Based on the argument that *cash is king*, practitioners often favour cash flow-based performance measures (Petersen, et al., 2017). Therefore, we include an additional performance measure defined as cash flow return on assets calculated:

$$ROA\ CASH_{i\tau} = \frac{Cash\ from\ Operations_{\tau}}{0.5 * (book\ value\ of\ total\ assets_{\tau-1} + book\ value\ of\ assets_{\tau})}$$

Whereas EBITDA and EBIT collected in the Capital IQ database do not include costs classified by management as unusual items, cash from operations accounts for all cash flow related costs included in the net income. Thus, the ROA CASH performance measure is affected by the costs related to corporate restructuring and divestitures.

ROA CASH cannot mitigate all problems of earnings management as cash flows can be manipulated through the sale of receivables or cutting research and development costs (Petersen, et al., 2017). Despite of the drawbacks related to accruals-based performance measures, FASB still perceive accrual income as superior to the cash flow statement for measuring a firm's value creation (Petersen, et al., 2017). Barber and Lyon (1996) has documented that cash-based performance measures are generally less powerful to determine abnormal operating performance around a corporate event compared to accruals-based measures. However, the cash flow-based performance measure can be used to analyse whether changes in adjusted ROA EBIT and EBITA are caused by reversals of pre-transaction accruals.

Benchmark

The methodology described above compares changes in ROA of the sample firm with changes in ROA of a particular benchmark. The objective of using a benchmark is to isolate the change in operating performance coming from the corporate divestment by removing the expected performance measured by the benchmark. The choice of an appropriate benchmark involves a trade-off between comparability and data availability which will be discussed below.

The most straight-forward approach would be to use pre-transaction firm performance as a benchmark for the post-transaction performance. However, this method is perceived as too simple. We seek to compare the performance of each sample firm to a benchmark based on a reference portfolio

of firms in the same industry, i.e., a control group. The assumption behind industry-matching is that some of the variation in operating performance can be explained by an industry benchmark. Thereby, the objective of the industry benchmark is to remove the change in the sample firm's performance stemming from a general change in the industry. The industry-matching method is often applied by matching firms to other firms with either the same two-digit or four-digit SIC code. Four-digit SIC code matching includes fewer comparable firms that are more closely matched on industry, but where availability of enough comparable firms for all industries is often a problem. To ensure data availability, we apply reference portfolios of firms sharing the same two-digit SIC code. In accordance, Barber and Lyon (1996) demonstrates that matching on four-digit SIC codes provides no improvement in the explanatory power of test statistics compared to two-digit SIC codes.

The reference portfolios are constructed by identifying all listed and privately owned European firms with available financial data in the Capital IQ database having the same two-digit SIC code. A common method to increase comparability is to match firms on country level. However, this implies problems of data availability on enough firms from each country in each industry when constructing reference portfolios on country level. Therefore, the control group of each divesting firm consists of all firms sharing the same SIC industry code within European Developed Markets. Thereby, geographical segmentation of the reference group for each firm matches the geographical screening of the corporate divestments included in the sample.[23]

Fama and French (1995) document that small firms have return on equity measures that mean-revert more quickly than similar measures for large firms. We perform a size adjustment to address the concerns expressed by Fama and French (1995), that small firms have lower earnings-to-book-equity ratios. Control firms are size matched based on book value of total assets which should be minimum 50% and maximum 150%. For 10 firms in the total sample, the size requirement was removed since no control firms existed that fulfilled the requirements.

Test statistics

The statistical test used to test the median changes in operating performance is the nonparametric Wilcoxon signed-rank test. According to Barber and Lyon (1996), the Wilcoxon non-parametric test is uniformly more powerful than simple parametric t-statistics as no assumptions of normal distribution is required. Thereby, the test statistic is useful even in case of extreme observations where the normality assumption of other test statistics is not fulfilled. Based on the relevant hypotheses described in **Section 5**, the Wilcoxon signed-rank is used to determine whether there is statistical significant AROA.[24]

[23] Please refer to **Section 7.2**.
[24] Please refer to **Section 6.2** for further details of the Wilcoxon signed-rank test. The test is performed with the same methodology, however where BHAR is replaced with ROA.

7. Data sample

This chapter will present an overview of the final sample of corporate divestments including the subsamples of sell-offs and spin-offs analysed in this thesis. The first section introduces the datatypes and databases applied. Subsequently, a thorough description of the data collection process is provided including the processes of gathering and validating relevant transactions. Lastly, descriptive statistics of the final data sample is presented to provide the reader with an understanding of the transactions that form the basis of the analysis.

7.1. Databases

This thesis relies solely on secondary data including both qualitative data, primarily from academic articles, and quantitative data gathered from various databases. The quality of the secondary data has substantial impact on the reliability and validity of the findings. Thus, data has only been gathered and validated from recognized and trusted databases. The primary database used in this thesis is the platform S&P Capital IQ provided by the research division in S&P Global, one of the world's largest providers of ratings, data, and research. The platform gives access to global financial data based on the commonly used Compustat database with different tools for identification and analysis of firms and transactions (S&P Global, 2021). S&P Capital IQ is used as the primary database to identify relevant transactions and subsequently to gather stock data and accounting information on sample firms and control firms. The advantage of using one primary database to collect most of the relevant information is the avoidance of challenges in identifying and concatenating the same company or transaction in several databases. Other databases as Mergermarket, Zephyr and ThomsonOne have been used to validate the transactions included in the data sample. However, stock prices, market capitalizations, index prices and accounting figures rely solely on the Capital IQ/Compustat database and the Kenneth French Library.[25]

All stock prices and accounting figures are collected in local currency as the analysis is solely based on relative figures, e.g. ROA. The use of figures in local currency removes considerations regarding potential currency effects distorting the analysis. However, in **Table 12**, selected numbers have been calculated to DKK using historical currency rates to compare firms included in the sample for illustrative purposes. All stock prices are collected as adjusted closing prices to account for stock splits and dividends. By including cash distributions and dividends, adjusted closing price return is a more appropriate measure of the total return to shareholders compared to simple stock prices.

[25] Due to the Covid-19 lockdown of CBS, we had no access to commonly used databases such as Datastream, CRSP and Bloomberg during the period of thesis preparation. Those databases could have been useful to increase reliability of the stock market returns. However, the Capital IQ database is considered sufficient to provide reliable and valid data.

As described in **Section 6**, several analyses in this thesis compare and match firms on industry classification using primary SIC codes.[26] SIC codes are commonly used as industry indicator among previous studies (Veld & Veld-Merkoulova, 2004). We rely solely on the Capital IQ SIC codes throughout the analysis. However, the use of SIC codes might not always be accurate. As noted by Guenther and Rosman (1994) the agreement of SIC code classifications between Compustat and CRSP in a random sample of 676 firms was only 64.1% at the two-digit level. Another issue is that firms might change characteristics over time and, thus, change SIC code. However, we are only using one SIC code for each firm. Despite of the problems of using SIC codes to define industry group, Barber and Lyon (1996) still perceive this methodology as the most evident. Despite the potential issues related to SIC codes, we found it most optimal to apply the SIC codes from Capital IQ, in order to maintain an objective and consistent classification.

7.2. Sample selection

The data sample of this thesis comprise sell-off and spin-off divestments from European firms announced and completed in the period from January 2000 until December 2020. European firms are categorized based on the parent firm's officially registration location, which most often equals the location of the headquarter.[27] Transactions are not limited to European subsidiaries. Due to limited available financial information on parent firms from Eastern Europe, the sample is limited to only include parent firms geographically located in Western Europe defined as European Developed Markets in the Capital IQ database. Therefore, the final sample includes transactions completed by parent firms based in the Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Norway, Portugal Spain, Sweden, Switzerland, and United Kingdom.

The time span criterion is based on the date of announcement, which is related to the date when the transaction has been announced publicly either through regulatory filings, a company press release or news articles. Transactions that were announced in the sample period but not completed are excluded. The relatively long period of time was necessary to find enough spin-off deals for the data sample. Thereby, the final data sample include transactions from different time periods, which might reduce comparability of specific transactions. However, the long period ensures sufficient data covering full business cycles and transaction waves.

As described in the **Section 6**, we investigate shareholder value creation of corporate divestments by analysing short-term and long-term stock returns requiring the seller (parent firm) to be publicly listed with accessible share price data. In addition, the analysis of changes in operational performance requires access to reliable accounting information. Therefore, only transactions of sellers

[26] The primary SIC code represents the industry of a firm's core business. Firms can have up to 5 secondary SIC codes reflecting other industries that the firm is involved in.
[27] This is the same definition as used by Kirchmaier (2003).

listed on a stock exchange minimum one year ahead of the divestment announcement were included. In addition, the sample of corporate divestments were limited to transactions with 100% change of ownership to ensure comparability across the sample. [28] Simultaneously, only analysing transactions with 100% change in ownership increase robustness of inferences about value creation.

The spin-off subsample includes transactions in the Capital IQ database, where "*the parent company distributes a certain number of subsidiary shares to each of its existing shareholders.*" The sample only includes spin-offs with 100% of the shares in the subsidiary distributed to shareholders of the parent firm.

The sell-off subsample includes transactions in the Capital IQ database characterized as corporate divestitures, a subcategory of M&A in the database. To ensure comparability of the sell-off and spin-off subsamples, an important focus in the data selection process was placed on discarding sell-off transactions involving asset sales such as single plants, machines or warehouses as those assets are not comparable to a standalone division or unit spun off.

Additionally, a minimum transaction valuation requirement of DKK 50m has been applied in order to screen relevant transactions in the Capital IQ database. Hereby, all transactions without a registered transaction value or with a value below DKK 50m is excluded, in order to avoid potential skewness impact of extremely small divestments. Simultaneously, the idea is to exclude transactions that cannot be listed on a standalone basis. In addition, the availability of accounting data increases with size. However, the risk of the data selection method applied is that not all corporate divestments are included, which can potentially create selection biases.

Based on criteria described above, the initial list of sell-off and spin-off transactions was constructed using the Transaction Screening Report tool in the S&P Capital IQ database. The initial sample of divestments consisted of 4,128 transaction records. Of those transactions, 218 were spin-offs and 3,910 were sell-offs.

Afterwards, additional selection criteria were imposed on the initial sample as the screening filters on capital IQ is not customized enough to ensure comparability of observations and to fulfil the requirements of the methodology described **Section 6**. Therefore, a large initial sample was prioritized requiring manually sorting and screening to reach the final data sample. This process resulted in several transactions being discarded. The criteria applied is highlighted below with the number of transactions disregarded in brackets, followed by a short motivation of each criteria.

[28] Both sell-offs and spin-offs can be completed with partial change in ownership, where the parent firm is only selling a stake in the subsidiary.

I) Transactions including parent firms or subsidiaries without SIC code [2157]

Parent firms and subsidiaries without a SIC code in the Capital IQ database was disregarded in the data selection process. It was observed that many of the transactions including firms without SIC codes could be characterised as asset sales causing the missing SIC code. Thereby, this criterion was used to remove transactions defined as asset sales which could not have been divested as single entities.

II) Transactions with parent firms operating in heavily regulated industries [265]

Transactions involving parent firms operating in heavily regulated industries have been removed from the data sample. In relation to methods used in previous research studies including Powers (2001) and Bates (2005), parent firms operating in financial and real estate with SIC codes between 6000-6799 are discarded. Those industries are characterised by heavy regulation and massive pressure from legislators resulting in regulatory constraints on the firm structure of large corporations, potentially affecting the market and shareholder reaction of the divestment. This might put pressure on corporations to involuntarily divest business units. Involuntary and compulsory transactions would be noisy in the analysis. Therefore, transactions in those industries were removed.

III) Sell-off transactions involving payment methods other than cash [139]

Sell-off transactions where the payment method has been anything else than cash were removed. To ensure comparability of the spin-offs and sell-offs included, we investigate corporate divestments with a clear cut between the parent firm and the divested subsidiary. In transactions with alternative payment methods including common equity, the parent firm still maintains its interest in the divested unit. The idea of this criterion is in line with the previously described criterion of 100% change in ownership.

IV) Insufficient publicly available data to confirm announcement date [176]

In the process of validating the announcement, several transactions were disregarded due to insufficient public information about the transactions, i.e., the announcement date could not be confirmed. Often, access to firms' press releases is restricted to a recent time period making it challenging to find older press releases. If the parent company have been acquired after the transaction, the access to historical press releases is often limited.

Similarly, this criterion comprises disregarded transactions where the divestment was rumoured prior to the official sell-off or spin-off announcement, which made it difficult to determine the exact event date. The same problem was present for transactions where the parent had previously announced the intend to divest its subsidiary. Particularly, the sell-off transactions in which the subsidiaries were officially put for sale or transactions resulting in bidding processes have been excluded. In accordance with the EMH elaborated in **Section 3.1**, the markets incorporate new information to stock prices when the information is released. If a company has previously announced the intend to divest

a subsidiary, the announcement of a sell-off or spin-off was partially expected reducing the shareholder wealth effects at the announcement date. Therefore, divestments of subsidiaries rumoured and partly expected before the actual deal announcement have been excluded.

V) Parent firms announcing multiple transactions on the same day [28]

In the data selection process, substantial considerations were put into how overlapping event should be handled. In some of the existing studies, transactions of firms engaged in multiple divestments within a specified period up to a five-year window centred on the completion day were excluded from the sample (e.g. Daley, et al. (1997)). Thereby, firms continuously divesting business units as part of their corporate strategy would be disregarded. However, Brauer, Mammen, and Luger (2017) have provided evidence that previous sell-off experience has substantial importance on subsequent firm performance after a divestment. This is consistent with basic learning curve theory demonstrated in other academic areas. If a firms' ability to conduct value increasing divestitures increase with the number divestments completed, this methodology would risk excluding some of the most value creating divestments. Therefore, we have only excluded firms announcing several transactions on the same day or in the event windows applied in the analysis of the short-term stock return.[29]

VI) Transactions were misclassified [48]

The initial screening from Capital IQ included a number of transactions that were misclassified. A limited number of transactions classified as spin-offs was disregarded as the transactions proved to be either listings of tracking stocks or transactions as part of a merger between two or more firms. Specifically for the sample of sell-offs, some transactions were actually complete takeovers or part of a larger merger. In addition, a limited number of transactions involved buyback agreements or other agreements regarding parent firm's access to assets of the business unit following the divestment. Including the transactions above would complicate inferences about the underlying value creation of corporate divestments.

VII) Involuntary transactions [2]

Involuntary transactions were removed from the final data sample as including transactions due to restructuring, bankruptcy or competitive authorities requiring the divestment. An example of a disregarded transaction was EnBW AG announcing a sell-off of the subsidiary GESO Beteiligungs in 2010. However, the divestment was requested by Germany anti-trust authorities in order to proceed with an acquisition in VNG-Verbundnetz Gas. Thereby, the transaction might not have been driven by the objective of maximising shareholder wealth. The other disregarded transaction was Konecranes Plc's divestment of STAHL as the sell-off was required by the European Union anti-trust review related to Konecranes pending acquisition of Terex Corporation's Material Handling and Port Solutions business.

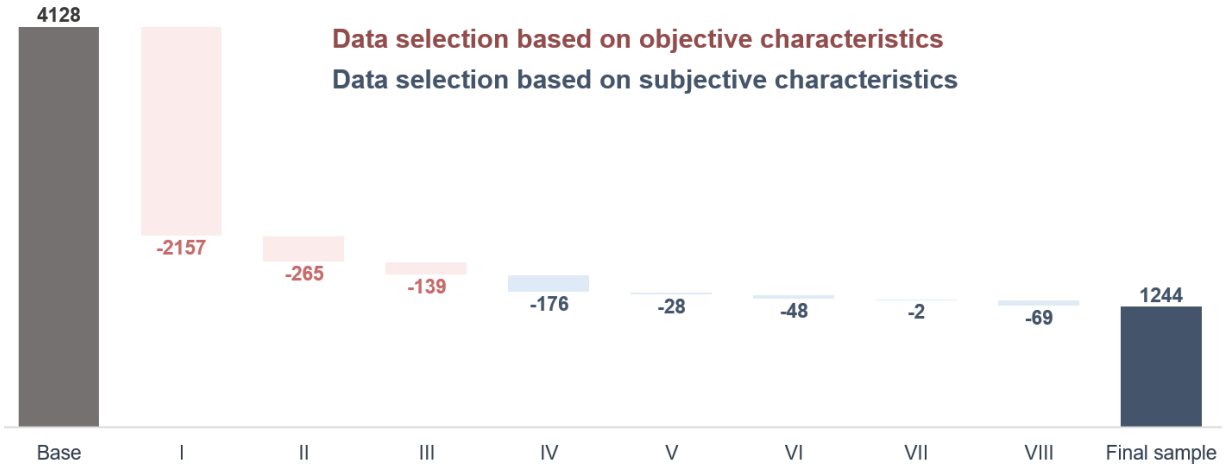
[29] For further information please see **Section 6.1**.

VIII) Insufficient firm data on Capital IQ or insufficient accounting data [69]

Analysing and comparing transactions across a twenty-year time period involves risk of insufficient data from the time of the transactions. Missing or insufficient stock price information on parent or spin-off subsidiaries in the Capital IQ database has resulted in several transactions being disregarded. As described in **Section 6**, the methodology applied in this thesis requires reliable and consistent financial and stock price data for firms included in the final sample. Several transactions from the initial screening have been removed due to missing or insufficient stock prices, market capitalizations, accounting data etc.

We acknowledge that removing observations due to specified criteria may reduce representativity of the final data sample. The dilemma of using the data that survived the screening criteria are defined in the academic literature as *survivorship bias* which is previously documented to have measurable influence on results (Brown, et al., 1992). However, the applied criteria are based on extensive research of existing literature and previous empirical studies on corporate divestments increasing reliability and, thus, the results of the analysis.

Figure 8: Summation of data selection process



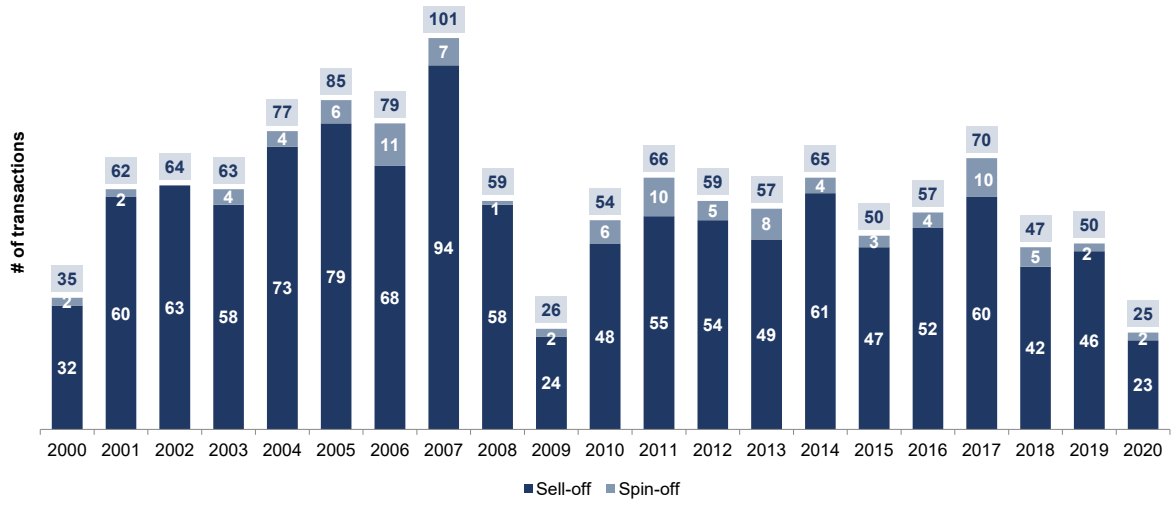
The first three criteria above were implemented as filters in excel to sort the dataset. Subsequently, the sample of transactions were manually validated using other M&A databases including Mergermarket, Zephyr and ThomsonOne. The reliability and validity of particularly the event study methodology depends highly on the accuracy of the announcement date and the closing date. Therefore, considerable time have been used on validating those dates for each transaction to ensure that the event study of abnormal returns captures the actual event. The registered announcement and closing date in capital IQ of each transaction included in the final data sample have been manually cross-checked with related publicly available official statements and press releases or with other databases mentioned above. The purpose of cross-checking several databases is to increase the validity of the final sample.

Consequently, the final sample consists of 1244 transactions divided on 98 spin-offs and 1146 sell-offs.[30] The purpose of the thorough screening process is to ensure that the transactions included were either spin-offs or sell-offs by nature. In addition, the criteria were to ensure comparability of sample firms increasing ability to capture the true underlying value creation effects. It should be noted that the 1,244 transactions are our final base sample. However, various analyses may require additional specific data, why even further transactions may have been discarded for the specific analyses. We have highlighted the number of transactions included in the various analyses for transparency purposes.

7.3. Descriptive statistics of data sample

The final sample of corporate divestments includes 1146 sell-offs and 98 spin-offs. The relative number of sell-offs compared to spin-offs is comparable to previous studies on spin-offs and sell-offs (Prezas & Simonyan (2015)). **Figure 9** provides an overview of how transactions in the final data sample are distributed across the sample period showing the number of spin-offs and sell-offs in each year. However, it should be noted that the development in the divestment activity of both spin-off and sell-off may not be representative for the total number of European divestments due to the screening criteria used in the data selection process. Reducing the sample size even with stringent criteria increases the risk of random trends in the data set.

Figure 9: Number of transactions per year from 2000 to 2020



The number of corporate divestments is cyclical and highly affected by the business cycle in the general macroeconomy. The number of transactions is particularly low in years with economic crisis

[30] A list of the total sample of firms and a list of 30 sample observations (10 spin-offs and 20 sell-offs) including characteristics is included in **Appendix 1** and **2**.

such as the IT bubble in 2000, the global financial crisis in 2008 and 2009 and the Covid-19 lockdown in 2020. The number of both spin-offs and sell-offs are higher in years with booming global economy. As depicted in the graph, a substantial number of transactions in the sample are announced and completed around years with financial crisis which might affect the performance of the firms around divestment.

Table 10 provides an overview of the transactions included in the data set distributed on geographical location of the parent firm. As mentioned before, the geographical location of the parent is based on the official registration location in the Capital IQ database. However, this approach does not account for firms selecting registration location based on tax or legislation related motives. The same problem would appear using the listing location as firms might go public in other countries. However, the issue is considered to have limited impact, as only a few firms in the final data sample are registered in countries such as Malta, Cyprus, and Luxembourg.

Table 10: Number of transactions per country per year from 2000 to 2020

Data sample overview on country and year of announcement																				
Year	AT	BE	CY	DK	FI	FR	DE	GR	IE	IT	LU	MA	NE	NO	PT	ES	SE	CH	UK	Total	Cumulative (# of deals)
2000					2	2	4						1				3		22	**34**	*34*
2001		2		1	1	8	5			3			2	3		4	4	4	25	**62**	*96*
2002		1		1	5	7	5		2	4			8	4	1	1	2	6	16	**63**	*159*
2003		2			3	9	5		2	2			2			6	2	4	25	**62**	*221*
2004		3		2	5	9	5	1	7	6	1		9			1	6	3	19	**77**	*298*
2005	1	2		1	5	5	8		4	6	1		5	3	1	5	6	6	26	**85**	*383*
2006		2	1	1	4	9	8		3	4	1		5	2		2	5	5	27	**79**	*462*
2007				2	5	12	12	1	2	3	1		7	4	1	2	11	4	34	**101**	*563*
2008		1		1	4	3	8		1	2			5	1		2	6	5	20	**59**	*622*
2009		3			1	2	3		1				1	2			2	2	9	**26**	*648*
2010		1				4	4		2	3	1		7	2		5	5	4	16	**54**	*702*
2011	1	1		1	4	7	6		5	2	2		4	3		5	2	2	20	**65**	*767*
2012	1			1	7	2	4		4	2	1		3	1		1	7	5	20	**59**	*826*
2013		1		2	5	6	4			4			1	2		5	3	3	21	**57**	*883*
2014		2		1	4	4	6		4	3	1	1	4	3		4	4	5	19	**65**	*948*
2015		1	1	1	4	6	6		3	2			5	2			3	1	15	**50**	*998*
2016		2		1	2	8	7		1	4	2		2			1	8	3	15	**56**	*1054*
2017		2		4		6	7		6	5			3	2	1	2	10	2	20	**70**	*1124*
2018				2	3	2	2	2	3				1	1		3	3	2	23	**47**	*1171*
2019		2			2	3	5	1	4	1			4	1	1	1	4	7	12	**48**	*1219*
2020			1			3	2		2	1				2			1	1	12	**25**	1244
Total	**3**	**28**	**3**	**22**	**66**	**117**	**116**	**5**	**56**	**57**	**11**	**1**	**79**	**38**	**5**	**50**	**97**	**74**	**416**	**1244**	
Sell-offs	2	27	3	20	60	110	113	4	48	53	10		76	33	4	50	73	69	391	1146	
Spin-offs	1	1		2	6	7	3	1	8	4	1	1	3	5	1		24	5	25	98	

As shown in **Table 10**, most transactions in the data sample are completed by parent firms located in the UK followed by Germany, France, and Sweden. The final data sample include transactions from a wide range of Western European countries operating under different tax and legislation regimes. Differences between tax legislation in individual countries might affect the value creation of divestitures.

Interestingly, about half of the spin-offs in the data sample are completed by firms in UK and Sweden. According to Veld and Veld-Merkoulova (2004), spin-offs in European countries are not associated

with tax problems as tax payments can be deferred.[31] However, in both Germany and France, the investors do not know if the spin-off will be subject to taxation when the spin-off is announced. In the remaining part of this thesis, we do not account for potential differences in taxation between countries.

Table 11 provides an overview of parent firms in spin-off and sell-off transactions by industry.[32] The sample of transactions is clearly dominated by parent firms within Manufacturing (SIC codes 2000-3999), Services (SIC codes 7000-8999) and Transportation, Communications, Electric, Gas and Sanitary service (SIC Codes 4000-4999).

Table 11: Number of transactions per industry group

Table 11: Overview of data sample on SIC Code category					
SIC codes	Category name	Sell-offs		Spin-offs	
		Parent	Subsidiary	Parent	Subsidiary
0100-0999	Agriculture, Forestry and Fishing	-	6	-	-
1000-1499	Mining	44	36	8	6
1500-1799	Construction	58	47	5	2
1800-1999	Not used	-	-	-	-
2000-3999	Manufacturing	605	438	39	41
4000-4999	Transportation, Communications, Electric, Gas and Sanitary service	162	132	16	11
5000-5199	Wholesale Trade	36	92	5	6
5200-5999	Retail Trade	59	52	7	7
6000-6799	Finance, Insurance and Real Estate	-	87	-	8
7000-8999	Services	-	236	-	17
9100-9729	Public Administration	-	1	-	-
9900-9999	Nonclassifiable	-	19	-	-
Total		**1,146**		**98**	

As evident from **Table 12**, the average deal size of sell-offs included in the final data sample is DKK 2,855m which is lower than the average size on DKK 16,456m for spin-offs. A similar result is obtained using median values indicating that firms spin off business units of greater value compared to business units that are sold. As discussed in **Section 4.2.4**, one explanation might be that larger units are more likely to survive as stand-alone units (Nixon, et al., 2000). The mean and the median size in Total Assets and Market Capitalization of firms in the sell-off and spin-off subsamples are close to each other indicating that the difference in size of the divested unit is not explained by differences in the size of parent firms in the two subsamples. The difference in mean is caused by a few very large firms resulting in a larger average size of sell-off parents.

[31] The 'Merger Directive' was adopted by the European Union in 1990 implying that tax authorities consider a spin-off as the rearrangement of investments that the investor already owns resulting in no taxes. However, several tax authorities in several European countries still see a spin-off as a distribution of income or capital and tax it accordingly (Veld & Veld-Merkoulova, 2009).

[32] Please refer to **Appendix 3** for a specified list of number of firms in each two-digit SIC code category.

Table 12: Selected financial characteristics for parent firms

Selected financial characteristics (DKKm)									
	Total sample			Sell-offs			Spin-offs		
Characteristics	*n*	*Mean*	*Median*	*n*	*Mean*	*Median*	*n*	*Mean*	*Median*
Deal Value	1,244	3,926	574	1,146	2,855	527	98	16,456	3,668
Revenue	1,244	136,749	28,757	1,146	143,188	28,757	98	60,972	14,636
Total Assets	1,244	240,887	47,239	1,146	254,156	46,671	98	89,510	26,304
Market Capitalization	1,244	91,008	20,786	1,146	92,578	20,941	98	72,645	17,793
Relative size	1,244	5.3%	3.1%	1,146	3.4%	2.6%	98	28.2%	21.4%
Tobin's Q*	1,223	7.88	6.18	1,125	8.43	6.41	98	1.49	1.06
Idiosyncratic volatility*	1,186	0.0052	0.0045	1,090	0.0053	0.0045	96	0.0050	0.0037

*All figures above are denominated in million DKK. *The number of observations (n) is lower due to missing accounting data on specific variables for a few observations included in the final data sample*

Table 12 shows that both the mean and the median Tobin's Q of firms selling off businesses are substantial higher compared to firms engaged in sell-offs. The difference in Tobin's Q suggests that firms with higher pre-divestiture equity valuation relative to their intrinsic value are more likely to divest their assets through a sell-off while firms with lower intrinsic value are more likely to divest through spin-offs. Another interpretation is that firms divesting through sell-offs experience less problems of asymmetrical information and thus undervaluation compared to firms spinning off businesses. The low Tobin's Q of spin-offs can be related to the information asymmetry motive of completing divestments. As discussed in **Section 4.2**, spin-offs are particularly relevant for firms where management perceives the share price as undervalued due complexity in cash flow streams or a potential conglomerate discounts. However, the idiosyncratic volatility is higher for firms in the sell-off sample indicating more information asymmetry compared to firms in the spin-off sample.

8. Empirical results

In this chapter, the results of the empirical study will be presented, analysed, and discussed. The empirical study comprises three different analyses of value creation. First, a short-term **event study** of short-term abnormal stock returns. Second, a long-term **Buy-And-Hold** abnormal stock returns analysis. Third, a long-term **Return-On-Assets** analysis.
The analyses are performed on the total sample and subsamples of spin-offs and sell-offs, enabling us to compare spin-offs and sell-offs to one another. The statistical significance and meaning of the results will be analysed and discussed in comparison with previous findings continuously throughout the analysis. Lastly, we will showcase our findings through an example from our data sample, which enable us to discuss the bridge between theory and practice.

8.1. Event study

In the first section, results from the event study, comprising both the spin-off, sell-off and combined announcement effects, will be presented for event windows of [-1,1], [-3,3], [-5,5], and [-10,10] days. The CAAR and its statistical significance have been calculated for all windows throughout the event study analysis. The purpose of showing results from different event windows is to check robustness of the results, thus increase the validity of our conclusions, and to capture potential market inefficiencies as discussed in **Section 3.1** and **Section 6.1**. In situations of delays in market reactions, information leakage or trading based on insider information prior to the event, the larger windows enable us to capture any abnormal returns on the days around announcement which might be caused by a firm's divestment. However, longer event windows involve the risk of including abnormal returns caused by other firm specific news and events. Though, using various event windows will, to a greater extent, enable us to compare our findings to the findings in previous literature.

The order of our analysis and findings follows the order of hypotheses elaborated in **Section 5**. The first hypothesis is **H1**, which prescribes that firms experience positive short-term abnormal stock returns in connection with the announcement of a divestment.

Table 13: Overview of daily AAR, CAAR, and key figures for total sample

Daily AAR and CAAR						
Day	**AAR**	**CAAR**	**Positive (%)**	**Median (%)**	**Min (%)**	**Max (%)**
-10	0.18%	0.18%	49.8%	0.00%	-15.7%	51.3%
-9	0.01%	0.19%	47.0%	-0.09%	-17.3%	46.0%
-8	-0.03%	0.16%	47.3%	-0.08%	-14.9%	26.8%
-7	-0.13%	0.03%	45.5%	-0.11%	-19.0%	38.9%
-6	0.03%	0.06%	47.9%	-0.07%	-18.3%	19.1%
-5	-0.01%	0.04%	48.0%	-0.07%	-14.1%	15.6%
-4	0.13%	0.18%	51.5%	0.03%	-12.1%	34.5%
-3	0.00%	0.18%	46.6%	-0.07%	-39.5%	23.6%
-2	0.07%	0.24%	45.7%	-0.09%	-22.0%	41.6%
-1	0.12%	0.36%	48.6%	-0.02%	-18.5%	19.7%
0	**1.15%**	**1.51%**	**57.7%**	**0.39%**	**-43.8%**	**85.0%**
1	0.17%	1.68%	48.5%	-0.04%	-25.4%	44.2%
2	-0.07%	1.61%	47.9%	-0.06%	-18.1%	23.7%
3	-0.04%	1.57%	48.3%	-0.05%	-25.5%	25.3%
4	-0.04%	1.54%	46.7%	-0.07%	-24.0%	160.0%
5	0.10%	1.63%	46.0%	-0.09%	-14.8%	63.6%
6	0.04%	1.68%	50.3%	0.00%	-31.9%	16.5%
7	-0.16%	1.51%	47.0%	-0.07%	-64.3%	13.5%
8	-0.04%	1.47%	48.5%	-0.03%	-39.2%	13.5%
9	0.01%	1.48%	45.7%	-0.10%	-14.7%	66.8%
10	0.13%	1.61%	49.3%	-0.02%	-11.8%	37.8%

Number of observations = 1244

The overall daily results are presented in **Table 13** above, showcasing the daily AAR and cumulated AAR starting from day -10 and up to day 10. As presented, the event date, i.e. the announcement date ($t = 0$), stands out with a higher AAR compared to the other days prior and after the event date. Furthermore, 57.7% of the observations generate a positive AAR on the event day. This is the first piece of data analysis indicating a confirmation of **H1**, which is consistent with the previous empirical event studies regarding announcement of divestments. Notably, 18 out of 21 days have a more negative AARs than positive AARs. The percentage of positive AARs is fluctuating between 45-52%, primarily centred around 50%. This in contrast to the event date, which has a significantly higher positive percentage. Interestingly, the median abnormal return at the event date is lower than AAR, indicating a skewness in the abnormal returns where some transactions with high abnormal returns drive the average above the median.

Figure 10: Illustration of AAR and CAAR

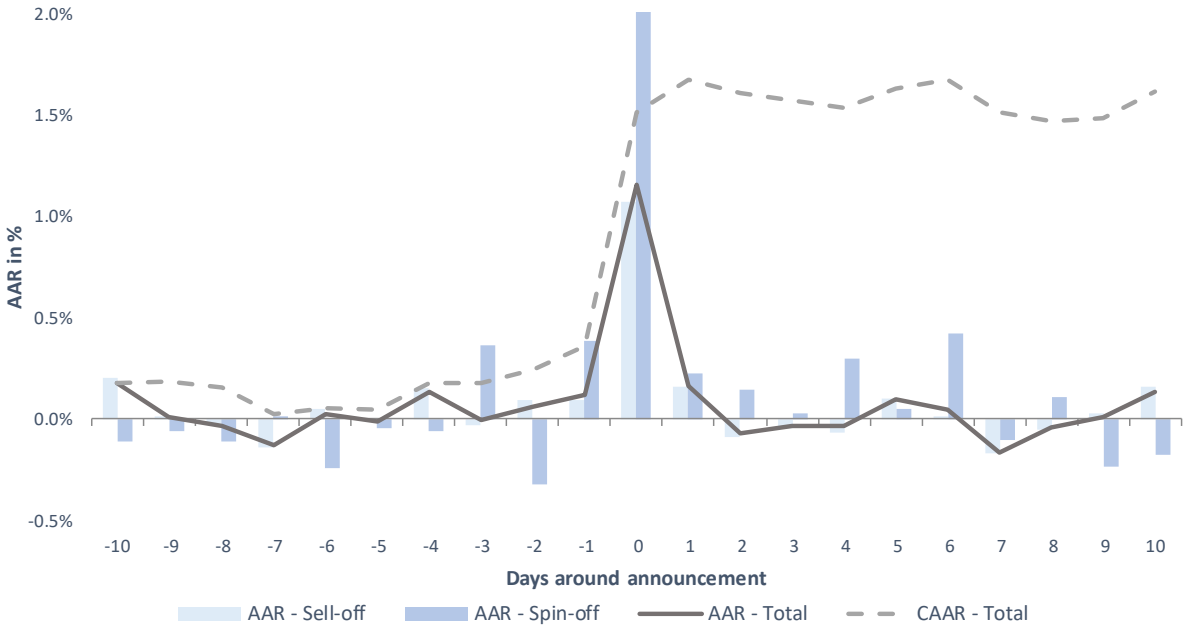


Figure 10 illustrates the numbers above, clearly showcasing the distribution of AAR around the announcement date and the days before and after. This is showing a strong concentration around the announcement date. The event day seems to capture a large part of the effect from the divestment announcement. Simultaneously, the concentrated distribution of AAR indicates limited information leakage, or at least trades based on it, and a rather quick market reaction.

Table 14: Overview of daily AAR and CAAR for total sample and subsamples

Panel A: CAARs									
	Total			Spin-off			Sell-off		
Event window length	*CAAR*	*t-test*	*Sign test*	*CAAR*	*t-test*	*Sign test*	*CAAR*	*t-test*	*Sign test*
[-1,1]	1.43%	7.008***	5.247***	2.69%	3.916***	3.148***	1.33%	6.2***	4.581***
[-3,3]	1.39%	5.701***	3.375***	2.90%	3.907***	2.335***	1.26%	4.913***	2.867***
[-5,5]	1.58%	4.472***	1.787***	3.15%	3.611***	1.929***	1.44%	3.844***	1.33***
[-10,10]	1.61%	4.281***	0.993***	2.66%	2.415**	2.538***	1.52%	3.828***	0.325
Panel B: AARs									
	Total			Spin-off			Sell-off		
Event day	*AAR*	*t-test*	*Sign test*	*AAR*	*t-test*	*Sign test*	*AAR*	*t-test*	*Sign test*
-10	0.18%	2.338**	-0.142	-0.11%	-0.686	-1.523	0.20%	2.485**	0.325
-9	0.01%	0.109	-2.127	-0.06%	-0.248	-0.305	0.01%	0.171	-2.098
-8	-0.03%	-0.457	-1.9	-0.11%	-0.509	0.102	-0.02%	-0.335	-1.98
-7	-0.13%	-1.848	-3.148	0.01%	0.067	-1.929	-0.14%	-1.908	-2.689
-6	0.03%	0.421	-1.447	-0.24%	-0.874	-1.117	0.05%	0.75	-1.153
-5	-0.01%	-0.163	-1.39	-0.04%	-0.183	0.711	-0.01%	-0.113	-1.625
-4	0.13%	2.062**	1.049***	-0.06%	-0.28	-0.102	0.15%	2.206**	1.153***
-3	0.00%	-0.021	-2.411	0.36%	1.594	0.914*	-0.03%	-0.418	-2.748
-2	0.07%	0.824	-3.035	-0.32%	-1.555	-2.945	0.10%	1.169	-2.276
-1	0.12%	1.659*	-0.993	0.38%	1.633	0.305	0.09%	1.274	-1.093
0	**1.15%**	**6.555*** **	**5.417*** **	**2.08%**	**4.084*** **	**3.757*** **	**1.07%**	**5.779*** **	**4.581*** **
1	0.17%	1.719*	-1.049	0.23%	0.755	0.102	0.16%	1.582	-1.093
2	-0.07%	-1.018	-1.447	0.15%	0.798	0.305	-0.09%	-1.214	-1.566
3	-0.04%	-0.494	-1.22	0.03%	0.122	0.711	-0.04%	-0.542	-1.448
4	-0.04%	-0.251	-2.297	0.30%	1.581	0.102	-0.06%	-0.415	-2.394
5	0.10%	1.161	-2.808	0.05%	0.279	-2.335	0.10%	1.129	-2.216
6	0.04%	0.679	0.199	0.42%	2.309**	0.508	0.01%	0.183	0.089
7	-0.16%	-2.107	-2.127	-0.11%	-0.645	-0.305	-0.17%	-2.028	-2.098
8	-0.04%	2.000	-1.049	0.11%	0.598	1.523***	-0.05%	-0.675	-1.507
9	0.01%	0.099	-3.035	-0.23%	-1.303	-1.929	0.03%	0.309	-2.571
10	0.13%	1.904*	-0.482	-0.17%	-0.866	-1.523	0.16%	2.152**	-0.03

The samples used in this analysis comprise of 1244, 98 and 1146 observations for Total, Spin-off and Sell-off, respectively. The statistical significance of the means is tested using the t-statistic, while the statistical sign significance using the sign test (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (*) and 10% (*) level.

Table 14 displays the AARs and CAARs of the total sample and subsamples of spin-offs and sell-offs, together with their test results, respectively. In accordance with the results above, the AAR at announcement date is significant at a 1% level in both tests for all samples. The CAARs from the event windows [-1,1], [-3,3] and [-5,5] are all significant at 1% level in both tests for all samples. Furthermore, the CAARs from the event window [-10,10] do show abnormal returns, though at mixed significance levels across tests and samples. There appears to be a slightly positive relation between the CAARs and the length of the event window, as the CAARs to increase slightly the longer the event windows are. In absence of other firm specific events, the development in CAARs emphasizes the importance of using several different event windows, considering the discussion of EMH in **Section 3.1**. E.g. if the increasing CAARs are explained by investors' slowly processing of a firm's divestment, the longer event windows capture a larger share of the total value creation.

There appears to be some AARs around the event date, which are significant at different levels in either of the tests. We believe that this must be attributed to coincidence, as we have no hypothesis, theory or literature suggesting that these varying significant results should appear, why we have no rational explanation to the findings.

The overall results show strong indications of abnormal returns on and around the event date backed by both tests. The general one-sided conclusion appears quite clear as there is a significant abnormal return in relation to the announcement of divestment. With a high degree of certainty, we strongly accept **H1** about positive short-term abnormal stock returns in relation with the announcement of divestments. This is in accordance with results from previous empirical studies on corporate divestments presented in **Section 4.3.1**.[33] Thus, firms generally create a larger positive return in connection with spin-off and sell-off announcements, than what would have been expected based on the firms' correlation to the market. Thus, the results indicate that investors attributes value to corporate divestments.

8.1.1. Difference between sell-off and spin-off

In the following section of the short-term event study, we will dive further into the CAARs in the investigation of hypothesis **H1a**. **H1a** prescribes that spin-offs generally generate higher positive short-term abnormal returns than sell-offs. Thus, **H1a** is an examination of the statistical difference in the CAARs between the spin-off and sell-off samples. The results are presented in **Table 15** below.

Table 15: Overview of differences in CAAR between spin-offs and sell-offs

Differences between Spin-offs and Sell-offs								
	Spin-off			Sell-off			Difference	
Event window	*CAAR*	*t test*	*Sign test*	*CAAR*	*t test*	*Sign test*	*CAAR*	*t test*
[-1,1]	2.69%	3.916***	3.148***	1.33%	6.2***	4.581***	1.36%	1.892*
[-3,3]	2.90%	3.907***	2.335***	1.26%	4.913***	2.867***	1.64%	2.084**
[-5,5]	3.15%	3.611***	1.929***	1.44%	3.844***	1.33***	1.71%	1.799*
[-10,10]	2.66%	2.415**	2.538***	1.52%	3.828***	0.325	1.14%	0.97

The samples used in this analysis comprise of 1244, 98 and 1146 observations for Total, Spin-off and Sell-off, respectively. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (*) and 10% (*) level.

Interestingly, the CAARs differ across the samples, as the CAARs from the spin-off sample (2.66-3.15%) are notably higher than those from the sell-off sample (1.33-1.52%).

In previous studies, as presented in **Table 4 (Section 4.3.1)**, the CAARs from spin-off announcements are in the range of 1.32-5.4% at a 1% level of significance. Veld and Veld-Merkoulova (2004 & 2008) have performed two studies on European and US spin-off announcement effects. They found CAARs from the [-1,1] event window of 2.62% and 3.07%, respectively, which are comparable to our findings of 2.69% from a similar event window, despite their data reaching from 1987 to 2002. Moreover, the previous literature on announcement effects from sell-offs, presented in **Table 3 (Section 4.3.1)**, demonstrate CAARs between 0.40-1.66% in event windows between one and eleven

[33] Please refer to **Table 3** for results from previous studies on sell-offs and **Table 4** for results from previous studies on spin-offs.

days, which commensurate with our findings. The sell-off literature is, to our knowledge, largely conducted with data prior to year 2000. A study from UK, performed by Afshar, Taffler and Sudarsanam (1992), found a CAAR of 0.85% in a two days [-1,0] event window. Our findings of CAARs from sell-offs are in the higher end of the spectre, in comparison to findings in the previous literature. However, the previous literature is based on elderly historic data for different geographical areas.

Our findings suggest that CAARs generated from spin-offs are of higher nominal value than those from sell-offs. Generally, we find the CAARs from spin-offs to be between 1.36-1.71% higher than the CAARs from sell-offs. Despite the strong indications of differences in CAARs, the statistical evidence somewhat weaker. The differences in CAARs are significant in the event windows [-1,1], [-3,3] and [-5,5] at a 10%, 5% and 10% level, respectively. The difference in returns might be explained by fundamental differences in characteristics between sell-offs and spin-offs. As discussed in **Section 2** and **Section 4**, the motives of completing sell-offs and spin-offs may differentiate affecting how the capital market reacts. Sell-offs generate cash proceeds implying uncertainty about how management will use these, which is not relevant for spin-offs. Other explanations might include differences the motives presented in **Section 4.2**, which will be further examined later in the analysis. The difference in returns associated with sell-offs and spin-offs are partly in accordance with the results found by Prezas and Simonyan (2015), which showed stronger significant CAAR differences between spin-offs and sell-offs. Similar results were found by Rosenfeld (1984), demonstrating a statistical significant difference in the *Mean-Adjusted-Return (MAR)* significant at a 1% level. Mulherin and Boone (2000) applied the CAAR measure and found spin-off CAARs higher than sell-off CAARs, however with no statistical significance. Whether Prezas and Simonyan and Rosenfeld found stronger statistical significance because of the different return measure is uncertain.
Based on our findings, we accept **H1a** in weak form as the statistical significance could be stronger.

8.1.2. Explanatory variables

We will now examine the selected motives identified in **Section 4.2**, and how they contribute to the CAARs. The motives are Corporate Refocusing, Information asymmetry, Relative size, and Financial status of the seller.[34] The method applied is to split the data sample into two or three categories, depending on the proxy variable. The CAARs and differences in CAARs are then tested across the categories. The analysis will showcase any potential statistical difference between the categories. This will enable us to understand and explain how the motives impact the CAARS generated around the announcement date.

[34] The Corporate efficiency motive is featured in the analysis of long-term operating performance in **Section 8.3**.

8.1.2.1. Corporate refocusing

The first motive subject to examination is corporate refocusing. Our sample and subsamples are categorized into either focus or non-focus increasing transactions. However, as divesting by nature is focus increasing as the total firm size decreases, de-diversification may be a general driver of the overall CAARs. Therefore, our analysis is mere an attempt of trying to determine if a specific type of focus increasing divestment impacts the CAARs. First, we investigate the industry focusing motive.

Industry focus

As previously described in **Section 5.1**, the categorization of industry focus increasing transactions is based on two-digit SIC codes. The focus increasing transactions are those where the divested part has a different SIC code than its parent, and the opposite for those categorized as non-focus. The investigation relate to **H1b** from **Section 5.1**. The results of the analysis are presented in **Table 16** below.

Table 16: Overview of CAAR on industrial refocusing

Focus versus non-focus (Industry)								
	Focus			Non-focus			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	1.37%	5.415***	793	1.55%	4.447***	451	-0.19%	-0.435
[-3,3]	1.37%	4.643***	793	1.44%	3.328***	451	-0.07%	-0.128
[-5,5]	1.68%	3.496***	793	1.39%	2.896***	451	0.29%	0.428
[-10,10]	1.66%	3.402***	793	1.53%	2.607***	451	0.14%	0.181
Spin-off								
[-1,1]	3.09%	3.916***	55	2.17%	2.245**	43	0.92%	0.664
[-3,3]	3.73%	3.907***	55	1.85%	1.791*	43	1.88%	1.25
[-5,5]	4.24%	3.611***	55	1.75%	1.583	43	2.49%	1.441
[-10,10]	4.39%	2.415**	55	0.45%	0.298	43	3.94%	1.795*
Sell-off								
[-1,1]	1.24%	4.743***	738	1.49%	3.993***	408	-0.25%	-0.552
[-3,3]	1.19%	3.895***	738	1.39%	2.997***	408	-0.20%	-0.358
[-5,5]	1.49%	2.938***	738	1.35%	2.611***	408	0.14%	0.19
[-10,10]	1.46%	2.852***	738	1.64%	2.612***	408	-0.18%	-0.221

Focus and non-focus relate to whether the divested part and the parent firm have the same two digit SIC-code. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (*) and 10% (*) level.

Our findings show that focus increasing transactions across all windows and samples generate highly significant abnormal returns. The results related to the non-focus increasing transactions are somewhat similar, except for the CAARs from the spin-off sample, which show a weak degree of significance. However, the [-1,1] window is statistically significant at a 5% level.

Looking at differences between focus and non-focus CAARs, the results show both positive and negative signs in the sell-off sample with no statistical significance. The differences in spin-off CAARs are all positive, indicating that CAARs of focus transactions are nominally higher than non-

focus transactions. However, we do not find any evidence of statistically significant differences for spin-offs except for the 10% significance for window [-10,10].

As elaborated in **Section 4.2.1**, the existing literature regarding the strategic refocusing motive is rather comprehensive highlighting both value enhancing and value reducing effects of diversification. Our findings for spin-offs are similar to those found by Veld and Veld-Merkoulova (2004) on European spin-offs. Their findings indicated that industry focus increasing divestments generated statistically higher CAARs. Our results are nominally similar for spin-offs, as the CAARs for focus increasing divestments are higher than for non-focus, however, without statistical significance.
Despite the resolution of internal corporate inefficiencies motive presented by e.g., Berger and Ofek (1995), Jensen (1986) and Stulz (1990), we do not find any statistical evidence on that focus increasing divestments create additional abnormal returns compared to non-focus. At least three possible explanations on the absence of an industry focus effect are identified. First, SIC codes might be imprecise in categorising focus and non-focus divestments. There are several pitfalls when applying SIC codes to define industry focusing divestments. As earlier discussed, a firm's SIC code is not constant, which might affect the analysis. In addition, SIC codes can be unprecise for integrated firms with value chains and production parts spanning the dimensions set by the SIC code classification. A divestment of a vertically integrated business unit might be categorised as an industry focus increasing transaction based on SIC codes even though the divested unit operates within the same industry. Thus, SIC codes might be imprecise as proxy for defining industry focusing transactions.
Second, Brauer and Schimmer (2010) points out that changes in strategic focus often span several transactions. Thus, the effect of changing strategic focus towards core industries might not be observable on single transaction, as in our data.
Third, it could simply be that industry focusing is not affecting the return realized by the firms that have completed divestments in our sample.

Despite the explanations above, our findings are to some extent surprising, considering the arguments and findings of previous studies, and, thus, we weakly reject **H1a** for sell-offs and weakly accept for spin-offs.

Geographical focus

The second focus motive is based on geographical focus increase. Geographical focus refers to a situation where the divested part is not registered in the same country as the parent firm. Our hypothesis, **H1c**, relates to a positive relationship between geographical focus and short-term stock return. In **Table 17** below, the results of the analysis are presented accordingly.

Table 17: Overview of CAAR on geographical focusing

Focus versus non-focus (Geographical)								
	Focus			Non-focus			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	0.98%	3.342***	580	1.83%	6.417***	664	-0.85%	-2.07**
[-3,3]	0.74%	2.111**	580	1.97%	5.753***	664	-1.23%	-2.516**
[-5,5]	0.80%	2.062**	580	2.25%	3.976***	664	-1.45%	-2.108**
[-10,10]	0.49%	1.05	580	2.60%	4.492***	664	-2.11%	-2.842***
Spin-off								
[-1,1]	1.98%	1.467	15	2.82%	3.563***	83	-0.83%	-0.532
[-3,3]	1.55%	0.748	15	3.15%	3.842***	83	-1.59%	-0.713
[-5,5]	1.80%	0.823	15	3.39%	3.48***	83	-1.59%	-0.665
[-10,10]	-0.97%	-0.303	15	3.32%	2.808***	83	-4.29%	-1.257
Sell-off								
[-1,1]	0.96%	3.189***	565	1.69%	5.52***	581	-0.73%	-1.712*
[-3,3]	0.72%	2.018**	565	1.80%	4.821***	581	-1.08%	-2.104**
[-5,5]	0.78%	1.962*	565	2.09%	3.303***	581	-1.31%	-1.759*
[-10,10]	0.53%	1.121	565	2.50%	3.903***	581	-1.97%	-2.479**

Geographical focus and non-focus relate to whether the divested part and the parent firm are registered in the same country. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Non-focus CAARs are generally higher than those from the focus, across all samples. Simultaneously, all the non-focus CAARs are significant at a 1% level. The results and significance levels for the focus samples are more mixed. Surprisingly, focus spin-off CAARs are not significant at any levels, whereas sell-offs vary in significance across the windows. The results simply indicate, that CAARs are higher for firms divesting units from the same country as the parent are registered in, however the difference is only significant at 5% and 10% levels for sell-offs. Our findings are in accordance with the results from a similar study by Veld and Veld-Merkoulova (2004), who likewise found non-geographical increasing spin-offs to generate higher and more significant CAARs. Veld and Veld-Merkoulova (2004) suggests that lower CAARs from geographical focus increase may derive from the perception of the market, that the transactions is derived from a failed previous geographical expansion. Furthermore, there might be economy of scale disadvantages by divesting foreign businesses. Though, it should be emphasized that all samples generate positive CAARs, i.e., both types of transactions are value creating by nature. In relation to **H1c**, we strongly reject the hypothesis for the total and sell-off samples and weakly reject for the spin-off sample.

Generally, find no statistical evidence that industry or geographical focus increasing divestments positively affect the CAARs. Our conclusions and inferences are highly dependent on the key assumption that our proxy variables for geographical and industry increasing divestments fully capture the intended effect of the focus increase contribution in the CAARs. Comparing our results with the theoretical motives of corporate divestments presented in **Section 4.2**, the applied proxy variables might not completely capture the desired objective.

8.1.2.2. Information asymmetry

The second motive subject to examination relates to information asymmetry. The literature identify and suggests several ways of capturing information asymmetry. We have selected idiosyncratic volatility and Tobin's Q as measures for our analysis. The proxy variables of information asymmetry are not binary variables, why we convert them into binary dummy variables 0 and 1. This allows us to categorize the total sample and subsamples of sell-offs and spin-offs.[35] The categorization is based on the median of the sample and subsamples (Sudarsanam & Qian (2007), Hite & Owers (1983)). As previously discussed in **Section 8.1.1**, the use of proxy variables is highly dependent on the proxy variables ability to capture and measure accordingly. Similar to corporate refocusing motive, divesting decrease information asymmetry by nature, as the firm size and complexity decreases. Therefore, if the decrease in information asymmetry is already recognized in the CAARs, then the analysis is merely a measure of whether the degree of the parent firm's asymmetrical information prior to the announcement, is a value driver of the CAARs.

Idiosyncratic volatility

First, we will examine **H1d** relating to the hypothesis that parent firms with larger idiosyncratic volatility realize higher short-term abnormal stock returns. The rationale of the relationship between volatility and return is that volatility could be due to valuation issues from lag of information. Divesting a business unit reduces firm complexity, and, thus, reduces the conglomerate discount. Our findings are presented in **Table 18** below:

[35] We have also applied an alternative method for dividing the samples, where the median split was only performed on the total sample.

Table 18: Overview of CAAR on information asymmetry (idiosyncratic volatility)

Idiosyncratic volatility								
	High			Low			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	2.02%	6.389***	593	1.01%	3.779***	593	1.01%	2.428**
[-3,3]	2.18%	5.745***	593	0.87%	2.79***	593	1.31%	2.668***
[-5,5]	2.74%	4.382***	593	0.66%	1.917*	593	2.07%	2.902***
[-10,10]	2.68%	4.145***	593	0.61%	1.448	593	2.07%	2.682***
Spin-off								
[-1,1]	3.56%	3.036***	48	1.72%	2.23**	48	1.84%	1.312
[-3,3]	3.86%	2.919***	48	1.81%	2.39**	48	2.04%	1.341
[-5,5]	4.55%	3.053***	48	1.64%	1.685*	48	2.91%	1.638
[-10,10]	4.27%	2.498**	48	0.82%	0.567	48	3.45%	1.545
Sell-off								
[-1,1]	1.88%	5.737***	545	0.95%	3.35***	545	0.93%	2.149**
[-3,3]	2.03%	5.125***	545	0.78%	2.364**	545	1.24%	2.406**
[-5,5]	2.58%	3.863***	545	0.58%	1.575	545	2.00%	2.624***
[-10,10]	2.55%	3.695***	545	0.59%	1.343	545	1.95%	2.385**

The information asymmetry variable are calculated from the parent firms idiosyncratic volatility one year prior to the announcement. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

First, all CAARs in the [-1,1] and [-3,3] days windows across all samples and categories are positive at least at a 5% significance level. However, the category of firms with high idiosyncratic volatility shows higher CAARs than firms categorized in the low idiosyncratic volatility group. The differences in returns between firms with high and low volatility are significant at 1% and 5% levels in the sell-off sample. Thereby, firms with high information asymmetry create more shareholder value by divesting a business unit compared to firms with low information asymmetry. This indicates that the level of information asymmetry impacts the return of a sell-off.

In the spin-off sample, firms with high volatility realize higher returns than firms with low volatility, but the differences are not statistically significant. Krishnaswami and Subramaniam (1999) and Veld and Veld-Merkoulova (2004) found similar results of higher returns for the sample of high information asymmetry based on stock return volatility, in their study of American and European spin-offs. Equally, they did not find evidence of a significant difference between the low and high information asymmetry samples. Our results indicate that the level of information asymmetry affects the value creation of firms divesting as firms with high information asymmetry creates more shareholder. However, the conclusion is ambiguous as the differences in returns are not significant[36].

[36] The alternative method of dividing the samples into high and low showed similar results, which was slightly less significant for sell-offs, but slightly more significant for spin-offs. The results are presented in **Appendix 4**.

As discussed in **Section 4.2.3**, reducing asymmetrical information is a motive for firms to divest business units (Nanda & Narayanan, 1999). Given that idiosyncratic volatility is indirectly representing a degree of asymmetrical information, our results indicate high returns of firms with high information asymmetry emphasizing the motive of divesting business units to reduce asymmetrical information. Specifically, differences in returns observed for sell-off sample show significantly higher CAARs for firms with high levels of asymmetrical information. Therefore, we strongly accept **H1d** for the total sample and the sell-off sample. Due to lag of statistical significance, **H1d** is weakly accepted for the spin-off sample.

Tobin's Q

The rationale of **H1e** is similar to **H1d**, however using Tobin's Q as a proxy variable for information asymmetry. Tobin's Q is a ratio between the market value and the intrinsic value. Thus, as the Tobin's Q value becomes lower, the closer is the market value to the intrinsic value of a firm. A common assumption used by practitioners is that complex and diversified firms often have low Tobin's Q values (Lang & Stulz, 1994). As discussed in **Section 4.2.3**, the level of information asymmetry increases with firm complexity which means we can capture the degree of information asymmetry by using Tobin's Q. Therefore, a low Tobin's Q is a proxy of high information asymmetry.
Hereby, firms with low Tobin's Q are expected to generate higher short-term stock returns at announcement, as the divestment should increase information transparency and erase some of the conglomerate discount. Our findings are presented in **Table 19** below:

Table 19: Overview of CAAR on information asymmetry (Tobin's Q)

Tobin's Q								
	High			Low			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	0.76%	3.224***	611	2.13%	6.301***	612	-1.37%	-3.33***
[-3,3]	0.79%	2.708***	611	2.02%	5.276***	612	-1.24%	-2.569**
[-5,5]	0.58%	1.822*	611	2.18%	5.262***	612	-1.59%	-3.047***
[-10,10]	0.54%	1.282	611	2.38%	4.718***	612	-1.84%	-2.813***
Spin-off								
[-1,1]	2.53%	2.482**	48	2.84%	2.938***	50	-0.31%	-0.217
[-3,3]	3.45%	2.992***	48	2.38%	2.368**	50	1.07%	0.697
[-5,5]	3.95%	3.136***	48	2.38%	1.887*	50	1.58%	0.886
[-10,10]	3.56%	2.335**	48	1.80%	1.112	50	1.76%	0.793
Sell-off								
[-1,1]	0.61%	2.526**	563	2.06%	5.771***	562	-1.46%	-3.384***
[-3,3]	0.56%	1.867*	563	1.99%	4.88***	562	-1.43%	-2.826***
[-5,5]	0.30%	0.894	563	2.16%	4.945***	562	-1.86%	-3.403***
[-10,10]	0.28%	0.639	563	2.43%	4.583***	562	-2.15%	-3.137***

The information asymmetry proxy variable are based on Tobin's Q of the parent firms ten days prior to the announcement. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

We find significant differences CAARs for the [-1,1] and [-3,3] days window for the total sample and sell-offs sample, however not for spin-offs.
For spin-offs, we find limited statistical evidence supporting a difference between low and high Tobin's Q. In three out of four of other event windows, the returns are higher for firms with high Tobin's Q indicating that firms with low information create more value through divestments. This finding contradicts our initial hypothesis and the findings in previous literature (Veld & Veld-Merkoulova (2004), Krishnaswami & Subramaniam (1999)). However, the differences in returns are statistically insignificant in all event windows resulting in ambiguous conclusions similar to previous literature.

For sell-offs, the sample of firms with low Tobin's Q generates higher CAARs than the high Tobin's Q sample. The differences in all event windows are statistically significant at 1% levels. If a low Tobin's Q represents high information asymmetry, then already existing value to some degree can be unlocked through a divestment. The results indicate that parent firms with low intrinsic and market value are unlocking already existing value through divestments (Nanda & Narayanan, 1999). Hence, our findings appear to be in accordance with the rationale, that by divesting and becoming more transparent, the parent firm experiences immediate short-term value creation. As elaborated in **Section 4.2.3**, performing a sell-off can be a signal of overvaluation, which could be perceived negatively by market participants (Myers & Majluf, 1984). However, our findings for sell-offs, both for Idiosyncratic volatility and Tobin's Q, supports the argument of Prezas and Simonyan (2015), that the positive effect of selling underperforming assets or reducing information asymmetry is likely to dominate the negative effect of an overvaluation signal.

Based on the findings presented above, we strongly accept **H1e** for the total and sell-off sample and weakly reject for the spin-off sample.

An alternative method of grouping the subsamples based on the median of the total sample resulted in similar results, presented in **Appendix 4**. However, the sample of firms with high Tobin's Q for spin-offs became very small of 3 observations, which is not appropriate for statistical analysis. Interestingly, most of the spin-offs belong in the lowest half of Tobin's Q values for the total sample. The result is supported by **Table 12**, which showcases a low mean and median of Tobin's Q's for spin-offs compared to sell-offs. This finding suggests that the assets of spin-off parents in general trades at a lower intrinsic-to-market value than parents of sell-offs. This indicates an incentive for undervalued firms to favour spin-offs as argued by Myers and Majluf (1984). This comply with the fundamental motive of performing a spin-off to showcase the qualities of a firm by increasing corporate transparency and thereby making it easier for investors and capital markets to understand the intrinsic value of a firm's assets. Thereby, the high representation of firms with low Tobin's Q performing a spin-off indicate that spin-offs are performed by undervalued firms.

8.1.2.3. Relative size

In this section, we investigate the effect of the relative size between the parent firm and the divested part. **H1f** relates to the rationale, that the relative size of the divested part compared to the parent is positively related to the short-term stock return. Thereby, the larger the relative size of the divested unit, the larger the abnormal return.[37] Our findings are presented in **Table 20** below:

Table 20: Overview of CAAR on relative size

Large versus small								
	Large			Small			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	2.42%	6.568***	618	0.49%	2.742***	625	1.93%	4.695***
[-3,3]	2.53%	6.012***	618	0.31%	1.24	625	2.22%	4.538***
[-5,5]	2.50%	5.422***	618	0.62%	1.169	625	1.88%	2.667***
[-10,10]	2.91%	5.306***	618	0.30%	0.573	625	2.62%	3.469***
Spin-off								
[-1,1]	1.26%	1.314	49	4.11%	4.017***	49	-2.85%	-2.033**
[-3,3]	2.45%	2.287**	49	3.35%	3.093***	49	-0.90%	-0.59
[-5,5]	2.57%	2.251**	49	3.72%	2.723***	49	-1.15%	-0.646
[-10,10]	2.05%	1.594	49	3.28%	1.802*	49	-1.23%	-0.553
Sell-off								
[-1,1]	2.52%	6.432***	569	0.19%	1.06	576	2.33%	5.436***
[-3,3]	2.54%	5.664***	569	0.05%	0.198	576	2.48%	4.824***
[-5,5]	2.49%	5.076***	569	0.36%	0.632	576	2.13%	2.85***
[-10,10]	2.99%	5.097***	569	0.04%	0.079	576	2.95%	3.694***

The relative size variable for spin-offs are calculated by using the market cap of the parent firm and divested part, respectively, from the completion date. Sell-offs are calculated by using the deal value of the divestment and Enterprise Value (EV) of the parent firm at completion date. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

On the total sample, we find statistically significant results providing evidence on size matters in short-term value creation around announcement date. The theoretical argument regarding why relatively large divestments are generating higher CAARs could be, that the relatively large divestments unlock relatively larger value, as argued by Dranikoff, et al. (2002). Everything else being equal, a relatively larger divestment will generate a higher abnormal return than a relatively smaller. As the relative size of spin-offs are generally larger, then this characteristic could be contributing to the generally nominally higher announcement returns for compared to sell-offs, however, not statistically proven.

The sample of sell-offs of relative large size shows CAARs that are significantly higher than the sample of relative small sell-offs. The difference is significant across all event windows. The sell-off results are in accordance with those found by Hearth and Zaima (1984) and Klein (1986). By divesting a larger business unit, a firm benefits from the reduction in organizational complexity. In addition,

[37] The proxy variable for spin-offs are based on the market cap of the parent and divested part at completion date. Relative size for sell-offs are calculated by using the deal value of the divestment and Enterprise Value (EV) of the parent firm at completion date. The methodology of dividing the samples into large and small and similar to the one applied in the information asymmetry analysis.

investors and capital markets may expect the parent firm to better positioned towards realizing the full potential of the firm strategy.

Within the spin-off subsample, the results contradict our initial hypothesis. The results show that spin-offs of relatively small size realize significantly higher returns in the [-1,1] event window than firms spinning off larger business units. The same results are found in the other event windows with no statistical significance. For the spin-off sample, the results are surprisingly not consistent with the literature from Schipper and Smith (1983), Krishnaswami and Subramaniam (1999) and Veld and Veld-Merkoulova (2004 & 2008) for US and European spin-offs.

However, by applying the alternative method of dividing the subsamples, the sample of relatively small spin-offs becomes small as almost all spin-offs are relatively large when comparing sell-offs and spin-offs.[38] A argued by Nixon, Rosenfeld and Sicherman (2000), the explanation can be that the exercise of spinning out a business division only makes sense if the part to be divested has a minimum absolute size. Given that spin-offs in nature larger than sell-offs supports the results of spin-offs having generally higher nominal abnormal returns than sell-offs.
The results for spin-offs by applying the alternative method are different, as the large sample show higher CAARs, in accordance with the literature. Though, we still find no statistical evidence of a difference between the small and large spin-off samples. The small sample comprise 10 transactions making it difficult to perform an appropriate statistical analysis.

Based on our findings, we can, with a high degree of certainty, strongly accept the **H1f** for the total and sell-off sample. However, we weakly reject **H1f** for the spin-off sample as the sign of the differences in returns between relatively small and large spin-offs contradict **H1f**.

8.1.2.4. Financial quality of the seller

The objective of **H1g** is to test whether the financial quality of the parent firm prior to a divestment affects the CAARs around announcement. The financial quality of is measured by the Altman Z-score. The Altman Z-score is a strength test based on five financial ratios. Each parent firm receives an overall score based on the five ratios. Subsequently, the firms are divided into groups of low, medium and high quality.[39] According to **H1g,** a positive relationship between financial quality of the seller and short-term stock return is expected.

[38] In **Appendix 4**, a table with the results from the alternative categorization is presented.
[39] An elaboration of the Altman Z-score is to be found in **Appendix 5**.

Table 21: Overview of CAAR on parent quality (Altman Z-score)

Quality (Altman Z score)												
										Difference		
	Low			Medium			High			Low/Med	Med/High	High/Low
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*CAAR*	*CAAR*
Total												
[-1,1]	1.87%	4.749***	459	1.19%	4.639***	427	1.39%	3.09***	272	0.68%	-0.20%	-0.48%
[-3,3]	1.71%	3.777***	459	1.12%	3.538***	427	1.78%	3.472***	272	0.58%	-0.66%	0.08%
[-5,5]	1.63%	3.267***	459	1.04%	3.033***	427	2.05%	3.699***	272	0.58%	-1.00%	0.42%
[-10,10]	1.70%	2.981***	459	0.96%	2.129**	427	2.47%	3.211***	272	0.74%	-1.50% *	0.76%
Spin-off												
[-1,1]	2.36%	2.079**	38	1.73%	1.888*	29	3.44%	2.167**	28	0.63%	-1.71%	1.08%
[-3,3]	2.90%	2.512**	38	0.72%	0.62	29	4.32%	2.608**	28	2.19% *	-3.61% **	1.42%
[-5,5]	3.42%	2.294**	38	0.19%	0.151	29	5.02%	2.849***	28	3.23% *	-4.83% **	1.60%
[-10,10]	1.99%	1.204	38	-0.47%	-0.264	29	5.65%	2.614**	28	2.46%	-6.12% **	3.67%
Sell-off												
[-1,1]	1.82%	4.375***	421	1.15%	4.306***	398	1.16%	2.466**	244	0.67% *	0.00%	-0.67% *
[-3,3]	1.60%	3.318***	421	1.15%	3.489***	398	1.49%	2.756***	244	0.44%	-0.34%	-0.11%
[-5,5]	1.46%	2.783***	421	1.11%	3.092***	398	1.71%	2.92***	244	0.36%	-0.60%	0.24%
[-10,10]	1.68%	2.771***	421	1.07%	2.279**	398	2.10%	2.559**	244	0.61%	-1.03% *	0.42%

The quality variable, Altman Z score, are calculated from the parent firms latest reported financials prior to the announcement. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Focusing on the CAARs for the total sample across low, medium, and high, **Table 21** does not provide any evidence on a logical relationship between financial quality and CAARs. In the columns showing the differences in returns, we expected Low/Med and Med/High to have negative signs, and the High/Low to have positive signs. The results are generally mixed making it difficult to provide logical explanations for the CAAR levels between low, medium, and high samples.

For spin-offs, the results indicate that divesting firms of high financial quality realize higher returns than firms of low or medium financial quality. The difference between firms of medium and high quality is statistically significant at a 5% or 10% level, whereas the difference between the low- and high-quality firms is not significant. The explanation might be that investors favour spin-offs from high quality parent firms. As noted by Rosenfeld (1984), firms of high financial quality often have a more positive news flow compared to firms of lower quality, positively affecting the stock price development. Contrary, **Table 21** indicates that firms of low financial quality realize higher returns than firms of medium quality. As discussed in **Section 4.2.5**, an objective of spin-off might be to enhance future financing opportunities by increasing corporate financing flexibility of both the parent and the subsidiary. This mitigates underinvestment problems and reduce the costs of adverse selection making it less expensive to use the capital markets as source of funding in the future.

The results for sell-offs are more ambiguous. As expected, high quality firms generate higher returns than medium-quality firms in all event windows. However, in the [-1,1] and [-3,3] event windows, firms of low financial quality generate higher abnormal returns than high quality firms. Furthermore,

low quality firms realize higher returns than medium quality firms in all event windows. The high returns of low-quality firms are inconsistent with both Rosenfeld (1984) and Hearth and Zaima (1984) demonstrating that both sell-offs and spin-offs are positively related to the parent firm's financial quality prior to the divestment. Though, Rosenfeld used S&P equity ratings to determine the financial quality of the seller. One argument for a positive relationship between CAARs and the low-quality sell-off sample is that a sale generates cash proceeds, which could be used to reduce the risk of insolvency. By generating cash through a sell-off, a firm can potentially avoid bankruptcy or the need of taking on new expensive debt (Myers & Majluf, 1984). If a high possibility of bankruptcy is resulting in a large discount in accordance with trade-off theory (investors include a high discount in their assessment of the stock price), a reduction of the bankruptcy possibility might trigger a positive short-term stock return. Lang, Poulsen, and Stulz (1995) demonstrate an insignificant positive relationship between firms classified as poorly performing and the CAAR in the event window [-1,0]. However, the coherence is highly dependent on how management intends to use the proceeds. Our results support the findings Lang, Poulsen, and Stulz, though we have no data available on the use of proceeds. Therefore, we are not to conclude if the high returns for parent firms with low financial quality are due to optimization of the financial situation, avoidance of bankruptcy or alike.

In summary, we find no statistical evidence of a positive relationship between financial quality and short-term stock return across all samples resulting in a weakly rejection of **H1g**.

8.1.3. Regression analysis

The documented abnormal stock returns upon announcement of corporate divestments are further analysed in this section using regression analysis. The objective of the regression analysis is to provide additional insights about the sources of the wealth effect. The regressions serve the purpose of robustness checking the results from the cross-sectional tests above. We have applied the Ordinary Least Squares (OLS) method to investigate the relationship between the continuous dependent and independent variables.[40] In all regressions, prejudiced expectations about the signs of the explanatory variables are determined based on the literature review in **Section 4** represented by the hypotheses in **Section 5**.

Table 22 provides an overview of the regressions for the total sample including six univariate regressions with one independent variable and a multivariate regression including all independent variables. In all regressions, the dependent variable is CAR based on the [-1,1] event window. The regressions determine whether a linear relationship exists between the CAR of sample firms and the

[40] Applying OLS regression to test hypotheses requires two additional assumptions to be fulfilled in relation to the assumptions presented in **Section 6.1**. Please refer to **Appendix 7** for a discussion of the additional assumptions.

individual variables, and to what degree of significance. Additionally, a multivariate regression is completed to determine whether the variables remain significant when other variables are included. Uni- and multivariate regressions have also been applied on the subsamples of sell-offs and spin-offs, respectively, presented in **Appendix 6**. The most relevant results from the subsample analysis will be included in the discussion below.

Table 22: Regression analysis of CAR

Multivariate regression analysis of CAR								
		Univariate regression						Multivariate
Variable	*Expected sign*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Intercept		0.016***	0.018***	0.008**	0.018***	0.014***	0.015***	0.024***
FOCUS_INDUSTRY	+	-0.002						-0.004
FOCUS_GEO	+		-0.008**					-0.01**
RESIDUAL_STD	+			1.419***				1.476***
TOBINS_Q	-				-0.0004***			-0.001***
RELATIVE_SIZE	+					-0.00005**		0.003***
ALTMAN_Z-SCORE	+						0.003**	0.0002**
Transactions		1244	1244	1186	1222	1244	1158	1114
Adjusted R2		-0.001	0.003	0.005	0.009	0.004	0.004	0.030
F Statistics		0.194	4.278	7.428	11.827	5.850	5.994	6.684
Significance		0.660	0.039	0.007	0.001	0.016	0.014	0.000

Table 22 presents 6 univariate regressions (1-6) and one multivariate regression (7). For some of the variables, the number of transactions is lower due to missing data. Only firms with available data on all variables are included in the multivariate regression. The statistical significance of the means is tested using the simple t-statistic also used in the event study (Please see section 6.1 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

The first and second regressions concern the relationship between CAR and the refocusing motive including industry and geographical refocusing, respectively. The first regression shows a slightly negative relation between the CAR and the FOCUS_INDUSTRY variable indicating that focus increasing divestments have negative influence on abnormal return.[41] The result is inconsistent with our expectations based on the literature review, however statistically insignificant as in the event study. The result emphasize that we are not able to identify any difference in value creation between industry and non-industry focus increasing divestments. The FOCUS_GEO variable shows a negative relation to cumulative abnormal return with a statistically significant effect.[42] This result indicates that investors perceive geographical refocusing as a relative disadvantage to competitors operating internationally, similar to the result from the cross-sectional test. The result is similar to Veld and Veld-Merkoulova (2004), who is demonstrating a significant negative effect of geographical focus increasing divestments for a European sample. This is the opposite to our expected hypothesis. Overall, focus increasing divestments does not support our hypotheses regarding value creation in the applied regression analysis.

[41] For spin-offs, the FOCUS_INDUSTRY effect is positive whereas the effect is negative for sell-offs. In both cases, the FOCUS_INDUSTRY effect is insignificant.
[42] For spin-offs, the negative effect of FOCUS_GEO was not significant.

The third and fourth regressions relate to the relationship between CAR and pre-divestment information asymmetry. The third regression use the residual standard deviation of the market model adjusted daily stock returns in the year prior to announcement as a measure of information asymmetry. In accordance with previous findings and our hypothesis, the RESIDUAL_STD shows a highly significant positive effect on CAR. This indicates that firms with high residual standard deviations generate a higher abnormal return at announcement, supporting the findings in the event study. The fourth regression measures information asymmetry on Tobin's Q. In accordance with our hypothesis, the regression indicates a negative relationship between TOBINS_Q and the cumulative abnormal return significant at a 5% level. The result indicates that firms with lower levels of Tobin's Q, i.e., a lower market to intrinsic value, prior to the divestment announcement achieve higher abnormal returns around announcement. The fourth regression likewise supports the results from the event study regarding Tobin's Q.

Overall, our univariate regressions regarding information asymmetry gives similar results as the event study. As evident from **Table 22**, both proxy variables of information asymmetry the sign is in accordance with our hypothesis for sell-offs whereas the results for spin-offs are more ambiguous. Unexpectedly, the sign of the Tobin's Q variable is positive for the spin-off subsample indicate that firms with lower levels of pre-divestiture information asymmetry realize higher abnormal returns. However, the RESIDUAL_STD indicates the opposite relation between information asymmetry and abnormal returns. The results are somewhat consistent with the transparency motive for completing corporate divestments.

The fifth regression shows the relationship between the relative size of the divested business unit and the CAR. As expected, the RELATIVE_SIZE variable shows a significant positive effect for on abnormal returns. However, the effect is primarily related to sell-offs as the RELATIVE_SIZE variable shows an unexpected significant negative effect for spin-offs. For both samples, the effect of the variable is significant. Firms selling off business units of larger relative size yields higher abnormal returns around announcement. The result for sell-offs is in line with existing literature indicating that divestitures of relatively larger business units create significantly more value for shareholders compared to divestments of smaller business units.[43] On the other hand, the result for the spin-offs contradict previous findings regarding the relative size effect on CAR.

The sixth regression relates to the relationship between the financial status of the seller and CAR. The ALTMAN_Z-SCORE variable shows a significant negative effect on abnormal returns indicating that the CAR is higher for firms of lower financial health. The regression for the spin-off subsample shows an insignificant positive effect from ALTMAN_Z-SCORE variable whereas the regression for

[43] E.g. Klein (1986) and Lang et al. (1995).

the sell-offs subsample shows a significant negative effect. Thus, the expected positive relation between financial health and abnormal returns is only present for spin-off. The negative relationship for sell-offs might be explained by the theory presented by Myers and Majluf (1984) regarding the importance of cash proceeds for firms of low financial quality. Firms with lower financial health are probably more likely to use proceeds to repay debt and enhance capital structure, which is valued by investors. On the other hand, firms with better financial health are probably more likely to reinvest proceeds, which investors discount due to agency costs and the risk of management consumption of free cash flows.

The seventh and last regression includes all independent variables in a multivariate regression to check the robustness of their significance. The regression shows that FOCUS_GEO, TOBINS_Q, RESIDUAL_STD, ALTMAN_Z-SCORE and RELATIVE_SIZE remain significant. The multivariate regression model has an adjusted R square of 3.0% indicating that the included variable only explains a small part of the realized abnormal returns. Including more variables to the regression could probably increase the adjusted R-square of the model. However, correlation is not necessarily equal to causality. Simplicity is often preferred in regression models and adding more variables might affect the underlying economic rationale of the model. We focus on an outlined number of motives for corporate divestment selected based on theoretical arguments and review of existing literature. In addition, the R-square of the model in this thesis is consistent with the multivariate models presented in Prezas and Simonyan (2015) for a sample of US spin-offs and sell-offs.

Based on the regression models presented above, we provide empirical evidence for that the value creation in corporate divestments are significantly affected by the pre-divestment information asymmetry, the financial health of the seller and the relative size of the divested business unit. The results show that CARs are higher for firms with high information asymmetry and low financial health divesting a relatively large subsidiary that does not increase geographical focus. Even though industry corporate refocusing is the most cited argument for divesting a business unit, we do not find the motive to affect value creation on short-term.

8.2. Long-term stock performance

The analysis above documented a positive CAARs associated with the announcement of corporate divestments. As previously described, academics and practitioners have increasingly questioned whether investors and capital markets always can estimate the full effect of a corporate event at the announcement. Therefore, in this section we investigate whether corporate divestments are associated with long-term abnormal returns. As described in **Section 6.2**, we measure long-term buy-and-hold stock returns, by using MSCI country specific indexes and MSCI Europe index as benchmarks.

We have applied two indexes to increase robustness of the results. Lastly, the returns of sample firms are benchmarked against 48 industry portfolios comprising US listed firms.

The BHAR represents the return an investor in the parent firm parent would have achieved in a specified period following completion of the corporate divestment. Due to the different characteristics of a spin-off and a sell-off, one should carefully consider how stock returns are analysed and compared. In an interfirm sell-off transaction, the total value creation for existing shareholders is reflected in the stock return of the parent firm. For a spin-off, the business unit is divested by distributing all shares in the subsidiary to the current shareholders without any cash payments involved. Thus, the total value creation for existing shareholders equals the return of both the parent and the new listed subsidiary.
Figure 11 illustrates the development in the indexed ABHAR throughout a three-year holding period for sell-off parents, spin-off parents and spin-off subsidiaries, respectively.

Figure 11: Long-term ABHAR

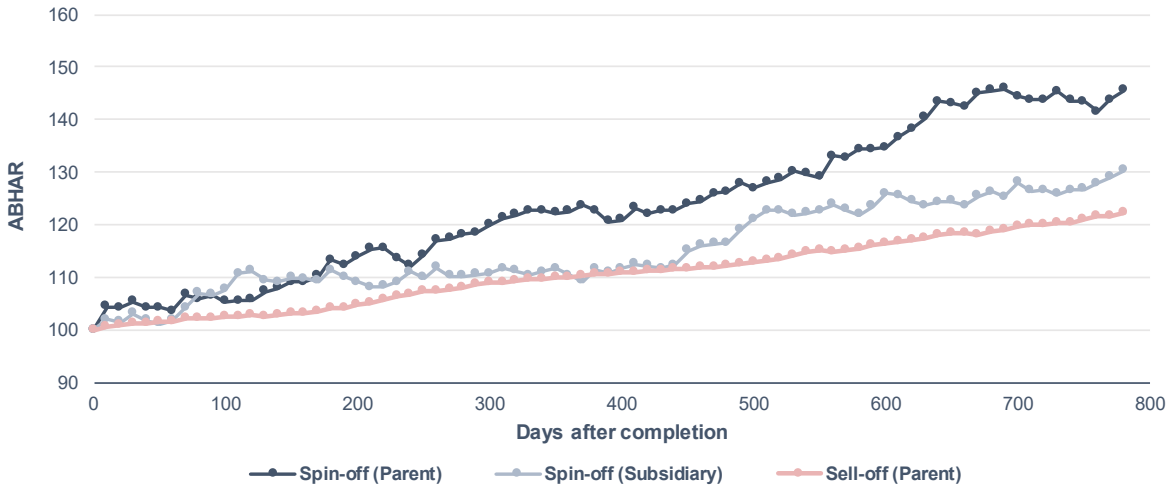


Figure 11 presents the buy-and-hold returns caluculated using country specific MSCI indexes downloaded from S&P Capital IQ. The average buy-and-hold abnormal returns are indexed for 780 trading days following the completion date which is used as the base year.

As evident from the graph, firms engaged in both sell-offs and spin-offs realize positive abnormal returns in the three-year holding period following completion. The development in ABHAR for both types of divestment follows the same trend. However, the development in ABHAR for spin-offs is generally stronger particularly in year two and three compared to sell-offs. Interestingly, both the parent and the new listed subsidiary in spin-off transactions realize high positive ABHAR indicating that substantial value is freed up when firms are publicly trading as separate entities. The development of ABHAR in spin-offs is also interesting compared to previous empirical studies demonstrating that firms completing IPO's significantly underperform comparable firms matched by size and industry (Ritter, 1991).

The BHARs are analysed and tested for holding periods of one, two and three years following the completion date for sell-offs and the first trading day of subsidiaries for spin-offs. In order to compare the performance of sell-offs and spin-offs, total shareholder value creation of spin-offs is measured by the BHAR of a combined proforma firm. BHAR of a combined proforma firm is calculated as a weighted return based on the relative size of the parent and the subsidiary at the first trading day following the completion of the transaction. The ABHARs for proforma firms engaged in spin-offs and parent firms engaged in sell-offs are presented in **Table 23** below.

Table 23: Long-term stock return

Long-term stock return (ABHAR)											
	Total Sample			Sell-off (Parent)			Spin-off (Proforma)			Difference	
Holding Period	*ABHAR*	*t-statistic*	*Wilcoxon*	*ABHAR*	*t-statistic*	*Wilcoxon*	*ABHAR*	*t-statistic*	*Wilcoxon*	*ABHAR*	*t-statistic*
Country Specific MSCI Index											
Year 0 to 1	**7.1%**	6.288***	3.447***	**6.8%**	5.949***	-0.078***	**10.5%**	2.037**	1.024	**3.67%**	0.697
Year 0 to 2	**13.5%**	7.864***	4.303***	**13.0%**	7.471***	0.638***	**19.5%**	2.462**	1.342**	**6.47%**	0.798
Year 0 to 3	**22.6%**	9.617***	5.484***	**21.7%**	9.082***	1.48***	**33.2%**	3.152***	2.263***	**11.49%**	1.065
MSCI Europe Index											
Year 0 to 1	**7.9%**	6.32***	3.645***	**7.4%**	6.447***	0.232***	**13.7%**	1.593	0.507	**6.29%**	0.726
Year 0 to 2	**14.6%**	7.768***	4.431***	**13.9%**	7.8***	0.842***	**23.7%**	1.966*	0.978	**9.79%**	0.804
Year 0 to 3	**24.3%**	9.409***	5.588***	**23.0%**	9.395***	1.667***	**39.9%**	2.441**	1.942***	**16.88%**	1.021

Table 23 presents average buy-and-hold abnormal returns for holding periods of one, two and three years for sell-offs (n = 1,030) and proforma spin-off firms (n = 86). Abnormal returns are calculated using two different value-weighted benchmarks; Country specific MSCI indexes and the broad *MSCI Europe Index .The statistical significance of the average BHARs are tested using the simple t-stattistics test and the Wilcoxon Signed-Rank test (Please refer to section 6.2 for further information). The p-value of the test statistics have been applied to determine the level of significance at 1% (***), 5% (**) and 10% (*).*

Table 23 show that firms completing corporate divestments significantly outperform the market in the three-year holding period following completion of the divestment transaction. The ABHARs in all samples are positive and increasing in all years indicating enhanced value creation in firms divesting a business unit. As evident, positive ABHARs are found using both country specific MSCI indexes and the MSCI Europe index. The ABHAR of all holding periods are significantly different from zero using both for the t-statistic and the Wilcoxon signed-rank test.

Firms in the sell-off subsample realize ABAHRs using country specific indexes as benchmark of 6.8%, 13.0% and 21.7% in the one-, two- and three-year holding period, respectively. The positive ABHARs of sell-offs are highly significant on a 1% significance level across all holding periods in both tests. Considering the sample size and level of significance from both tests, ABHAR implies rather robust results indicating that firms completing sell-offs generate abnormal returns. Thereby, the results indicate that the announcement effect does not capture the total value creation of sell-offs. Though, it is important to note that the long-term stock return might be affected by overlapping

events as the data sample include firms having completed multiple corporate divestments.[44] According to Brauer and Schimmer (2010), investors are likely to attribute more value to corporate divestment programs including multiple divestitures than isolated divestitures. Thereby, ABHAR does not necessarily reflect the abnormal return associated with the completion of one sell-off. Instead, the results indicate that firms continuously evaluating their business portfolio selling off business units are associated with long-term abnormal stock returns. The results are consistent with Bates (2005) who documented positive abnormal returns in up to two years after a sell-off.

The proforma combined firms in the spin-off subsample realize ABAHRs using country specific indexes on 9.5%, 18.0% and 31.3% in the one-, two- and three-year holding period, respectively. The returns are statistically significant but the one- and two-year ABHARs are only significant at 10% and 5% levels of significance. The level of significance is weaker from the Wilcoxon signed-rank test as the test accounts for sign and magnitude of the BHARs indicating non-normality dispersion in the data sample. This indicates that the positive BHARs to some degree is driven by a few firms with high positive returns. However, the abnormal returns are rather robust. The results using the broad MSCI Europe index as benchmark also indicate highly positive, however less significant, ABHARs.

Overall, **Table 23** indicates that firms engaged in spin-offs generate long-term abnormal stock returns. Though, the results for spin-offs should be carefully interpreted as the returns are less statistically significant and thereby less robust compared to the returns identified for sell-offs. The lower level of significance is caused by a minor sample of transactions and much more dispersion in the observed BHARs. Specifically, there are large differences in the BHARs of proforma combined firms in the spin-off sample indicating that BHAR depends on firm specific characteristics. The results for spin-offs are comparable with results from existing empirical studies including Cusatis, et al., (1993) and Desai and Jain (1999) on US spin-offs. However, the three-year ABHAR found in this thesis is statistically more significant, which may be explained by sample differences. The positive BHARs in this thesis are larger and more significant than results of Veld and Veld-Merkoulova (2004) and Sudarsanam and Qian (2007) for European samples as both articles have demonstrated insignificant long-term stock returns for proforma firms in the three-year holding period. The difference might be explained by differences in the benchmark. Veld and Veld-Merkoulova (2004) applied the matching firm method, which might better capture industry-specific development. However, the method includes potential biases in selecting proper matching firms.

The results presented above indicate that spin-offs are associated with higher long-term abnormal return compared to sell-offs, particularly in the three-year holding period. However, the BHARs of

[44] An example from the data sample is Rentokil Initial Plc. In 2006, the firm announced a divestment program concerning their guarding and security business with the objective of refocusing on strategy on more profitable businesses. As a result, multiple sell-offs were completed in 2006 and 2007 realizing a three-year BHAR of around 20%.

sell-offs are more statistically significant compared to spin-offs. **Table 23** includes tests statistics on the difference in ABHAR between sell-offs and spin-offs. The difference in BHAR is not statistically significant in any of the holding periods, and the conclusion is the same whether country specific MSCI indexes or MSCI Europe index is used as benchmark. Thereby, spin-offs cannot be interpreted as more value creating than sell-offs on long-term. Interestingly, the insignificant differences in returns identified in this thesis contradicts findings of Prezas and Simonyan (2015) for a US sample, who found that firms divesting through sell-offs realize significantly higher post-divestiture long-term stock returns.

The results indicate potential long-term value enhancements in firms completing corporate divestments. If the EMH was complete, corporate divestments should not be associated with any long-term BHARs significantly different from zero as presented by **H2**. However, this findings indicate that the announcement effect does not capture the total value effects of corporate divestments questioning the semi-strong market hypothesis. The results indicate that firms engaged in corporate divestments realize significant positive long-term abnormal stock returns. Thus, **H2** is strongly rejected for the total sample of corporate divestments. For sell-offs, the positive ABHAR is significant at the one percentage significant level in all holding periods resulting in a strong rejection of **H2**. The positive ABHARs for spin-offs are highly significant in the three-year holding period. The returns are less significant in the one- and two-year holding period, though **H2** for spin-offs is still strongly rejected.

In a concluding remark, the results presented above are associated with high uncertainty as firm's stock returns over longer periods are highly influenced by announcements of other firm specific events and firm specific irrationality.

Figure 12: Long-term buy-and-hold abnormal stock returns – industry adjusted

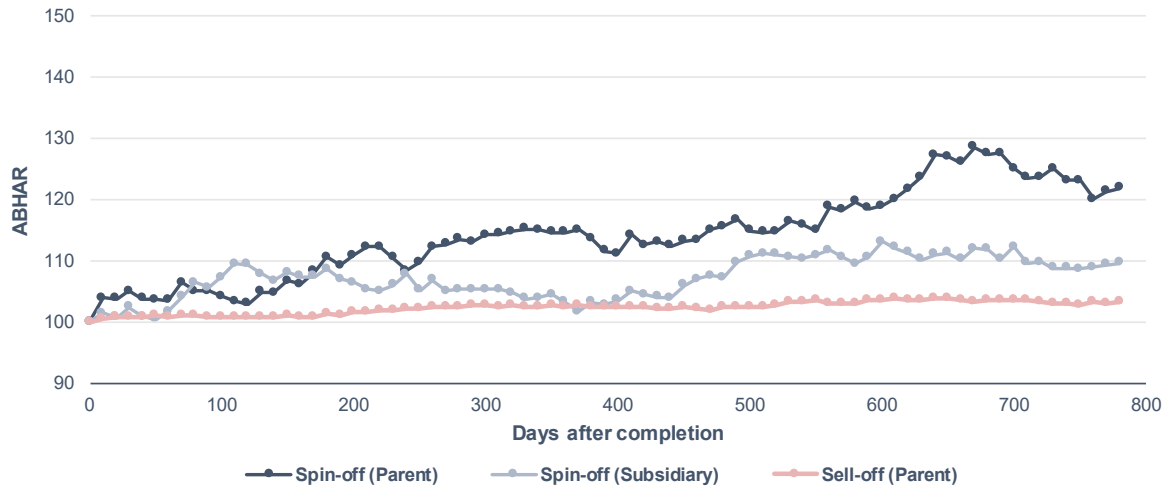


Figure 12 presents the buy-and-hold returns caluculated using 48 value weighted industry portfolios comprising US listed firms downloaded from Kenneth French's Library. The average buy-and-hold abnormal returns are indexed for 780 trading days following the completion date which is used as the base year.

Furthermore, the analysis of long-term stock performance using BHAR should be interpreted carefully as the results are highly impacted by the benchmarks applied. To illustrate this point, **Figure 12** presents ABHARs using 48 industry portfolios to account for the industry development. In this graph, the abnormal returns are generally lower compared to results obtained using MSCI country indexes and the broad MSCI Europe index. Specifically, the abnormal returns of firms divesting through sell-offs are almost eliminated when adjusting for returns of firms in the same industry. However, the industry adjustments are determined based on US firms only, which might influence the findings. On the other hand, firms engaged in spin-offs appear to outperform even when adjusting for the industry development. Simultaneously, none of the abnormal return methodology applied thus far accounts for the stocks correlation to the market. Overall, there are various pitfalls in the use of the benchmarks. The literature does not give one unambiguous answer to the most optimal methodology or benchmark, when determining long-term abnormal returns. Based on the discussion above, the identified abnormal returns for firms engaged in corporate divestments should therefore be carefully interpreted.

8.3. Long-term operating performance

The analysis of shareholder value presented above is based on stock returns, which is considered forward-looking as stock prices include investors' future expectations. As discussed in **Section 3**, stock returns may also be affected by irrational investor sentiments and other inefficiencies. In opposite, accounting based performance measures are backward looking providing tangible measures of realized performance. Ultimately, it is the strategic relevance of a divestment that drives the impact on future earnings and thus the stock market return (Brauer & Schimmer, 2010). Analysing operating performance measures enables an interpretation of whether the abnormal stock returns identified in **Section 8.1** and **Section 8.2** are founded on changes in firms' fundamentals. Specifically, this section concerns post-divestiture operating performance of firms engaged in corporate divestments.

Changes in operating performance are analysed and tested over a three-year period from year -1 to year 2 with the year of divestment completion serving as year zero.[45] The analysis includes changes in ROA from year 1 to year 2 to determine whether positive or negative divestment related performance changes are reversed in the second year. **Table 23** provides an overview of changes in operating performance for the total sample of corporate divestments and related results for subsamples of sell-offs and spin-offs.

[45] The definition of year zero is consistent with Desai and Jain (1999). For some of the transactions included in the sample, the divestment is announced in year –1 and completed in year 0. Those transactions might create noise in the results due to classification of '*discontinued operations*' in the announcement year affecting the change in ROA EBIT and ROA EBITDA from year –1 to year 0 which might be positively biased.

Table 24: Long-term operating performance

Operating performance

Long-term operating performance														
	Total Sample				Sell-off (Parent)				Spin-off (Parent)				Difference	
Year	***Adj.***	*Wilcoxon*	***Unadj.***	*Wilcoxon*	***Adj.***	*Wilcoxon*	***Unadj.***	*Wilcoxon*	***Adj.***	*Wilcoxon*	***Unadj.***	*Wilcoxon*	***Adj.***	***Unadj.***
ΔROA EBIT														
Year -1 to 0	**0.21%**	1.679***	**0.21%**	2.072***	**0.18%**	1.274**	**0.19%**	1.687***	**0.95%**	1.577**	**0.48%**	1.691**	**-0.78%**	**-0.28%**
Year 0 to 1	**0.24%**	2.624***	**0.28%**	2.418***	**0.22%**	2.264***	**0.25%**	2.047***	**0.73%**	1.51**	**1.05%**	1.521**	**-0.51%**	**-0.79%**
Year 1 to 2	**0.37%**	2.995***	**0.28%**	1.794***	**0.38%**	3.255***	**0.30%**	2.085***	**0.19%**	-0.143	**0.00%**	-0.418	**0.19%**	**0.30%**
Year 0 to 2	**0.57%**	3.523***	**0.50%**	2.104***	**0.55%**	3.446***	**0.50%**	2.102***	**0.83%**	0.886	**0.60%**	0.421	**-0.28%**	**-0.10%**
ΔROA EBITDA														
Year -1 to 0	**0.10%**	0.715	**0.16%**	0.789	**0.03%**	0.19	**0.10%**	0.194	**0.79%**	1.831***	**0.92%**	2.042***	**-0.76%**	**-0.82%**
Year 0 to 1	**0.31%**	2.531***	**0.29%**	1.411**	**0.26%**	2.12***	**0.22%**	1.007*	**0.96%**	1.723**	**1.03%**	1.457**	**-0.70%**	**-0.82%**
Year 1 to 2	**0.31%**	2.762***	**0.23%**	1.267**	**0.34%**	3.003***	**0.27%**	1.544**	**-0.07%**	-0.126	**-0.10%**	-0.515	**0.41%**	**0.36%**
Year 0 to 2	**0.67%**	3.253***	**0.24%**	0.999*	**0.61%**	3.009***	**0.22%**	0.875	**1.16%**	1.261*	**0.49%**	0.632	**-0.55%**	**-0.27%**
ΔROA Cash														
Year -1 to 0	**-0.06%**	-0.521	**-0.10%**	-0.865	**-0.05%**	-0.585	**-0.07%**	-0.741	**-0.16%**	0.316	**-0.39%**	-0.272	**0.12%**	**0.32%**
Year 0 to 1	**-0.12%**	-1.001	**-0.03%**	-0.854	**-0.15%**	-1.053	**-0.04%**	-1.053	**-0.05%**	0.503	**0.38%**	0.647	**-0.10%**	**-0.42%**
Year 1 to 2	**0.35%**	2.171***	**0.33%**	1.646**	**0.34%**	1.526**	**0.33%**	1.526**	**0.52%**	0.728	**0.20%**	0.682	**-0.18%**	**0.13%**
Year 0 to 2	**0.12%**	0.903	**0.20%**	0.7	**0.10%**	0.538	**0.16%**	0.538	**1.04%**	0.848	**0.71%**	0.793	**-0.94%**	**-0.55%**

Table 24 presents median changes in unadjusted and benchmark adjusted ROA based on EBIT, EBITDA & Cash Flow from Operations for sell-offs (n = 1,011) and proforma spin-off firms (n = 89). Only changes in operating performance for the parent firms are illustrated thereby excluding performance of divested business units (only relevant for spin.offs). The statistical significance of the median operating performance changes are tested using the Wilcoxon Signed-Rank test (Please refer to section 6.3 for further information). The p-value of the test statistics have been applied to determine the level of significance at 1% (***), 5% (**) and 10% (*)

Table 24 indicates that corporate divestments are associated with improvements in operating performance. Both unadjusted and benchmark adjusted changes in ROA EBIT and ROA EBITDA are significantly different from zero from year 0 to year 2. The positive changes in adjusted ROA EBIT and ROA EBITDA are higher compared to unadjusted ROA indicating that changes in operating performance is not only caused by industry factors. Thus, the sample firms appear to improve performance more than the group of control firms. The enhanced performance is less unequivocal considering ROA Cash where changes are not statistically significant. Interestingly, the changes in ROA cash are negative in the first two periods, which might be explained by unusual items such as restructuring costs not included in EBIT and EBITDA. This was expected as completion of corporate divestments require substantial restructuring costs for the adaption of new internal processes, procedures and information flows after the subsidiary is disposed. These costs are usually classified as non-operating and non-recurring items in the income statement. In the Capital IQ database, costs related to restructuring activities and realignment of business strategy are categorised as Restructuring Charges. Thus, the restructuring costs of corporate divestments are not included in EBIT and EBITDA measuring long-term normalized profitability. However, the restructuring costs are included in Net Income captured by ROA Cash. This might explain the negative changes in ROA cash from year -1 to 1 compared to the positive changes in ROA EBIT and ROA EBITDA in the same years.

Firms engaged in sell-offs realize positive changes in both unadjusted ROA EBIT and ROA EBITDA from year -1 to year 0, but the positive changes in adjusted ROA are less positive. In the years after the sell-off is completed, sample firms realize an average change in unadjusted ROA EBIT on 0.50% significantly different from zero. The improvement becomes larger when adjusting for industry de-

velopment effects. Changes in unadjusted and adjusted ROA EBITDA are too positive but less significant. Ultimately, the results indicate that firms selling of businesses experience tangible operating improvements measured by ROA EBIT and EBITDA. Furthermore, the results indicate that enhanced performance is realized over time as the changes are significantly positive in both year 1 and year 2 after the transaction is completed. The positive changes in both adjusted ROA EBIT and ROA EBITDA are larger than unadjusted figures. Thus, improved performance is not only caused by general improvement in the parent's industry. The results for sell-offs measuring performance on ROA EBIT and ROA EBITDA are consistent with the significant performance improvements identified by John and Ofek (1995) on a US sample. As described for the total sample, the change in ROA Cash for sell-offs is negative from year -1 to year 1. However, the overall change from year 0 to year 2 is positive on 0.1% but insignificant.

Firms engaged in spin-offs also realize improvements in operating performance. As evident in **Table 24**, the changes in unadjusted and adjusted ROA EBIT are positive in both year 0 and year 1. In both years, the changes are statistically significant. As we only include the performance of the parent firm, the positive change in ROA EBIT might be explained by the separation of a low performing business unit with lower key ratios. According to Desai and Jain (1999), firms are more likely to spin-off underperforming business units. Thereby, the change in year 0 is not necessarily caused by improvements in the underlying operating performance of the parent firm. The development in unadjusted ROA EBIT in year 2 is flat, but the firm benefits from decreased performance of matching firms resulting in a positive change in adjusted ROA EBIT. Overall, the change in adjusted ROA EBIT from year 0 to year 2 is 0.62% but insignificant. Almost the same results are found for ROA EBITDA. For spin-offs, the change in unadjusted ROA Cash is negative from year -1 to year 0, whereas the change from year 0 to year 1 becomes negative when adjusting for industry development. However, the overall development in both unadjusted and adjusted ROA Cash from year 0 to year 2 is positive but insignificant. The results for spin-offs are comparable with previous findings by Daley et al. (1997) and Desai and Jain (1999) on US samples. However, the operating performance improvements found in this study are less statistically significant. One explanation could probably be that performance of spin-offs only consider efficiency improvements in parent firms whereas the other studies investigate the performance of proforma firms including performance changes in both parent and subsidiary. In addition, the articles use a US sample whereas we have not been able to identify any peer-reviewed articles investigating the performance of spin-offs on a European sample.

The results presented above indicate that parent firms engaged in corporate divestments realize improvements in operating performance. Thus, the previously identified positive long-term abnormal stock returns seems to be founded in operational improvements. Specifically, significant improvements in operational performance measured by ROA EBIT and ROA EBITDA are found for firms engaged in sell-offs whereas performance changes in spin-offs are positive however less statistically

significant. The lower level of significance is caused by a much larger dispersion in the operating performance of parents in the spin-off sample. For both sell-offs and spin-offs, the improvements in performance measured by ROA Cash are less unequivocal. As FASB perceive accrual income superior to cash flow, we base our hypothesis assessment on ROA EBIT and ROA EBITDA. Hence, **H3** is strongly accepted for the total and sell-off sample and weakly accepted for the spin-off sample. When drawing inferences of the results obtained, one should be aware that changes in operating performance might emerge from other firm specific events. Therefore, the results should be carefully interpreted. However, the findings indicate that divestiture is a value creating restructuring tool for management to restructure and improve operating performance.

We do not investigate the publicly stated motives for firms completing divestments. Though, the results can be interpreted in relation to the motives presented in **Section 4.2**. The results regarding operating performance in firms engaged sell-offs indicate that sell-offs are driven by efficiency motives with the objective of eliminating negative synergies and thus improving the profitability and efficiency of the firm's remaining assets. As previously mentioned, many sell-off firms have a low Altman Z-score prior to the divestment indicating that sell-offs might be motivated by the desire to dispose underperforming business units and invest proceeds more efficiently. The financing motive might also cause firms to sell-off a business unit to raise funds for investments in projects with higher returns increasing the total ROA of the firm. As mentioned in the analysis of long-term stock returns, the performance of sell-offs might be affected by firms engaged in multiple overlapping sell-offs. Thus, the observed performance improvements might be the result of several divestments rather than a "stand-alone" divestment. According to Brauer and Schimmer (2010), operational performance changes a more like to materialize from multiple divestments rather than a single divestment.

The results regarding operating performance in firms engaged spin-offs indicate that spin-offs are not only driven by the motive to increase corporate transparency. Although, the change in operating performance is insignificant, the positive changes indicate that spin-offs are driven by efficiency motives. The observed improvements in operating performance of the parent firm might be explained by lower cost of decision management and decision control. After the spin-off, the parent firm might be able to optimize allocation of financial and managerial resources and improve decision initiation, implementation, and control. In addition, improved efficiency might also be explained by the disposal of underperforming business units which the parent is no longer committed to cross-subsidize. Some of the total long-term improvements in operating performance might be located in the divested subsidiary, which is not investigated. As any changes in operating performance of the subsidiary would benefit the existing shareholders, this analysis may not capture the total benefits of divesting through a spin-off.

As described in **Section 4.2.2.**, the efficiency improvement motive is close related to the refocusing motive. Ultimately, the objective of refocusing the corporate strategy and streamline the business by divesting business units in unrelated industries is to improve profitability and efficiency. In accordance, existing empirical studies find significant operating performance improvements for focus-increasing divestments whereas performance improvements in non-focus increasing divestments are less documented.[46] To investigate the refocusing motive, the operational performance measured by ROA EBIT has been analysed on subsamples of focus-increasing and non-focus increasing divestments presented in **Table 25**.

Table 25: Long-term operating performance on industry refocusing

Long-term operating performance (Focus versus Non-focus)										
ROA (EBIT)	Focus				Non-focus				Difference	
Year	***Adj.***	*Wilcoxon*	***Unadj.***	*Wilcoxon*	***Adj.***	*Wilcoxon*	***Unadj.***	*Wilcoxon*	***Adj.***	***Unadj.***
Total sample										
Year -1 to 0	**0.20%**	1.534**	**0.30%**	2.005***	**0.21%**	0.811	**0.16%**	0.832	**-0.01%**	**0.14%**
Year 0 to 1	**0.27%**	2.324***	**0.30%**	1.754***	**0.19%**	1.353**	**0.23%**	1.712***	**0.09%**	**0.08%**
Year 1 to 2	**0.31%**	1.871***	**0.23%**	0.773	**0.44%**	2.537***	**0.35%**	1.968***	**-0.13%**	**-0.12%**
Year 0 to 2	**0.53%**	2.518***	**0.35%**	0.909	**0.57%**	2.562***	**0.77%**	2.313***	**-0.04%**	**-0.42%**
Spin-off										
Year -1 to 0	**1.04%**	1.163*	**0.46%**	1.111*	**0.95%**	1.314*	**0.93%**	1.437**	**0.09%**	**-0.47%**
Year 0 to 1	**0.59%**	1.066	**1.01%**	1.34*	**0.82%**	1.296*	**1.17%**	1.042	**-0.23%**	**-0.16%**
Year 1 to 2	**0.17%**	-0.17	**-0.61%**	-0.541	**0.19%**	0.197	**0.21%**	0.197	**-0.02%**	**-0.83%**
Year 0 to 2	**1.01%**	0.637	**0.63%**	0.37	**0.31%**	0.817	**0.24%**	0.385	**0.70%**	**0.39%**
Sell-off										
Year -1 to 0	**0.14%**	1.308**	**0.28%**	1.809***	**0.18%**	0.439	**0.09%**	0.449	**-0.03%**	**0.19%**
Year 0 to 1	**0.26%**	2.134***	**0.28%**	1.474**	**0.15%**	0.993*	**0.14%**	1.468**	**0.11%**	**0.14%**
Year 1 to 2	**0.33%**	2.041***	**0.28%**	1.026*	**0.45%**	2.766***	**0.35%**	2.144***	**-0.12%**	**-0.08%**
Year 0 to 2	**0.51%**	2.465***	**0.29%**	0.861	**0.59%**	2.52***	**0.78%**	2.408***	**-0.07%**	**-0.48%**

Table 25 presents median changes in unadjusted and benchmark adjusted ROA EBIT for focus increasing (649 sell-offs and 48 spin-offs) and non-focus increasing (362 sell-offs and 41 spin-offs) divesments. Only changes in operating performance for the parent firms are illustrated thereby excluding performance of divested business units (only relevant for spin.offs). The statistical significance of the median operating performance changes are tested using the Wilcoxon Signed-Rank test (Please refer to section [X] for further information). The p-value of the test statistics have been applied to determine the level of significance at 1% (***), 5% (**) and 10% (*)

Contradictory to existing literature on US samples, we find no evidence that parent firms engaged in cross-industry divestments realize more significant performance improvements compared to own-industry divestments. For firms engaged in sell-offs, changes in adjusted performance are actually more positive following non-focus divestitures compared to focus increasing divestitures. For spin-offs, focus increasing divestitures seem to realize larger improvements but performance changes following both focus and non-focus increasing spin-offs are highly insignificant. Thus, whether firms divest business units in the same industry or in different industries seems not to have a large impact on the change in operating performance. The undocumented effect of industry refocusing on changes in operating performance is consistent with undocumented effect of the refocusing motive on short-term stock returns. As previously explained, one explanation might be that SIC codes are an inadequate measure of refocusing motives. Divestments might be driven by a refocusing motive

[46] Significant performance improvements were identified for parent firms increasing focus by divesting business units in other industries through sell-offs (John & Ofek, 1995) and spin-offs ((Daley, et al., 1997) and Desai & Jain (1999)) compared to insignificant performance improvements for non-focus increasing divestments.

even though the firms have the same SIC code. Due to mixed results with no statistical significance, we weakly reject **H3a** for all samples.

8.4. Practical example of findings

In the last section of empirical findings, an example from the data sample is presented to illustrate our data and findings in a more practical context. The objective of this section is to provide the reader with a more exhaustive understanding of the findings. The objective of this section is not to provide the reader with a complete understanding of the value creation in a specific case, but rather translating the findings of this thesis into practical observations. As spin-offs allow for tracking of the performance of both parent firm and divested business unit, we will look deeper into one of the spin-off observations.

On the 16th of February in 2016, Addtech announced the spin-off of the subsidiary AddLife. Addtech operates as an industrial conglomerate with subsidiaries within niche markets of high-tech products and solutions. The strategy of Addtech is threefold; market leading positions, operational mobility and acquisitions (Addtech, 2021). An important part of Addtech's strategy is acquiring businesses within their area of expertise with high potential of growth and profitability. Therefore, Addtech comprises many independent business units having acquired 10 to 14 firms each year over the past 5 years. The independency of business units is likewise a part of the strategy. Addtech's decentralised organisation enables them to maintain the original brands and key employees.

Prior to the divestment, Addtech had two primary divisions, specifically industrial markets and healthcare, whereas AddLife was responsible for all activities within healthcare. AddLife, is a leading operator within Life Science and primarily addresses the healthcare sector; *"AddLife sells primarily to Nordic healthcare providers, largely through public procurement."* (AddLife, 2021). Even though both firms are based in Sweden with northern Europe as their main markets, the firms had limited synergies. The healthcare industry focus of AddLife differentiates from the rest of the Addtech Group as AddLife is selling through public procurement whereas the other business units in Addtech are focusing on industrial markets.

We have gathered data and results from our analysis regarding Addtech and their divestment of AddLife. The overview is presented in **Figure 13** below:

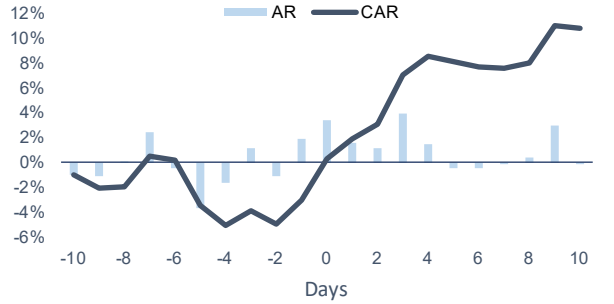
Figure 13: Analysis of Addtech divestment of AddLife

Spin-off: Addtech's divestment of AddLife

Firm characteristics

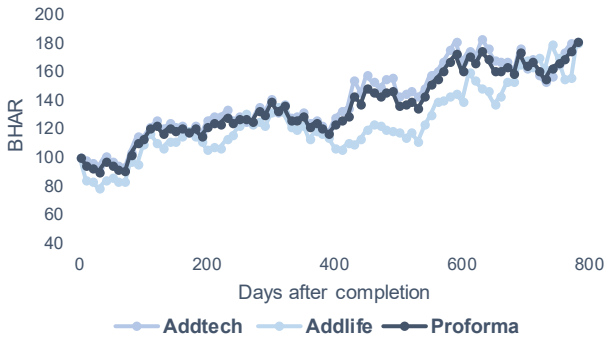
Variable	Value	Description
Industry refocusing	1	Addtech SIC Code: 50 AddLife SIC Code: 38
Geographical refocusing	0	Addtech location: Sweden AddLife location: Sweden
Tobin's Q	1 (Low)	Pre-divesture Tobin's Q on 2.4 indicating low information asymmetry
Idiosyncratic volatility	1 (High)	Pre-divesture idiosyncratic volatility on 0.005 indicating high information asymmetry
Relative size	1 (High)	Relative size of AddLife on first trading day was 26.5%
Altman Z-Score	4.8 (High)	Pre-divesture Altman Z-score on 4.8 indicating strong financial status

Cumulative abnormal return



[-1,1] = **6.8%** [-3,3] = **12.1%** [-5,5] = **7.9%** [-10,10] = **10.8%**

Buy-and-hold abnormal return



Operating performance

	ΔROA EBIT		ΔROA EBITDA		ΔROA Cash	
	Adj.	*Unadj.*	*Adj.*	*Unadj.*	*Adj.*	*Unadj.*
Year -1 to 0	0.07%	0.05%	-0.54%	0.39%	-2.19%	-2.84%
Year 0 to 1	2.42%	2.73%	2.08%	2.92%	-0.36%	0.87%
Year 1 to 2	-1.59%	-0.64%	-0.55%	-0.65%	-1.71%	-2.50%
Year 0 to 2	0.83%	2.09%	1.53%	2.28%	-2.07%	-1.64%

In our sample, Addtech's divestment of AddLife is registered as an industry refocusing divestment, as their SIC-codes diverts from one another. However, the divestment is not registered as increasing the geographical focus. Generally, this is in line with the perception of the divestment presented by the management in the press release in connection to the spin-off announcement. In the press release, one of the underlined motives was *"A listing of AddLife opens up excellent opportunities to increase the company's exposure and focus on the Life Science market. (…). The spin-off will benefit both AddLife and Addtech, allowing each company to focus on its respective core market."* (Addtech, 2016). Prior to the divestment, the firm had two independently operating industrial and healthcare divisions with different characteristics and market drivers. The different characteristics of the industrial and healthcare divisions resulted in limited corporate synergies. The statement clearly emphasizes the motive of the divestment, as the transaction enables both Addtech and AddLife to get more exposure and increase focus on the core business. This correspondents with the arguments about corporate refocusing presented by Kaplan and Weisbach (1992) and Schipper and Smith (1983).

This case also illustrates some of the challenges using one primary SIC Code as proxy variable for refocusing, as Addtech comprises +130 subsidiaries within different industrial focused industries.

In relation to information asymmetry, the idiosyncratic volatility measure reflects a high degree of information asymmetry in Addtech, while the Tobin's Q measure reflects the opposite, a low degree of information asymmetry. This showcases an example of the challenges in applying proxy variables. The literature does not conclude any specific measure of information asymmetry as superior, but rather suggests a variety of measures. Each measure has flaws and advantages as they are only proxies for an underlying factor. Therefore, the analysis of certain characteristics for the specific observation are highly dependent on the choice of measure. Thus, we have tried to accommodate this by applying two measures of information asymmetry, which in some cases generates conflicting results.

In accordance with Nanda and Narayanan (1999), reducing the level of complexity and information asymmetry was explicitly stated as a motive for Addtech to divest AddLife; "*The visibility of both Addtech and AddLife will increase by focusing and streamlining operations in this way (…)*" (Addtech, 2016). In addition, the management also stated that the spin-off enables shareholders to adjust their portfolios of shares from Addtech and AddLife, accordingly, to whatsoever personal preferences there might be *"(…) the division will make it easier to analyse each business separately, while allowing shareholders to adjust their holdings in Addtech and AddLife, respectively, based on personal preference.*" (Addtech, 2016). Hence, Addtech and AddLife was expected to be more transparent and, thus, more straightforward for capital market participants to analyse, making the separate entities more attractive for investors.

The relative size of AddLife was 24.9%, which categorized the divestment as one of the relatively large ones in the data sample. The size of AddLife compared to the total sample of corporate divestments illustrates that spin-offs are often considered for relatively large business units.

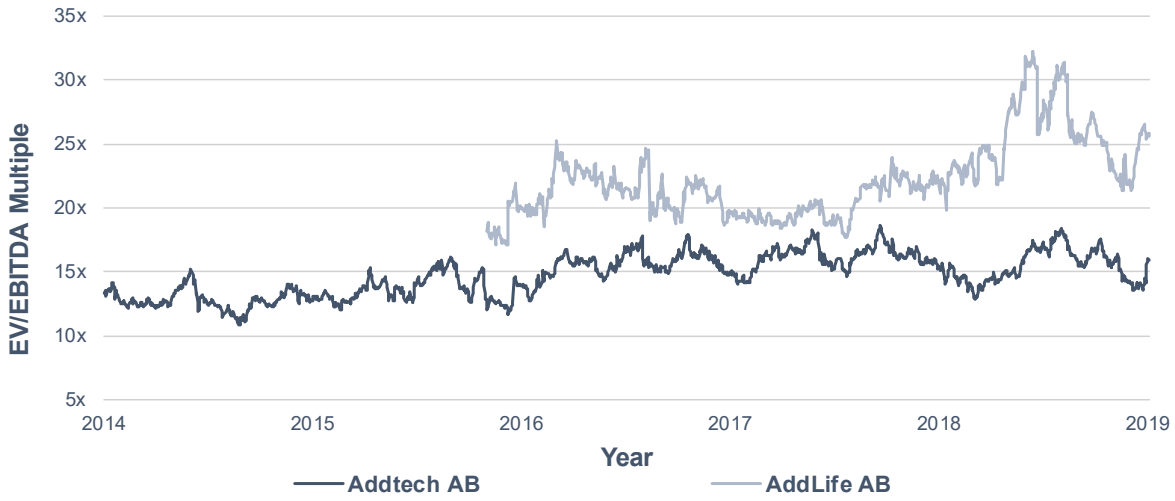
Lastly, the Altman Z-score of Addtech prior to the divestment indicates a strong financial position indicating that the transaction was driven by shareholder value maximising incentives. Based on out analyses, the strong pre-divestment financial position of Addtech should increase probability of a positive announcement effect. In connection to the spin-off announcement, the management also underlined that trading as separate entities would increase ability of AddLife to capitalise on strategic and operational opportunities including financing future acquisitions.

Our analysis indicates that substantial shareholder value was created at spin-off announcement. For Addtech, the CAR in the three days event window [-1,1] around announcement was 6.8% well above the CAAR in the data sample. The positive market reaction indicates that the transaction was valued by investors and capital markets. Expanding the event window to [-10,10], the CAR in Addtech was 10.8% around the spin-off announcement. Generally, the CARs from the announcement are significantly above the CAARs. In accordance with EMH, the announcement effect indicated that investors reacted to the news, and the positive effects indicated that they expected higher cash flow generation from Addtech and AddLife operating as separate entities.

In addition to the short-term announcement effects, the graph of the buy-and-hold return in Addtech and AddLife show positive long-term abnormal stock returns following the spin-offs. The development in BHAR indicate that the value creation related to the spin-off was not fully recognized in the event window. In the three-year holding period following the completion of the spin-off, the combined proforma firm realized a buy-and-hold abnormal return on 80.4% indicating considerable shareholder value creation. Simultaneously, the changes in ROA EBIT and ROA EBIT show improved operating performance over a two-year period, mainly generated in year 1. However, the same financial year as the divestment of AddLife, Addtech acquired 10 new business affecting both stock returns and changes in operational performance. Therefore, one should be cautious in interpreting the observed BHAR and positive change in operating performance.

As previously mentioned, Addtech have ownership in many different firms lowering the visibility of cash flow generation for investors. The conglomerate firm structure is making it difficult for analysts to estimate the true value of each divisions and, thus, the value of Addtech. Addtech was trading at a median EV/EBITDA multiple of 13x in the two years prior to the spin-off. However, the higher growth and non-cyclical nature in AddLife indicated that, everything else equal, it could be expected to trade at a higher valuation multiple than Addtech. However, existing shareholders was not benefitting from the higher expected valuation levels for healthcare firms compared to firms within industrials (Dahl, 2016).

Figure 14: Addtech and AddLife EV/EBITDA Multiple valuation levels



As evident from **Figure 14**, AddLife was valued at higher valuation multiples than Addtech after the spin-off transaction. At the first trading date, the EV/EBITDA multiple on AddLife was 18.1x resulting in a market capitalization on SEK 2.5bn representing 24.9% of the combined firm market capitalization at the first trading day. However, AddLife only represented 16.2% of the EBITDA in Addtech, indicating that the spin-off unlocked value for existing shareholders.

In **Table 26**, we have gathered financial information regarding AddLife and Addtech, and constructed a multi-year income statement on a stand-alone basis for each firm. The *Compounded Annual Growth Rate (CAGR)* is clearly higher for AddLife, confirming different growth rates as a key driver of the different valuation multiples. Notably, both firms have experienced increasing revenue growth and higher profitability after completion of the divestment.

Table 26: Financial performance in AddLife and Addtech

AddLife

	*Proforma**				*Post divestment*			*CAGR*		
SEKm	**12/13**	**13/14**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**	**12/13-15/16**	**15/16-18/19**	**12/13-18/19**
Sales	**906.5**	**983.5**	**1,056.8**	**1,562.4**	**2,333.3**	**2,481.6**	**3,479.4**	**19.9%**	**30.6%**	**25.1%**
COGS	(553.3)	(608.5)	(661.0)	(1,014.7)	(1,492.4)	(1,591.8)	(2,281.2)	22.4%	31.0%	26.6%
Gross profit	**353.2**	**375.0**	**395.8**	**547.7**	**840.9**	**889.8**	**1,198.2**	**15.7%**	**29.8%**	**22.6%**
OPEX	(254.6)	(271.1)	(288.1)	(441.4)	(675.0)	(722.1)	(1,002.0)	20.1%	31.4%	25.7%
Operating profit	**98.6**	**103.9**	**107.7**	**106.3**	**165.9**	**167.7**	**196.2**	**2.5%**	**22.7%**	**12.2%**
Gross margin	39.0%	38.1%	37.5%	35.1%	36.0%	35.9%	34.4%			
Operating margin	10.9%	10.6%	10.2%	6.8%	7.1%	6.8%	5.6%			

**Proforma consolidated financial statement from the official prospectus for admission of shares to trading on Nasdaq Stockholm.*

Addtech

	*Proforma**				*Post divestment*			*CAGR*		
SEKm	**12/13**	**13/14**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**	**12/13-15/16**	**15/16-18/19**	**12/13-18/19**
Sales	**4,496.5**	**5,105.5**	**5,719.0**	**6,155.0**	**7,178.0**	**8,022.0**	**10,148.0**	**11.0%**	**18.1%**	**14.5%**
COGS	(3,085.7)	(3,497.5)	(3,946.0)	(4,244.0)	(4,939.0)	(5,522.0)	(7,025.0)	11.2%	18.3%	14.7%
Gross profit	**1,410.8**	**1,608.0**	**1,773.0**	**1,911.0**	**2,239.0**	**2,500.0**	**3,123.0**	**10.6%**	**17.8%**	**14.2%**
OPEX	(1,072.4)	(1,210.9)	(1,342.0)	(1,468.0)	(1,635.0)	(1,799.0)	(2,213.0)	11.0%	14.7%	12.8%
Operating profit	**338.4**	**397.1**	**431.0**	**443.0**	**604.0**	**701.0**	**910.0**	**9.4%**	**27.1%**	**17.9%**
Gross margin	31.4%	31.5%	31.0%	31.0%	31.2%	31.2%	30.8%			
Operating margin	7.5%	7.8%	7.5%	7.2%	8.4%	8.7%	9.0%			

***Proforma consolidated financial statement for 14/15 and 15/16 are reported financials on the continuing business. The 12/13 and 13/14 financials are calculated based on the reported financials from Addtech less the reported proforma financials from AddLife.*

Overall, the findings above indicates that the objectives of the divestment of AddLife expressed by Addtech's management have been achieved with great success. Whether this is due to the divestment is uncertain, as many other factors and firm specific events impact both the financials and stock prices. However, there are strong indications that the divestment of AddLife have created or unlocked value for existing shareholders.

9. Conclusion

The purpose of this thesis is to investigate the shareholder value creation in European firms divesting business units through either sell-offs or spin-offs in the period from 2000 to 2020 leading to the research question;

Does corporate divestments through spin-offs and sell-offs in European firms create shareholder value?

The research question is analysed through several formulated hypotheses based on a theoretical framework and thorough literature review. The hypotheses enable us to examine and assess different relevant angles of the research question. The perspectives of the hypotheses are three-fold, namely short-term stock return, long-term stock return and operating performance. The hypotheses have been tested on a data sample of 1,244 divestments including 1,146 sell-offs and 98 spin-offs completed by firms from Western European countries, by applying various methodologies and test statistics to increase the robustness of the results. The empirical results are summarised in **Table 27** below.

Table 27: Concluding framework

Overall test results				
Hypothesis	**Description**	**Total**	**Spin-off**	**Sell-off**
	Short-term stock performance			
H1	• Announcement of corporate divestments result in positive short-term abnormal stock returns	√	√	√
H1a	• Announcement of spin-offs result in higher short-term abnormal stock returns than announcement of sell-offs	-	(√)	
H1b	• Industry focus increasing divestments are associated with higher short-term abnormal stock returns than non-focus increasing divestments	(x)	(√)	(x)
H1c	• Geographical focus increasing divestments are associated with higher short-term abnormal stock returns than non-focus increasing divestments	x	(x)	x
H1d	• Parent firms with high idiosyncratic volatility realize higher short-term abnormal stock return around announcement of divestments	√	(√)	√
H1e	• Parent firms with low Tobin's Q realize higher short-term abnormal stock return around announcement of divestments	√	(x)	√
H1f	• Relatively larger divestments are associated with higher short-term abnormal stock returns than relatively smaller divestments	√	x	√
H1g	• Parent firms with high Altman Z-score realize higher short-term abnormal stock return around announcement of divestments	(x)	(x)	(x)
	Long-term stock performance			
H2	• Completion of divestments result in insignificant long-term stock return to existing shareholders in years the following the divestment	x	x	x
	Long-term operating performance			
H3	• Completion of divestments improve the operating performance of parent firms	√	(√)	√
H3a	• Industry focus increasing divestments have larger positive impact on the operating performance of parent firms than non-focus increasing divestments	(x)	(x)	(x)

Indicators: √ = Strong accept (√) = Weak accept (x) = Weak reject x = Strong reject - = Not relevant

H1 expresses whether the announcement of corporate divestments generate a positive abnormal short-term stock return. Based on our results from the total sample, the hypothesis is strongly accepted with a high degree of certainty similar to results from previous studies.

Subsequently, several sub-hypotheses formulated based on the literature review were investigated to understand the characteristics and motives that drive the positive abnormal return around the announcement. The hypotheses were analysed through cross-sectional tests and regression analysis.

The first sub-hypothesis, **H1a**, relates to whether spin-offs to generate higher abnormal stock returns than sell-offs. We demonstrated the nominal CAAR values of spin-offs to be higher than those from sell-offs, however, we did not find strong statistical evidence that the difference in CAARs was significantly different than zero, and thus **H1a** is weekly accepted.

The argument of divesting is often related to a matter of increasing focus, both in the literature and in practice. However, divesting in nature, is focus increasing as the parent company decrease in size. The rationale of **H1b** and **H1c** was that increasing focus would be rewarded by the market, and hence create higher CAARs. Thus, higher CAARs for industry and geographical focus increasing divestments were expected. For the total sample and sell-off sample, the differences in CAARs of industry focusing divestments showed mixed results with no statistical significance. Thus, **H1b** was weakly rejected for those samples. The CAARS for industry focus increasing spin-offs were higher than non-focus increasing spin-offs. Due to no statistical significance, **H1b** was weakly accepted for the spin-off sample. The test of geographical focus showed results of the opposite signs, meaning that the non-focus samples generated higher CAARs than the focus sample. The results were statistically significant at various levels for the total and sell-off samples, and insignificant for the spin-off sample. Therefore, **H1c** was strongly rejected for total and sell-off samples and weakly rejected for the spin-off sample.

Another commonly mentioned motive for divestitures, is the reduction of asymmetric information between management and shareholders, resulting in conglomerate discounts. The literature showed asymmetrical information to be an important motive for completing divestments, particularly for spin-offs. **H1d** and **H1e** was formulated using idiosyncratic volatility and Tobin's Q as proxy variable for information asymmetry. By dividing the sub samples into two groups, high and low idiosyncratic volatility, we were enabled to test whether high idiosyncratic volatility firms generated significantly higher CAARs than the low idiosyncratic volatility firms. The CAARs for firms with high pre-divestment idiosyncratic volatility were higher, however only significantly for the total and sell-off samples. Thus, **H1d** was strongly accepted for the total and sell-off sample and weakly accepted for the spin-off sample.

The results using Tobin's Q were similar. The CAARs for the low Tobin's Q are significantly higher than the high Tobin's Q for our total and sell-off sample resulting in a strong accept of **H1e** the samples. Surprisingly, the results for spin-offs showed that the firms with high Tobin's Q have higher

CAARs than the group of low Tobin's Q. However, the difference was insignificant, and thus **H1e** was weakly rejected for spin-offs.

H1f is related to the relative size of the divestment compared to the parent. Previous literature suggested that abnormal returns are affected by the relative size of the divested business unit. The larger the divestment, the larger abnormal return. The positive relationship between size and short-term stock return was highly significant for our total and sell-off sample, why **H1f** was strongly accepted for these samples. Unexpectedly, the result for spin-offs showed an opposite correlation with no statistical significance, and thus **H1f** was strongly rejected for spin-offs.
At last, we tested whether the financial quality of a firm has influence on the short-term abnormal stock return. We used Altman Z-score to categorize our samples into low, medium, and high quality. As reflected in **H1g**, firms of high financial quality were expected to generate higher short-term stock returns than those of low quality. In general, we found no connection between financial quality and short-term stock return of statistical significance across all samples, why **H1g** was weakly rejected. Specifically, firms of low financial quality realized higher CAARs than firms of medium quality.

As described in the literature review, an increasing number of scholars have questioned the efficiency of capital markets suggesting that value creation should be measured over a longer period. Therefore, we include two different long-term analyses measuring value creation on BHAR based on stock prices and annual ROA improvements based on different accounting measures.
Taking departure in the EMH and the equivocal results in existing empirical findings, **H2** was formulated to test the long-term stock return expecting no returns significantly different from zero. However, the analysis showed that firms engaged in both sell-offs and spin-offs realize significant positive BHARs in the three year holding period leading to a strong rejection of **H2**. The significant returns were found using two different benchmarks increasing the robustness of the findings. The results indicated higher long-term returns for firms engaged in spin-offs caused by the performance in both the parent and the subsidiary compared to firms divesting through sell-offs. Though, the difference was not found to be significant. Due to overlapping events for firms engaged in sell-offs, we are not able to conclude whether the abnormal returns are the result of one or multiple sell-offs. However, the findings indicate that firms continually divesting business units realize positive abnormal returns on the long-term.

Performance measures based on stock market returns are not always adequate measures of value creation. The existing literature suggested that corporate divestments might be motivated to mitigate operational inefficiencies enhancing operating performance, particularly relevant for overdiversified firms. To analyse whether the identified stock returns associated with corporate divestments are materialized in tangible improvements in operating performance, **H3** was formulated expecting positive changes in operating performance for both sell-offs and spin-offs. The findings showed that

firms engaged in sell-offs realize significant positive changes in operating performance measured on EBIT and EBITDA in the two years after completion. The results persisted when accounting for the industry development using a group of control firms. However, the positive change in return on cash flow from operations was insignificant. Based on the results from EBIT and EBITDA, we strongly accepted **H3** for the total and sell-off sample. The results for spin-offs indicate a positive change in operating performance, though with less insignificance leading to a weak accept of **H3**.
Existing literature provide arguments for focus increasing divestments to realize larger and more significant improvements in operating performance compared to non-focus increasing divestments. **H3a** was formulated based on the anticipation of focus increasing divestments are reducing the potential negative synergies of diversified firms. However, we found no empirical support for focus increasing divestments to realize larger improvements in operating performance, why **H3a** was weakly rejected across all samples.

In conclusion, we found overall strong indications of value creation related to European firms engaged in corporate divestments through spin-offs and sell-offs. However, we are not able to fully detect and capture the exact source of the value gains in corporate divestment. Though, based on our findings, corporate managers driven by shareholder maximising motives should continuously evaluate their portfolio of business units considering: "*is our firm the most valuable owner for each of our subsidiaries?*". After such strategic review, managers can use spin-off to restructure ownership whereas sell-offs provide cash proceeds to invest in new projects or restructure financial leverage implying additional agency costs for investors.

9.1. Suggested further research

The analysis of corporate divestments completed by European, publicly listed firms in the past two decades enabled us to determine the shareholder value creation and the most relevant motives affecting the value creation. However, our thesis could not cover every aspect regarding corporate divestments implying several starting points for future research to be built upon.

The stringent sample selection processes implied that several divestitures were disregarded. As a result, our finding might not be generalisable for divestments due to the limited representation. Despite of the precautions taken; it would be interesting to investigate whether the results are valid on a data sample constructed on more relaxed criteria. Specifically, the sample size of spin-offs in this thesis is small which affect the robustness of inferences. However, it could be interesting to expand the sample geographically, which would both increase the number of spin-offs and make an opportunity to create new subsamples, e.g., Europe versus USA.

Future research could also investigate potential differences in value creation for different industries or effects of investor sentiments for *hot industries* affecting the short-term announcement effect. As illustrated in **Section 7.3**, firms operating within manufacturing are most present in the sample of our thesis. However, a focused analysis of divestments within a single industry might better capture specific value drivers of divestments for that specific industry.

The research design and methodology applied in this thesis was designed to answer the search question, why we have focused on determining the realized shareholder value creation of the included divestments. However, the identified value creation in corporate divestments might be affected by how the divestiture is initiated and structured. In real business practice, a firm may consider different divestiture types for the same unit at the same time, and then choose the best option. The effect of dual track processes is not included, but we find it to be interesting for future research to investigate how the shareholder value creation is affected by the orchestrated divestiture process.

The existing literature on shareholder value creation tends to investigate divestitures as isolated and unrelated corporate events. Oppositely, Brauer and Schimmer (2010) argues that divestitures should be analysed as strategically interelated events. Specifically, "*selling a business is rarely a one-off activity*" (Mankins, et al., 2008, p. 99) To account for value creation in firms engaged in multiple divestments, this thesis allows for overlapping events which means that transactions of the same firm are included if the transactions are not announced in the same [-10,10] event window. However, we were not able to identify which divestitures were strategically interrelated in a larger portfolio restructuring. Therefore, our thesis is grounded in a transaction-based perspective where the data sample has been gathered by identifying isolated transactions according to specified criteria. Another interesting approach for is to take a firm-based perspective where the data sample process is initiated by identifying a sample of firms and investigate their divestment activities. The firm-based perspective might be more optimal in analysing potential value creation emerging from recurring divestment activities. A firm-based perspective would also allow for a comparison with other types of portfolio restructuring.

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11. Appendix

Appendix 1: Total sample

Transaction type	Announcement date	Parent firm	Subsidiary
Spin-off	27-08-2020	Peab AB (publ)	Annehem Fastigheter AB
Spin-off	28-04-2020	Renalytix AI plc	Verici Dx plc
Spin-off	18-02-2019	Cramo Oyj	Adapteo Oyj
Spin-off	31-01-2019	AB Electrolux (publ)	Electrolux Professional AB (publ)
Spin-off	17-08-2018	A.P. Møller - Mærsk A/S	The Drilling Company of 1972 A/S
Spin-off	29-06-2018	Novartis AG	Alcon Inc.
Spin-off	29-03-2018	Hunter Group ASA	Dwellop AS
Spin-off	23-03-2018	Modern Times Group Mtg AB	Nordic Entertainment Group AB (publ)
Spin-off	16-02-2018	Euroseas Ltd.	EuroDry Ltd.
Spin-off	12-12-2017	Autoliv, Inc.	Veoneer, Inc.
Spin-off	16-11-2017	Liberty Global plc	Liberty Latin America Ltd.
Spin-off	11-09-2017	NKT A/S	Nilfisk Holding A/S
Spin-off	09-05-2017	Pentair plc	nVent Electric plc
Spin-off	03-05-2017	Aptiv PLC	Delphi Technologies PLC
Spin-off	13-02-2017	Lundin Energy AB (publ)	International Petroleum Corporation
Spin-off	26-01-2017	Actelion Ltd	Idorsia Ltd
Spin-off	16-01-2017	Atlas Copco AB	Epiroc AB (publ)
Spin-off	18-10-2016	Getinge AB	Arjo AB (publ)
Spin-off	24-08-2016	Svenska Cellulosa Aktiebolaget SCA (publ)	Essity AB (publ)
Spin-off	30-03-2016	Ceconomy AG	Metro AG
Spin-off	16-02-2016	Addtech AB (publ.)	AddLife AB (publ)
Spin-off	16-12-2015	Digia Oyj	Qt Group Oyj
Spin-off	24-07-2015	Johnson Controls International plc	Adient plc
Spin-off	27-08-2014	OCI N.V.	Orascom Construction PLC
Spin-off	30-04-2014	Akastor ASA	Aker Solutions ASA
Spin-off	24-09-2013	Noble Holding Corporation plc	Paragon Offshore plc
Spin-off	01-08-2013	Amcor plc	Orora Limited
Spin-off	18-07-2013	REC Silicon ASA	REC Solar ASA
Spin-off	28-06-2013	Provexis plc	Science in Sport plc
Spin-off	31-05-2013	Neles Oyj	Valmet Oyj
Spin-off	02-01-2013	Autogrill S.p.A.	World Duty Free S.p.A.
Spin-off	02-05-2013	YIT Oyj	Caverion Oyj
Spin-off	12-02-2013	Castleton Technology plc	Redcentric plc
Spin-off	10-12-2012	Trane Technologies plc	Allegion plc
Spin-off	09-10-2012	Kering SA	Fnac Darty SA
Spin-off	20-04-2012	ZEAL Network SE	Lotto24 AG
Spin-off	12-04-2012	Betsson AB	Angler Gaming plc
Spin-off	19-03-2012	Vitrolife AB (publ)	Xvivo Perfusion AB (publ)
Spin-off	15-12-2011	Covidien plc	Mallinckrodt plc
Spin-off	02-11-2011	Etablissements Maurel & Prom S.A.	MPI Société anonyme
Spin-off	15-09-2011	Tyco International plc	The ADT Security Corporation
Spin-off	11-08-2011	Sievi Capital Oyj	Scanfil Oyj
Spin-off	21-07-2011	De'Longhi S.p.A.	MELCO Hydronics & IT Cooling S.p.A.
Spin-off	07-07-2011	Punch Taverns Limited	Spirit Pub Company plc
Spin-off	05-04-2011	Akastor ASA	Kværner ASA
Spin-off	29-03-2011	Global Telecom Holding S.A.E.	Orascom Investment Holding S.A.E.
Spin-off	22-03-2011	Rieter Holding AG	Autoneum Holding AG
Spin-off	01-03-2011	Carrefour SA	Distribuidora Internacional de Alimentación, S.A.
Spin-off	12-08-2010	ArcelorMittal	Aperam S.A.
Spin-off	16-07-2010	Haldex AB (publ)	Concentric AB (publ)
Spin-off	21-04-2010	Fiat Chrysler Automobiles N.V.	CNH Industrial N.V.
Spin-off	19-04-2010	Modern Times Group Mtg AB	Nelly Group AB (publ)
Spin-off	23-02-2010	Accor SA	Edenred SA
Spin-off	09-12-2009	Netgem SA	Video Futur Entertainment Group S.A.
Spin-off	05-11-2009	Cable & Wireless Communications Limited	Cable & Wireless Worldwide plc
Spin-off	10-10-2007	Cadbury Limited	Dr Pepper Snapple Group, Inc.
Spin-off	09-11-2007	Egdon Resources plc	InfraStrata plc
Spin-off	13-08-2007	Sonae, SGPS, S.A.	Sonae Capital, SGPS, SA
Spin-off	24-04-2007	Morse plc	Monitise plc
Spin-off	30-03-2007	Betsson AB	NetEnt AB (publ)
Spin-off	17-11-2006	Signature Aviation plc	Fiberweb plc
Spin-off	07-09-2006	Fyffes plc	Total Produce plc
Spin-off	06-09-2006	Betsson AB	Cherry AB (publ)
Spin-off	03-07-2006	Nestor Healthcare Group plc	Pinnacle Staffing Group PLC
Spin-off	02-08-2006	WH Smith PLC	Smiths News plc
Spin-off	10-07-2006	Fyffes plc	Balmoral International Land Holdings plc
Spin-off	24-04-2006	AB Electrolux (publ)	Husqvarna AB (publ)
Spin-off	04-04-2006	Severn Trent Plc	Biffa Group Limited
Spin-off	28-03-2006	Experian plc	Home Retail Group Limited
Spin-off	14-03-2006	TOTAL SE	Arkema S.A.
Spin-off	09-02-2006	Securitas AB	Loomis AB (publ)
Spin-off	20-12-2005	Reno De Medici S.p.A.	Realty Vailog S.p.A.
Spin-off	27-06-2005	BWT Aktiengesellschaft	CHRIST Water Technology AG
Spin-off	06-01-2005	Bunzl plc	Essentra plc
Spin-off	19-04-2005	Marzotto S.p.A.	Valentino Fashion Group S.p.A.
Spin-off	31-03-2005	Gunnebo AB (publ)	Gunnebo Industries AB
Spin-off	04-03-2005	EMS-CHEMIE HOLDING AG	Dottikon Es Holding AG
Spin-off	16-12-2004	Bourbon Corporation SA	CBo Territoria Société Anonyme
Spin-off	17-11-2004	Bayer Aktiengesellschaft	LANXESS Aktiengesellschaft
Spin-off	13-09-2004	Lonrho Plc	Castle Acquisitions Plc
Spin-off	11-03-2004	HomeServe plc	South Staffordshire Plc
Spin-off	30-12-2003	Avesco Group plc	Avesco plc
Spin-off	17-06-2003	Kingfisher plc	Darty Limited
Spin-off	19-05-2003	DMB NV	Exmar NV
Spin-off	09-03-2001	BT Group plc	Telefónica Europe plc
Spin-off	20-02-2001	Kinnevik AB	Transcom WorldWide AB (publ)
Spin-off	26-07-2000	Uniq plc	Wincanton plc
Spin-off	22-05-2017	Bergman & Beving AB (publ)	Momentum Group AB (publ)
Spin-off	13-02-2017	Lundin Energy AB (publ)	International Petroleum Corporation
Spin-off	26-11-2015	NCC AB (publ)	Bonava AB (publ)
Spin-off	28-07-2014	Reckitt Benckiser Group plc	Indivior PLC
Spin-off	10-04-2014	Kindred Group plc	Kambi Group plc
Spin-off	02-12-2010	PostNL N.V.	TNT Express B.V.
Spin-off	18-04-2008	Hexagon AB (publ)	HEXPOL AB (publ)
Spin-off	27-11-2007	Mowi ASA	The Scottish Salmon Company PLC
Spin-off	16-05-2007	Peab AB (publ)	Peab Industri AB
Spin-off	09-09-2003	Fortum Oyj	Neste Oyj
Spin-off	22-03-2000	BG Group Limited	Lattice Group plc
Sell-off	18-12-2020	StrongPoint ASA (OB:STRO)	StrongPoint Cash Security AB
Sell-off	15-12-2020	Drax Group plc (LSE:DRX)	Drax Generation Enterprise Limited
Sell-off	12-03-2020	QinetiQ Group plc (LSE:QQ.)	OptaSense Holdings Limited
Sell-off	30-11-2020	ULS Technology plc (AIM:ULS)	Conveyancing Alliance Limited
Sell-off	20-11-2020	Vetrya S.p.A. (BIT:VTY)	Viralize Srl
Sell-off	19-11-2020	Telenor ASA (OB:TEL)	Tapad Inc.
Sell-off	02-11-2020	Mail.ru Group Limited (LSE:MAIL)	MapsWithMe GmbH
Sell-off	18-09-2020	Vifor Pharma AG (SWX:VIFN)	OM Pharma SA
Sell-off	31-07-2020	Heidelberger Druckmaschinen Aktiengesellschaft (XTRA:HDD)	Cerm Benelux N.V.
Sell-off	17-07-2020	Nexans S.A. (ENXTPA:NEX)	Berk-Tek, Inc.
Sell-off	02-07-2020	Avon Rubber p.l.c. (LSE:AVON)	Avon Polymer Products Limited
Sell-off	01-07-2020	Benchmark Holdings plc (AIM:BMK)	FVG Limited
Sell-off	25-06-2020	QinetiQ Group plc (LSE:QQ.)	Boldon James Ltd
Sell-off	19-06-2020	Perrigo Company plc (NYSE:PRGO)	Rosemont Pharmaceuticals Limited
Sell-off	19-06-2020	Capita plc (LSE:CPI)	Eclipse (Hardware) Limited
Sell-off	01-06-2020	Jet2 plc (AIM:JET2)	Fowler Welch Limited
Sell-off	07-04-2020	L'Air Liquide S.A. (ENXTPA:AI)	Schülke & Mayr GmbH
Sell-off	18-03-2020	Pennon Group Plc (LSE:PNN)	Viridor Limited
Sell-off	06-03-2020	Babcock International Group PLC (LSE:BAB)	Context Information Security Limited
Sell-off	02-03-2020	Quadient S.A. (ENXTPA:QDT)	ProShip, Inc.
Sell-off	27-02-2020	thyssenkrupp AG (XTRA:TKA)	thyssenkrupp Elevator AG
Sell-off	05-02-2020	John Wood Group PLC (LSE:WG.)	Wood Group Industrial Services Limited
Sell-off	13-01-2020	UDG Healthcare plc (LSE:UDG)	PrimeVigilance USA Inc.
Sell-off	18-12-2019	Martifer SGPS, S.A. (ENXTLS:MAR)	Martifer Renovables, ETVE, S.A.
Sell-off	12-12-2019	Wärtsilä Oyj Abp (HLSE:WRT1V)	ELAC SONAR GmbH
Sell-off	27-11-2019	Cairn Energy PLC (LSE:CNE)	Capricorn Norge AS
Sell-off	21-11-2019	Chemring Group PLC (LSE:CHG)	Chemring Ordnance, Inc.
Sell-off	05-11-2019	Adecco Group AG (SWX:ADEN)	Soliant Health, Inc.
Sell-off	30-10-2019	TOTAL SE (ENXTPA:FP)	Total E&P Deep Offshore Borneo BV
Sell-off	22-11-2019	ARYZTA AG (SWX:ARYN)	Delice de France plc
Sell-off	22-10-2019	Vossloh AG (XTRA:VOS)	Cleveland Track Material, Inc.
Sell-off	17-10-2019	ICTA AB (publ)	FFW Danmark ApS
Sell-off	15-10-2019	Eaton Corporation plc (NYSE:ETN)	Cooper Lighting, LLC
Sell-off	14-10-2019	Greenyard NV (ENXTBR:GREEN)	Greenyard Flowers UK Ltd
Sell-off	02-10-2019	Grafton Group plc (LSE:GFTU)	Plumbase Limited
Sell-off	24-09-2019	IHS Markit Ltd. (NYSE:INFO)	Jane's Information Group Limited
Sell-off	20-09-2019	Elmos Semiconductor SE (XTRA:ELG)	Silicon Microstructures, Inc.
Sell-off	19-09-2019	Spectris plc (LSE:SXS)	BTG Eclépens S.A
Sell-off	12-09-2019	Isagro S.p.A. (BIT:ISG)	Isagro Asia Agrochemicals, Ltd.
Sell-off	10-09-2019	Renewi plc (LSE:RWI)	Reym B.V.
Sell-off	10-09-2019	Mallinckrodt plc (OTCPK:MNKK.Q)	BioVectra Inc.
Sell-off	29-08-2019	PZ Cussons Plc (LSE:PZC)	MINERVA S.A.
Sell-off	23-08-2019	Daily Mail and General Trust plc (LSE:DMGT)	Genscape, Inc.
Sell-off	12-08-2019	LANXESS Aktiengesellschaft (XTRA:LXS)	Chrome International South Africa (Pty) Limited
Sell-off	07-08-2019	Accell Group N.V. (ENXTAM:ACCEL)	Accell North America, Inc.
Sell-off	05-08-2019	PostNL N.V. (ENXTAM:PNL)	Postcon Deutschland B.V. & Co. KG
Sell-off	31-07-2019	Checkit plc (AIM:CKT)	Elektron Technology UK Limited
Sell-off	22-07-2019	Clariant AG (SWX:CLN)	Airnov, Inc.
Sell-off	22-07-2019	Casino, Guichard-Perrachon Société Anonyme (ENXTPA:CO)	Vindemia SAS
Sell-off	19-07-2019	Anheuser-Busch InBev SA/NV (ENXTBR:ABI)	CUB Pty Ltd
Sell-off	05-07-2019	SIG plc (LSE:SHI)	Kingspan Access Floors GmbH
Sell-off	03-07-2019	Donegal Investment Group plc (ISE:DQ7A)	Robert Smyth & Sons (Strabane & Donegal) Ltd
Sell-off	24-06-2019	SGS SA (SWX:SGSN)	Petroleum Service Group LLC
Sell-off	16-05-2019	Nestlé S.A. (SWX:NESN)	Galderma Holding SA
Sell-off	03-06-2019	Ferroglobe PLC (NasdaqCM:GSM)	Grupo FerroAtlántica, S.A.U.
Sell-off	31-05-2019	Tele2 AB (publ) (OM:TEL2 B)	Tele2 d.o.o.
Sell-off	23-05-2019	Pharma Mar, S.A. (BME:PHM)	Zelnova Zeltia S.A.
Sell-off	20-05-2019	Eniro AB (publ) (OM:ENRO)	Proff AB
Sell-off	06-05-2019	q.beyond AG (XTRA:QBY)	Plusnet Infrastruktur GmbH & Co. KG
Sell-off	15-04-2019	IWG plc (LSE:IWG)	Regus Japan Holdings K.K.
Sell-off	15-04-2019	LUDWIG BECK am Rathauseck - Textilhaus Feldmeier AG (XTRA	Theo Wormland GmbH & Co. KG
Sell-off	26-03-2019	Intralot S.A. Integrated Lottery Systems and Services (ATSE:INLOT	Totolotek SA
Sell-off	21-03-2019	Glencore plc (LSE:GLEN)	Sable Zinc Kabwe Limited
Sell-off	25-02-2019	Ice Group ASA (OB:ICEGR)	Netett Sverige AB
Sell-off	14-02-2019	Publicis Groupe S.A. (ENXTPA:PUB)	Proximedia
Sell-off	01-02-2019	LokN'Store Group Plc (AIM:LOK)	Saracen Datastore Limited
Sell-off	25-01-2019	Fuller, Smith & Turner P.L.C. (LSE:FSTA)	The Fuller's Beer Company Ltd.
Sell-off	22-01-2019	TomTom N.V. (ENXTAM:TOM2)	Webfleet Solutions B.V.
Sell-off	24-12-2018	Ferroglobe PLC (NasdaqCM:GSM)	Hidro Nitro Española, S.A.
Sell-off	20-12-2018	Chamberlin plc (AIM:CMH)	Exidor Limited
Sell-off	23-11-2018	Ibstock plc (LSE:IBST)	Glen-Gery Corporation
Sell-off	15-11-2018	Kier Group plc (LSE:KIE)	KHSA Limited
Sell-off	08-11-2018	Fluidra, S.A. (BME:FDR)	Aquatron Robotic Technology Ltd
Sell-off	07-11-2018	Fraport AG (XTRA:FRA)	Energy Air Gmbh
Sell-off	02-11-2018	Ultra Electronics Holdings plc (LSE:ULE)	Ultra Electronics Limited
Sell-off	01-11-2018	Imerys S.A. (ENXTPA:NK)	Imerys Industrial Minerals Denmark A/S
Sell-off	22-10-2018	Fiat Chrysler Automobiles N.V.	MARELLI Europe S.p.A.
Sell-off	15-10-2018	Greencore Group plc (LSE:GNC)	Greencore Us Holdings, LLC
Sell-off	08-10-2018	Compass Group PLC (LSE:CPG)	Vision Security Group Ltd.
Sell-off	08-10-2018	Reach plc (LSE:RCH)	The Communicator Corporation Limited
Sell-off	01-10-2018	Mitie Group plc (LSE:MTO)	Mitie Pest Control Limited
Sell-off	27-09-2018	Midatech Pharma plc (AIM:MTPH)	Fortovia Therapeutics, Inc.
Sell-off	20-09-2018	Minoan Group Plc (AIM:MIN)	Stewart Travel Limited
Sell-off	20-09-2018	Pharma Mar, S.A. (BME:PHM)	Xylazel, S.A.
Sell-off	17-09-2018	Nestlé S.A. (SWX:NESN)	Gerber Life Insurance Company
Sell-off	05-09-2018	Uponor Oyj (HLSE:UPONOR)	Zent-Frenger GmbH
Sell-off	31-08-2018	Whitbread PLC (LSE:WTB)	Costa Limited
Sell-off	08-08-2018	UDG Healthcare plc (LSE:UDG)	Aquilant Limited
Sell-off	01-08-2018	Telefónica, S.A. (BME:TEF)	Telefónica Digital Inc
Sell-off	31-07-2018	AB SKF (publ) (OM:SKF B)	Ewellix AB
Sell-off	19-07-2018	HSS Hire Group plc (AIM:HSS)	UK Platforms Limited
Sell-off	18-07-2018	CRH plc (ISE:CRG)	Van Neerbos Bouwmarkten B.V.
Sell-off	12-07-2018	Capita plc (LSE:CPI)	ParkingEye Limited
Sell-off	29-06-2018	PSB Industries (ENXTPA:PSB)	CGL Pack Annecy S.A.S.
Sell-off	28-06-2018	PARKEN Sport & Entertainment A/S (CPSE:PARKEN)	Fitness DK Holding A/S
Sell-off	26-06-2018	SIG plc (LSE:SHI)	V.J Technology Limited
Sell-off	19-06-2018	Capita plc (LSE:CPI)	Supplier Assessment Services Limited
Sell-off	15-05-2018	Ascential plc (LSE:ASCL)	Ascential Events Limited
Sell-off	08-05-2018	Treatt plc (LSE:TET)	Earthoil Plantations Limited
Sell-off	03-05-2018	Bayer Aktiengesellschaft (XTRA:BAYN)	Corporación Bonima S.A. de C.V.
Sell-off	02-05-2018	Nobina AB (publ) (OM:NOBINA)	Swebus Express AB
Sell-off	24-04-2018	Meggitt PLC (LSE:MGGT)	Precision Micro Ltd.
Sell-off	23-04-2018	Orion Oyj (HLSE:ORNBV)	Orion Diagnostica Oy
Sell-off	03-04-2018	Avon Rubber p.l.c. (LSE:AVON)	Avon Engineered Fabrications, Inc.
Sell-off	02-04-2018	Frigoglass S.A.I.C. (ATSE:FRIGO)	Frigoglass Jebel Ali FZCO
Sell-off	27-03-2018	Akzo Nobel N.V. (ENXTAM:AKZA)	Nouryon Cooperatief U.A.
Sell-off	13-03-2018	Daily Mail and General Trust plc (LSE:DMGT)	Environmental Data Resources, LLC
Sell-off	06-03-2018	William Hill plc (LSE:WMH)	William Hill Australia Trading PTY Ltd.
Sell-off	31-01-2018	Polypipe Group plc (LSE:PLP)	Polypipe France
Sell-off	23-01-2018	Vincit Oyj (HLSE:VINCIT)	Vincit Services Oy
Sell-off	21-12-2017	Liberty Global plc (NasdaqGS:LBTY.A)	UPC Austria GmbH
Sell-off	22-12-2017	Bunzl plc (LSE:BNZL)	OPM France
Sell-off	21-12-2017	Smiths News plc (LSE:SNWS)	Connect Books Limited
Sell-off	21-12-2017	ProSiebenSat.1 Media SE (XTRA:PSM)	COMVEL GmbH
Sell-off	21-12-2017	Hera S.p.A. (BIT:HER)	Medea S.p.A.
Sell-off	21-11-2017	Nelly Group AB (publ) (OM:NELLY)	Health and Sports Nutrition Group HSNG AB
Sell-off	16-11-2017	Nedap N.V. (ENXTAM:NEDAP)	Nsecure BV
Sell-off	10-11-2017	Ferguson plc (LSE:FERG)	Stark Group A/S
Sell-off	06-11-2017	Otello Corporation ASA (OB:OTEC)	SurfEasy, Inc.
Sell-off	27-10-2017	Solocal Group S.A. (ENXTPA:LOCAL)	AVendreALouer.fr
Sell-off	16-10-2017	Obrascón Huarte Lain, S.A. (BME:OHL)	OHL Concesiones, S.A.
Sell-off	04-10-2017	Davide Campari-Milano N.V. (BIT:CPR)	Terme di Crodo S.p.A.
Sell-off	02-10-2017	Sureserve Group plc (AIM:SUR)	Orchard (Holdings) UK Limited
Sell-off	23-05-2017	Umicore SA (ENXTBR:UMI)	VM BUILDING SOLUTIONS
Sell-off	25-09-2017	Itway S.p.A. (BIT:ITW)	Business-e S.p.A.
Sell-off	21-09-2017	Marshall Motor Holdings Plc (AIM:MMH)	Marshall Leasing Ltd.
Sell-off	20-09-2017	A.P. Møller - Mærsk A/S (CPSE:MAERSK B)	Maersk Tankers A/S
Sell-off	19-09-2017	Cementir Holding N.V. (BIT:CEM)	Cementir Italia S.p.A.
Sell-off	31-08-2017	Exmar NV (ENXTBR:EXMI)	Belgibo NV
Sell-off	30-08-2017	Spectris plc (LSE:SXS)	Omron Microscan Systems, Inc.
Sell-off	16-08-2017	Pearson plc (LSE:PSON)	Global Education & Technology Group Limited
Sell-off	15-08-2017	Perrigo Company plc (NYSE:PRGO)	OOO Bittner Pharma
Sell-off	10-08-2017	Perrigo Company plc (NYSE:PRGO)	Wavelength Pharmaceuticals
Sell-off	02-08-2017	The Vitec Group plc (LSE:VTC)	Bexel Corporation
Sell-off	28-07-2017	Tele2 AB (publ) (OM:TEL2 B)	Tele2 Telecommunication GmbH
Sell-off	26-07-2017	Cimpress plc (NasdaqGS:CMPR)	Albumprinter B.V.
Sell-off	24-07-2017	Davide Campari-Milano N.V. (BIT:CPR)	TJ Carolan & Son Ltd
Sell-off	14-07-2017	Dixons Carphone plc (LSE:DC.)	The Phone House Spain S.L.U.
Sell-off	03-07-2017	Schweiter Technologies AG (SWX:SWTQ)	SSM Schärer Schweiter Mettler AG
Sell-off	03-07-2017	Danone S.A. (ENXTPA:BN)	Stonyfield Farm, Inc.
Sell-off	03-07-2017	Touax SCA (ENXTPA:TOUP)	Touax Solutions Modulaires SAS
Sell-off	20-06-2017	ProSiebenSat.1 Media SE (XTRA:PSM)	eTRAVELi Holding AB

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	12-06-2017	Akastor ASA (OB:AKAST)	KOP Surface Products Pte Ltd
Sell-off	05-06-2017	G4S plc (LSE:GFS)	Homes2Inspire Limited
Sell-off	02-06-2017	Sandvik AB (OM:SAND)	IPCO AB
Sell-off	02-06-2017	The Sage Group plc (LSE:SGE)	Paya Holdings Inc. (NasdaqCM:PAYA)
Sell-off	24-05-2017	Ørsted A/S (CPSE:ORSTED)	DONG E&P A/S
Sell-off	28-04-2017	Fluidra, S.A. (BME:FDR)	ATH APLICACIONES TECNICAS HIDRAULICAS
Sell-off	26-04-2017	Compagnie des Alpes SA (ENXTPA:CDA)	FORT FUN GmbH
Sell-off	25-04-2017	Nelly Group AB (publ) (OM:NELLY)	Lekmer AB
Sell-off	07-04-2017	Wolters Kluwer N.V. (ENXTAM:WKL)	Alpega Group
Sell-off	05-04-2017	Premier Oil plc (LSE:PMO)	Premier Oil Pakistan Holdings B.V.
Sell-off	05-04-2017	DCC plc (LSE:DCC)	Enva Irish Opco Limited
Sell-off	03-04-2017	G4S plc (LSE:GFS)	G4S Youth Services, LLC
Sell-off	03-04-2017	BP p.l.c. (LSE:BP.)	INEOS FPS Limited
Sell-off	03-04-2017	Schneider Electric S.E. (ENXTPA:SU)	Telvent DTN, LLC
Sell-off	31-03-2017	Trelleborg AB (publ) (OM:TREL B)	Trelleborg Material & Mixing Lesina, s.r.o.
Sell-off	29-03-2017	SMA Solar Technology AG (XTRA:S92)	SMA Railway Technology GmbH
Sell-off	27-03-2017	EDP - Energias de Portugal, S.A. (ENXTLS:EDP)	Nortegas Energía Distribución, S.A.U.
Sell-off	16-03-2017	Johnson Controls International plc (NYSE:JCI)	Scott Technologies, Inc.
Sell-off	13-03-2017	Bang & Olufsen a/s (CPSE:BO)	Tymphany Acoustic Technology Europe, s.r.o.
Sell-off	08-03-2017	Siemens Aktiengesellschaft (XTRA:SIE)	Siemens Turbomachinery Equipment GmbH
Sell-off	06-03-2017	Heijmans N.V. (ENXTAM:HEIJM)	PORR Oevermann GmbH
Sell-off	02-03-2017	Sportech PLC (LSE:SPO)	The Football Pools Limited
Sell-off	02-03-2017	L'Air Liquide S.A. (ENXTPA:AI)	Air Liquide Welding France SA
Sell-off	21-02-2017	thyssenkrupp AG (XTRA:TKA)	Ternium Staal B.V.
Sell-off	13-02-2017	TUI AG (XTRA:TUI1)	Travelopia
Sell-off	24-01-2017	Rio Tinto Group (LSE:RIO)	Coal & Allied Industries Ltd.
Sell-off	23-01-2017	Manz AG (XTRA:M5Z)	Manz CIGS Technology Gmbh
Sell-off	11-01-2017	National Express Group PLC (LSE:NEX)	Nxet Trains Limited
Sell-off	21-12-2016	Vossloh AG (XTRA:VOS)	Kiepe Electric GmbH
Sell-off	19-12-2016	Entain PLC (LSE:ENT)	PXP Financial Limited
Sell-off	18-12-2019	Royal Dutch Shell plc (ENXTAM:RDSA)	Viva Energy Aviation Pty Ltd
Sell-off	15-12-2016	Deutsche Telekom AG (XTRA:DTE)	STRATO AG
Sell-off	15-12-2016	Tenaris S.A. (BIT:TEN)	Nucor Tubular Products corporation
Sell-off	15-12-2016	Eiffage SA (ENXTPA:FGR)	Eiffgen Snc
Sell-off	14-12-2016	Heijmans N.V. (ENXTAM:HEIJM)	FRANKI Grundbau GmbH & Co. KG
Sell-off	12-02-2016	ERAMET S.A. (ENXTPA:ERA)	Erachem Comilog S.A.
Sell-off	07-12-2016	Solvay SA (ENXTBR:SOLB)	Rhodia Acetow GmbH
Sell-off	25-11-2016	Antofagasta plc (LSE:ANTO)	Minera Michilla S.A.
Sell-off	24-11-2016	Bastei Lübbe AG (XTRA:BST)	räder GmbH
Sell-off	23-11-2016	Rio Tinto Group (LSE:RIO)	Alcan Aluminium UK Ltd.
Sell-off	15-11-2016	Telefónica, S.A. (BME:TEF)	Television Federal S.A.
Sell-off	01-11-2016	Medivir AB (publ) (OM:MVIR B)	Biophausia AB
Sell-off	20-10-2016	Glencore plc (LSE:GLEN)	Glencore Rail (NSW) Pty Limited
Sell-off	20-10-2016	SGL Carbon SE (XTRA:SGL)	SHOWA DENKO CARBON Holding GmbH
Sell-off	12-10-2016	Kier Group plc (LSE:KIE)	Mouchel Limited
Sell-off	06-10-2016	TOTAL SE (ENXTPA:FP)	Atotech Limited (NYSE:ATC)
Sell-off	29-06-2016	Safran SA (ENXTPA:SAF)	IDEMIA Identity & Security France SAS
Sell-off	28-09-2016	Enel SpA (BIT:ENEL)	Marcinelle Energie S.A.
Sell-off	26-09-2016	GN Store Nord A/S (CPSE:GN)	Natus Hearing & Balance
Sell-off	09-09-2016	ERAMET S.A. (ENXTPA:ERA)	Bear Metallurgical Company
Sell-off	07-09-2016	Danone S.A. (ENXTPA:BN)	Diwatts S.A.
Sell-off	05-09-2016	Carr's Group plc (LSE:CARR)	Carr's Flour Mills Ltd.
Sell-off	30-08-2016	Autogrill S.p.A. (BIT:AGL)	Autogrill Nederland B.V.
Sell-off	18-08-2016	Tyco International plc	Fidelity ADT (Pty) Ltd
Sell-off	28-07-2016	ePRICE S.p.A. (BIT:EPR)	Bnk4-SaldiPrivati s.r.l.
Sell-off	25-07-2016	Cranswick plc (LSE:CWK)	The Sandwich Factory Limited
Sell-off	01-07-2016	PunaMusta Media Oyj (HLSE:PUMU)	Paperityö Oy
Sell-off	29-06-2016	Geberit AG (SWX:GEBN)	Koralle Sanitärprodukte GmbH
Sell-off	29-06-2016	AA plc (LSE:AA.)	AA Ireland Ltd.
Sell-off	23-06-2016	The Weir Group PLC (LSE:WEIR)	American Hydro Corp.
Sell-off	21-06-2016	Telia Company AB (publ) (OM:TELIA)	Sergel Kredittjänster AB
Sell-off	17-06-2016	Tesco PLC (LSE:TSCO)	Dobbies Garden Centres Limited
Sell-off	15-06-2016	Nelly Group AB (publ) (OM:NELLY)	Tretti AB
Sell-off	14-06-2016	NXP Semiconductors N.V. (NasdaqGS:NXPI)	Nexperia B.V.
Sell-off	01-06-2016	Umicore SA (ENXTBR:UMI)	EverZinc
Sell-off	24-05-2016	CNIM Groupe SA (ENXTPA:COM)	Babcock Wanson SAS
Sell-off	23-05-2016	De La Rue plc (LSE:DLAR)	De La Rue Cash Processing Solutions Limited
Sell-off	04-05-2016	Avingtrans plc (AIM:AVG)	Sigma Precision Components Ltd
Sell-off	26-04-2016	AB SKF (publ) (OM:SKF B)	Kaydon Corporation
Sell-off	21-04-2016	Safran SA (ENXTPA:SAF)	Smiths Detection LLC
Sell-off	22-03-2016	aap Implantate AG (XTRA:AAQ1)	OSARTIS GmbH
Sell-off	17-03-2016	LafargeHolcim Ltd (SWX:LHN)	Halla Cement Corp.
Sell-off	17-03-2016	AB SKF (publ) (OM:SKF B)	Fly by Wire Systems France S.A.S.
Sell-off	10-03-2016	Restore plc (AIM:RST)	Restore Document Management Ireland Limited
Sell-off	08-02-2016	Millicom International Cellular S.A. (NasdaqGS:TIGO)	OASIS SPRL
Sell-off	08-02-2016	Bilfinger SE (XTRA:GBF)	Aqseptence Group GmbH
Sell-off	29-01-2016	Fortum Oyj (HLSE:FORTUM)	Tobolsk Combined Heat and Power Plant LLC
Sell-off	05-02-2016	Blancco Technology Group plc (AIM:BLTG)	Regenersis (Depot) Services Limited
Sell-off	02-02-2016	Studio Retail Group plc (LSE:STU)	Kitbag Limited
Sell-off	28-01-2016	Balfour Beatty plc (LSE:BBY)	Rail Power Systems Gmbh
Sell-off	15-01-2016	Webuild S.p.A. (BIT:WBD)	Todini Costruzioni Generali S.p.A.
Sell-off	17-12-2015	Orkla ASA (OB:ORK)	Cederroth AB
Sell-off	16-12-2015	Tungsten Corporation plc (AIM:TUNG)	Wyelands Bank Plc
Sell-off	14-12-2015	Schneider Electric S.E. (ENXTPA:SU)	Telvent Trafico Y Transporte, S.A.
Sell-off	11-12-2015	QinetiQ Group plc (LSE:QQ.)	Cyveillance, Inc.
Sell-off	09-12-2015	Kering SA (ENXTPA:KER)	Sergio Rossi S.p.A.
Sell-off	09-12-2015	BASF SE (XTRA:BAS)	Magenta Master Fibers Srl
Sell-off	16-11-2015	Premier Oil plc (LSE:PMO)	Premier Oil Norge AS
Sell-off	16-11-2015	EuKedos S.p.A. (BIT:EUK)	Delta Med Spa
Sell-off	06-11-2015	HolidayCheck Group AG (XTRA:HOC)	jameda GmbH
Sell-off	04-11-2015	Vossloh AG (XTRA:VOS)	Stadler Rail Valencia S.A.U
Sell-off	15-10-2015	Goodtech ASA (OB:GOD)	Biovac Environmental Technology AS
Sell-off	06-10-2015	Telia Company AB (publ) (OM:TELIA)	Omnitel UAB
Sell-off	02-09-2015	Experian plc (LSE:EXPN)	Baker Hill Corporation
Sell-off	01-09-2015	TOTAL SE (ENXTPA:FP)	Güzel Enerji Akaryakit A.S.
Sell-off	24-08-2015	Anglo American plc (LSE:AAL)	Anglo American Norte S.A.
Sell-off	10-08-2015	Capita plc (LSE:CPI)	National Dental Plan Limited
Sell-off	22-07-2015	Orange S.A. (ENXTPA:ORA)	Orange Armenia CJSC
Sell-off	04-08-2015	Spirax-Sarco Engineering plc (LSE:SPX)	M & M INTERNATIONAL S.r.l.
Sell-off	03-08-2015	Nokia Corporation (HLSE:NOKIA)	HERE Holding Corporation
Sell-off	29-07-2015	Casino, Guichard-Perrachon Société Anonyme (ENXTPA:CO)	Libertad S.A.
Sell-off	24-07-2015	Mondi plc (LSE:MNDI)	Mondi Osterburken GmbH
Sell-off	23-07-2015	Pearson plc (LSE:PSON)	Financial Times Group Ltd.
Sell-off	21-07-2015	Experian plc (LSE:EXPN)	FootFall Limited
Sell-off	15-07-2015	Royal Vopak N.V. (ENXTAM:VPK)	Vopak Chemicals Logistics Finland Oy
Sell-off	10-07-2015	InterContinental Hotels Group PLC (LSE:IHG)	InterContinental Hong Kong Limited
Sell-off	26-06-2015	The Alumasc Group plc (AIM:ALU)	Alumasc Precision Limited
Sell-off	25-06-2015	Johnson Matthey Plc (LSE:JMAT)	Thermo Fisher Scientific Chemicals, Inc.
Sell-off	10-06-2015	Bayer Aktiengesellschaft (XTRA:BAYN)	Ascensia Diabetes Care Holdings AG
Sell-off	08-06-2015	HolidayCheck Group AG (XTRA:HOC)	EliteMedianet GmbH
Sell-off	28-05-2015	NXP Semiconductors N.V. (NasdaqGS:NXPI)	Ampleon Netherlands B.V.
Sell-off	19-05-2015	Bittium Oyj (HLSE:BITTI)	Elektrobit Automotive GmbH
Sell-off	18-05-2015	DS Smith Plc (LSE:SMDS)	StePac L.A. Ltd.
Sell-off	05-05-2015	AB SKF (publ) (OM:SKF B)	Erin Engineering And Research, Inc
Sell-off	01-04-2015	Real Good Food plc (AIM:RGD)	Napier Brown Holdings Ltd
Sell-off	23-04-2015	Antofagasta plc (LSE:ANTO)	Aguas de Antofagasta S.A.
Sell-off	23-04-2015	Fraport AG (XTRA:FRA)	Air-Transport IT Services, Inc.
Sell-off	20-04-2015	Koninklijke KPN N.V. (ENXTAM:KPN)	Telenet Group NV/SA
Sell-off	31-03-2015	ARYZTA AG (SWX:ARYN)	Carroll Cuisine UC
Sell-off	16-03-2015	Fagron NV (ENXTBR:FAGR)	Corilus SA
Sell-off	13-03-2015	Fortum Oyj (HLSE:FORTUM)	Ellevio AB (publ)
Sell-off	12-03-2015	Balfour Beatty plc (LSE:BBY)	Alpiq EnerTrans S.p.A.
Sell-off	10-11-2014	Viscofan, S.A. (BME:VIS)	Industrias Alimentarias de Navarra, S.A.U.
Sell-off	24-02-2015	Leonardo S.p.a. (BIT:LDO)	Hitachi Rail S.p.A.
Sell-off	11-02-2015	Royal Boskalis Westminster N.V. (ENXTAM:BOKA)	Aannemingsbedrijf De Jong En Zoon Beheer B.V.
Sell-off	12-01-2015	FLSmidth & Co. A/S (CPSE:FLS)	Cembrit Holding A/S
Sell-off	22-12-2014	Bilfinger SE (XTRA:GBF)	Implenia Construction GmbH
Sell-off	19-12-2014	Sartorius Aktiengesellschaft (XTRA:SRT)	Sartorius Mechatronics T&H GmbH
Sell-off	15-12-2014	Tomra Systems ASA (OB:TOM)	Tomra Compaction Group AB
Sell-off	01-12-2014	Von Roll Holding AG (SWX:ROL)	Von Roll Transformers Ltd.
Sell-off	25-11-2014	JD Sports Fashion plc (LSE:JD.)	Bank Fashion Limited
Sell-off	19-11-2014	Smith & Nephew plc (LSE:SN.)	DelStar International, Ltd.
Sell-off	17-11-2015	Mail.ru Group Limited (LSE:MAIL)	HeadHunter Group PLC (NasdaqGS:HHR)
Sell-off	12-11-2014	G4S plc (LSE:GFS)	Centerra Group, LLC
Sell-off	06-11-2014	Siemens Aktiengesellschaft (XTRA:SIE)	Sivantos Pte. Ltd.
Sell-off	05-11-2014	ERG S.p.A. (BIT:ERG)	ERG Oil Sicilia S.r.l.
Sell-off	03-11-2014	AAK AB (publ.) (OM:AAK)	Binol AB
Sell-off	06-10-2014	IMI plc (LSE:IMI)	Eley Group
Sell-off	06-10-2014	HOCHTIEF Aktiengesellschaft (XTRA:HOT)	Instone Real Estate Development GmbH
Sell-off	02-10-2014	Fortum Oyj (HLSE:FORTUM)	Grangemouth CHP Limited
Sell-off	30-09-2014	DCC plc (LSE:DCC)	Wardell Roberts Limited
Sell-off	30-09-2014	Stora Enso Oyj (HLSE:STERV)	Corenso United Oy Ltd.
Sell-off	24-09-2014	Nobia AB (publ) (OM:NOBI)	Hygena Cuisines SAS
Sell-off	19-03-2014	TOTAL SE (ENXTPA:FP)	Bostik SA
Sell-off	03-09-2014	Balfour Beatty plc (LSE:BBY)	WSP USA
Sell-off	01-09-2014	Hargreaves Services Plc (AIM:HSP)	Suttons Tankers Limited
Sell-off	01-09-2014	SSE plc (LSE:SSE)	Indigo Pipelines Limited
Sell-off	25-08-2014	MKB Nedsense NV (ENXTAM:NEDSE)	NedGraphics b.v.
Sell-off	11-08-2014	Vergnet SA (ENXTPA:ALVER)	Vergnet Hydro International
Sell-off	07-08-2014	InterContinental Hotels Group PLC (LSE:IHG)	InterContinental Paris - Le Grand
Sell-off	04-08-2014	Softlab S.p.A. (BIT:SOF)	Jinny Software Ltd.
Sell-off	01-08-2014	Barco NV (ENXTBR:BAR)	Barco Orthogon GmbH
Sell-off	01-08-2014	ArcelorMittal (ENXTAM:MT)	Circuit Foil Luxembourg SA
Sell-off	30-07-2014	Rio Tinto Group (LSE:RIO)	Rio Tinto Coal Mozambique
Sell-off	07-07-2014	Tele2 AB (publ) (OM:TEL2 B)	Tele2 Norge AS
Sell-off	07-07-2014	TOTAL SE (ENXTPA:FP)	Polynt Composites USA Inc.
Sell-off	02-07-2014	TOTAL SE (ENXTPA:FP)	FINAGAZ SNC
Sell-off	27-06-2014	Elos Medtech AB (publ) (OM:ELOS B)	Elos Fixturlaser AB
Sell-off	26-06-2014	Serco Group plc (LSE:SRP)	Collectica Limited
Sell-off	20-06-2014	Distribuidora Internacional de Alimentación, S.A. (BME:DIA)	SAS Erteco France
Sell-off	17-06-2014	Feintool International Holding AG (SWX:FTON)	IMA Automation Amberg GmbH
Sell-off	09-06-2014	Naturgy Energy Group, S.A. (BME:NTGY)	Gas Natural Fenosa Telecomunicaciones, S.A.
Sell-off	20-05-2014	Greencore Group plc (LSE:GNC)	Mademoiselle Desserts Taunton Limited
Sell-off	22-05-2014	Daily Mail and General Trust plc (LSE:DMGT)	Jobsite UK (Worldwide) Ltd.
Sell-off	19-05-2014	Ferguson plc (LSE:FERG)	Frauenthal Handel GmbH
Sell-off	15-05-2014	discoverIE Group plc (LSE:DSCV)	Agilitas IT Solutions Limited
Sell-off	14-05-2014	Lemminkäinen Oyj	Lemminkäinen Talotekniikka Oy
Sell-off	12-05-2014	Atlantia SpA (BIT:ATL)	TowerCo S.p.A.
Sell-off	07-05-2014	Valora Holding AG (SWX:VALN)	Valora Schweiz AG
Sell-off	28-04-2014	Koninklijke Philips N.V. (ENXTAM:PHIA)	Gibson Innovations Limited
Sell-off	24-04-2014	SIG plc (LSE:SHI)	Miller Pattison Limited
Sell-off	24-04-2014	Chemring Group PLC (LSE:CHG)	Mecar SA
Sell-off	16-04-2014	Fortum Oyj (HLSE:FORTUM)	Fortum Distribution AS
Sell-off	04-04-2014	EVRAZ plc (LSE:EVR)	VÍTKOVICE STEEL, a.s.
Sell-off	03-04-2015	Schneider Electric S.E. (ENXTPA:SU)	Custom Sensors & Technologies Inc.
Sell-off	03-04-2015	Hydratec Industries NV (ENXTAM:HYDRA)	Danielson Europe BV
Sell-off	28-03-2014	Proximus PLC (ENXTBR:PROX)	Groupe Telindus France S.A.
Sell-off	17-03-2014	RWE Aktiengesellschaft (XTRA:RWE)	DEA Deutsche Erdoel AG
Sell-off	10-03-2014	Armour Group plc	Armour Automotive Ltd.
Sell-off	03-03-2014	Tyco International plc	Tyco Fire & Security Services Korea Co., Ltd.
Sell-off	27-02-2014	Fomento de Construcciones y Contratas, S.A. (BME:FCC)	Logiters Logística S.A.
Sell-off	26-02-2014	EAC Invest A/S (CPSE:EAC)	Plumrose Latinoamericana, C.A.
Sell-off	24-02-2014	aap Implantate AG (XTRA:AAQ1)	European Medical Contract Manufacturing BV
Sell-off	10-02-2014	4imprint Group plc (LSE:FOUR)	SPS (EU) Limited
Sell-off	31-01-2014	Sulzer Ltd (SWX:SUN)	Oerlikon Metco Management AG
Sell-off	31-01-2014	Accell Group N.V. (ENXTAM:ACCEL)	Accell Germany GmbH
Sell-off	17-01-2014	Arbonia AG (SWX:ARBN)	Bruno Piatti AG
Sell-off	16-01-2014	Hexagon Composites ASA (OB:HEX)	DEVOLD AMT AS
Sell-off	09-01-2014	Endo International plc (NasdaqGS:ENDP)	HealthTronics, Inc.
Sell-off	19-12-2013	Compagnie de Saint-Gobain S.A. (ENXTPA:SGO)	m-tec mathis technik gmbh
Sell-off	20-12-2013	Meggitt PLC (LSE:MGGT)	Sunbank Family of Companies, LLC
Sell-off	11-12-2013	Saipem SpA (BIT:SPM)	Floaters SpA
Sell-off	10-12-2013	AB Volvo (publ) (OM:VOLV B)	BlueLine Rental, LLC
Sell-off	29-11-2013	thyssenkrupp AG (XTRA:TKA)	AMNS Calvert LLC
Sell-off	27-11-2013	Serco Group plc (LSE:SRP)	Cubic Transportation Systems (ITMS) Limited
Sell-off	26-11-2013	Orange S.A. (ENXTPA:ORA)	Orange Dominicana, S.A.
Sell-off	15-11-2013	ad pepper media International N.V. (XTRA:APM)	EMediate ApS
Sell-off	06-11-2013	Siemens Aktiengesellschaft (XTRA:SIE)	Evoqua Water Technologies LLC
Sell-off	05-11-2013	Mears Group plc (LSE:MER)	Haydon Mechanical & Electrical Ltd
Sell-off	30-10-2013	Akastor ASA (OB:AKAST)	Aker Pusnes AS
Sell-off	28-10-2013	Liberty Global plc (NasdaqGS:LBTY.A)	AMC Networks International LLC
Sell-off	15-10-2013	Royal Boskalis Westminster N.V. (ENXTAM:BOKA)	Smit Marine Australia Pty Ltd.
Sell-off	09-10-2013	Vestas Wind Systems A/S (CPSE:VWS)	Global Castings A/S
Sell-off	07-10-2013	Jaywing plc (AIM:JWNG)	Tryzens Limited
Sell-off	01-10-2013	Eurotech S.p.A. (BIT:ETH)	Parvus Corporation
Sell-off	10-09-2013	Tesco PLC (LSE:TSCO)	Old FENM Inc.
Sell-off	02-09-2013	Nokia Corporation (HLSE:NOKIA)	Microsoft Mobile, Oyj
Sell-off	28-08-2013	G4S plc (LSE:GFS)	G4s Cash Solutions (Canada) Ltd.
Sell-off	13-08-2013	Fomento de Construcciones y Contratas, S.A. (BME:FCC)	EQOS Energie Holding S.à r.l.
Sell-off	09-08-2013	Balfour Beatty plc (LSE:BBY)	Engie Services Limited
Sell-off	07-08-2013	Johnson Service Group PLC (AIM:JSG)	Bellrock Property & Facilities Management Limited
Sell-off	01-08-2013	BP p.l.c. (LSE:BP.)	RUBIS Energia Portugal, S.A.
Sell-off	29-07-2013	Indra Sistemas, S.A. (BME:IDR)	DELION COMMUNICATIONS, S.L.U.
Sell-off	24-07-2013	SThree plc (LSE:STEM)	Dice Careers Limited
Sell-off	22-07-2013	Derichebourg SA (ENXTPA:DBG)	Servisair SAS
Sell-off	03-07-2013	A2A S.p.A. (BIT:A2A)	Chi.Na.Co S.r.l.
Sell-off	25-06-2013	Medivir AB (publ) (OM:MVIR B)	Cross Pharma AB
Sell-off	24-06-2013	Telefónica, S.A. (BME:TEF)	Three Ireland Services (Hutchison) Limited
Sell-off	20-06-2013	Melrose Industries PLC (LSE:MRO)	Marelli Motori S.p.A.
Sell-off	10-06-2013	Rémy Cointreau SA (ENXTPA:RCO)	Larsen le Cognac des Vikings SAS
Sell-off	03-06-2013	Deutsche Post AG (XTRA:DPW)	ITG GmbH Internationale Spedition und Logistik
Sell-off	28-05-2013	KAZ Minerals PLC (LSE:KAZ)	KME Mansfeld GmbH
Sell-off	14-05-2013	Ion Beam Applications SA (ENXTBR:IBAB)	Cisbio Bioassays SAS
Sell-off	08-05-2013	Kardex Holding AG (SWX:KARN)	Stow International nv
Sell-off	30-04-2013	Alma Media Oyj (HLSE:ALMA)	Mascus Danmark A/S
Sell-off	29-04-2013	Meier Tobler Group AG (SWX:MTG)	Walter Meier (Klima Deutschland) GmbH
Sell-off	18-04-2013	Abengoa, S.A. (BME:ABG)	Befesa Medio Ambiente S.L.
Sell-off	17-04-2013	CPPGroup Plc (AIM:CPP)	AMT Consumer Services, Inc.
Sell-off	05-04-2013	TOTAL SE (ENXTPA:FP)	Teréga SA
Sell-off	02-04-2013	Solar A/S (CPSE:SOLAR B)	Aurora Group Danmark A/S
Sell-off	27-03-2013	Tele2 AB (publ) (OM:TEL2 B)	Tele2 Russia Telecom
Sell-off	21-03-2013	Pentair plc (NYSE:PNR)	Moog Aspen Motion Technologies, Inc.
Sell-off	19-03-2013	Studio Retail Group plc (LSE:STU)	Nottingham Rehab Limited
Sell-off	08-03-2013	FirstGroup plc (LSE:FGP)	First Support Services, Inc.
Sell-off	27-02-2013	Abengoa, S.A. (BME:ABG)	Bargoa S/A
Sell-off	23-01-2013	Metsä Board Oyj (HLSE:METSB)	M-Real Alizay Sas
Sell-off	14-01-2013	Compagnie de Saint-Gobain S.A. (ENXTPA:SGO)	Ardagh Glass Inc.
Sell-off	02-01-2013	The Weir Group PLC (LSE:WEIR)	Liquid Gas Equipment Ltd.
Sell-off	31-12-2012	Iberdrola, S.A. (BME:IBE)	Iberdrola Renovables France SAS
Sell-off	27-12-2012	Clariant AG (SWX:CLN)	Achroma Management GmbH

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	19-12-2012	Spectris plc (LSE:SXS)	Heraeus Noblelight America LLC
Sell-off	19-12-2012	Aktieselskabet Schouw & Co. (CPSE:SCHO)	HARMAN Professional Denmark ApS
Sell-off	19-12-2012	Svenska Cellulosa Aktiebolaget SCA (publ) (OM:SCA B)	Laakirchen Papier AG
Sell-off	14-12-2012	Kemira Oyj (HLSE:KEMIRA)	Niacet b.v.
Sell-off	14-12-2012	Koninklijke KPN N.V. (ENXTAM:KPN)	Orange España Virtual, S.L.U.
Sell-off	13-12-2012	Neste Oyj (HLSE:NESTE)	Shell Self Service Sp. z o.o.
Sell-off	10-12-2012	Schweiter Technologies AG (SWX:SWTQ)	Ismeca Semiconductor Holding SA
Sell-off	05-12-2012	discoverIE Group plc (LSE:DSCV)	EAF Supply Chain Limited
Sell-off	05-12-2012	Fortum Oyj (HLSE:FORTUM)	Fortum Heat Naantali Oy
Sell-off	03-12-2012	Gem Diamonds Limited (LSE:GEMD)	Kimberley Diamond Company Pty Ltd
Sell-off	20-11-2012	TT Electronics plc (LSE:TTG)	Ottomotores UK Limited
Sell-off	12-11-2012	SBM Offshore N.V. (ENXTAM:SBMO)	GustoMSC B.V.
Sell-off	12-11-2012	Glaston Oyj Abp (HLSE:GLA1V)	A+W Software GmbH
Sell-off	22-11-2012	EVRAZ plc (LSE:EVR)	OOO EvrazTrans
Sell-off	03-10-2012	Lammhults Design Group AB (publ) (OM:LAMM B)	Scandinavian Eyewear AB
Sell-off	28-09-2012	Orkla ASA (OB:ORK)	Salvesen & Thams AS
Sell-off	28-09-2012	thyssenkrupp AG (XTRA:TKA)	WISCO international Tailored Blanks GmbH
Sell-off	28-09-2012	Providence Resources P.l.c. (ISE:PZQA)	P.R. Singleton Ltd.
Sell-off	28-09-2012	BP p.l.c. (LSE:BP.)	BP Chemicals (Malaysia) Sdn. Bhd.
Sell-off	24-09-2012	Spirent Communications plc (LSE:SPT)	Spirent Systems NO 2 Limited
Sell-off	10-09-2012	Transocean Ltd. (NYSE:RIG)	Shelf Drilling Holdings, Ltd.
Sell-off	23-08-2012	JD Sports Fashion plc (LSE:JD.)	CL Realisation Limited
Sell-off	23-08-2012	Valora Holding AG (SWX:VALN)	PGV Austria Trunk GmbH
Sell-off	22-08-2012	Halma plc (LSE:HLMA)	Tritech International Limited
Sell-off	09-08-2012	Telecom Italia S.p.A. (BIT:TIT)	Matrix S.p.A.
Sell-off	01-08-2012	TT Electronics plc (LSE:TTG)	Dale Power Solutions Plc
Sell-off	30-07-2012	A2A S.p.A. (BIT:A2A)	A2A Coriance SAS
Sell-off	05-07-2012	AB Volvo (publ) (OM:VOLV B)	GKN Aerospace Sweden AB
Sell-off	03-07-2012	Lemminkäinen Oyj	Lemminkäinen Rakennustuotteet Oy
Sell-off	29-06-2012	Serco Group plc (LSE:SRP)	Energy, Safety and Risk Consultants (UK) Limited
Sell-off	29-06-2012	Midsona AB (publ) (OM:MSON B)	Vitamex Manufacturing AB
Sell-off	25-06-2012	Melrose Industries PLC (LSE:MRO)	Rosti McKechnie Ltd.
Sell-off	06-06-2012	Chemring Group PLC (LSE:CHG)	Drew Marine Signal and Safety
Sell-off	21-05-2012	Arbonia AG (SWX:ARBN)	Aqualux Products Holdings Limited
Sell-off	17-05-2012	Glanbia plc (ISE:GL9)	Yoplait Ireland Ltd.
Sell-off	17-05-2012	ArcelorMittal (ENXTAM:MT)	Skyline Steel, LLC
Sell-off	14-05-2012	Babcock International Group PLC (LSE:BAB)	VTG LLC
Sell-off	11-05-2012	Ferguson plc (LSE:FERG)	Homebase Rooms LTD
Sell-off	08-05-2012	K+S Aktiengesellschaft (XTRA:SDF)	EuroChem Agro GmbH
Sell-off	27-04-2012	Hunting PLC (LSE:HTG)	Field Aviation Company Inc.
Sell-off	26-04-2012	Frauenthal Holding AG (WBAG:FKA)	IBIDEN Porzellanfabrik Frauenthal GmbH
Sell-off	11-04-2012	Thales S.A. (ENXTPA:HO)	L-3 Link Simulation & Training U.K. Limited
Sell-off	05-04-2012	John Wood Group PLC (LSE:WG.)	Wood Group Turbopower, LLC
Sell-off	03-04-2012	DCC plc (LSE:DCC)	ALTIMATE Group SAS
Sell-off	03-04-2012	Halma plc (LSE:HLMA)	Volumatic Limited
Sell-off	11-04-2012	Modern Times Group Mtg AB (OM:MTG B)	Nordic Betting Ltd.
Sell-off	19-03-2012	LEONI AG (XTRA:LEO)	Synergy Health Däniken AG
Sell-off	13-03-2012	Tyman plc (LSE:TYMN)	Gall Thomson Environmental Ltd.
Sell-off	05-03-2012	Sanoma Oyj (HLSE:SAA1V)	R-kioski Oy
Sell-off	29-02-2012	Koninklijke BAM Groep nv (ENXTAM:BAMNB)	Tebodin B.V.
Sell-off	16-02-2012	4imprint Group plc (LSE:FOUR)	Brand Addition Limited
Sell-off	13-02-2012	TietoEVRY Oyj (HLSE:TIETO)	Sopra Group Solutions UK Ltd
Sell-off	23-12-2011	Orange S.A. (ENXTPA:ORA)	Salt Mobile SA
Sell-off	23-12-2011	Exor N.V. (BIT:EXO)	Alpitour S.p.A.
Sell-off	02-12-2011	Suez SA (ENXTPA:SEV)	EURAWASSER Aufbereitungs- und Entsorgungs Gmb
Sell-off	01-12-2011	Synthomer plc (LSE:SYNT)	Unión Químico Farmacéutica, S.A.U.
Sell-off	18-11-2011	Kazera Global plc (AIM:KZG)	MSS Building Services Limited
Sell-off	17-11-2011	Orkla ASA (OB:ORK)	Bakehuset AS
Sell-off	17-11-2011	Medtronic plc (NYSE:MDT)	Physio-Control International, Inc.
Sell-off	15-11-2011	Sword Group S.E. (ENXTPA:SWP)	CTSpace Ltd.
Sell-off	04-11-2011	Deutsche Lufthansa AG (XTRA:LHA)	British Midland Limited
Sell-off	02-11-2011	Natraceutical SA	Naturex Industrial SL
Sell-off	20-10-2011	Repsol, S.A. (BME:REP)	Distribuidora de Gás LP Azul S.A
Sell-off	18-10-2011	Funkwerk AG (DB:FEW)	bintec elmeg GmbH
Sell-off	07-10-2011	Atlas Copco AB (OM:ATCO A)	Atlas Copco MAI GmbH
Sell-off	30-09-2011	CRH plc (ISE:CRG)	Premier Periclase Ltd.
Sell-off	29-09-2011	Augusta Technologie AG	Sensortechnics GmbH
Sell-off	26-09-2011	National Grid plc (LSE:NG.)	Seneca-Upshur Petroleum, LLC
Sell-off	02-09-2011	The Sage Group plc (LSE:SGE)	Greenway Health, LLC
Sell-off	08-09-2011	DS Smith Plc (LSE:SMDS)	Spicers Limited
Sell-off	30-08-2011	Bunzl plc (LSE:BNZL)	Selecta UK Limited
Sell-off	25-08-2011	KAZ Minerals PLC (LSE:KAZ)	Kazakhmys Petroleum LLP
Sell-off	03-08-2011	AerCap Holdings N.V. (NYSE:AER)	AeroTurbine, Inc.
Sell-off	25-07-2011	Ferguson plc (LSE:FERG)	Brossette S.A.S.
Sell-off	18-07-2011	VERBUND AG (WBAG:VER)	Poweo Production SAS
Sell-off	12-07-2011	Ferguson plc (LSE:FERG)	Electric Center Limited
Sell-off	11-07-2011	Sanofi (ENXTPA:SAN)	Dermik Laboratories, Inc.
Sell-off	12-07-2011	TT Electronics plc (LSE:TTG)	AEI Compounds Limited
Sell-off	01-07-2011	NEXT plc (LSE:NXT)	Capita Customer Management Limited
Sell-off	30-06-2011	Metsä Board Oyj (HLSE:METSB)	AustroCel Hallein GmbH
Sell-off	23-06-2011	Edison S.p.A. (BIT:EDNR)	Taranto Energia S.r.l.
Sell-off	22-06-2011	AstraZeneca PLC (LSE:AZN)	Wellspect HealthCare AB
Sell-off	20-06-2011	K+S Aktiengesellschaft (XTRA:SDF)	COMPO GmbH
Sell-off	16-06-2011	Bilfinger SE (XTRA:GBF)	Fru-Con Construction, LLC
Sell-off	09-06-2011	Wincanton plc (LSE:WIN)	JCL Logistics Benelux B.V.
Sell-off	06-06-2011	Melrose Industries PLC (LSE:MRO)	Dynacast International Inc.
Sell-off	06-06-2011	ENGIE SA (ENXTPA:ENGI)	G6 Rete Gas S.p.A.
Sell-off	31-05-2011	Rémy Cointreau SA (ENXTPA:RCO)	COMPAGNIE CHAMPENOISE PH-CH.PIPER HEIDSIE
Sell-off	27-05-2011	Sword Group S.E. (ENXTPA:SWP)	Agencyport Software Ltd.
Sell-off	23-05-2011	Acciona, S.A. (BME:ANA)	Acciona Aparcamientos, S.L.
Sell-off	19-05-2011	3U Holding AG (XTRA:UUU)	euNetworks Managed Services GmbH
Sell-off	05-05-2011	Monberg & Thorsen A/S	Dyrup A/S
Sell-off	26-04-2011	Speedy Hire Plc (LSE:SDY)	Speedy Space, Ltd.
Sell-off	11-04-2011	IAR Systems Group AB (publ) (OM:IAR B)	NORTHERN Parklife AB
Sell-off	01-04-2011	Royal Dutch Shell plc (ENXTAM:RDSA)	Enex S.A.
Sell-off	31-03-2011	Endesa, S.A. (BME:ELE)	Endesa Servicios S.L.
Sell-off	17-03-2011	1Spatial Plc (AIM:SPA)	Inca Software Limited
Sell-off	01-03-2011	Afarak Group Oyj (HLSE:AFAGR)	Oplax Oy
Sell-off	23-02-2011	Rio Tinto Group (LSE:RIO)	Luzenac Europe SAS
Sell-off	09-02-2011	Tribal Group plc (AIM:TRB)	Tribal Resourcing Limited
Sell-off	01-02-2011	Tessenderlo Group NV (ENXTBR:TESB)	Tennants Fine Chemicals Ltd.
Sell-off	31-01-2011	dormakaba Holding AG (SWX:DOKA)	Gilgen Door Systems AG
Sell-off	24-01-2011	Premier Foods plc (LSE:PFD)	Marlow Foods Ltd
Sell-off	20-01-2011	Afarak Group Oyj (HLSE:AFAGR)	Pohjolan Design-Talo Oy
Sell-off	12-01-2011	Fornix BioSciences NV	Rochester Medical B.V.
Sell-off	11-01-2011	Orkla ASA (OB:ORK)	Elkem ASA (OB:ELK)
Sell-off	03-01-2011	Iberdrola, S.A. (BME:IBE)	EnergyWorks Do Brasil Ltda.
Sell-off	23-12-2010	Heijmans N.V. (ENXTAM:HEIJM)	J.B. Leadbitter & Co Limited
Sell-off	21-12-2010	Bilfinger SE (XTRA:GBF)	Lend Lease Infrastructure Pty Limited
Sell-off	20-12-2010	MERCK Kommanditgesellschaft auf Aktien (XTRA:MRK)	Novozymes Bioag, Inc.
Sell-off	14-12-2010	Koninklijke DSM N.V. (ENXTAM:DSM)	LANXESS Elastomers BV
Sell-off	13-12-2010	Fomento de Construcciones y Contratas, S.A. (BME:FCC)	General de Servicios ITV S.A.
Sell-off	09-12-2010	Kering SA (ENXTPA:KER)	Conforama Holding S.A.
Sell-off	23-11-2010	Nestlé S.A. (SWX:NESN)	Nestlé Waters Direct France S.A.S.
Sell-off	19-11-2010	Pebble Beach Systems Group plc (AIM:PEB)	HERNIS Scan Systems AS
Sell-off	05-11-2010	Smurfit Kappa Group Plc (ISE:SK3)	NP ROLPIN SAS
Sell-off	02-11-2010	Ercros, S.A. (BME:ECR)	Ecronova Polymer GmbH
Sell-off	01-11-2010	TT Electronics plc (LSE:TTG)	WT Henley Limited
			M4S N.V.
Sell-off	27-10-2010	Option NV	
Sell-off	18-10-2010	Royal Dutch Shell plc (ENXTAM:RDSA)	Easigas (Pty) Ltd.

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	14-10-2010	Ordina N.V. (ENXTAM:ORDI)	Ormit Holding BV
Sell-off	08-10-2010	Autogrill S.p.A. (BIT:AGL)	Alpha Flight Group Limited
Sell-off	01-10-2010	The Swatch Group AG (SWX:UHR)	ROFIN-LASAG AG
Sell-off	03-09-2010	Austevoll Seafood ASA (OB:AUSS)	Epax Norway AS
Sell-off	31-08-2010	Sulzer Ltd (SWX:SUN)	Sulzer Immobilien AG
Sell-off	30-08-2010	Infineon Technologies AG (XTRA:IFX)	Intel Mobile Communications GmbH
Sell-off	24-08-2010	Ferguson plc (LSE:FERG)	Brandon Hire Limited
Sell-off	20-08-2010	Mitchells & Butlers plc (LSE:MAB)	Stonegate Pub Company Limited
Sell-off	09-08-2010	Eni S.p.A. (BIT:ENI)	Societa Padana Energia SpA
Sell-off	03-08-2010	BP p.l.c. (LSE:BP.)	Equion Energia Limited
Sell-off	29-07-2010	Tyco International plc	TALIS Deutschland GmbH & Co. KG
Sell-off	28-07-2010	Centrica plc (LSE:CNA)	Enérgya VM Gestión de Energía s.l.u.
Sell-off	16-07-2010	Telecom Italia S.p.A. (BIT:TIT)	BBned N.V.
Sell-off	15-07-2010	Tecan Group Ltd. (SWX:TECN)	Brooks Automation AG
Sell-off	06-07-2010	Equinor ASA (OB:EQNR)	Tampnet AS
Sell-off	05-07-2010	AB Volvo (publ) (OM:VOLV B)	ASC Turk Makina, Ltd.
Sell-off	30-06-2010	MJ Gleeson plc (LSE:GLE)	Lovell Powerminster Ltd
Sell-off	28-06-2010	United Utilities Group PLC (LSE:UU.)	Electricity North West Number 1 Company Ltd
Sell-off	21-06-2010	Akzo Nobel N.V. (ENXTAM:AKZA)	National Starch and Chemical Company
Sell-off	16-06-2010	L'Air Liquide S.A. (ENXTPA:AI)	Expertises Technologies & Services Analyses S.A.
Sell-off	04-06-2010	Telefónica, S.A. (BME:TEF)	Manx Telecom Trading Ltd.
Sell-off	01-06-2010	Tribal Group plc (AIM:TRB)	Nightingale Architects Limited
Sell-off	31-05-2010	Trelleborg AB (publ) (OM:TREL B)	Tristone Flowtech Holding SAS
Sell-off	31-05-2010	Gascogne SA (ENXTPA:ALBI)	CENPAC, SAS
Sell-off	10-05-2010	United Utilities Group PLC (LSE:UU.)	TRILITY Pty Ltd.
Sell-off	28-04-2010	NH Hotel Group, S.A. (BME:NHH)	Jolly Hotels St Ermins B.V
Sell-off	26-04-2010	Fornix BioSciences NV	Artu Biologicals Europe B.V.
Sell-off	22-04-2010	Ascent Resources plc (AIM:AST)	eCorp Switzerland AG
Sell-off	07-04-2010	British American Tobacco p.l.c. (LSE:BATS)	Lyfra nv
Sell-off	02-04-2010	The Vitec Group plc (LSE:VTC)	Vitec Group Communications, LLC
Sell-off	10-03-2010	Tanfield Group PLC (AIM:TAN)	SEV Group Limited
Sell-off	03-09-2010	Augusta Technologie AG	Advantech Service-IoT GmbH
Sell-off	08-03-2010	Ebro Foods, S.A. (BME:EBRO)	Lactalis Puleva S.L.
Sell-off	18-02-2010	Ortivus AB (publ) (OM:ORTI B)	TriTech Emergency Medical Systems Inc.
Sell-off	09-03-2010	FirstGroup plc (LSE:FGP)	Intelenet Global Bpo (UK) Limited
Sell-off	16-11-2009	Diploma PLC (LSE:DPLM)	Anachem Limited
Sell-off	10-11-2009	E.ON SE (XTRA:EOAN)	TenneT TSO GmbH
Sell-off	03-11-2009	Aptitude Software Group plc (LSE:APTD)	Microgen UK Limited
Sell-off	02-11-2009	Perrigo Company plc (NYSE:PRGO)	Careline (Pharmagis) Ltd.
Sell-off	26-10-2009	Afarak Group Oyj (HLSE:AFAGR)	LP Kunnanharju Oy
Sell-off	15-10-2009	Anheuser-Busch InBev SA/NV (ENXTBR:ABI)	Molson Coors Central Europe
Sell-off	28-09-2009	Solvay SA (ENXTBR:SOLB)	Abbott Products SA
Sell-off	17-09-2009	Daniel Thwaites PLC (OFEX:THW)	The Stafford Hotel Limited
Sell-off	28-08-2009	Schibsted ASA (OB:SCHA)	Retriever AB
Sell-off	06-08-2009	ITV plc (LSE:ITV)	Friends Reunited Limited
Sell-off	29-07-2009	Koninklijke DSM N.V. (ENXTAM:DSM)	Stamicarbon B.V.
Sell-off	14-07-2009	Midsona AB (publ) (OM:MSON B)	Bioglan AB
Sell-off	07-07-2009	Infineon Technologies AG (XTRA:IFX)	Lantiq Deutschland GmbH
Sell-off	08-06-2009	E.ON SE (XTRA:EOAN)	VERBUND Innkraftwerke GmbH
Sell-off	07-05-2009	Anheuser-Busch InBev SA/NV (ENXTBR:ABI)	Oriental Brewery Co., Ltd.
Sell-off	06-05-2009	Liberty Global plc (NasdaqGS:LBTY.A)	Telemach, sirokopasovne komunikacije, d.o.o. (LJ
Sell-off	28-04-2009	Schibsted ASA (OB:SCHA)	Endemol Shine Nordics AB
Sell-off	16-04-2009	TE Connectivity Ltd. (NYSE:TEL)	MIA-COM Private Radio Systems, Inc.
Sell-off	06-04-2009	Stagecoach Group plc (LSE:SGC)	Fullers Group Limited
Sell-off	23-03-2009	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	Ascom Network Testing Inc.
Sell-off	05-01-2009	Synthomer plc (LSE:SYNT)	Oxford Chemicals Ltd.
Sell-off	11-03-2009	Barry Callebaut AG (SWX:BARN)	Van Houten (Singapore) Pte. Ltd.
Sell-off	10-03-2009	Etablissements Maurel & Prom S.A. (ENXTPA:MAU)	Hocol Petroleum Limited
Sell-off	19-01-2009	Premier Foods plc (LSE:PFD)	Mademoiselle Desserts Valade
Sell-off	25-12-2008	Haldex AB (publ) (OM:HLDX)	Suzuki Garphyttan AB
Sell-off	17-12-2008	Masterflex SE (XTRA:MZX)	OSM Europe GmbH
Sell-off	15-12-2008	Volkswagen AG (XTRA:VOW3)	MAN Latin America Ltda
Sell-off	04-12-2008	Synthomer plc (LSE:SYNT)	PFW Aroma Chemicals B.V.
Sell-off	02-12-2008	Seat Pagine Gialle SpA	Visable GmbH
Sell-off	21-11-2008	Barco NV (ENXTBR:BAR)	Canon Medical Research Europe Limited
Sell-off	20-11-2008	Ebro Foods, S.A. (BME:EBRO)	AB Azucarera Iberia S.L.U.
Sell-off	18-11-2008	Hill & Smith Holdings PLC (LSE:HILS)	Express Reinforcements Limited
Sell-off	06-11-2008	TE Connectivity Ltd. (NYSE:TEL)	Palladium Energy, Inc.
Sell-off	30-10-2008	Pharmexa A/S	GemVax AS
Sell-off	24-10-2008	Hydratec Industries NV (ENXTAM:HYDRA)	Nyloplast Europe B.V.
Sell-off	20-10-2008	Bilfinger SE (XTRA:GBF)	Razel-Bec SAS
Sell-off	13-10-2008	TUI AG (XTRA:TUI1)	Hapag-Lloyd Aktiengesellschaft (XTRA:HLAG)
Sell-off	01-10-2008	Koninklijke Philips N.V. (ENXTAM:PHIA)	Nuance Communications Austria Gmbh
Sell-off	29-09-2008	Tele2 AB (publ) (OM:TEL2 B)	TelCommunication Services AG
Sell-off	22-09-2008	The Swatch Group AG (SWX:UHR)	SMARTRAC TECHNOLOGY Wehnrath GmbH
Sell-off	09-09-2008	Taylor Wimpey plc (LSE:TW.)	Taylor Woodrow Construction Ltd.
Sell-off	28-08-2008	Bodycote plc (LSE:BOY)	Exova Group Limited
Sell-off	18-08-2008	redT energy plc	Dallas Clean Energy, LLC
Sell-off	01-08-2008	Kingfisher plc (LSE:KGF)	Leroy Merlin Uno S.p.A.
Sell-off	01-08-2008	Filtronic plc (AIM:FTC)	Teledyne Defence Limited
Sell-off	23-07-2008	Gurit Holding AG (SWX:GUR)	Gurit (Vreden) Gmbh
Sell-off	15-07-2008	Saab AB (publ) (OM:SAAB B)	RUAG Space AB
Sell-off	11-07-2008	Randstad N.V. (ENXTAM:RAND)	Kelly Services - Empressa De Trabalho Temporari
Sell-off	09-07-2008	iomart Group plc (AIM:IOM)	BT Directories Ltd.
Sell-off	26-06-2008	Aspo Oyj (HLSE:ASPO)	DHR Finland Oy
Sell-off	23-06-2008	Ashtead Group plc (LSE:AHT)	Ashtead Technology Ltd.
Sell-off	23-06-2008	Afarak Group Oyj (HLSE:AFAGR)	Mikeva Oy
Sell-off	18-08-2008	Vossloh AG (XTRA:VOS)	E.T.F.-Eurovia Travaux Ferroviaires SA
Sell-off	17-06-2008	Perrigo Company plc (NYSE:PRGO)	Brunel Healthcare Manufacturing Limited
Sell-off	16-06-2008	De La Rue plc (LSE:DLAR)	Glory Global Solutions (International) Limited
Sell-off	16-06-2008	Schweiter Technologies AG (SWX:SWTQ)	Satisloh AG
Sell-off	16-06-2008	Ordina N.V. (ENXTAM:ORDI)	Nspyre B.V.
Sell-off	16-06-2008	FullSix S.p.A. (BIT:FUL)	FullSIX Group SAS
Sell-off	13-06-2008	Anglo American plc (LSE:AAL)	Tarmac Iberia SA
Sell-off	05-06-2008	Repsol, S.A. (BME:REP)	Repsol YPF Comercial Del Ecuador, S.A.
Sell-off	04-06-2008	Dods Group plc (AIM:DODS)	Global Média Santé SAS
Sell-off	03-06-2008	Royal Dutch Shell plc (ENXTAM:RDSA)	Fuel Supplies (C.I.) Limited
Sell-off	30-05-2008	STV Group plc (LSE:STVG)	Absolute Radio Limited
Sell-off	29-05-2008	Implenia AG (SWX:IMPN)	PRIVERA AG
Sell-off	21-05-2008	Valeo SA (ENXTPA:FR)	TitanX Engine Cooling AB
Sell-off	28-04-2008	Outokumpu Oyj (HLSE:OUT1V)	Cupori Oy
Sell-off	11-04-2008	Johnson Service Group PLC (AIM:JSG)	MWUK Ltd.
Sell-off	21-04-2008	The Weir Group PLC (LSE:WEIR)	Weir Strachan & Henshaw Ltd.
Sell-off	14-04-2008	Billington Holdings Plc (AIM:BILN)	Amco Group Limited
Sell-off	10-04-2008	G4S plc (LSE:GFS)	G4S Sicherheitssysteme GmbH
Sell-off	01-04-2008	Mersen SA (ENXTPA:MRN)	Faiveley Transport Genneviliers
Sell-off	02-04-2008	Informa plc (LSE:INF)	Map of Medicine Limited
Sell-off	28-03-2008	L'Air Liquide S.A. (ENXTPA:AI)	Ductil Steel SA
Sell-off	14-03-2008	SSAB AB (publ) (OM:SSAB A)	Evraz Inc. NA Canada
Sell-off	28-02-2008	Kesko Oyj (HLSE:KESKOB)	Kauko Oy
Sell-off	28-02-2008	Fraport AG (XTRA:FRA)	ICTS Europe Holdings B.V.
Sell-off	26-02-2008	United Utilities Group PLC (LSE:UU.)	Europa Facilities Management Ltd.
Sell-off	14-02-2008	All for One Group SE (XTRA:A1OS)	ACCURAT Informatik GmbH
Sell-off	13-02-2008	Atlas Copco AB (OM:ATCO A)	Guimera S.A.
Sell-off	11-02-2008	Synthomer plc (LSE:SYNT)	Vivimed Labs Europe Ltd
Sell-off	07-02-2008	FRIWO AG (XTRA:CEA)	Power Systems Technologies GmbH
Sell-off	21-11-2007	Kendrion N.V. (ENXTAM:KENDR)	Gnosjögruppen AB
Sell-off	09-01-2008	Equinor ASA (OB:EQNR)	IS Partner AS
			M-Real Petofi Nyomda Korlatolt Felelossegu
Sell-off	01-06-2007	Metsä Board Oyj (HLSE:METSB)	Tarsasag
Sell-off	28-12-2007	Equinor ASA (OB:EQNR)	Mariner Gulf of Mexico LLC

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	21-12-2007	Thales S.A. (ENXTPA:HO)	Kontron Modular Computers S.A.
Sell-off	20-12-2007	Filtronic plc (AIM:FTC)	RFMD (UK) Limited
Sell-off	20-12-2007	Thales S.A. (ENXTPA:HO)	Hypercom France S.A.
Sell-off	19-12-2007	Saab AB (publ) (OM:SAAB B)	Fastighets AB Jarfalla Veddesta
Sell-off	11-12-2007	Atos SE (ENXTPA:ATO)	Atos Origin SpA
Sell-off	05-12-2007	Trainers' House Oyj (HLSE:TRH1V)	Satama Netherlands
Sell-off	30-11-2007	Hellenic Telecommunications Organization S.A. (ATSE:HTO)	Infote A.E.
Sell-off	27-11-2007	Genus plc (LSE:GNS)	Animalcare Limited
Sell-off	23-11-2007	United Utilities Group PLC (LSE:UU.)	Electricity North West Limited
Sell-off	21-11-2007	Meggitt PLC (LSE:MGGT)	S-TEC Corporation
Sell-off	20-11-2007	YIT Oyj (HLSE:YIT)	YIT Primatel Oy
Sell-off	13-11-2007	L'Air Liquide S.A. (ENXTPA:AI)	Trescal SA
Sell-off	09-11-2007	Smiths Group plc (LSE:SMIN)	Kelvin Hughes Limited
Sell-off	27-07-2007	discoverIE Group plc (LSE:DSCV)	Avnet IT Limited
Sell-off	05-11-2007	Pearson plc (LSE:PSON)	Les Echos SA
Sell-off	19-10-2007	TE Connectivity Ltd. (NYSE:TEL)	GE Power Electronics, Inc.
Sell-off	16-10-2007	Valeo SA (ENXTPA:FR)	LEONI Wiring Systems France SA
Sell-off	15-10-2007	Sartorius Aktiengesellschaft (XTRA:SRT)	John Crane Bearing Technology GmbH
Sell-off	11-10-2007	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	Tops Markets, LLC
Sell-off	01-10-2007	Reach plc (LSE:RCH)	Spotlight Sports Group Limited
Sell-off	28-09-2007	Croda International Plc (LSE:CRDA)	Palm-Oleo (Klang) Sdn. Bhd.
Sell-off	01-10-2007	Future plc (LSE:FUTR)	Yellow Media SAS
Sell-off	27-09-2007	Lonza Group Ltd (SWX:LONN)	Lonza Singapore Pte, Ltd.
Sell-off	25-09-2007	Koninklijke BAM Groep nv (ENXTAM:BAMNB)	Flatiron Construction Corp.
Sell-off	19-09-2007	ACS, Actividades de Construcción y Servicios, S.A. (BME:ACS)	Desarrollo de Concesiones Aeroportuarias, S.L.
Sell-off	11-09-2007	Norsk Hydro ASA (OB:NHY)	Nordisk Aviation Products AS
Sell-off	11-09-2007	Fornix BioSciences NV	Dr. Fisher Farma B.V.
Sell-off	04-09-2007	LANXESS Aktiengesellschaft (XTRA:LXS)	OMG Borchers GmbH
Sell-off	31-08-2007	STV Group plc (LSE:STVG)	Primesight Limited
Sell-off	27-08-2007	ABB Ltd (SWX:ABBN)	Lummus Technology LLC
Sell-off	13-08-2007	Tele2 AB (publ) (OM:TEL2 B)	Closed Joint Stock Company "Corporation Severnaya
Sell-off	07-08-2007	HeidelbergCement AG (XTRA:HEI)	Maxit Group AB
Sell-off	06-08-2007	Enro AB (publ) (OM:ENRO)	Visabie GmbH
Sell-off	30-07-2007	Trane Technologies plc (NYSE:TT)	Clark Equipment Company
Sell-off	30-07-2007	DEUTZ Aktiengesellschaft (XTRA:DEZ)	Caterpillar Energy Solutions GmbH
Sell-off	26-07-2007	Burelle SA (ENXTPA:BUR)	Compagnie Signature S.A.
Sell-off	25-07-2007	Siemens Aktiengesellschaft (XTRA:SIE)	Continental Automotive GmbH
Sell-off	20-07-2007	Signature Aviation plc (LSE:SIG)	Oxford Aviation Services Limited
Sell-off	16-07-2007	Reckitt Benckiser Group plc (LSE:RB.)	Almirall Hermal GmbH
Sell-off	06-09-2007	Stockwik Förvaltning AB (publ) (OM:STWK)	Talkmore AS
Sell-off	06-07-2007	Metsä Board Oyj (HLSE:METSB)	Map Merchant Group Limited.
Sell-off	25-06-2007	Essentra plc (LSE:ESNT)	Globalpack Indústria e Comércio Ltda
Sell-off	22-06-2007	Eaton Corporation plc (NYSE:ETN)	MCi (Mirror Controls International) Netherlands B.V.
Sell-off	19-06-2007	Signature Aviation plc (LSE:SIG)	Oxford Aviation Academy (Oxford) Limited
Sell-off	18-06-2007	Spectris plc (LSE:SXS)	IRCON, Inc.
Sell-off	11-06-2007	Real Good Food plc (AIM:RGD)	Five Star Fish Limited
Sell-off	08-06-2007	The Alumasc Group plc (AIM:ALU)	The Brock Metal Company Limited
Sell-off	04-06-2007	Inchcape plc (LSE:INCH)	Eurofleet Limited
Sell-off	04-06-2007	Whitbread PLC (LSE:WTB)	David Lloyd Leisure Ltd.
Sell-off	01-06-2007	Tele2 AB (publ) (OM:TEL2 B)	UNI2 A/S
Sell-off	29-05-2007	SimCorp A/S (CPSE:SIM)	IT2 Treasury Solutions Limited
Sell-off	21-05-2007	Norsk Hydro ASA (OB:NHY)	INEOS Norge AS
Sell-off	10-05-2007	Deutsche Telekom AG (XTRA:DTE)	T-Online France SAS
Sell-off	09-05-2007	Tele2 AB (publ) (OM:TEL2 B)	Tele2 A/s
Sell-off	08-05-2007	The Weir Group PLC (LSE:WEIR)	ClydeUnion pumps Limited
Sell-off	02-05-2007	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	US Foods, Inc.
Sell-off	27-04-2007	ACS, Actividades de Construcción y Servicios, S.A. (BME:ACS)	Continental Auto, S.L.
Sell-off	23-04-2007	Accor SA (ENXTPA:AC)	Red Roof Inns Inc.
Sell-off	17-04-2007	GEA Group Aktiengesellschaft (XTRA:G1A)	Air Liquide Global E&C Solutions Germany GmbH
Sell-off	12-07-2007	Novartis AG (SWX:NOVN)	Gerber Products Company
Sell-off	03-04-2007	National Grid plc (LSE:NG.)	National Grid Wireless Limited
Sell-off	02-04-2007	Enel SpA (BIT:ENEL)	Viesgo Distribución Eléctrica S.L.
Sell-off	30-03-2007	Rentokil Initial plc (LSE:RTO)	Chubb Systems Ltd
Sell-off	29-03-2007	Compagnie de Saint-Gobain S.A. (ENXTPA:SGO)	SGD S.A.
Sell-off	27-03-2007	KUKA Aktiengesellschaft (XTRA:KU2)	OHVP GmbH
Sell-off	26-03-2007	Wolters Kluwer N.V. (ENXTAM:WKL)	Infinitas Learning Holding B.V.
Sell-off	12-03-2007	Akzo Nobel N.V. (ENXTAM:AKZA)	MSD Oss B.V.
Sell-off	26-02-2007	Groupe Open (ENXTPA:OPN)	Innetis S.A.
Sell-off	12-03-2007	Tele2 AB (publ) (OM:TEL2 B)	Datametrix AS
Sell-off	06-03-2007	Kering SA (ENXTPA:KER)	Kadeos S.A.S.
Sell-off	06-03-2007	Tiscali Spa (BIT:TIS)	Inicia Comunicaciones S.A.
Sell-off	26-02-2007	UPM-Kymmene Oyj (HLSE:UPM)	Walki Group Oy
Sell-off	27-02-2007	Harworth Group plc (LSE:HWG)	Maltby Colliery Limited
Sell-off	23-02-2007	Spectris plc (LSE:SXS)	Loma Systems Limited
Sell-off	14-02-2007	Tate & Lyle plc (LSE:TATE)	Redpath Sugar Ltd.
Sell-off	12-02-2007	Coloplast A/S (CPSE:COLO B)	Amoena Medizin-Orthopädie-Technik GmbH
Sell-off	12-02-2007	SAS AB (publ) (OM:SAS)	SAS Flight Academy AB
Sell-off	15-01-2007	United Utilities Group PLC (LSE:UU.)	Vertex Data Science Limited
Sell-off	05-02-2007	Tiscali Spa (BIT:TIS)	nacamar GmbH
Sell-off	02-02-2007	Accor SA (ENXTPA:AC)	GO Voyages, SA
Sell-off	23-01-2007	Svenska Cellulosa Aktiebolaget SCA (publ) (OM:SCA B)	Tegrant Corporation
Sell-off	19-01-2007	Arcelor SA	Huta Bankowa Sp. z o.o.
Sell-off	19-01-2007	United Internet AG (XTRA:UTDI)	twenty4help Knowledge Service AG
Sell-off	17-01-2007	Whitbread PLC (LSE:WTB)	Thursdays (UK) Limited
Sell-off	15-01-2007	Smiths Group plc (LSE:SMIN)	GE Aviation Systems Limited
Sell-off	15-01-2007	iliad S.A. (ENXTPA:ILD)	SARL Financière LR
Sell-off	10-01-2007	Vossloh AG (XTRA:VOS)	Funkwerk Information Technologies GmbH
Sell-off	05-01-2007	G4S plc (LSE:GFS)	Cognisa Security, Inc.
Sell-off	03-01-2007	Deutsche Post AG (XTRA:DPW)	Vfw GmbH
Sell-off	04-01-2007	Infineon Technologies AG (XTRA:IFX)	Silicon Image GmbH
Sell-off	28-12-2006	Ferrovial, S.A. (BME:FER)	Habitat Global Gestión Inmobiliaria, S.A. Unipersonal
Sell-off	22-12-2006	Clere AG (HMSE:CAG0)	Albea Kunststofftechnik GmbH
Sell-off	18-12-2006	Bayer Aktiengesellschaft (XTRA:BAYN)	Dow Wolff Cellulosics GmbH
Sell-off	14-12-2006	Johnson Matthey Plc (LSE:JMAT)	Endeka Ceramics SA
Sell-off	08-12-2006	Independent Oil & Resources Plc (OTCNO:IOTA)	Independent Oil Tools AS
Sell-off	06-12-2006	Arcelor SA	STAHLWERK Thüringen GmbH
Sell-off	07-12-2006	The Rank Group Plc (LSE:RNK)	Hard Rock Cafe International Inc.
Sell-off	11-01-2007	The Rank Group Plc (LSE:RNK)	Bushkill Group, Inc.
Sell-off	07-12-2006	Renold plc (AIM:RNO)	Jones & Shipman Precision Limited
Sell-off	04-12-2006	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	AHOLD Polska, sp. z o. o.
Sell-off	28-11-2006	Koninklijke Philips N.V. (ENXTAM:PHIA)	PSS Belgium NV
Sell-off	23-11-2006	Bayer Aktiengesellschaft (XTRA:BAYN)	H.C. Starck GmbH
Sell-off	21-11-2006	SIG plc (LSE:SHI)	Distribution International, Inc.
Sell-off	16-11-2006	PostNL N.V. (ENXTAM:PNL)	Geodis Wilson Management BV
Sell-off	14-11-2006	Arkema S.A. (ENXTPA:AKE)	Cerexagri S.A.
Sell-off	10-11-2006	LANXESS Aktiengesellschaft (XTRA:LXS)	TANATEX Chemicals B.V.
Sell-off	18-10-2006	Severn Trent Plc (LSE:SVT)	Severn Trent Property Limited
Sell-off	03-11-2006	Bittium Oyj (HLSE:BITTI)	Anite Finland Limited
Sell-off	03-11-2006	Jarvis Plc	Prismo Road Markings Limited
Sell-off	30-10-2006	VINCI SA (ENXTPA:DG)	Ruta del Bosque Sociedad Concesionaria S.A. Astrium Services Business Communications AS
Sell-off	26-10-2006	Telenor ASA (OB:TEL)	
Sell-off	23-10-2006	Ascom Holding AG (SWX:ASCN)	Maticmind S.p.A.
Sell-off	19-10-2006	OEM International AB (publ) (OM:OEM B)	JMS Systemhydraulik AB
Sell-off	16-10-2006	RWE Aktiengesellschaft (XTRA:RWE)	Thames Water Limited
Sell-off	16-10-2006	Edison S.p.A. (BIT:EDNR)	Edison Rete SpA
Sell-off	25-09-2006	Severn Trent Plc (LSE:SVT)	TestAmerica Laboratories, Inc.
Sell-off	15-09-2006	Tiscali Spa (BIT:TIS)	Tiscali B.V.
Sell-off	13-09-2006	SGS SA (SWX:SGSN)	Technology Project Services Limited GSB Acero, S.A.
Sell-off	13-09-2006	CIE Automotive, S.A. (BME:CIE)	
Sell-off	28-08-2006	Unilever PLC (LSE:ULVR)	Nomad Foods Europe Limited

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	11-01-2006	Hugo Boss AG (XTRA:BOSS)	Baldessarini GmbH & Co. KG
Sell-off	16-08-2006	Koninklijke Philips N.V. (ENXTAM:PHIA)	VDL ETG Research bv
Sell-off	14-08-2006	Electricité de France S.A. (ENXTPA:EDF)	EDF Energia Italia S.r.l.
Sell-off	04-08-2006	VINCI SA (ENXTPA:DG)	Worldwide Flight Services, Inc.
Sell-off	02-08-2006	Kering SA (ENXTPA:KER)	Printemps SAS
Sell-off	21-07-2006	Stora Enso Oyj (HLSE:STERV)	Pankaboard Mill Oy
Sell-off	17-07-2006	Casino, Guichard-Perrachon Société Anonyme (ENXTPA:CO)	Leader Price Polska Sp Z O O
Sell-off	14-07-2006	Reach plc (LSE:RCH)	Ocean Media Group Limited
Sell-off	14-07-2006	Fuchs Petrolub SE (XTRA:FPE3)	Lippert-Unipol GmbH
Sell-off	29-06-2006	Fiat Chrysler Automobiles N.V.	Sestrieres S.p.A.
Sell-off	23-06-2006	Stagecoach Group plc (LSE:SGC)	East London Bus Group Limited
Sell-off	14-06-2006	De'Longhi S.p.A. (BIT:DLG)	Fisher & Paykel Appliances Italy S.p.A.
Sell-off	14-06-2006	Fiat Chrysler Automobiles N.V.	Banca Unione di Credito
Sell-off	12-06-2006	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	Saab Microwave Systems AB
Sell-off	08-06-2006	Stora Enso Oyj (HLSE:STERV)	Celulose Beira Industrial (Celbi), S.A.
Sell-off	12-06-2006	Rentokil Initial plc (LSE:RTO)	Initial Security, Inc.
Sell-off	07-06-2006	Lonza Group Ltd (SWX:LONN)	LOFO High Tech Film GmbH
Sell-off	29-05-2006	A.P. Møller - Mærsk A/S (CPSE:MAERSK B)	Saab Danmark A/S
Sell-off	20-07-2006	Thales S.A. (ENXTPA:HO)	Magellan Navigation, Inc.
Sell-off	22-05-2006	Avon Rubber p.l.c. (LSE:AVON)	Avon Automotive Holdings Inc.
Sell-off	12-05-2006	Severn Trent Plc (LSE:SVT)	Van Gansewinkel Environmental Services Belgium
Sell-off	28-04-2006	Clariant AG (SWX:CLN)	Archimica SpA
Sell-off	28-04-2006	Carrefour SA (ENXTPA:CA)	ELAND RETAIL Ltd
Sell-off	27-04-2006	Vodafone Group Plc (LSE:VOD)	Metrophone Service Co., Ltd.
Sell-off	03-04-2006	SSE plc (LSE:SSE)	ETDE Contracting Ltd.
Sell-off	24-03-2006	MJ Gleeson plc (LSE:GLE)	Morgan Est Rail Ltd.
Sell-off	09-03-2006	Volkswagen AG (XTRA:VOW3)	Europcar International S.A.S.U
Sell-off	10-03-2006	Rentokil Initial plc (LSE:RTO)	Garda Canada Security Corporation
Sell-off	07-03-2006	Rentokil Initial plc (LSE:RTO)	MITIE Total Security Management Ltd.
Sell-off	27-02-2006	Outokumpu Oyj (HLSE:OUT1V)	Mckechnie Brass Limited
Sell-off	24-02-2006	Eni S.p.A. (BIT:ENI)	Snamprogetti S.p.A.
Sell-off	28-11-2005	Novartis AG (SWX:NOVN)	Nutrition & Santé SAS
Sell-off	17-02-2006	Koninklijke Philips N.V. (ENXTAM:PHIA)	Philips CryptoTec
Sell-off	14-02-2006	Howden Joinery Group Plc (LSE:HWDN)	Hygena Cuisines SAS
Sell-off	31-01-2006	BAE Systems plc (LSE:BA.)	Spirit AeroSystems (Europe) Limited
Sell-off	25-01-2006	The Character Group plc (AIM:CCT)	World Wide Licenses Ltd.
Sell-off	17-01-2006	UCB SA (ENXTBR:UCB)	Lonza Braine SA
Sell-off	16-01-2006	Atea ASA (OB:ATEA)	Avenir ASA
Sell-off	10-01-2006	Sulzer Ltd (SWX:SUN)	Grundfos CBS Inc.
Sell-off	13-12-2005	Fiat Chrysler Automobiles N.V.	Atlanet SpA
Sell-off	21-01-2005	Corporación Empresarial de Materiales de Construcción, S.A. (BM	Ceràmiques Estructurals del Penedés, S.A.
Sell-off	04-01-2006	Hamon & Cie (International) SA (ENXTBR:HAMO)	FBM Hudson Italiana SpA
Sell-off	30-12-2005	BAE Systems plc (LSE:BA.)	ATLAS ELEKTRONIK GmbH
Sell-off	29-12-2005	KUKA Aktiengesellschaft (XTRA:KU2)	MAG IAS GmbH
Sell-off	23-12-2005	The Rank Group Plc (LSE:RNK)	Deluxe Entertainment Services Group Inc.
Sell-off	19-12-2005	Liberty Global plc (NasdaqGS:LBTY.A)	Get ASA
Sell-off	12-12-2005	Thales S.A. (ENXTPA:HO)	Thomson Broadcast
Sell-off	15-12-2005	Spirent Communications plc (LSE:SPT)	HellermannTyton Corporation
Sell-off	21-12-2005	Volkswagen AG (XTRA:VOW3)	gedas AG
Sell-off	12-12-2005	John Wood Group PLC (LSE:WG.)	Wood Group Production Technology
Sell-off	01-12-2005	Porsche Automobil Holding SE (XTRA:PAH3)	Magna Car Top Systems GmbH
Sell-off	01-12-2005	Synthomer plc (LSE:SYNT)	Autoclenz Limited
Sell-off	29-11-2005	Rentokil Initial plc (LSE:RTO)	Onespace Venues Limited
Sell-off	22-11-2005	SAS AB (publ) (OM:SAS)	European Aeronautical Group AB
Sell-off	21-11-2005	Stagecoach Group plc (LSE:SGC)	New Zealand Bus Limited
Sell-off	09-11-2005	Mikron Holding AG (SWX:MIKN)	forteq Group
Sell-off	08-11-2005	Roche Holding AG (SWX:ROG)	Industrias Quimicas Falcon de Mexico, S.A.De.C.V.
Sell-off	08-11-2005	BP p.l.c. (LSE:BP.)	Great Yarmouth Power Ltd.
Sell-off	31-10-2005	Vodafone Group Plc (LSE:VOD)	Telenor Mobile Sweden AS
Sell-off	28-10-2005	Experian plc (LSE:EXPN)	RFS Holland Holding BV
Sell-off	28-10-2005	Genus plc (LSE:GNS)	Genusxpress Ltd.
Sell-off	26-10-2005	R. STAHL AG (XTRA:RSL2)	STAHL CraneSystems GmbH
Sell-off	14-10-2005	AB Volvo (publ) (OM:VOLV B)	Celero Support AB
Sell-off	14-10-2005	Ebro Foods, S.A. (BME:EBRO)	Compañía Agrícola de Tenerife, SA
Sell-off	13-10-2005	STERIS plc (NYSE:STE)	GEA Lyophil GmbH
Sell-off	07-10-2005	BP p.l.c. (LSE:BP.)	Innovene Inc.
Sell-off	05-10-2005	Greencore Group plc (LSE:GNC)	Feldhues Fleischwarenbetriebe GmbH
Sell-off	03-10-2005	Kendrion N.V. (ENXTAM:KENDR)	Fameco AB
Sell-off	30-09-2005	Morgan Advanced Materials plc (LSE:MGAM)	VACUUMSCHMELZE GmbH & Co. KG
Sell-off	30-09-2005	Koninklijke DSM N.V. (ENXTAM:DSM)	Lion Copolymer, LLC
Sell-off	19-09-2005	EVRY ASA	EDB Telekom AS
Sell-off	31-08-2005	Jet2 plc (AIM:JET2)	GAC Logistics (UK) Ltd.
Sell-off	26-08-2005	UCB SA (ENXTBR:UCB)	Recipharm Ltd
Sell-off	25-08-2005	Dialight plc (LSE:DIA)	Solartron Group Ltd.
Sell-off	11-08-2005	InterContinental Hotels Group PLC (LSE:IHG)	International Airport Hotel Ltd.
Sell-off	09-08-2005	Filtronic plc (AIM:FTC)	Pulse Finland Oy
Sell-off	08-08-2005	ACEA S.p.A. (BIT:ACE)	Rete Trasmissione Locale SpA
Sell-off	03-08-2005	Endesa, S.A. (BME:ELE)	Claro Chile S.A.
Sell-off	28-07-2005	MAN SE (XTRA:MAN)	WOLFFKRAN GmbH
Sell-off	21-07-2005	4imprint Group plc (LSE:FOUR)	AIA Corporation
Sell-off	21-07-2005	Nexans S.A. (ENXTPA:NEX)	Nexans Distribusjon AS
Sell-off	20-07-2005	Outokumpu Oyj (HLSE:OUT1V)	Avesta Welding AB
Sell-off	20-07-2005	Edison S.p.A. (BIT:EDNR)	Tecnimont S.p.A.
Sell-off	19-07-2005	SKAKO A/S (CPSE:SKAKO)	Gram Commercial A/S
Sell-off	15-07-2005	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	Bidfood
Sell-off	07-07-2005	Ebro Foods, S.A. (BME:EBRO)	Lactimilk, S.a.
Sell-off	30-06-2005	Prosafe SE (OB:PRS)	KCA DEUTAG Drilling Norge AS
Sell-off	30-06-2005	Skanska AB (publ) (OM:SKA B)	S:T Eriks AB.
Sell-off	29-06-2005	Reno De Medici S.p.A. (BIT:RM)	Europoligrafico S.p.A.
Sell-off	23-06-2005	InterContinental Hotels Group PLC (LSE:IHG)	Brussels Europa S.A.
Sell-off	21-06-2005	UPM-Kymmene Oyj (HLSE:UPM)	Loparex Holding B.V.
Sell-off	20-06-2005	Danone S.A. (ENXTPA:BN)	HP Foods Limited
Sell-off	17-06-2005	Harworth Group plc (LSE:HWG)	The Monckton Coke & Chemical Company Limited
Sell-off	13-06-2005	Hexagon AB (publ) (OM:HEXA B)	PMC Group AB
Sell-off	07-06-2005	Anglo American plc (LSE:AAL)	Boart Longyear Limited (ASX:BLY)
Sell-off	06-06-2005	Pernod Ricard SA (ENXTPA:RI)	The Old Bushmills Distillery Co. Limited
Sell-off	02-06-2005	Compagnie Financière Richemont SA (SWX:CFR)	Hackett Limited
Sell-off	12-01-2005	NV Bekaert SA (ENXTBR:BEKB)	Betafence NV
Sell-off	01-06-2005	MAN SE (XTRA:MAN)	MT Aerospace AG
Sell-off	31-05-2005	Ascom Holding AG (SWX:ASCN)	SPIE ICS AG
Sell-off	26-05-2005	Compagnie de Saint-Gobain S.A. (ENXTPA:SGO)	STRADAL S.A.S.
Sell-off	02-05-2005	adidas AG (XTRA:ADS)	Salomon SAS
Sell-off	12-04-2005	Subsea 7 S.A. (OB:SUBC)	Stolt Offshore, Inc.
Sell-off	13-05-2005	Koninklijke DSM N.V. (ENXTAM:DSM)	GB Ingredients BV
Sell-off	13-04-2005	Eni S.p.A. (BIT:ENI)	Italiana Petroli S.p.A.
Sell-off	12-04-2005	Corporación Empresarial de Materiales de Construcción, S.A. (BM	Aragonesas Industrias y Energia SAU
Sell-off	05-04-2005	Outokumpu Oyj (HLSE:OUT1V)	Luvata Oy
Sell-off	23-03-2005	thyssenkrupp AG (XTRA:TKA)	Deutsche Edelstahlwerke GmbH
Sell-off	21-03-2005	Elisa Oyj (HLSE:ELISA)	Digia Finland Oy
Sell-off	04-03-2005	Neles Oyj (HLSE:NELES)	Moventas Oy Indal Technologies, Inc.
Sell-off	03-03-2005	Novar plc	
Sell-off	28-02-2005	Wembley plc	GRA Limited
Sell-off	28-02-2005	NOS, S.G.P.S., S.A. (ENXTLS:NOS)	Lusomundo SGPS, S.A.
Sell-off	11-02-2005	Johnson Controls International plc (NYSE:JCI)	IAP World Services, Inc.
Sell-off	11-02-2005	ITV plc (LSE:ITV)	Superhire Props Ltd
Sell-off	04-02-2005	Bergman & Beving AB (publ) (OM:BERG B)	Addtech Life Science AB
Sell-off	01-02-2005	PGS ASA (OB:PGS)	Aker BP ASA (OB:AKRBP)
Sell-off	22-12-2004	Skanska AB (publ) (OM:SKA B)	Myresjöhus AB Opstalan B.V.
Sell-off	01-04-2005	Heijmans N.V. (ENXTAM:HEIJM)	
Sell-off	16-12-2004	Corbion N.V. (ENXTAM:CRBN)	Cloetta AB (publ) (OM:CLA B)

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	15-12-2004	Airbus SE (ENXTPA:AIR)	Mitel Communications Inc.
Sell-off	09-12-2004	ITV plc (LSE:ITV)	The Moving Picture Company Ltd.
Sell-off	30-11-2004	Uponor Oyj (HLSE:UPONOR)	Renor Ltd.
Sell-off	29-11-2004	Tiscali Spa (BIT:TIS)	Scarlet Extended NV
Sell-off	25-11-2004	Clariant AG (SWX:CLN)	Nichigo-Mowinyl Co., Ltd.
Sell-off	12-11-2004	SSAB AB (publ) (OM:SSAB A)	Gestamp HardTech AB
Sell-off	11-05-2004	Nichols plc (AIM:NICL)	Aimia Foods Ltd
Sell-off	28-10-2004	L'Air Liquide S.A. (ENXTPA:AI)	GTS, Inc.
Sell-off	21-10-2004	Seagate Technology plc (NasdaqGS:STX)	Certance LLC
Sell-off	20-10-2004	Endesa, S.A. (BME:ELE)	Senda Ambiental, S.A.
Sell-off	15-10-2004	Akzo Nobel N.V. (ENXTAM:AKZA)	Nuplex Resins B.V.
Sell-off	07-10-2004	Koninklijke Philips N.V. (ENXTAM:PHIA)	Philips Consumer Electronics Industries Poland Sp.z
Sell-off	06-10-2004	Tyco International plc	RCR Infrastructure Pty Ltd.
Sell-off	05-10-2004	BP p.l.c. (LSE:BP.)	Propex Operating Company, LLC
Sell-off	04-10-2004	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	DinoSol Supermercados, S.L.
Sell-off	04-10-2004	thyssenkrupp AG (XTRA:TKA)	Berkenhoff GmbH
Sell-off	01-10-2004	Skanska AB (publ) (OM:SKA B)	Coor Service Management AB
Sell-off	30-09-2004	thyssenkrupp AG (XTRA:TKA)	Edelstahlwerke Südwestfalen GmbH
Sell-off	30-09-2004	NCC AB (publ) (OM:NCC B)	DK Beton A/S
Sell-off	30-09-2004	Mitie Group plc (LSE:MTO)	Generation (UK) Limited
Sell-off	13-09-2004	VINCI SA (ENXTPA:DG)	First Support Services, Inc.
Sell-off	07-09-2004	Nexans S.A. (ENXTPA:NEX)	Nexans Magnet Wire USA Inc.
Sell-off	02-09-2004	Uponor Oyj (HLSE:UPONOR)	Uponor Aldyl Company, Inc.
Sell-off	30-08-2004	Tiscali Spa (BIT:TIS)	Spray Telecom Network AB
Sell-off	25-08-2004	Trane Technologies plc (NYSE:TT)	Dresser-Rand Group Inc.
Sell-off	16-08-2004	Tiscali Spa (BIT:TIS)	Tiscali Österreich GmbH
Sell-off	19-08-2004	Agfa-Gevaert NV (ENXTBR:AGFB)	AgfaPhoto GmbH
Sell-off	05-08-2004	Barratt Developments plc (LSE:BDEV)	Barratt American, Inc.
Sell-off	02-08-2004	WH Smith PLC (LSE:SMWH)	Hachette UK Limited
Sell-off	30-07-2004	UPM-Kymmene Oyj (HLSE:UPM)	Brooks Timber and Building Supplies Ltd
Sell-off	19-07-2004	UCB SA (ENXTBR:UCB)	Innovia Films Limited
Sell-off	23-07-2004	Clariant AG (SWX:CLN)	AZ Electronic Materials S.A.
Sell-off	26-07-2004	Atos SE (ENXTPA:ATO)	Landis+Gyr Technology, Inc.
Sell-off	23-07-2004	Danone S.A. (ENXTPA:BN)	The Jacob's Bakery Ltd.
Sell-off	22-07-2004	Veolia Environnement S.A. (ENXTPA:VIE)	Culligan International Company
Sell-off	07-07-2004	HomeServe plc (LSE:HSV)	Longmax Industries Limited
Sell-off	12-07-2004	Marks and Spencer Group plc (LSE:MKS)	Marks and Spencer Retail Financial Services Holding
Sell-off	01-07-2004	Centrica plc (LSE:CNA)	AA plc (LSE:AA.)
Sell-off	05-07-2004	Modern Times Group Mtg AB (OM:MTG B)	SDI Media Group, Inc.
Sell-off	02-07-2004	Kemira Oyj (HLSE:KEMIRA)	CABB Oy
Sell-off	25-06-2004	Eni S.p.A. (BIT:ENI)	Liquigás Distribuidora S.A.
Sell-off	15-06-2004	Morgan Advanced Materials plc (LSE:MGAM)	Energy Conversion Systems Holdings, LLC
Sell-off	10-06-2004	Delta Singular SA	First Data Hellas Processing Services & Holdings SA
Sell-off	11-06-2004	Mikron Holding AG (SWX:MIKN)	Axxicon Moulds Eindhoven B.V.
Sell-off	04-06-2004	Subsea 7 S.A. (OB:SUBC)	Serimax SAS
Sell-off	12-05-2004	Veolia Environnement S.A. (ENXTPA:VIE)	Siemens Water Technologies Corp.
Sell-off	06-05-2004	Tyco International plc	AVOX Systems Inc.
Sell-off	26-03-2004	J Sainsbury plc (LSE:SBRY)	Shaw's Supermarkets, Inc.
Sell-off	05-03-2004	Rio Tinto Group (LSE:RIO)	Zinkgruvan Mining AB
Sell-off	27-04-2004	Recordati Industria Chimica e Farmaceutica S.p.A. (BIT:REC)	Sophartex S.A.
Sell-off	26-04-2004	Akzo Nobel N.V. (ENXTAM:AKZA)	Supresta, LLC
Sell-off	23-04-2004	WH Smith PLC (LSE:SMWH)	REDgroup Retail Pty Ltd.
Sell-off	19-04-2004	Akzo Nobel N.V. (ENXTAM:AKZA)	Albemarle Catalysts Company LP
Sell-off	05-04-2004	Serco Group plc (LSE:SRP)	Serco Group New Zealand Limited
Sell-off	02-04-2004	Greencore Group plc (LSE:GNC)	Rathbones Bakeries Limited
Sell-off	31-03-2004	ECO Animal Health Group plc (AIM:EAH)	Interpet Limited
Sell-off	29-03-2004	Tyco International plc	Sonitrol Corporation
Sell-off	26-03-2004	Ion Beam Applications SA (ENXTBR:IBAB)	Sotera Health Company (NasdaqGS:SHC)
Sell-off	10-03-2004	BP p.l.c. (LSE:BP.)	InterOil Products Ltd.
Sell-off	01-03-2004	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	Bompreco S.A. Supermercados do Nordeste
Sell-off	23-02-2004	thyssenkrupp AG (XTRA:TKA)	Triaton GmbH
Sell-off	19-02-2004	Trane Technologies plc (NYSE:TT)	Atlas Copco Drilling Solutions, LLC
Sell-off	16-02-2004	MERCK Kommanditgesellschaft auf Aktien (XTRA:MRK)	VWR International, LLC
Sell-off	10-02-2004	RCS MediaGroup S.p.A. (BIT:RCS)	JA Apparel Corp.
Sell-off	09-02-2004	FLSmidth & Co. A/S (CPSE:FLS)	SR Technics Denmark Hangar 6 A/S
Sell-off	02-02-2004	Raute Oyj (HLSE:RAUTE)	Lahti Precision Oy
Sell-off	28-01-2004	Heineken N.V. (ENXTAM:HEIA)	Rexam Glass Nederland
Sell-off	22-01-2004	DSV Panalpina A/S (CPSE:DSV)	DSV Miljø A/S
Sell-off	21-04-2004	LVMH Moët Hennessy - Louis Vuitton, Société Européenne (ENXT	Blissworld Inc.
Sell-off	19-01-2004	Rolls-Royce Holdings plc (LSE:RR.)	Triumph Gear Systems, Inc.
Sell-off	15-01-2004	Telia Company AB (publ) (OM:TELIA)	Telia Finans AB
Sell-off	23-12-2003	Rio Tinto Group (LSE:RIO)	Votorantim Metais S.A.
Sell-off	23-12-2003	Corporación Empresarial de Materiales de Construcción, S.A. (BA	Navarti Grupo SA
Sell-off	17-12-2003	Filtronic plc (AIM:FTC)	Filtronic Solid State Inc.
Sell-off	17-12-2003	NV Bekaert SA (ENXTBR:BEKB)	Exel Composites N.V.
Sell-off	15-12-2003	Aventis S.A.	Ranbaxy Pharmacie Generiques
Sell-off	09-12-2003	Aventis S.A.	Aventis Behring L.L.C.
Sell-off	09-12-2003	ABB Ltd (SWX:ABBN)	Sirius International Insurance Corporation (publ)
Sell-off	08-12-2003	The Vitec Group plc (LSE:VTC)	ALU, Inc.
Sell-off	01-12-2003	Reach plc (LSE:RCH)	Local Press Limited
Sell-off	01-12-2003	Smiths Group plc (LSE:SMIN)	Icore International Inc.
Sell-off	21-11-2003	Daimler AG (XTRA:DAI)	MTU Aero Engines AG (XTRA:MTX)
Sell-off	11-11-2003	NH Hotel Group, S.A. (BME:NHH)	Crowne Plaza Brussels - Le Palace
Sell-off	09-01-2003	Compagnie de Saint-Gobain S.A. (ENXTPA:SGO)	TERREAL SAS
Sell-off	03-11-2003	Clariant AG (SWX:CLN)	SE Tylose GmbH & Co. KG
Sell-off	30-10-2003	Serco Group plc (LSE:SRP)	Addici AB
Sell-off	29-10-2003	ABB Ltd (SWX:ABBN)	Vetco International Limited
Sell-off	02-10-2003	Meliá Hotels International, S.A. (BME:MEL)	Hotel Los Patos Park
Sell-off	29-09-2003	thyssenkrupp AG (XTRA:TKA)	Novoferm GmbH
Sell-off	26-09-2003	Alstom SA (ENXTPA:ALO)	Grid Solutions SAS
Sell-off	15-09-2003	Kingfisher plc (LSE:KGF)	Nomi S.A.
Sell-off	09-09-2003	Vivendi SA (ENXTPA:VIV)	C More Entertainment AB
Sell-off	04-09-2003	Orion Corp.	Lumene Oy
Sell-off	30-09-2003	Trane Technologies plc (NYSE:TT)	KMT Waterjet Systems, Inc.
Sell-off	25-08-2003	Vitrolife AB (publ) (OM:VITR)	Mentor Biopolymers Limited
Sell-off	22-08-2003	InterContinental Hotels Group PLC (LSE:IHG)	London May Fair Hotel Ltd
Sell-off	13-08-2003	Cairn Energy PLC (LSE:CNE)	Holland Sea Search Holding N.V.
Sell-off	11-08-2003	Johnson Service Group PLC (AIM:JSG)	Connacht Court Ltd.
Sell-off	08-08-2003	Compagnie Industriali Riunite S.p.A.	Sasib S.p.A.
Sell-off	01-08-2003	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	Santa Isabel S.A. (ADR)
Sell-off	28-07-2003	Rolls-Royce Holdings plc (LSE:RR.)	Variable Message Signs Limited
Sell-off	25-07-2003	Amper, S.A. (BME:AMP)	Ibersegur Systems S.L.
Sell-off	21-07-2003	Smiths Group plc (LSE:SMIN)	Trelleborg Sealing Solutions Germany GmbH
Sell-off	07-07-2003	Glanbia plc (ISE:GL9)	Flagship Fresh Meats Ltd.
Sell-off	30-06-2003	LVMH Moët Hennessy - Louis Vuitton, Société Européenne (ENXT	Thomas Hine & Co. SAS
Sell-off	24-06-2003	Accor SA (ENXTPA:AC)	Hekon–Hotele Ekonomiczne S.A.
Sell-off	09-06-2003	Stagecoach Group plc (LSE:SGC)	Citybus Limited
Sell-off	04-06-2003	Endesa, S.A. (BME:ELE)	Made Tecnologias Renovables, S.A.
Sell-off	29-05-2003	Securicor plc	Cardpoint Cash Machine Limited
Sell-off	29-05-2003	Edison S.p.A. (BIT:EDNR)	Olon S.p.A. Coveright Surfaces Holding GmbH
Sell-off	28-05-2003	Akzo Nobel N.V. (ENXTAM:AKZA)	
Sell-off	23-05-2003	AstraZeneca PLC (LSE:AZN)	Marlow Foods Ltd
Sell-off	22-05-2003	Dialight plc (LSE:DIA)	Weston Aerospace Limited
Sell-off	13-05-2003	Vivendi SA (ENXTPA:VIV)	Invitel Távközlési ZRt.
Sell-off	05-12-2003	Unilever PLC (LSE:ULVR)	Frigedoc S A
Sell-off	23-04-2003	Tellia Company AB (publ) (OM:TELIA)	Com Hem AB
Sell-off	23-04-2003	Kingfisher plc (LSE:KGF)	Réno-Dépôt, Inc.
Sell-off	08-04-2003	Kering SA (ENXTPA:KER)	Guilbert S.A. Avo SpA
Sell-off	07-04-2003	Fiat Chrysler Automobiles N.V.	
Sell-off	01-04-2003	Henry Boot PLC (LSE:BOOT)	David Wilson Homes (Yorkshire) Limited

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	27-03-2003	Uponor Oyj (HLSE:UPONOR)	Uponor ETI Company
Sell-off	24-03-2003	Fiat Chrysler Automobiles N.V.	Toro Assicurazioni S.p.A.
Sell-off	04-03-2003	Bayer Aktiengesellschaft (XTRA:BAYN)	Synthomer Deutschland GmbH
Sell-off	10-02-2003	Nestlé S.A. (SWX:NESN)	Ice Cream Factory Comaker, S.A.
Sell-off	08-01-2003	Obrascón Huarte Lain, S.A. (BME:OHL)	TR Hoteles Alojamientos y Hosterias SA
Sell-off	28-01-2003	Deutsche Telekom AG (XTRA:DTE)	Vodafone Kabel Deutschland GmbH
Sell-off	15-01-2003	Rio Tinto Group (LSE:RIO)	New Gold Inc. (TSX:NGD)
Sell-off	01-12-2003	Unilever PLC (LSE:ULVR)	EL RASHIDI EL MIZAN CONFECTIONERY (S.A.E).
Sell-off	07-01-2003	Drägerwerk AG & Co. KGaA (XTRA:DRW3)	B/E Aerospace Systems GmbH
Sell-off	20-12-2002	Tate & Lyle plc (LSE:TATE)	Westway Feed Products LLC
Sell-off	18-12-2002	Compass Group PLC (LSE:CPG)	Travelodge Hotels Limited
Sell-off	16-12-2002	Equinor ASA (OB:EQNR)	Norsk Teekay AS
Sell-off	11-12-2002	Koninklijke Ahold Delhaize N.V. (ENXTAM:AD)	Holland & Barrett B.V.
Sell-off	06-12-2002	Veolia Environnement S.A. (ENXTPA:VIE)	Bonna Sabla SA
Sell-off	03-12-2002	Henry Boot PLC (LSE:BOOT)	Banner Holdings Limited
Sell-off	20-11-2002	Fortum Oyj (HLSE:FORTUM)	Vår Energi AS
Sell-off	15-11-2002	Koninklijke KPN N.V. (ENXTAM:KPN)	Youvia B.V.
Sell-off	14-11-2002	Baird Plc	Lowe Alpine International S.r.l.
Sell-off	12-11-2002	Enel SpA (BIT:ENEL)	Tirreno Power S.p.A.
Sell-off	31-10-2002	Vivendi SA (ENXTPA:VIV)	Houghton Mifflin Harcourt Publishing Company
Sell-off	14-10-2002	Anheuser-Busch InBev SA/NV (ENXTBR:ABI)	Ardagh Glass GmbH
Sell-off	07-10-2002	Centerpulse Ltd.	Terumo Aortic Limited
Sell-off	09-09-2002	Centerpulse Ltd.	Sulzer IntraTherapeutics Inc.
Sell-off	30-09-2002	Spirent Communications plc (LSE:SPT)	Teledyne Monitor Labs, Inc.
Sell-off	26-09-2002	Clariant AG (SWX:CLN)	Celanese Emulsions GmbH
Sell-off	20-09-2002	Akzo Nobel N.V. (ENXTAM:AKZA)	Rosemont Pharmaceuticals Limited
Sell-off	18-09-2002	ABB Ltd (SWX:ABBN)	Elster Metering Limited
Sell-off	30-08-2002	Unilever PLC (LSE:ULVR)	Bunge Loders Croklaan B.V.
Sell-off	28-08-2002	Veidekke ASA (OB:VEI)	Ramirent AS
Sell-off	21-08-2002	UPM-Kymmene Oyj (HLSE:UPM)	Bemis Valkeakoski Oy
Sell-off	13-08-2002	Philipp Holzmann AG (DB:HOZ)	Apleona HSG GmbH
Sell-off	07-08-2002	Koninklijke Philips N.V. (ENXTAM:PHIA)	Bosch Security Systems B.V.
Sell-off	07-08-2002	Wembley plc	Wembley Park Limited
Sell-off	01-08-2002	Telecom Italia S.p.A.	Telespazio Spa
Sell-off	24-07-2002	Iberdrola, S.A. (BME:IBE)	Infraestructuras de Alta Tensión, S.A.
Sell-off	08-01-2002	IMI plc (LSE:IMI)	Pegler Yorkshire Group Ltd.
Sell-off	17-07-2002	Bayer Aktiengesellschaft (XTRA:BAYN)	Symrise AG (XTRA:SY1)
Sell-off	17-07-2002	Koninklijke Philips N.V. (ENXTAM:PHIA)	PANalytical B.V.
Sell-off	15-07-2002	Smiths Group plc (LSE:SMIN)	Fans & Spares Group Ltd.
Sell-off	11-07-2002	Neles Oyj (HLSE:NELES)	Oy Rolac Ab
Sell-off	01-07-2002	Italmobiliare S.p.A. (BIT:ITM)	SAB Autoservizi S.r.L.
Sell-off	27-06-2002	Bunzl plc (LSE:BNZL)	The Paper Company Limited
Sell-off	27-06-2002	Timeload plc	Scoot (UK) Ltd.
Sell-off	08-08-2002	Vivendi SA (ENXTPA:VIV)	Telepiù S.r.l.
Sell-off	06-06-2002	Andrews Sykes Group plc (AIM:ASY)	Cox Plant Ltd.
Sell-off	27-05-2002	Sodexo S.A. (ENXTPA:SW)	Bunzl UK Limited
Sell-off	24-05-2002	Von Roll Holding AG (SWX:ROL)	Aismalibar, S.A.
Sell-off	23-05-2002	Greencore Group plc (LSE:GNC)	Grassland Agro Ltd.
Sell-off	21-05-2002	OC Oerlikon Corporation AG (SWX:OERL)	Umicore Materials AG
Sell-off	17-05-2002	Siemens Aktiengesellschaft (XTRA:SIE)	Terex-Demag GmbH & Co. KG
Sell-off	24-04-2002	Vossloh AG (XTRA:VOS)	Panasonic Lighting Europe GmbH
Sell-off	24-04-2002	LVMH Moët Hennessy - Louis Vuitton, Société Européenne (ENXT	Pommery SAS
Sell-off	15-04-2002	Koninklijke Philips N.V. (ENXTAM:PHIA)	International Rectifier Automotive Systems GmbH
Sell-off	03-04-2002	Koninklijke DSM N.V. (ENXTAM:DSM)	SABIC Europe B.V.
Sell-off	25-03-2002	Veidekke ASA (OB:VEI)	Nordic Shelter Solutions-Group Oy
Sell-off	25-03-2002	EDP - Energias de Portugal, S.A. (ENXTLS:EDP)	OPTEP – Sociedade Gestora de Participações Soc
Sell-off	21-03-2002	Stora Enso Oyj (HLSE:STERV)	Klippan Mölndal AB
Sell-off	18-03-2002	Enel SpA (BIT:ENEL)	Eurogen SpA
Sell-off	13-03-2002	James Hardie Industries plc (ASX:JHX)	BPB Gypsum, Inc.
Sell-off	12-03-2002	Wembley plc	Keith Prowse Limited
Sell-off	04-03-2002	George Wimpey plc	Senator Homes Ltd.
Sell-off	28-02-2002	Danone S.A. (ENXTPA:BN)	Gruppo Galbani S.p.A.
Sell-off	14-02-2002	Atea ASA (OB:ATEA)	Ementor Financial Systems ASA
Sell-off	13-02-2002	Fortum Oyj (HLSE:FORTUM)	Mitsui E&P Middle East B.V.
Sell-off	07-02-2002	SKAKO A/S (CPSE:SKAKO)	BLÜCHER Metal A/S
Sell-off	31-01-2002	NCC AB (publ) (OM:NCC B)	Assemblin VS AB
Sell-off	29-01-2002	Nolato AB (publ) (OM:NOLA B)	VTC Elastoteknik
Sell-off	07-01-2002	E.ON SE (XTRA:EOAN)	VAW Aluminium AG (Germany Fed. Rep.)
Sell-off	28-01-2002	Kingfisher plc (LSE:KGF)	Time Retail Finance Limited
Sell-off	23-01-2002	Koninklijke Philips N.V. (ENXTAM:PHIA)	Teledyne DALSA B.V.
Sell-off	11-01-2002	Pernod Ricard SA (ENXTPA:RI)	AGRANA Fruit S.A.S.
Sell-off	08-01-2002	Unilever PLC (LSE:ULVR)	Sime Darby Oils Zwijndrecht Refinery B.V.
Sell-off	31-12-2001	Unilever PLC (LSE:ULVR)	Unipath Limited
Sell-off	28-12-2001	Anheuser-Busch InBev SA/NV (ENXTBR:ABI)	Molson Coors Brewing Company (UK) Limited
Sell-off	28-12-2001	Continental Aktiengesellschaft (XTRA:CON)	National Tyre Service Limited
Sell-off	21-12-2001	Headlam Group plc (LSE:HEAD)	Gradus Limited
Sell-off	17-12-2001	Service Point Solutions, S.A. (BME:SPS)	Sage Logic Control, S.L.
Sell-off	19-12-2001	OC Oerlikon Corporation AG (SWX:OERL)	Bühler Alzenau GmbH
Sell-off	10-12-2001	ABB Ltd (SWX:ABBN)	Fläkt Woods Group SA
Sell-off	05-12-2001	SAIAG SpA	ITR SpA
Sell-off	29-11-2001	Anglo American plc (LSE:AAL)	Cleveland Potash Ltd
Sell-off	22-11-2001	Kværner ASA	Kværner Oil & Gas As
Sell-off	19-11-2001	CGG (ENXTPA:CGG)	Osiris BV
Sell-off	15-11-2001	Aventis S.A.	Adisseo France SAS
Sell-off	13-11-2001	Bayerische Motoren Werke Aktiengesellschaft (XTRA:BMW)	Rover Financial Services Ltd.
Sell-off	05-11-2001	Saab AB (publ) (OM:SAAB B)	Aerothrust Holdings, LLC
Sell-off	30-10-2001	Abengoa, S.A. (BME:ABG)	Desarrollos Eolicos, S.A.
Sell-off	23-10-2001	Elementis plc (LSE:ELM)	Harcros Chemicals, Inc.
Sell-off	08-10-2001	Persimmon Plc (LSE:PSN)	Kier Partnership Homes Limited
Sell-off	13-08-2001	Merant plc	DataDirect Technologies, Inc.
Sell-off	17-09-2001	Telenor ASA (OB:TEL)	Eniro Norge AS
Sell-off	12-09-2001	Henkel AG & Co. KGaA (XTRA:HEN3)	BASF Personal Care & Nutrition GmbH
Sell-off	10-09-2001	Endesa, S.A. (BME:ELE)	Viesgo Distribución Eléctrica S.L.
Sell-off	22-08-2001	Devro plc (LSE:DVO)	Teepak, LLC
Sell-off	20-08-2001	TOTAL SE (ENXTPA:FP)	INEXUS Group Limited
Sell-off	17-08-2001	Timeload plc	Loot Limited
Sell-off	15-08-2001	Brokat Technologies AG	Blaze Advisor
Sell-off	08-08-2001	E.ON SE (XTRA:EOAN)	Klöckner & Co SE (XTRA:KCO)
Sell-off	31-07-2001	Promotora de Informaciones, S.A. (BME:PRS)	Inicia Comunicaciones S.A.
Sell-off	30-07-2001	GlaxoSmithKline plc (LSE:GSK)	Affymax, Inc. (OTCPK:AFFY)
Sell-off	25-07-2001	Lonza Group Ltd (SWX:LONN)	EnAlpin AG
Sell-off	23-07-2001	Enel SpA (BIT:ENEL)	E.ON Produzione S.p.A.
Sell-off	17-07-2001	Baird Plc	Faithful Limited
Sell-off	09-07-2001	Clariant AG (SWX:CLN)	Kuraray Specialities Europe GmbH
Sell-off	06-07-2001	Norsk Hydro ASA (OB:NHY)	Scottish Sea Farms Ltd.
Sell-off	05-07-2001	Taylor Wimpey plc (LSE:TW.)	Stockland WA Holdings Pty Limited
Sell-off	03-07-2001	Kingfisher plc (LSE:KGF)	Superdrug Stores PLC
Sell-off	02-07-2001	Diageo plc (LSE:DGE)	Guinness World Records Limited
Sell-off	02-07-2001	Smiths Group plc (LSE:SMIN)	Eschmann Holdings Limited
Sell-off	25-06-2001	Valeo SA (ENXTPA:FR)	SOGEFI FILTRATION FRANCE S.A. Stagecoach Portugal
Sell-off	18-06-2001	Stagecoach Group plc (LSE:SGC)	
Sell-off	12-06-2001	Compagnie de Saint-Gobain S.A. (ENXTPA:SGO)	HSS RentX
Sell-off	12-06-2001	Merant plc	Micro Focus International plc (LSE:MCRO)
Sell-off	04-06-2001	Signature Aviation plc (LSE:SIG)	Texstars, LLC
Sell-off	17-05-2001	Severn Trent Plc (LSE:SVT)	GL Industrial Services USA, Inc.
Sell-off	15-05-2001	Alstom SA (ENXTPA:ALO)	Cegelec SAS
Sell-off	11-05-2001	Fortum Oyj (HLSE:FORTUM)	Eltel Networks Oy
Sell-off	27-03-2001	H+H International A/S (CPSE:HH)	Nymølle Steningdustrier A/S Sorin CRM SAS
Sell-off	16-03-2001	Sanofi (ENXTPA:SAN)	
Sell-off	15-03-2001	Senior plc (LSE:SNR)	Polenz GmbH

Transaction type	Announcement date	Parent firm	Subsidiary
Sell-off	14-03-2001	Telia Company AB (publ) (OM:TELIA)	Direct Response Services AS
Sell-off	14-03-2001	Compass Group PLC (LSE:CPG)	The Cumberland
Sell-off	05-03-2001	TT Electronics plc (LSE:TTG)	F.D. Sims Limited
Sell-off	15-02-2001	Compagnie Industriali Riunite S.p.A.	Compagnia Immobiliare Lasa
Sell-off	15-02-2001	Hunting PLC (LSE:HTG)	Babcock Support Services Limited
Sell-off	14-02-2001	Akzo Nobel N.V. (ENXTAM:AKZA)	bioMérieux BV
Sell-off	08-02-2001	Sanofi (ENXTPA:SAN)	Porges S.A.
Sell-off	22-01-2001	Stagecoach Group plc (LSE:SGC)	Glasgow Prestwick Airport Ltd.
Sell-off	22-01-2001	Koninklijke DSM N.V. (ENXTAM:DSM)	Quadrant EPP AG
Sell-off	15-01-2001	Saab AB (publ) (OM:SAAB B)	Rosemount Tank Radar AB
Sell-off	09-01-2001	Rentokil Initial plc (LSE:RTO)	IPS Resourcing Solutions Ltd.
Sell-off	03-01-2001	Zenitel NV (ENXTBR:ZENT)	Marlink SA
Sell-off	22-12-2000	J Sainsbury plc (LSE:SBRY)	Homebase Group Limited
Sell-off	22-12-2000	Ladbrokes Coral Group Limited	Gala Casinos Limited
Sell-off	22-12-2000	The Weir Group PLC (LSE:WEIR)	Darchem Engineering Ltd.
Sell-off	15-12-2000	BASF SE (XTRA:BAS)	Abbott Service AG
Sell-off	15-12-2000	Pennon Group Plc (LSE:PNN)	T J Brent Limited
Sell-off	06-12-2000	Johnson Service Group PLC (AIM:JSG)	Dimensions Corporatewear Ltd.
Sell-off	16-11-2000	RWE Aktiengesellschaft (XTRA:RWE)	MAQUET GmbH
Sell-off	03-11-2000	Deutsche Telekom AG (XTRA:DTE)	Telewest Broadband Eurobell
Sell-off	30-10-2000	Associated British Foods plc (LSE:ABF)	Burton's Gold Medal Biscuits Ltd.
Sell-off	09-10-2000	Novar plc	Ideal Stelrad Group Limited
Sell-off	05-10-2000	ICTS International N.V. (OTCPK:ICTS.F)	ICTS Europe Holdings B.V.
Sell-off	27-09-2000	Rentokil Initial plc (LSE:RTO)	Sparrows Offshore Services Limited
Sell-off	28-08-2000	Anglo American plc (LSE:AAL)	Titan Florida LLC
Sell-off	04-09-2000	The Rank Group Plc (LSE:RNK)	Tom Cobleigh Limited
Sell-off	11-08-2000	4imprint Group plc (LSE:FOUR)	Letts Filofax Group Ltd.
Sell-off	28-07-2000	Taylor Wimpey plc (LSE:TW.)	Greenham Trading Limited
Sell-off	28-06-2000	Smith & Nephew plc (LSE:SN.)	Simple Health & Beauty Ltd
Sell-off	08-06-2000	Tate & Lyle plc (LSE:TATE)	Bundaberg Sugar Ltd.
Sell-off	01-05-2000	Whitbread PLC (LSE:WTB)	AB InBev UK Limited
Sell-off	25-04-2000	Ferguson plc (LSE:FERG)	Helix Industries Limited
Sell-off	13-04-2000	Lagardère SCA (ENXTPA:MMB)	Grolier Incorporated
Sell-off	12-04-2000	Uponor Oyj (HLSE:UPONOR)	ASKO USA, Inc.
Sell-off	05-04-2000	Morgan Advanced Materials plc (LSE:MGAM)	OSI Laser Diode, Inc.
Sell-off	03-04-2000	Stagecoach Group plc (LSE:SGC)	Porterbrook Leasing Company Limited
Sell-off	23-03-2000	Kemira Oyj (HLSE:KEMIRA)	Scott Health & Safety Oy
Sell-off	23-03-2000	Smartlogik Group plc	Dialog, LLC
Sell-off	17-03-2000	Bayerische Motoren Werke Aktiengesellschaft (XTRA:BMW)	Jaguar Land Rover Holdings Limited
Sell-off	17-03-2000	Reach plc (LSE:RCH)	Belfast Telegraph Newspapers Ltd.
Sell-off	24-02-2000	Pricer AB (publ) (OM:PRIC B)	Intactix International Inc.
Sell-off	01-02-2000	Vallourec S.A. (ENXTPA:VK)	Carpenter Powder Products AB
Sell-off	18-01-2000	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	Emerson Network Power Energy Systems AB
Sell-off	10-01-2000	Holmen AB (publ) (OM:HOLM B)	Domsjö Fabriker AB

Appendix 2: Example of 30 observation (10 spin-offs and 20 sell-offs) including characteristics

#	Transaction type	Seller	Country	SIC Code	Target	Country	SIC Code	Announcement date	Year	First trading day / closing date
1	Spin-off	Peab AB (publ)	Sweden	15	Annehem Fastigheter AB	Sweden	65	27-08-2020	2020	11-12-2020
2	Spin-off	Renalytix AI plc	United Kingdom	73	Verici Dx plc	United Kingdom	28	28-04-2020	2020	03-11-2020
3	Spin-off	Cramo Oyj	Finland	73	Adapteo Oyj	Finland	15	18-02-2019	2019	01-07-2019
4	Spin-off	AB Electrolux (publ)	Sweden	36	Electrolux Professional AB (publ)	Sweden	35	31-01-2019	2019	23-03-2020
5	Spin-off	A.P. Møller - Mærsk A/S	Denmark	44	The Drilling Company of 1972 A/S	Denmark	13	17-08-2018	2018	04-04-2019
6	Spin-off	Novartis AG	Switzerland	28	Alcon Inc.	Switzerland	38	29-06-2018	2018	09-04-2019
7	Spin-off	Hunter Group ASA	Norway	13	Dwellop AS	Norway	35	29-03-2018	2018	03-07-2018
8	Spin-off	Modern Times Group Mtg AB	Sweden	48	Nordic Entertainment Group AB (publ)	Sweden	48	23-03-2018	2018	28-03-2019
9	Spin-off	Euroseas Ltd.	Greece	44	EuroDry Ltd.	Greece	44	16-02-2018	2018	31-05-2018
10	Spin-off	Autoliv, Inc.	Sweden	37	Veoneer, Inc.	Sweden	37	12-12-2017	2017	11-06-2018
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99	Sell-off	StrongPoint ASA (OB:STRO)	Norway	73	StrongPoint Cash Security AB	Sweden	50	18-12-2020	2020	23-12-2020
100	Sell-off	Drax Group plc (LSE:DRX)	United Kingdom	49	Drax Generation Enterprise Limited	United Kingdom	49	15-12-2020	2020	01-02-2021
101	Sell-off	QinetiQ Group plc (LSE:QQ.)	United Kingdom	38	OptaSense Holdings Limited	United Kingdom	73	12-03-2020	2020	02-12-2020
102	Sell-off	ULS Technology plc (AIM:ULS)	United Kingdom	73	Conveyancing Alliance Limited	United Kingdom	73	30-11-2020	2020	30-11-2020
103	Sell-off	Vetrya S.p.A. (BIT:VTY)	Italy	73	Viralize Srl	Italy	73	20-11-2020	2020	16-12-2020
104	Sell-off	Telenor ASA (OB:TEL)	Norway	48	Tapad Inc.	United States	73	19-11-2020	2020	19-11-2020
105	Sell-off	Mail.ru Group Limited (LSE:MAIL)	Cyprus	73	MapsWithMe GmbH	Switzerland	73	02-11-2020	2020	02-11-2020
106	Sell-off	Vifor Pharma AG (SWX:VIFN)	Switzerland	51	OM Pharma SA	Switzerland	28	18-09-2020	2020	30-09-2020
107	Sell-off	Heidelberger Druckmaschinen Aktiengesellschaft (XTRA:HDD)	Germany	35	Cerm Benelux N.V.	Belgium	73	31-07-2020	2020	31-07-2020
108	Sell-off	Nexans S.A. (ENXTPA:NEX)	France	33	Berk-Tek, Inc.	United States	33	17-07-2020	2020	30-09-2020
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1236	Sell-off	Stagecoach Group plc (LSE:SGC)	United Kingdom	41	Stagecoach Group plc	United Kingdom	61	05-04-2000	2000	05-04-2000
1237	Sell-off	Kemira Oyj (HLSE:KEMIRA)	Finland	28	Kemira Oyj	Finland	38	03-04-2000	2000	20-04-2000
1238	Sell-off	Smartlogik Group plc	United Kingdom	73	Smartlogik Group plc	United States	73	23-03-2000	2000	04-05-2000
1239	Sell-off	Bayerische Motoren Werke Aktiengesellschaft (XTRA:BMW)	Germany	37	Bayerische Motoren Werke Aktiengesell	United Kingdom	37	23-03-2000	2000	04-05-2000
1240	Sell-off	Reach plc (LSE:RCH)	United Kingdom	27	Reach plc	United Kingdom	27	17-03-2000	2000	30-06-2000
1241	Sell-off	Pricer AB (publ) (OM:PRIC B)	Sweden	36	Pricer AB (publ)	United States	73	17-03-2000	2000	31-07-2000
1242	Sell-off	Vallourec S.A. (ENXTPA:VK)	France	35	Vallourec S.A.	Sweden	33	24-02-2000	2000	06-04-2000
1243	Sell-off	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	Sweden	36	Telefonaktiebolaget LM Ericsson (publ)	Sweden	50	01-02-2000	2000	01-02-2000
1244	Sell-off	Holmen AB (publ) (OM:HOLM B)	Sweden	26	Holmen AB (publ)	Sweden	67	18-01-2000	2000	03-04-2000
1244	Sell-off	Holmen AB (publ) (OM:HOLM B)	Sweden	26	Holmen AB (publ)	Sweden	67	10-01-2000	2000	03-01-2000

Focusing (1) vs non-focusing (0)	GEO Focusing (1) vs GEO non-focusing (0)	Relative size [Deal Value / Seller EV]	Relative size (Large/small)	Std. of abnormal return	Std. Proxy (High/low)	Tobins Q	Tobins Q Proxy	Altman Z-score	AltmanZ Proxy (Low/Med/High)
1	0	7.16%	0	0.003753033	0	1.051614173	0	2.71262973	1
1	0	9.59%	1	0.017184987	1	6.535984089	1	n.a.	n.a.
1	0	89.55%	1	0.001092222	0	1.204523353	0	1.742289614	0
1	0	15.09%	1	0.003354788	0	0.612133589	0	2.014885245	1
1	0	12.82%	1	0.003715484	0	0.606675852	0	1.994169471	1
1	0	12.06%	1	0.004350422	0	1.572353583	0	3.414207619	2
1	0	7.07%	0	0.002761406	0	0.279382363	0	5.495359145	2
0	0	64.31%	1	0.003024742	0	1.341850026	0	2.441068174	1
0	0	38.89%	1	0.006447511	1	0.658650106	0	-1.813583311	0
0	0	22.05%	1	0.002035517	0	1.308598537	0	3.57334706	2
1	1	7.8%	1	0.012304948	1	9.781202571	1	n.a.	n.a.
0	0	8.9%	1	0.000676889	0	3.210365452	0	1.462193274	0
1	0	1.6%	0	0.003592257	0	11.01043601	1	4.201745138	2
0	0	60.4%	1	0.009098766	1	13.51698921	1	4.389923128	2
0	0	32.2%	1	0.006440706	1	3.045131617	0	2.238935171	1
1	1	0.7%	0	0.014894982	1	9.626882218	1	1.610917371	0
0	1	0.3%	0	0.011609486	1	11.6667097	1	3.782801205	2
1	0	5.7%	1	0.005383546	1	13.13811227	1	7.479723026	2
1	1	3.6%	1	0.008704898	1	1.011956792	0	1.432092655	0
0	1	7.5%	1	0.012194367	1	3.413091139	0	1.801145236	1
1	0	8.7%	1	n.a.	n.a.	9.821185968	1	1.315681032	0
1	0	1.0%	0	n.a.	n.a.	4.948972112	0	1.829281271	1
0	1	12.3%	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
0	1	14.4%	1	n.a.	n.a.	4.148444189	0	1.988987136	1
0	0	26.0%	1	n.a.	n.a.	3.535504686	0	0.910761812	0
1	1	71.3%	1	n.a.	n.a.	3.307839168	0	-0.266426692	0
1	1	1.3%	0	n.a.	n.a.	3.204005196	0	1.804977224	1
1	0	0.6%	0	n.a.	n.a.	38.16379428	1	6.370301811	2
1	0	0.7%	0	n.a.	n.a.	7.964298876	1	2.56023414	1
1	0	0.7%	0	n.a.	n.a.	7.964298876	1	2.56023414	

Appendix 3: Overview of data sample divided by two digit sic code

		Sell-off		Spin-off	
SIC code	Category name	Parent	Subsidiary	Parent	Subsidiary
1	Agricultural Production - Crops		2		
2	Agricultural Production - Livestock and Animal Specialties		1		
7	Agricultural Services		2		
9	Fishing, Hunting and Trapping		1		
10	Metal Mining	18	7		
12	Coal Mining	4	3		
13	Oil and Gas Extraction	21	23	8	6
14	Mining and Quarrying of Nonmetallic Minerals, Except Fuels	1	3		
15	Construction - General Contractors & Operative Builders	27	14	5	2
16	Heamy Construction, Except Building Construction, Contractor	28	11		
17	Construction - Special Trade Contractors	3	22		
20	Food and Kindred Products	54	40	3	2
21	Tobacco Products	1			
22	Textile Mill Products	2	3		1
23	Apparel, Finished Products from Fabrics & Similar Materials	6	2	1	1
24	Lumber and Wood Products, Except Furniture	3	6	1	
25	Furniture and Fixtures	1			1
26	Paper and Allied Products	19	8	2	2
27	Printing, Publishing and Allied Industries	31	18		
28	Chemicals and Allied Products	115	82	8	8
29	Petroleum Refining and Related Industries	34	4	1	
30	Rubber and Miscellaneous Plastic Products	17	23		2
31	Leather and Leather Products	5	2	1	
32	Stone, Clay, Glass, and Concrete Products	17	22		1
33	Primary Metal Industries	40	29	1	1
34	Fabricated Metal Products	19	22		3
35	Industrial and Commercial Machinery and Computer Equipment	59	61	7	10
36	Electronic & Other Electrical Equipment & Components	71	54	6	2
37	Transportation Equipment	45	25	5	3
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks	64	32	3	4
39	Miscellaneous Manufacturing Industries	2	5		
40	Railroad Transportation		1		
41	Local & Suburban Transit & Interurban Highway Transportation	11	9		
42	Motor Freight Transportation	8	8	1	
44	Water Transportation	4	6	4	2
45	Transportation by Air	11	6	1	1
46	Pipelines, Except Natural Gas		1		
47	Transportation Services	4	10		1
48	Communications	59	49	7	4
49	Electric, Gas and Sanitary Services	65	42	3	3
50	Wholesale Trade - Durable Goods	27	50	2	2
51	Wholesale Trade - Nondurable Goods	9	42	3	4
52	Building Materials, Hardware, Garden Supplies & Mobile Homes	11	6	1	
53	General Merchandise Stores	6	3	2	2
54	Food Stores	15	12	1	
55	Automotive Dealers and Gasoline Service Stations	1	2		
56	Apparel and Accessory Stores	1	2		
57	Home Furniture, Furnishings and Equipment Stores	2	4		2
58	Eating and Drinking Places	12	3	2	1
59	Miscellaneous Retail	11	20	1	2
60	Depository Institutions		2		
61	Nondepository Credit Institutions		5		
62	Security & Commodity Brokers, Dealers, Exchanges & Services		2		1
63	Insurance Carriers		3		
64	Insurance Agents, Brokers and Service		2		
65	Real Estate		19		5
67	Holding and Other Investment Offices		54		2
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	12	12	1	
72	Personal Services	4	6		
73	Business Services	95	144	8	11
75	Automotive Repair, Services and Parking	1	3		
76	Miscellaneous Repair Services		3		1
78	Motion Pictures	4	4	1	1
79	Amusement and Recreation Services	17	7	5	3
80	Health Services		2	1	
81	Legal Services	2			
82	Educational Services		5		
83	Social Services		3		
86	Membership Organizations		1		
87	Engineering, Accounting, Research, and Management Services	27	45		1
89	Services, Not Elsewhere Classified		1		
92	Justice, Public Order and Safety		1		
99	Nonclassifiable Establishments	20	19	2	
Total		**1146**	**1146**	**98**	**98**

Appendix 4: Alternative categorization

Output for information asymmetry (Idiosyncratic volatility)

Information asymmetry (Idiosyncratic volatility)								
	High			Low			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	2.01%	6.348***	593	1.03%	3.829***	593	0.98%	2.359**
[-3,3]	2.18%	5.765***	593	0.86%	2.769***	593	1.32%	2.689***
[-5,5]	2.72%	4.349***	593	0.68%	1.974**	593	2.03%	2.848***
[-10,10]	2.64%	4.071***	593	0.66%	1.561	593	1.98%	2.56**
Spin-off								
[-1,1]	3.77%	2.85***	42	1.75%	2.493**	54	2.02%	1.349
[-3,3]	4.45%	3.047***	42	1.58%	2.137**	54	2.88%	1.756*
[-5,5]	5.10%	3.04***	42	1.53%	1.712*	54	3.57%	1.879*
[-10,10]	4.53%	2.384**	42	1.00%	0.75	54	3.53%	1.524
Sell-off								
[-1,1]	1.87%	5.755***	551	0.96%	3.328***	539	0.92%	2.112**
[-3,3]	2.01%	5.122***	551	0.79%	2.362**	539	1.22%	2.359**
[-5,5]	2.54%	3.839***	551	0.60%	1.616	539	1.94%	2.558**
[-10,10]	2.49%	3.653***	551	0.62%	1.403	539	1.87%	2.294**

The information asymmetry variable are calculated from the parent firms idiosyncratic volatility one year prior to the announcement.The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Output for information asymmetry (Tobin's Q)

Tobin's Q								
	High			Low			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	0.70%	3.024***	611	2.18%	6.41***	611	-1.48%	-3.588***
[-3,3]	0.62%	2.154**	611	2.19%	5.67***	611	-1.57%	-3.272***
[-5,5]	0.42%	1.334	611	2.34%	5.582***	611	-1.92%	-3.667***
[-10,10]	0.33%	0.792	611	2.58%	5.068***	611	-2.26%	-3.441***
Spin-off								
[-1,1]	12.62%	1.323	3	2.36%	3.45***	94	10.26%	1.073
[-3,3]	13.52%	1.485	3	2.58%	3.425***	94	10.93%	1.197
[-5,5]	14.29%	1.3	3	2.79%	3.175***	94	11.51%	1.043
[-10,10]	16.86%	1.003	3	2.18%	2.045**	94	14.68%	0.872
Sell-off								
[-1,1]	0.64%	2.795***	608	2.15%	5.615***	517	-1.50%	-3.369***
[-3,3]	0.55%	1.938*	608	2.12%	4.863***	517	-1.57%	-3.006***
[-5,5]	0.35%	1.121	608	2.26%	4.813***	517	-1.91%	-3.383***
[-10,10]	0.25%	0.6	608	2.66%	4.655***	517	-2.41%	-3.434***

The information asymmetry variable are calculated from the parent firms Tobin's Q prior to the announcement. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Output for relative size

Large versus small								
	Large			Small			Difference	
Event window	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*	*N*	*CAAR*	*t-statistic*
Total								
[-1,1]	2.70%	7.249***	621	0.20%	1.205	622	2.50%	6.112***
[-3,3]	2.84%	6.736***	621	-0.01%	-0.037	622	2.85%	5.834***
[-5,5]	2.82%	6.069***	621	0.29%	0.556	622	2.52%	3.582***
[-10,10]	3.32%	6.061***	621	-0.12%	-0.23	622	3.44%	4.556***
Spin-off								
[-1,1]	2.85%	3.684***	88	1.26%	1.679	10	1.59%	1.479
[-3,3]	3.19%	3.835***	88	0.41%	0.287	10	2.77%	1.673
[-5,5]	3.27%	3.467***	88	2.06%	0.767	10	1.21%	0.424
[-10,10]	2.81%	2.356**	88	1.39%	0.468	10	1.41%	0.44
Sell-off								
[-1,1]	2.68%	6.447***	533	0.19%	1.088	612	2.49%	5.551***
[-3,3]	2.78%	5.896***	533	-0.02%	-0.065	612	2.80%	5.242***
[-5,5]	2.74%	5.291***	533	0.27%	0.495	612	2.48%	3.319***
[-10,10]	3.40%	5.604***	533	-0.14%	-0.275	612	3.55%	4.417***

The relative size variable for spin-offs are calculated by using the market cap of the parent firm and divested part, respectively, from the completion date. Sell-offs are calculated by using the deal value of the divestment and Enterprise Value (EV) of the parent firm at completion date. The statistical significance of the means is tested using the t-statistic (Please see section 6 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Appendix 5: Altman Z-score

The Altman Z-score is a credit score used to determine the strength of a firms financial position. The Z-score is a number determined by five key financial ratios. The equation for Z-score is presented as:

$$Z - Score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

Where:

$$A = Working\ capital\ /\ Total\ assets$$

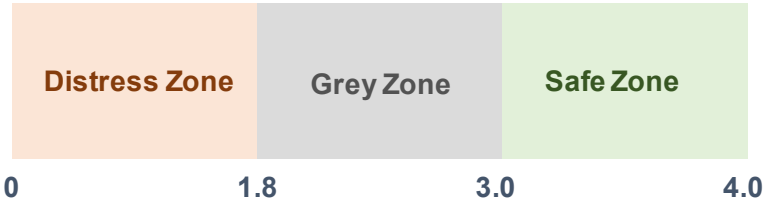
$$B = Retained\ earnings\ /\ Total\ assets$$

$$C = EBIT\ /\ Total\ assets$$

$$D = Market\ value\ of\ equity\ /\ Total\ liabilities$$

$$E = Sales\ /\ Total\ assets$$

Depending on the Z-Score, the firm analysed can be categorized into three zones, which reflects the credit-strength of the firm. The three zones are presented below.



Appendix 6: Regression analysis of CAR on subsamples

Regression models for spin-off subsample

Regression analysis of CAAR for spin-off subsample								
		Univariate regression						Multivariate
Variable	*Expected sign*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Intercept		0.022**	0.028***	0.01	0.017*	0.041***	0.02**	0.014
FOCUS_INDUSTRY	+	0.009						0.013
FOCUS_GEO	+		-0.008					-0.012
RESIDUAL_STD	+			3.18*				2.051
TOBINS_Q	-				0.007*			0.006
RELATIVE_SIZE	+					-0.05*		-0.054*
ALTMAN_Z-SCORE	+						0.002	0
Transactions		98	98	96	97	98	95	93
Adjusted R2		-0.006	-0.008	0.018	0.020	0.022	0.004	0.018
F Statistics		0.442	0.189	2.786	2.944	3.199	1.409	1.286
Significance		0.508	0.664	0.098	0.089	0.077	0.238	0.272

This table presents 6 univariate regressions (1-6) and one multivariate regression (7). For some of the variables, the number of transactions is lower due to missing data. Only firms with available data on all variables are included in the multivariate regression. The statistical significance of the means is tested using the simple t-statistic also used in the event study (Please see section 6.1 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Regression models for sell-off subsample

Regression analysis of CAR for sell-off subsample								
		Univariate regression						Multivariate
Variable	*Expected sign*	*1*	*2*	*3*	*4*	*6*	*5*	*7*
Intercept		0.015***	0.017***	0.007**	0.017***	0.013***	0.014***	0.026***
FOCUS_INDUSTRY	+	-0.003						-0.006
FOCUS_GEO	+		-0.007*					-0.01**
RESIDUAL_STD	+			0***				-0.001***
TOBINS_Q	-				1.313**			1.421**
RELATIVE_SIZE	+					-0.0001**		0.003***
ALTMAN_Z-SCORE	+						0.003**	0**
Transactions		1146	1146	1090	1125	1146	1063	93
Adjusted R2		-0.001	0.002	0.004	0.009	0.004	0.005	0.018
F Statistics		0.315	2.937	5.886	10.935	5.950	5.835	1.286
Significance		0.575	0.087	0.015	0.001	0.015	0.016	0.272

This table presents 6 univariate regressions (1-6) and one multivariate regression (7). For some of the variables, the number of transactions is lower due to missing data. Only firms with available data on all variables are included in the multivariate regression. The statistical significance of the means is tested using the simple t-statistic also used in the event study (Please see section 6.1 for further information). The p-value of the test statistics have been applied to determine the significance at the 1% (***), 5% (**) and 10% (*) level.

Appendix 7: Additional OLS assumptions for hypothesis testing

In addition to the OLS regression assumptions already discussed in **Section 6.1** regarding the *Market Model*, this section serves to outline the additional assumptions required to be fulfilled when the OLS regression is used to test hypotheses as in **Section 8.1.3**.

1) No Perfect Multicollinearity

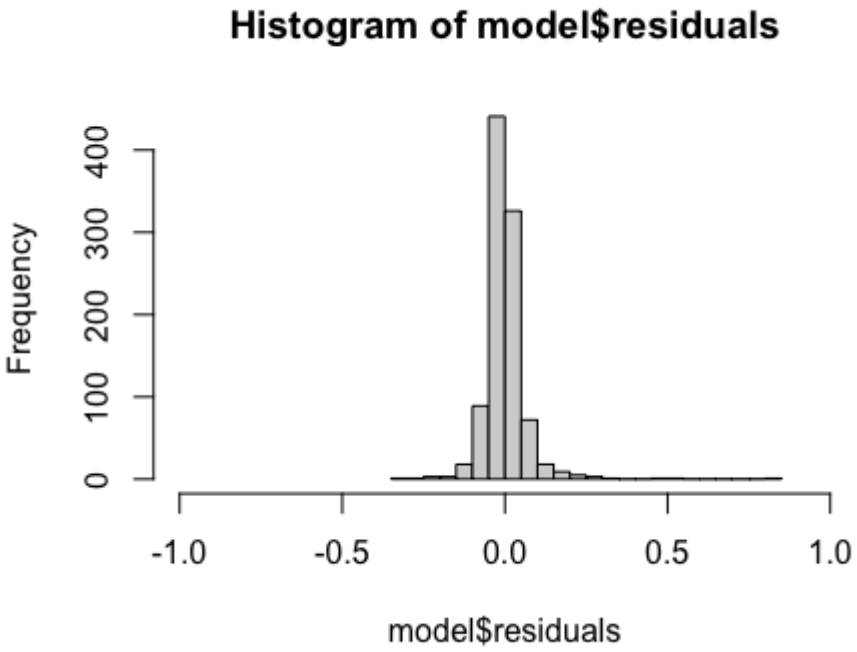
This assumption refers to the phenomenon of correlation between the explanatory variables. The OLS regression requires no perfect multicollinearity between the independent variables (Woolridge, 2009). Otherwise, the regression model will provide biased estimators with the risk of drawing erroneous conclusions. If perfect linear relationship exists among two explanatory variables, it is impossible to identify which variables is causing the variation in the dependent variable. Multicollinearity is assessed by constructing a correlation matrix.

We have found no evidence of such perfect multicollinearity in the correlation matrix below. Even the two proxy variables of information asymmetry seem to not be correlated, which highlight the challenges of determining a perfect proxy variable for information asymmetry.

Correlation matrix						
	Focus	Geography	Relative size	Idiosyncratic volatility	Tobin's Q	Altman Z score
Focus	1.00000	-0.14901	-0.01565	0.00739	-0.01198	-0.01954
Geography	-0.14901	1.00000	-0.15787	-0.09258	0.02211	-0.04609
Relative size	-0.01565	-0.15787	1.00000	0.09660	-0.11721	0.12749
Idiosyncratic volatility	0.00739	-0.09258	0.06599	1.00000	-0.03819	-0.04352
Tobin's Q	-0.01198	0.02217	-0.11721	-0.03819	1.00000	0.19442
Altman Z score	-0.01954	-0.04609	0.12749	-0.04352	0.19442	1.00000

2) Normality of residuals

An assumption when performing t-test on an OLS regression is the assumption of normality of the residuals (Woolridge, 2009). Potential problems of outliers can affect the distribution of residuals leading to residuals being non-normal distributing. Thus, outliers can cause deviations from the assumption normal distribution. If the residuals are not normally distributed the t-statistics will not be t-distributed. As evident from the histogram below, the distribution of residuals has a fat righthand tail caused by few observations with very large returns. The graph indicates that residuals deviate from normal distribution resulting in problems with the assumption. The problems with normal distributed residuals should be considered when interpreting the results.


Histogram of model$residuals
Frequency
0
100
200
300
400
-1.0
-0.5
0.0
0.5
1.0
model$residuals