VALUE CREATION IN SPONSORED AND NON-SPONSORED SPIN-OFFS

DO CORPORATE SPIN-OFFS CREATE VALUE AND HOW DOES THE PARENT COMPANY'S OWNERSHIP STRUCTURE AFFECT THE VALUE CREATION?

ANDRÉ SJÖGREN

Master Thesis

Stockholm School of Economics

2022

Value creation in sponsored and non-sponsored spin-offs: How does ownership structure affect value creation in spin-offs?

Abstract

I examine whether spin-offs create value and if there is a difference between sponsored and non-sponsored firms by examining announcement-day share price performance, long-term share price performance, and long-term change in operational performance. The measures used were calculated on an unadjusted basis, in line with prior research, and on a risk-adjusted basis, using the Capital Asset Pricing Model. Additionally, I analyze the results from the lens of four theories: the manager incentives theory, the information asymmetry theory, the focus and synergy theory, and the tax and regulation theory. My results indicate that spin-offs create value on the day of announcing a spin-off and destroy value in the long-term based on long-term excess returns. The changes in operating performance did not show to be statistically significant. To the best of my knowledge, the research question examined in this study is unprecedented, as no study has examined the relationship between ownership structure and spin-off value creation in the short- and long-term, including a risk-adjusted measure for excess return.

Keywords:

Spin-offs, Ownership, Sponsors, Excess Returns, Operating Performance, CAPM

Authors:

André Sjögren (24413)

Tutor:

Henrik Nilsson, Professor, Department of Accounting

Master Thesis
Master Program in Accounting, Valuation and Financial Management
Stockholm School of Economics
André Sjögren, 2022

Acknowledgments

I am especially grateful to my tutor Henrik Nilsson, Professor at the Stockholm School of Economics, for his insightful guidance throughout the development of this thesis. Furthermore, I would also like to extend my gratitude towards Antonio Vazquez, Assistant Professor at Stockholm School of Economics, for his valuable input in the thesis seminars.

Contents

1. Introduction

1.1. Background

The most common rationale behind a corporate spin-off is to decrease diversification and streamline the company, enabling the firm to focus on its core operations leading to value creation for shareholders. However, the expected outcome is not always achieved. In the case of Atlas Copco's spin-off of Epiroc, the rationale behind the divestment was to focus more on the core operations. A year after the spin-off, Atlas Copco and Epiroc had underperformed the market by 4-5% (Capital I.Q.).

The academic literature has suggested multiple drivers affecting the outcome of a spin-off from a value creation perspective. Firstly, research points towards that corporate governance and incentive structures are less efficient in large, multi-product companies. Moreover, a spin-off leads to more accurate and efficient incentives for managers as their equity claims become more in line with their tasks in the smaller companies resulting in mitigation of agency costs (Aron, 1991). Secondly, providing more information on separate divisional cash flows by splitting up divisions has proven to mitigate information asymmetry. Academic literature on the subject has found evidence that less uncertainty regarding divisional valuation increases the market valuation of the combined entities (Habib, Johnsen, Naik; 1995) as the market values transparency. Thirdly, taxes and regulatory advantages have proven to be a significant driver in the value creation of spin-offs. A firm with divisions reporting negative results must net these against other divisions and pay taxes on the positive result. However, separating the divisions has proven to be associated with lower tax costs despite the tax carry forwards. Fourthly, the last driver already mentioned is the focus and synergies involved in the spin-off. Research has found significant evidence that focus-increasing spin-offs, divesting divisions outside the company's core industry, increase valuation more than non-focus-increasing spin-offs (Daley et al., 1997).

Despite multiple authors having conducted studies on European samples during the last decade, the American literature on the subject is dominating. The results from the two regions have been shown to differ, which is hypothesized to stem from differences in the value creation drivers. For example, taxes and regulatory effects on spin-offs have been shown to vary substantially. Until 1998, nearly zero companies conducted spin-offs in the Netherlands due to hostile regulations. When the Netherlands decided to relax the taxation of spin-offs, the number of spin-offs increased drastically, including one of the largest European spin-offs to date.

Few researchers have researched the effect of ownership structure on spin-off performance. Defining sponsored ownership as an outside investor which owns at least 5% at the time of the spin-off, it is evident from the literature that this affects the value creation drivers of spin-offs and therefore affects the value creation of spin-offs. For

example, sponsored firms have been shown to have higher and more efficient incentive structures than non-sponsored firms. Agency theory has shown that the more incentives in place, the less marginal benefit from increasing incentives even more (Sihag, 2017). As corporate spin-offs have been shown to increase incentives in place, sponsored firms are expected to yield less benefits from the new incentives. Another example includes the mitigation of information asymmetry. Sponsored firms have proven to have less information asymmetry than non-sponsored firms as sponsors push the agenda of transparency as they know investors are attracted to transparent firms (Pucheta-Martínez and García-Meca, 2014). Moreover, research has found a positive relationship between information asymmetry and the cost of equity capital (Hsieh et al., 2019). Thus, sponsored firms are expected to yield less decrease of the cost of equity capital than non-sponsored firms.

Even though the literature has covered spin-off value creation extensively, the effect of ownership structure on short- and long-term performance is, to the best of my knowledge, yet to be investigated. As the academic literature has covered ownership structure's effect on the value drivers of a spin-off, but not yet a spin-off, I believe that this thesis can contribute to clarification on how and why ownership structure affects value creation in spin-offs. Moreover, no one in the field has yet incorporated the concept of risk through the CAPM-model when comparing spin-offs value creation to their industry peers. As it is crucial to weigh the reward towards the risk when assessing the benefits of one investment against another, I believe this contribution is desired.

To examine the value creation of spin-offs and the effects of ownership structure on the value creation, I use a data based on European companies from 2000 and 2021. I then followed the core methodology of Cusatis et al. (1993). To test the short- and long-term value creation, I investigate the unadjusted announcement-day excess returns, unadjusted and risk-adjusted long-term excess returns over a three-year horizon, and unadjusted and industry-adjusted ROA over a four-year horizon. These tests are conducted for both the spun-off and parent company depending on the time of the measure.

The study found conclusive evidence that spin-offs create value on the day of announcing the spin-off on a 1% significance level. Moreover, the results show that non-sponsored spin-offs outperform sponsored spin-off on the day of announcement. The study further found evidence that the risk-adjusted excess return of the spun-off and parent company is negative on a 10% significance level. This implies that an investor would be better off investing in company peers that did not conduct a spin-off in the long run to maximize their profits. Lastly, I found no clear evidence that the difference between sponsored and non-sponsored firms is rooted in different changes in operational performance over the period.

1.2. Purpose

The purpose of my study is to investigate whether a spin-off creates value or not and how a company's ownership structure affects the results. The results of the study are of interest to various stakeholders, including boards of directors and investors, all of whom seek to maximize value creation for shareholders. Either because they work for the shareholders or because they are shareholders. From a broader view, the results can also be of interest to everyone who seeks to understand the relationship between agency theory and stock returns. The study aims to address the following research question:

Do corporate spin-offs create value, and how does the company's ownership structure affect the value creation?

1.3. Contribution

My study expands the existing literature on spin-off value creation in two ways. Firstly, I have found no study that analyses the effect of ownership structure on short- and long-term spin-off value creation. The literature on ownership structures often refers to the similar drivers of spin-off value creation. However, no one has incorporated ownership structure effects directly to spin-off value creation. Secondly, I have found no other study that properly incorporates the concept of systematic risk through the Capital Asset Pricing Model (CAPM) when measuring the value creation of spin-off. A major delimitation of using the CAPM is the difficulty in determining Beta. In this study, I determined Betas based on peers from the S&P350 Europe index. The companies in the index are not perfectly comparable. However, the difficulty in finding perfectly similar companies to base beta-calculations on is one of the flaws of the CAPM. By following the methodology of Cusatis et al. (1993), this study will be comparable to prior literature despite new elements incorporated in the tests and analysis. Moreover, by using new models and hypotheses in the study, I open new pathways to explore and advance the literature on spin-off value creation.

1.4. Delimitation

I have limited this study to publicly listed companies that conducted a spin-off in Europe from 2000-2021. The data represents companies from seven of ten industry segments based on their one-digit SIC-code. To answer my research question, I use four theories put forth in the theoretical framework: (I) Improved manager incentives, (II) Information asymmetry, (III) focus and synergy, and (IV) taxes and regulations. Furthermore, my method is based on prior literature resulting in three different measures of value creation: (I) announcement day share price excess returns, (II) unadjusted and risk-adjusted long-term share price excess returns over a three-year horizon, and (III) unadjusted and industry-adjusted long-term changes in operational performance through the return on

assets over a four-year horizon. When adjusting the excess returns for risk, I use the Capital Asset Pricing Model, which has benefits and drawbacks discussed later in the study. In the model, I calculated industry Betas based on the S&P350 Europe index and applied them to companies in the sample based on SIC-codes.

1.5. Disposition

The study consists of 8 sections. Section 2 contains reviews of previous literature and theories, followed by section 3 consisting of the development of the hypotheses. Section 4 and 5 explains the method and data collection used in the study. Section 6 contains the results and analysis. Lastly, section 7 and 8 presents the discussion and conclusion of the study, followed by suggestions for future research.

2. Literature review and theoretical framework

In this section, I present the findings and theories from existing literature related to spin-offs and value creation. Initially, the basis of spin-offs and diversification is explained, followed by ownership structure effects. After this, the four main drivers of value creation in spin-offs are explained and connected to ownership structure. Succeeding this, I compare the European and U.S. literature related to the value creation drivers. After, the Capital Asset Pricing Model is introduced and explained.

2.1. Spin-off and value creation

To refocus operations, companies can divest parts of their operations through various ways. Equity carve-outs, meaning to sell shares in a subsidiary through an IPO or divest the operations to a private buyer are common. However, this thesis focuses on corporate spin-offs, which I define as a company that distributes at least 80% of its shares to its existing shareholders on a pro-rata basis, thus, creating a separate publicly owned company. This definition is in line with Klein and Rosenfeld (2010), who researched the subject of ownership and corporate spin-offs in 2010.

The literature on corporate spin-offs is based on three papers where the authors investigated American spin-offs by Miles and Rosenfeld (1983), Schipper and Smith (1983), and Hite and Owers (1983). The three studies focused on announcement-day share price performance, and each found significant positive share price reactions at the announcement of spin-offs. However, while Schipper and Smith, and Miles and Rosenfeld, failed to explain the reason behind this, Hite and Owers found evidence of positive excess returns in cross-industry spin-offs, meaning that the spun-off company and the parent company are not operative in the same industry.

In the spin-off literature, European firms were not investigated until 2004 when Veld and Veld-Merkulova studied announcement and long-run performance for corporate spin-offs. They found significant positive share price reactions on the announcement of spin-offs and a further stronger positive association for cross-industry spin-offs at the time of announcement. In contrast to U.S. spin-off literature, they did not find European spin-offs to be associated with long-run superior performance.

2.2. Concept of diversification

Prior research proposed that focusing operations creates value (Comment and Jarrell, 1995; Daley et al., 1997) and diversification demolishes it (Servaes, 1996). Despite the growing acceptance of the diversification discount, showing that diversified firms are traded at lower valuations, firms continuously decide to diversify their operations. Researchers have tried to justify the phenomenon by referring to increased efficiencies in

firms' internal capital markets through diversification (Shin and Stulz, 1998; Rajan et al., 2000, Scharfstein and Stein, 2000) and overestimation of value destruction attributed to agency costs (Amihud and Lev, 1981; Jensen, 1986; Jensen and Murphy, 1990). Concludingly, the extensive literature examining the diversification-performance relationship, although not entirely agreed upon, indicates a curvilinearity in the linkage between diversification and performance, exhibiting that marginal benefits from diversification can be described as a decreasing function (Palich et al., 2000). Thus, the more diversified the firm, the less it will benefit from diversifying further.

However, there are research concentrating on the flaws of the existence of the diversification discount. Erickson and Whited (2012) suggested that there is a measurement error in Tobin's q resulting in incorrect conclusions that internal capital markets are inefficient. From another perspective, Chevalier (2004) and Graham et al. (2002) criticized the diversification discount by suggesting that it does not exist due to diversification but rather because of merging between discounted firms.

2.3. Ownership effect

Although the research on ownership effects on spin-off value creation is limited, there has been some progress in the last few years. Klein and Rosenfeld (2010) found that the long-term performance of sponsored U.S. spin-offs between 1994 and 2005 was significantly negative over three years. In contrast to my study, Klein and Rosenfeld defined sponsored spin-offs as a spin-off where an outside investor has purchased a substantial equity stake in the newly created firm at or around the spin-off date. Furthermore, they found that parent firms underinvest in the subsidiary prior to the spin-offs, which they suggested motivated the subsidiary to seek outside funding before the IPO. One rationale behind this was presented to be the lack of investments leading up to the spin-off in the sponsored spin-offs compared to common spin-offs.

Hertzel et al. (2002) found that sponsor placements often have relatively high market-to-book ratios and, thus, less room for growth. Furthermore, their studies showed significantly negative long-run stock returns and operating performance following the sponsor's entry. In line with this, Edelen et al. (2014) found that sponsors strongly tend to buy stocks classified as overvalued and have particularly negative ex-post-excess returns.

Cusatis et al. (1993) showed that long-term positive excess returns are associated with entities that becomes acquired within the event window. The findings suggested that spin-offs provide a low-cost method of transferring control of corporate assets to bidders who will create greater value of these assets. Moreover, Duggal (1994) showed that the probability of being acquired increased for firms that were owned by sponsors.

2.4. Drivers of value creation

2.4.1. Improved manager incentives theory

The incentive and governance improvement theory is that divisional managers in large, multi-product companies use overall equity value of the firm for stock-based compensation, which inaccurately mirrors their performance as it is too wide of a measurement (Krishnaswami and Subranium, 2015). Thus, divisional managers have incentives to engage in free-riding and costly lobbying of the headquarters resource allocation resulting in inefficient resource allocation followed by a discounted valuation of the company (Krishnaswami and Subramanium, 2015; Aron, 1991). As spin-offs do not change the proportional equity ownership claims of the existing shareholders, the principal-agent relationship is left unaltered before and after the spin-off. However, in conjunction with spin-offs, managerial incentives are often revised and altered to fit the newly divided companies. In accordance, Seward and Walsh (1996) find evidence that CEOs in newly spun-off entities have more efficient compensation contracts, staffing of board of directors, and compensation committees. However, the authors fail to relate these governance and control practices to the observed positive market reactions to spin-off announcements. Regarding employee incentives, Fulghieri and Sevilir (2011) found that large, multidivisional firms can improve employee incentives and firm value through the reduction of firm size through divestitures such as spin-off transactions. This is true despite the reduction of economies of scale and benefits of operating internal capital markets within the firm.

Research has shown that not only does the efficiency of incentives increases when divesting businesses, but the size of incentives increases as well (Ahn and Walker, 2007). Ahn and Walker (2007) found that there is greater equity ownership by outside board members immediately after spin-offs compared to a set of peer firms working, which is suggested to decrease agency costs.

Regarding the ownership structure, Janakiraman, Radhakrishnan, and Tsang (2010) found that sponsored ownership is positively associated with pay-for-performance for firms with severe agency problems and less so in firms with well-established incentive structures. Thus, sponsors generally have a minimum threshold of incentives that they apply to the companies they invest in. Somewhat in line with this, Khan, Dharwadkar, and Brandes (2004) found that sponsored ownership is associated with an increased level of executive compensation and greater use of incentive compensation.

According to Sihag (2017), principal-agent problems assume that managers are competent but do not put in full effort. Therefore, incentive structures are set to motivate managers in line with the principal's preferences. The objective is to maximize the benefits of incentives and minimize the cost of incentives. In figure 1, the relationship between the level of effort and the marginal benefit and cost of incentive structures are illustrated in accordance with Sihag's article. The figure shows that the higher level of

effort, which is associated with more incentives, the lower the marginal benefit and the higher the marginal cost of increasing the incentives further. Thus, firms with more incentives in place will enjoy less benefit from increasing incentives than firms with less incentives in place.
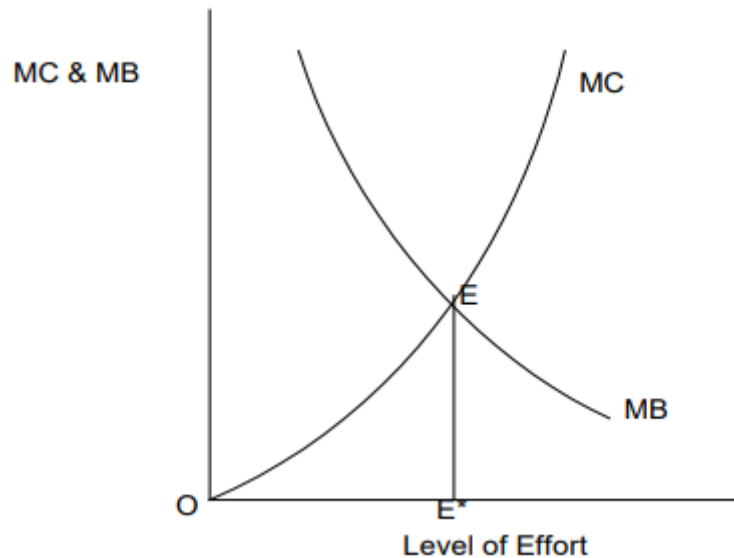
2.4.2. Information asymmetry theory

The information asymmetry theory is that multidivisional firms lack transparency regarding separate divisional operations resulting in mis-valuation by the market. By revealing information through the separation of cash flows of various divisions, undervalued divisions may be able to increase their valuation while overvalued division may decrease their valuation. Habib, Johnsen, and Naik (1995) found that by improving the quality of investment decisions and reducing uninformed investors' uncertainty regarding the valuation of divisions through spin-offs, the sum of divisions' market values was above the market value of the original firm. Nanda and Narayan (1999) extended their research, finding that undervalued firms are more likely to engage in divestitures as they seek external equity capital to improve their valuation. Furthermore, the authors found that the greater dissimilarity in the informativeness of the divisions' cash flows, the greater the positive stock price reaction to a divestiture announcement.

Campbell et al. (2020) argue that literature has yet to identify a mechanism through which the reduction in information asymmetry occurs. Therefore, the authors use a text re-use detection software to compare the disclosure of annual reports before and after the spin-off and find that disclosure increases in cross-industry spin-offs. Furthermore, they find a significant relationship between disclosure innovation and decreases in information asymmetry, and increases in firm value.

Earnings quality can be used as a proxy for information asymmetry as higher earnings quality firms provide more information about the features of a firm's financial performance than lower earnings quality firms (Dechow, Ge, and Schrand, 2010). Pucheta-Martínez and García-Meca (2014) found that having sponsors' directors on a company's board increases earnings quality, thus decreasing information asymmetry. They suggested that sponsors are keen to attract other investors to their companies, and earnings quality is a way to do that. In line with this, Velury and Jenkins (2006) found a positive relationship between sponsors and earnings quality. However, they also found that having concentrated ownership of sponsors may negatively affect earnings quality. Smitha Nair and Singh Sisodia (2022) viewed the phenomenon from a different perspective. They suggested that sponsors shy away from investing in companies with poor earnings quality rather than improving financial reporting quality themselves. In their study, they found that sponsor ownership reduces by 1.2% for every unit decrease in financial reporting quality. In line with this hypothesis, Bushee and Noe (2000) suggested that sponsors prefer firms with better disclosure rankings to reduce the monitoring costs of their investments.

The literature on how mitigation of information asymmetry affects value creation depending on ownership structure is quite limited. However, Hsieh et al. (2019) showed that earnings quality, as a proxy for information asymmetry, is negatively associated with the cost of equity capital. Furthermore, they found evidence that this negative association is weakened by sponsored owners.

2.4.3. Focus and synergy theory

Research on spin-offs has found that dispositions involving the non-core business of a firm will increase value while dispositions of core business will not (Comment and Jarrell, 1995; John and Ofek, 1995; Berger and Ofek, 1995). However, Daley et al. (1997) only found significant evidence around the announcement of focus-increasing spin-offs. Furthermore, the authors found significant improvement in operating performance for focus-increasing spin-offs in the parent company, however, not in the spun-off entity. This is in line with the theory that spin-offs can create value by removing non-core business divisions and allowing managers to focus attention and resources on core operations that they are best fitted to manage.

Desai and Jain (1999) found that focus-increasing spin-offs are significantly larger than the corresponding excess returns for the non-focus-increasing spin-offs. The stock market performance is consistent with the change in operating capital over this period. The authors further explain that firms often undertake these spin-offs to separate underperforming subsidiaries from the parent company.

2.4.4. Taxes and regulations theory

Majd and Myers (1987) argue that undiversified firms are at a tax disadvantage since tax is paid when income is positive, but the government does not pay the firm when income is negative. The disadvantage is reduced, however not eliminated, by the tax code carryback and carryforward provisions. The authors found that if one or more segments of a conglomerate experience losses in some years, a conglomerate pays more in taxes than its divisions would pay separately. In a European setting, Veld and Veld-Merkoulova (2004) found that spin-offs that create tax or regulatory advantages give higher excess returns.

Schipper and Smith (1983) also examined tax and regulatory motives for spin-offs. They proposed two ways to escape regulations; either through a fashion in which the parent or subsidiary escapes external constraints of regulation within the country or by spinning the subsidiary in another country to apply for a new tax code and regulatory environment.

2.5. Europe vs. the USA

2.5.1. Information asymmetry

Veld and Veld-Merkoulova (2002) researched the effects of information asymmetry on spin-offs. The authors found that European firms are not associated with long-run superior performance compared to research on American samples. They concluded that the difference between U.S. and European literature does not exist because of information asymmetry. Furthermore, they found a significant relationship between focus-increasing spin-offs and positive returns compared to non-focus-increasing spin-offs at the announcement, which showed to be weaker than in the U.S.

2.5.2. Taxes and regulations

The quantity of spin-offs as a method of divestiture differs across countries significantly. Veld and Veld-Merkoulova (2009) explain that regulatory and fiscal restrictions may be an explanatory factor. In the U.S., spin-offs typically do not have tax consequences or impose significant legal barriers. In contrast, spin-offs in the Netherlands were legally possible until 1998. However, firms were legally forced to go through complicated procedures. When the rules were eased in 1998, the legal procedures for carrying out spin-offs became smoother. The same year, the Netherlands' government decided upon ending taxation of spin-offs. This resulted in an increase in spin-offs, including one of the largest European spin-offs when Dutch telecom firm KPN spun-off its postal division TNT Post Groep.

2.5.3. Ownership structure

Multiple researchers have shown that concentrated ownership structures prevail in Europe, resulting in larger perks of control (Faccio and Lang, 2002). Therefore, the incentives to give up these control benefits through a spin-off are hypothesized to be weaker than firms without these benefits, as a firm would reduce its size and control rights in a costly spin-off. However, more concentrated ownership structures indicate that owners also have larger perks of control regarding manager incentive structures as well as mitigation of information asymmetry. This would suggest that European firms with large owners, such as sponsors, push more for larger-sized and more efficient incentives compared to the U.S. Therefore, the difference in value creation between sponsored and non-sponsored firms put forth in section 2.4.1 should be larger in Europe than in the U.S.

2.6. Capital Asset Pricing Model

2.6.1. Capital Asset Pricing Model

The Capital Asset Pricing Model, CAPM, builds on the model of portfolio choice by Harry Markowitz (1959). The model by Markowitz assumed that (I) investors are risk-averse and (II) when choosing among portfolios, investors care about the mean and variance of the one-period investment return. The CAPM created by Sharpe (1964) and Lintner (1965) adds two assumptions; (III) complete agreement, meaning that investors agree on the joint distribution of asset returns on which the model is tested, and (IV) investors borrow and lend at the same risk-free rate.

The CAPM is used to determine an asset's theoretically required rate of return. The model includes the asset's sensitivity to non-diversifiable risk (systematic risk), represented by the Beta, expected market return, and the risk-free rate of return. The formula for the model is the following

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

where Beta is defined as:

$$\beta_i = \frac{Cov(R_i, R_m)}{Var(R_m)}$$

3. Research question and hypotheses

To investigate the value creation of spin-offs and the effect of outside investor ownership, I argue that (I) improved manager incentives, (II) decrease of information asymmetry, (III) increased focus and decreased negative synergies, and (IV) tax and regulatory advantages are the most relevant drivers of value creation. My hypotheses are also based on these. Additionally, literature on European firm characteristics in comparison to U.S. firms will add depth to my hypotheses as most research has been conducted on U.S. firms. My research question is stated as follows:

Do corporate spin-offs create value, and how does the company's ownership structure affect the value creation?

To the best of my knowledge, this research question has not been investigated in the way I have intended to. Prior research has investigated the relationship between ownership effects on spin-off value creation. However, neither risk-adjusted measures of excess returns nor short- and long-term horizons have been used to test this.

3.1. Announcement-day excess returns ($H_{1.0}$)

The first hypothesis (1.0) tests the excess returns of sponsored pre-spin-off entities on the announcement day of the spin-off compared to non-sponsored pre-spin-off entities. According to the literature on incentives and agency theory, sponsored ownership is associated with more developed and higher incentives for managers. According to Sihag (2017), the more incentives in place, the less marginal benefit in relation to marginal costs which indicates that sponsor-owned firms would benefit less than non-sponsor-owned firms from the increased manager incentives fulfilled in a spin-off. The literature on information asymmetry is rather united in the claim that sponsor ownership is associated with a higher quality of accounting information released to the public. Thus, these firms are characterized by less information asymmetry, which can be seen as a proxy for less information asymmetry. As Hsieh et al. (2019) pointed out in their research, a positive relationship exists between information asymmetry and the cost of equity capital. Thus, I expect that firms with higher information asymmetry, generally non-sponsored firms, will improve their cost of equity capital more than firms with lower information asymmetry, typically sponsored firms. The improvements in the cost of equity capital would benefit the firm by being able to take on more profitable projects in the future, which would increase value creation.

Based on the reasoning above, my first hypothesis is the following:

$H_{1.0,0}$: The average announcement-day excess return of the sponsor-owned pre-spin-off entity share price is equal to the non-sponsor-owned pre-spin-off entity share price

$H_{1.0,1}$: The average announcement-day excess return of the sponsor-owned pre-spin-off entity share price is not equal to the non-sponsor-owned pre-spin-off entity share price

3.2. Long-term excess returns ($H_{2.0}$, $H_{2.1}$)

3.2.1. Long-term unadjusted excess returns ($H_{2.0}$)

The information asymmetry theory could also predict long-run results. As information asymmetry has been shown to be positively associated with the cost of equity capital, a decrease in information asymmetry would increase a firm's possibility to take on more profitable projects. As sponsored firms have been associated with having a weaker positive link between the two, sponsored firms are expected to have a smaller effect on their cost of equity capital and, thus, improved share price development. The manager incentive theory, however, can predict long-run returns as managers will continuously make decisions in line with improving bottom-line results. Therefore, as argued in section 3.7.1, non-sponsored firms are expected to outperform sponsored firms.

Cusatis et al. (1993) proved that long-term excess returns are somewhat driven by acquisition premiums in cases of the entities being acquired before the end of the three years. As sponsor-owned firms have been associated with a higher likelihood of takeover bids, this would indicate that sponsor-owned firms have higher excess returns. However, as the number of firms being acquired before the end of three years is expected to be few, this would not affect the hypothesis substantially.

Based on the above reasoning, hypothesis 2.0 is the following:

$H_{2.0,0}$: The average unadjusted excess return of the sponsor-owned parent share price and the spun-off entity is, respectively, equal to the non-sponsor-owned parent share price and the spun-off entity share price

$H_{2.0,1}$: The average unadjusted excess return of the institutionally owned parent share price and the spun-off entity is, respectively, not equal to the non-sponsor-owned parent share price and the spun-off entity share price

3.2.2. Long-term risk-adjusted excess returns ($H_{2.1}$)

Hypothesis 2.1 investigates differences between the expected return calculated through the Capital Asset Pricing Model based on industry Betas. Hypothesis 2.1 is based on the prior hypothesis 2.0 and should not differ substantially from the perspectives accounted for earlier. This hypothesis is tested both as a robustness check but also to include the theory of comparing risk and reward when calculating investment returns.

Based on the above reasoning, hypothesis 2.1 is the following:

$H_{2.1,0}$: The average risk-adjusted excess return of the sponsor-owned parent share price and the spun-off entity is, respectively, equal to the non-sponsor-owned parent share price and the spun-off entity share price

$H_{2.1,1}$: The average risk-adjusted excess return of the sponsor-owned parent share price and the spun-off entity is, respectively, not equal to the non-sponsor-owned parent share price and the spun-off entity share price

3.3. Long-term operational performance ($H_{3.0}$, $H_{3.1}$)

3.3.1. Long-term unadjusted operational performance returns ($H_{3.0}$)

The information asymmetry theory does predict changes in operational performance; therefore, as it has been shown to be positively related to equity cost of capital as reasoned in section 3.2.1. The decrease in the cost of equity capital should allow the firm to take on more profitable projects in the future, which would increase the firm's operational performance. As stated earlier, the link between information asymmetry and cost of equity capital has been proven to be weaker in sponsored firms which is why sponsored firms should enjoy weaker changes in operational performance than non-sponsored firms.

The manager incentive theory does make claims of the long-term change in operational performance, as managerial incentives related to bottom-line results increase in conjunction with a corporate spin-off and will thus improve decision-making in the long run to increase operational performance. As sponsored firms are associated with more developed and higher incentives for managers than non-sponsored firms, and the marginal benefit decreases the more incentives in place, sponsored firms are expected to underperform non-sponsored firms in terms of changes in operational performance.

Based on the above reasoning, hypothesis 3.0 is the following:

$H_{3.0,0}$: The unadjusted average change in ROA of the sponsor-owned combined entity between the periods is equal to the non-sponsor-owned combined entity

$H_{3.0,1}$: The unadjusted average change in ROA of the sponsor-owned combined entity between the periods is not equal to the non-sponsor-owned combined entity

3.3.2. Long-term risk-adjusted operational performance ($H_{3.1}$)

The industry-adjusted average change in ROA should not differ substantially from the unadjusted average change in ROA. This measure accounts for industrial changes and should therefore illustrate a more accurate picture than the hypothesis above. The two hypotheses are also tested to check their robustness.

Based on the above reasoning, hypothesis 3.1 is the following:

$H_{1.0.0}$: The industry-adjusted average change in ROA of the sponsor-owned combined entity between the periods is equal to the non-sponsor-owned combined entity

$H_{1.0.1}$: The industry-adjusted average change in ROA of the sponsor-owned combined entity between the periods is not equal to the non-sponsor-owned combined entity

4. Method

4.1. Research Design

For this study, quantitative tests have been carried out to answer the research question. To do this, data on announcement-day share price performance for the pre-spin-off entity has been collected and analyzed. Furthermore, data on long-term share price performance and change in ROA for the parent company and the spun-off entity has been collected and analyzed. As stated in section 3.1, I define a spin-off as a company that distributes at least 80% of its shares to its existing shareholders on a pro-rata basis, thus, creating a separate publicly owned company. Furthermore, the tests conducted have been divided into subgroups to explain further how ownership structure affects the value creation of the spin-offs. The research approach is inspired by Cusatis et al. (1993) to be consistent with prior literature. By replicating previous research, the result will be easier to compare. However, as research has yet to adjust for risk when calculating excess returns in the literature covering spin-off value creation, a new approach was adopted to account for this.

The definition between sponsored and non-sponsored spin-offs are in line with Klein & Rosenfeld's definition (2010). Hence, I define sponsored investors as when an outside investor owns a significant share of the parent company prior to the spin-off. The border for "a significant share" is set to 5% in this study as the sponsors are deemed to have influence over this limit.

Standard t-tests were done on the average of the sample and a winsorized sample. The winsorization was done at the 95th and 5th percentile to minimize the risk of result alteration based on extreme outliers. As I use the standard t-test to test the significance of the data, I assume that the subsamples follow the student's t-distribution. This distribution is widely used when the population's standard deviation is unknown and incorporates wider tails than the normal distribution. I conducted paired t-tests for the sample mean differences to further test the differences between the two subsamples.

4.2. Short-term value creation

To measure short-term value creation, I compare the parent company's and the average market's share price development on the day of announcing the spin-off. The return is measured as the difference between the closing price of the day prior to the spin-off announcement [-1] and the day's closing price when announcing the spin-off [0]. The proxy used for the market return is the S&P350 Europe index, which constitutes firms from different industries and sizes that reflect the sample. I do not risk-adjust the announcement-day excess return as the event window is too narrow to be included in the

efficient market hypothesis, which only claims about long-term risk-adjusted returns (Fama).

The market-adjusted excess returns are then calculated as:

$$Market\ adjusted\ excess\ returns = r_{i,t} - r_{m,t}$$

where $r_{i,t}$ is the share price performance of the individual firms, and $r_{m,t}$ is the average share price performance of the market over the period t.

4.3. Long-term value creation

The long-term share price development was analyzed from the parent company's, spun-off company, and combined entity perspectives and compared to the market return over a one-, two-, and three-year horizon. Each year is separated from the others. In the case of an acquisition of either the parent company or the spun-off company, the stock will be delisted, which will disable the ability to track share price. Therefore, I assume that investors acquire the S&P 350 Europe index from the return received from the acquisition and hold the index until the end of the three years.

4.3.1. Share price development

Unadjusted for risk

The market-adjusted excess returns are then calculated as equation 1 over a one-, two-, and three-year horizon:

$$CAPM\ adjusted\ excess\ returns = r_{i,t} - r_{m,t}$$

where $r_{i,t}$ is the share price performance of the individual firms while $r_{m,t}$ is the average share price performance of the market over the period t.

Adjusted for risk

To adjust the excess returns for risk, the Capital Asset Pricing Model was used as it is a widely accepted and used model in accounting research. Each firm was categorized into an industry based on its two-digit SIC code, which was then matched to firms with similar two-digit SIC codes in the S&P350 Europe index. These firms' Beta was then collected and unlevered to arrive at average industry unlevered betas. This was done over a 20-year period to receive betas for each year to avoid mismatching between actual and expected returns. The industry-specific betas were then applied to each parent company and spun-off company. Afterward, I levered each firm using their debt-to-equity ratio and effective tax rate to arrive at each company's peer-based Beta, which was plugged into the CAPM formula, to arrive at each firm's specific expected return.

Although the firms in the index tend to be larger than the parent companies and spun-off companies, I deem this approach the best due to the scarcity of alternative methods in analyzing the value creation of spin-offs.

The market risk-adjusted excess returns are then calculated as:

$$Market\ riskadjusted\ excess\ returns = r_{i,t} - (r_{f,t} + \beta_{i,t}(r_{m,t} - r_{f,t}))$$

where $r_{i,t}$ is the share price performance of an individual stock. The $r_{f,t}$ is the risk-free rate, $Beta_{i,t}$ is the levered industry beta of the respective stock, and $R_{m,t}$ is the market return of the S&P350 Europe index. Each component of the equation above is connected to the time of the spin-off, year *t*.

4.3.2. Return on assets

Return on assets (ROA) will be analyzed to investigate the firms' internal value creation. The methodology has been inspired by Hulburt et al. (2002), who primarily researched equity carve-outs. However, as the concepts of equity carve-outs and spin-offs are similar, I deem the methodology relevant.

ROA is defined as:

$$ROA_{i,t} = \frac{Operating\ profit_{i,t}}{Total\ assets_{i,t-1}}$$

From this, the change in $ROA_{i,t}$ is calculated as:

$$\Delta ROA_{i,t} = ROA_{i,t} - ROA_{i,t-1}$$

where $ROA_{i,t-1}$ is lagging one year behind $ROA_{i,t}$.

The reason behind the choice of measure is twofold. Firstly, operating performance is absent of tax and interest expenses which enables the result to measure the firm's performance free from capital structure and tax planning. Secondly, operating performance is less volatile than other measures closer to bottom-line profits as it excludes one-time charges. As I will only be measuring ROA over four years, one-time charges could significantly affect the result of the study.

To measure value creation, the combined entity prior to the spin-off will be compared to the combined entity of the parent and spun-off companies. This comparison will be made over a one-, two-, three- and four-year time horizon on a yearly basis. From here, the average changes from year to year will be reported.

To isolate the ROA performance from industry changes and trends, I adjust for the industry by subtracting the average ROA of industry peers from the S&P350 Europe Index.

$$Adjusted\ ROA_{i,t} = ROA_{i,t} - Industry\ peer\ ROA_{i,t}$$

where the $ROA_{i,t}$ will be the pre-spin-off entity before the spin-off date and the ROA of the combined entity consisting of the parent company and the spun-off company after the spin-off date.

Thus, the change in adjusted ROA is calculated as:

$$\Delta Adjusted\ ROA_{i,t} = Adjusted\ ROA_{i,t} - Adjusted\ ROA_{i,t-1}$$

where adjusted $ROA_{i,t-1}$ lags one year behind Adjusted $ROA_{i,t}$.

5. Data collection

The collection of 117 corporate spin-offs was done in the following way. From the Capital I.Q. database, 258 spin-offs were gathered between the years 2000 and 2021, which took place on European exchanges. In the case of missing information in the Capital IQ platform, I used CRSP and Factset to fill in missing data. The period was selected to mirror different economic states. Furthermore, the entirety of Europe is used as prior research has exemplified significant similarities with regard to regulation and tax as well as the corporate climate in the European region, much because of the European Union.

The approach followed was inspired by Cusatis et al. (1993).

Table 1. Data sample collection

Total sample of spin-offs	258
(Removal of missing data)	(98)
(Removal of not identifiable)	(24)
(Removal of Real Estate Investment Trust companies)	(16)
(Removal of duplicates)	(4)
Final sample of spin-offs	116

The sample is constructed by spin-offs in European exchanges. As some companies are listed on multiple exchanges, I will delete the duplicates. Moreover, numerous firms in the initial sample were not identifiable in Capital IQ and were therefore deleted. REIT companies were excluded due to fundamental differences in capital structure. Lastly, firms with insufficient data regarding ownership structure, SIC code, or financial information were also excluded from the sample.

The process described above resulted in a sample of 117 spin-offs from 2000 to 2021. 31 are owned by sponsors, while the remaining 86 are not. The industry sample is quite fractured, which is needed as the study should mirror the European spin-off population of companies.

Table 2. Data sample ownership categories

Sponsored spin-off	Non-sponsored spin-off
31	86

Table 3. Data sample industry categories

Industry	Sample ParentCo	Sample SpinCo
Mining	26	16
Manufacturing	33	37
Transportation	13	14
Wholesale trade	14	16
Finance, insurance and real estate	18	18
Services	9	15
Non-classifiable	3	0
Total	**116**	**116**

6. Results and Analysis

In this section, I present the findings from the tests on the share price and operating performance before and after the spin-offs. The tests are performed on the same overall sample segmented into sponsored and non-sponsored ownership according to the definition in section 3.1. The t-tests are conducted against zero for the sample winsorized at the 95th and 5th percentile. Furthermore, the paired t-tests are tested on the differences in the sample mean between the subsamples.

6.1. Short-term performance

6.1.1. Announcement-day excess returns

To investigate hypothesis 1.0, I conducted tests on the market excess share price return of the combined entity at the date of the spin-off announcement. At this point in time, the parent company and the spun-off company were still a combined entity.

Table 4. Announcement-day excess returns (Hypothesis 1.0)

	Sponsored n=31	Non-sponsored n=86	Total spin-offs n=117
Full sample mean	2.53%***	2.80%***	2.73%***
Full sample p-value	(0.00)	(0.00)	(0.00)
Winsorized sample mean	2.43%***	2.64%***	2.59%***
Winsorized sample p-value	(0.00)	(0.00)	(0.00)

Note: Average unadjusted excess returns on announcement day for ParentCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Table 1 shows the share price development indicating that the combined entity has positive market excess returns on the day of announcement, both for sponsored firms and non-sponsored firms. These results are true for both the full sample and the winsorized sample. Furthermore, the results indicate that non-sponsored spin-offs have more positive excess returns in comparison to sponsored spin-offs on the day of announcement. Therefore, I can reject the null hypothesis 1.0 on a 1% significance level.

The positive market excess returns on announcement-day for the full sample is in line with the literature on spin-off performance. Veld and Veld-Merkulova (2004) also found significant positive share price reactions on the announcement of spin-offs. The literature is further united that some of the main drivers of these results are primarily (I) improved manager incentives, (II) decreased information asymmetry, (III) increased focus and decreased negative synergies, and (IV) tax and regulatory benefits. Moreover, Daley et al. (1997) proposed that focusing the operation creates value as the company can focus on their core competence.

The results further indicate more positive announcement-day returns for non-sponsored firms than sponsored firms. This is in line with my first hypothesis. According to Khan, Dharwadkar, and Brandes (2004), sponsored firms are characterized by increased efficiency and size of incentive compensation. As the marginal benefit of increasing incentives, the more incentives in place, sponsored firms should enjoy less benefit from incentive-increasing actions such as spin-offs (Sihag, 2017). The results are further in line with the information asymmetry theory. Hsieh et al. (2019) proved that there is a weaker positive association between information asymmetry and cost of equity capital for sponsored firms. Therefore, it is evident that sponsored firms should enjoy less decrease in cost of equity capital when decreasing their information asymmetry towards the market. Thus, sponsored and non-sponsored firms' changes in cost of equity due to alterations of information asymmetry would therefore affect their profitability differently which would be mirrored by the share price reaction when releasing the announcement of conducting a spin-off.

6.2. Long-term performance

6.2.1. Long-term excess returns

Unadjusted for risk

To investigate hypothesis 2.0 and 2.1, I conducted tests on the unadjusted and risk-adjusted excess share price returns of the sample. For the risk-adjusted excess returns, I used the CAPM-model with industry betas.

Table 5. Unadjusted long-term excess returns (hypothesis 2.0)

| | Total spin-offs | | |
	n=117		
ParentCo	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	-0.95%	-0.37%	-0.61%
Winsorized sample p-value	(0.68)	(0.88)	(0.90)
SpinCo	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	6.89%	3.06%*	1.22%
Winsorized sample p-value	(0.25)	(0.09)	(0.67)

Note: Average unadjusted excess returns 1, 2, and 3 years after spin-off for ParentCo and SpinCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Table 6. Unadjusted long-term excess returns (Hypothesis 2.0) (cont.)

| | Sponsored | | | Non-sponsored | | |
| | n=31 | | | n=86 | | |
ParentCo	**1 yr**	**2 yr**	**3 yr**	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	-2.09%	-1.08%	-1.02%	-0.54%	-0.12%	-0.46%
Winsorized sample p-value	(0.64)	(0.84)	(0.90)	(0.92)	(0.98)	(0.91)
SpinCo	**1 yr**	**2 yr**	**3 yr**	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	6.52%	2.69%	-0.97%	7.02%	3.20%	2.01%
Winsorized sample p-value	(0.42)	(0.21)	(0.87)	(0.32)	(0.22)	(0.41)

Note: Average unadjusted excess returns 1, 2, and 3 years after spin-off for ParentCo and SpinCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Looking at the total sample mean for the parent company, it is apparent that the one-, two-, and three-year average market excess returns are negative. However, the data is not statistically significant. From this, and by analyzing table 6, it is evident that the parent company is underperforming the spun-off entity. Although there is no statistical significance in neither the parent companies' nor the spun-off companies' market excess returns, the large differences between the two probably stem from larger size and more stable operations in parent companies compared to the spun-off entity. Because of this, parent companies may have lower risk and volatility. The relation between inherent risk and expected rate of return is consistent with spun-off entities outperforming the parent companies with the unadjusted market excess return as a measurement.

In table 6, it is observable that the sponsored spin-offs are underperforming compared to the non-sponsored spin-offs as the unadjusted excess returns are more negative for the sponsored firms in each of the three years following a spin-off. However, as the results are not statistically significant, the conclusions from these results are limited to this specific sample and cannot be generalized across the population of spin-offs.

From the perspective of the theories, the focus and synergy theory do not make any claims on the long-run performance of spin-offs. These hypotheses are short-term benefits that is expected to be set in place before or short after the spin-off occurs. However, the manager incentives theory makes claims that can affect long-term performance of the two firms. As the incentives are set in place, the managers will continuously make decisions that improve the company beyond the days surrounding the spin-off. Thus, value can be created in the long run. As the information asymmetry theory claims that information asymmetry is positively associated with cost of equity capital, a decrease in information asymmetry would increase a firm's possibility to take on more profitable projects. Thus, this theory is in line with the results.

Although the literature on spin-off performance in relation to ownership structure is limited. Klein and Rosenfeld (2010) found that sponsored spin-offs, when sponsors enter near the spin-off date, performs poorly in the long run. They hypothesize that this stems from suboptimal investments prior to the spin-off date which affects the performance in the long run. It is possible that many spin-offs in the sample have been confronted by sponsors near the spin-off date. This would affect sponsored firms to underperform non-sponsored firms, as they argue that sponsored firms which add sponsors near the spin-off date often suffer from suboptimal levels of capital expenditures which affects the firm's long run performance.

Table 7. Paired t-test of unadjusted excess returns of sponsored and non-sponsored spin-offs

	1 yr		2 yr		3 yr	
	n	**Mean**	**n**	**Mean**	**n**	**Mean**
ParentCo						
Sponsored sample	31	-2.09%	31	-1.08%	31	-1.02%
Non-sponsored sample	86	-0.54%	86	-0.12%	86	-0.46%
Combined sample	117	-0.95%	117	-0.37%	117	-0.61%
Mean difference	1.55%*		0.97%		0.56%	
P-value	(0.09)		(0.20)		(0.33)	
SpinCo						
Sponsored sample	31	6.52%	31	2.69%	31	-0.97%
Non-sponsored sample	86	7.02%	86	3.20%	86	2.01%
Combined sample	117	6.89%	117	3.06%	117	1.22%
Mean difference	0.50%		0.51%		2.98%**	
P-value	(0.38)		(0.45)		(0.04)	

Note: Average unadjusted excess returns on announcement day for ParentCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Looking at the paired t-test over the difference between sponsored and non-sponsored firms, the tests show some statistically significant results. For the parent company, the difference in unadjusted excess returns between sponsored and non-sponsored firm is statistically significant on a 10 percent level. However, the second and third year are not. For the spun-off company, the third year shows statistically significant results on a 5 percent level that non-sponsored firms have higher unadjusted excess returns than sponsored firms. Thus, we can reject the null hypothesis on a 10 percent level that there is a difference in value creation between sponsored and non-sponsored spin-offs in the long run. However, the entire period does not exhibit these results on a statistically significant level.

Adjusted for risk

Table 8. Risk-adjusted long-term excess returns (hypothesis 2.1)

	Total spin-offs		
	n=117		
ParentCo	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	-0.84%***	-0.35%**	-0.53%***
Winsorized sample p-value	(0.00)	(0.01)	(0.00)
SpinCo	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	-0.40%***	-0.28%***	0.23%***
Winsorized sample p-value	(0.00)	(0.00)	(0.00)

Note: Average risk-adjusted excess returns 1, 2, and 3 years after spin-off for ParentCo and SpinCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Table 9. Risk-adjusted long-term excess returns (hypothesis 2.1) (cont.)

	Sponsored			Non-sponsored		
	n=31			n=86		
ParentCo	**1 yr**	**2 yr**	**3 yr**	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	-1.76%***	-0.97%**	-0.95%***	-0.51%***	-0.13%**	-0.38%***
Winsorized sample p-value	(0.00)	(0.01)	(0.00)	(0.00)	(0.02)	(0.00)
SpinCo	**1 yr**	**2 yr**	**3 yr**	**1 yr**	**2 yr**	**3 yr**
Winsorized sample mean	-0.96%***	-0.73%***	-0.74%**	-0.20%***	-0.12%***	-0.05%***
Winsorized sample p-value	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)

Note: Average risk-adjusted excess returns 1, 2, and 3 years after spin-off for ParentCo and SpinCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

After adjusting the excess returns for risk using the CAPM, the statistically significant results indicate that, on average, parent companies and spun-off companies have negative risk-adjusted market excess returns over a time horizon of one, two, and three years. Furthermore, it is possible to see that over all three years, the non-sponsored firms outperform the sponsored firms.

In contrast with the results from unadjusted market excess returns, which indicated that spun-off companies generally outperform parent companies after a spin-off, the results from the risk-adjusted market excess returns indicate somewhat different results. Spun-off companies still outperform the parent companies. However, not as much as earlier showed through the unadjusted excess returns test.

In particular, the non-sponsored parent companies still outperform their sponsored counterparts. In similarity to the unadjusted market excess returns, the focus and synergy theory does not guide toward any answers regarding risk-adjusted long-term returns. However, the manager incentive theory claims that managers receive stronger incentives towards less free-riding and better decision-making in the long run**.** Thus, these can affect the long-term decision-making of the two companies. As argued above, the sponsored firms were expected to underperform the non-sponsored firms. Moreover, the results are in line with the information asymmetry theory, which claims that sponsored firms should yield less decrease in the cost of equity capital than non-sponsored firms when information asymmetry mitigates.

Table 10. Paired t-test of risk-adjusted excess returns of sponsored and non-sponsored spin-offs

	1 yr		2 yr		3 yr	
	n	**Mean**	**n**	**Mean**	**n**	**Mean**
ParentCo						
Sponsored sample	31	-1.76%	31	-0.97%	31	-0.95%
Non-sponsored sample	86	-0.51%	86	-0.13%	86	-0.38%
Combined sample	117	-0.84%	117	-0.35%	117	-0.53%
Mean difference	1.25%*		0.84%		0.57%	
P-value	(0.08)		(0.14)		(0.31)	
SpinCo						
Sponsored sample	31	-0.96%	31	-0.73%	31	-0.64%
Non-sponsored sample	86	-0.20%	86	-0.12%	86	-0.05%
Combined sample	117	-0.40%	117	-0.28%	117	-0.23%
Mean difference	0.76%		0.61%		0.69%	
P-value	(0.32)		(0.44)		(0.28)	

Note: Average unadjusted excess returns on announcement day for ParentCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Looking at the paired t-test over the difference between sponsored and non-sponsored firms, the test show some statistically significant results. The results show that in the risk-adjusted excess returns, non-sponsored parent companies outperform their sponsored counterparts with a significance level of 10%. Therefore, I can reject the null hypothesis 2.1 with a 10% significance.

6.2.2. Long-term operational performance

To investigate yearly changes in operational performance, changes in return on assets of the combined entities were used. The data starts one year before the spin-off date and ends three years after the spin-off date. The method includes both unadjusted and industry-adjusted measurements of return on assets.

The same data set were used for this section. However, as some entities were acquired within a three-year period, the number of observations decreased from 117 in the first two periods to 112 in the third and 109 in the fourth period. The smaller sample increases the difficulty of reaching statistically significant results.

Table 11. Unadjusted and industry-adjusted long-term change in operational performance (Hypothesis 3.0)

| | Total spin-offs | | | |
| | n=117 | | | |
Unadjusted	**-1 to 0**	**0 to 1**	**1 to 2**	**2 to 3**
Winsorized sample mean	0.12%	0.41%	-0.11%	-0.03%
Winsorized sample p-value	(0.12)	(0.15)	(0.44)	(0.31)
Industry-adjusted	**-1 to 0**	**0 to 1**	**1 to 2**	**2 to 3**
Winsorized sample mean	-0.18%*	0.16%*	-0.25%	-0.25%
Winsorized sample p-value	(0.09)	(0.08)	(0.23)	(0.13)

Note: Average change in unadjusted and industry-adjusted operational performance for the combined entity. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

Table 12. Unadjusted and industry-adjusted long-term change in operational performance (Hypothesis 3.0) (cont.)

| | Sponsored | | | | Non-sponsored | | | |
| | n=31 | | | | n=86 | | | |
Unadjusted	**-1 to 0**	**0 to 1**	**1 to 2**	**2 to 3**	**-1 to 0**	**0 to 1**	**1 to 2**	**2 to 3**
Winsorized sample mean	0.11%	0.37%	-0.35%	-0.12%	0.13%	0.45%	-0.05%	-0.01%
Winsorized sample p-value	(0.45)	(0.34)	(0.71)	(0.66)	(0.13)	(0.29)	(0.39)	(0.18)
Industry-adjusted	**-1 to 0**	**0 to 1**	**1 to 2**	**2 to 3**	**-1 to 0**	**0 to 1**	**1 to 2**	**2 to 3**
Winsorized sample mean	-0.20%	0.12%	-0.52%	-0.34%	-0.17%	0.17%	-0.15%	-0.22%
Winsorized sample p-value	(0.34)	(0.14)	(0.56)	(0.39)	(0.11)	(0.26)	(0.33)	(0.14)

Note: Average change in unadjusted and industry-adjusted operational performance for the combined entity. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

The unadjusted change in return on assets is not statistically significant for the full sample or the two subsamples over the entire time horizon of four years. Despite the absence of statistical significance, the results indicate a pattern where the operational performance increases over the first two periods leading to a decline over the last two periods. The information asymmetry theory does make claims on the operating performance through a strong positive relationship with cost of equity capital. Therefore, information asymmetry mitigation through a spin-off would lead to a decrease in cost of equity capital which would affect the operational performance positively as more profitable projects could be taken on. The increase in operating performance for the first and second periods can mainly be connected to the focus and synergy theory which claims that the two

separate firms can better focus on their core operations and disregard project outside their competence. For the second period and on, the tax and regulation theory is applicable as the two firms may enjoy less taxes as separate entities than they do combined from the year they conduct the spin-off and onwards. This would explain why the average operational performance is even higher in the second period compared to the first. However, as the results are not statistically significant, the results cannot be generalized.

Analyzing the unadjusted change in return on assets further, it is evident that sponsored firms have weaker changes in operational performance than their non-sponsored counterparts. Although not statistically significant, throughout the four periods, the sponsored spin-offs underperform compared to non-sponsored spin-offs. Similar to the reasoning for differences between sponsored and non-sponsored firms' share price development after a spin-off, the manager incentive theory claims that sponsored firms are characterized by more incentives in place. As the marginal benefit of increasing incentives further decreases, the more incentives in place, sponsored firms should enjoy less benefit from an incentive-increasing action such as a spin-off. This would explain the weaker operational performance of sponsored firms after a spin-off.

The industry-adjusted operational performance is statistically significant for the total sample in the initial two periods indicating a negative change in operational performance in the first period and a positive change in the second. This is in line with Daley et al. (1997), who found a significant change in ROA the year before and after the spin-off. However, the results Daley et al. (1997) reported were significantly more positive.

For the industry-adjusted change in operational performance, the same pattern as for the unadjusted operational performance is indicated. For the entire four-year period, the non-sponsored firms outperform their sponsored counterparts which can be connected to the hypotheses above.

Table 13. Paired t-test of unadjusted and industry-adjusted change in operational performance for the combined entity

Unadjusted	1 yr		2 yr		3 yr		4 yr	
	n	Mean	n	Mean	n	Mean	n	Mean
Sponsored sample	31	0.11%	31	0.37%	30	-0.35%	30	-0.12%
Non-sponsored sample	86	0.13%	86	0.45%	82	-0.05%	79	-0.01%
Combined sample	117	0.12%	117	0.43%	112	-0.13%	109	-0.04%
Mean difference	0.02%		0.08%		0.30%		0.11%	
P-value	(0.83)		(0.75)		(0.12)		(0.41)	

Industry-adjusted								
Sponsored sample	31	0.20%	31	0.12%	30	-0.52%	30	-0.34%
Non-sponsored sample	86	0.17%	86	0.17%	82	-0.15%	79	-0.22%
Combined sample	117	0.18%	117	0.16%	112	-0.25%	109	-0.25%
Mean difference	0.03%		0.05%		0.37%		0.12%	
P-value	(0.79)		(0.75)		(0.19)		(0.49)	

Note: Average unadjusted excess returns on announcement day for ParentCo. The symbols *, **; and *** indicate significance levels of 0.1, 0.05, and 0.01 levels respectively

The paired t-test did not show to be statistically significant for neither the unadjusted nor industry-adjusted changes in operational performance. Therefore, this test do not add any new insights to the analysis discussed above.

7. Discussion

7.1. Spin-off performance

By viewing my test results, I can – in line with previous academic research within the field of spin-offs – report some value creation from conducting a corporate spin-off. My results show unambiguously positive share price reactions for the pre-spin-off entity on the day of announcement. In the long run, the results of the risk-adjusted excess returns show unambiguously negative excess returns. Regarding the return on assets, it is only evident from the industry-adjusted total sample mean that the change in operational performance is negative the two years after a spin-off occurs. From the tests, value is created when announcing a spin-off. However, an investor would yield a higher return by buying shares of industry peers instead of the companies conducting a spin-off in the long run.

The results indicating a positive share price reaction on the day of announcement is in line with prior literature within the area. Miles and Rosenfeld (1983), Schipper and Smith (1983), and Hite and Owers (1983) all found that spin-off yield a positive share price reaction in the U.S. The results are also in line with Veld and Veld-Merkoulova (2004), who conducted a similar study on a European sample. Veld and Veld-merkoulova's (2004) results showed a slightly more positive average excess return of 2.62% on the announcement day compared to my result of 2.53% for the full sample and 2.43% for the winsorized sample.

The results showing positive excess returns on the announcement day are also in line with the four theories in section 2.4. The focus and synergy theory proposes that firms that disposes their non-core business can increase their focus resources on their core activities which increases value creation. Furthermore, the taxes and regulations theory claims that firms may pay less taxes by dividing departments as negative results are no longer netted against each other. The information asymmetry theory claims that firms which suffer from mis-valuation due to information asymmetry are incentivized to conduct spin-offs which then leads to higher valuations. Lastly, the manager incentives theory claims that incentives for managers increase in quantity and quality in terms of efficiency when conducting a spin-off.

The results showing negative risk-adjusted excess returns contrast the study of Cusatis et al. (1993), who found positive excess returns in the long run. However, the authors did not adjust for risk as done in this study. However, according to the manager incentive theory, there should be long-term value creation as agency costs should decrease. Moreover, the information asymmetry theory claims a positive association between information asymmetry and the cost of equity capital. Therefore, an information asymmetry mitigation through a spin-off should yield a decrease in the cost of equity

capital which is expected to improve the share price performance. The taxes and regulation theory and the focus and synergy theory do not make any claims on the long-term returns. They can, therefore, not be used to explain the negative risk-adjusted excess returns.

The operational performance indicates more positive changes the year before and after the spin-off than the years following this period. According to the theories tested, the focus and synergy theory will not continue to be explanatory for long-term operational performance which could be a reason why he operational performance progress to worsen over time.

7.2. Ownership effect

An interesting finding from all the tests conducted is that the sponsored spin-offs perform worse than the non-sponsored ones, both in terms of share price reactions and operational performance in the short- and long term. Despite all tests not being statistically significant, this was shown throughout the period of three and four years, respectively. More detailed, the announcement-day return of non-sponsored firms conducting spin-offs yields a higher share price return than sponsored spin-offs. In the long-run, non-sponsored firms have weaker negative results than sponsored firms on a risk-adjusted basis.

This is in line with the manager incentive hypothesis in combination with the literature on ownership structure. As the sponsored firms generally are characterized by more manager incentives and control structures, the marginal benefit of increasing these control structures more is weaker than for non-sponsored firms which have less manager incentives and control structures.

The results stemming from the manager incentive hypothesis might be larger than in other settings. Faccio and Lang (2002) proved that more concentrated ownership structures prevail in Europe, resulting in larger perks of control. As this indicates that owners have larger perks of control over how to control managers through incentives, sponsored owners can push the agenda of more control over managers than in other settings. This probably strengthens the difference between sponsored and non-sponsored firms compared to other settings.

Moreover, the information asymmetry hypothesis, in combination with the literature on the cost of equity may explain why this difference occurs. It has been found that information asymmetry and cost of equity has a positive association, as firms with less information asymmetry are less risky firms as a result of the investor's knowledge of what they actually invest in. Moreover, this positive association has been shown to be weakened by sponsored owners meaning that a sponsored firm that decreases the information asymmetry towards the market will enjoy less benefit in terms of a decrease in the cost of equity than their non-sponsored peers. A company with less cost of equity

will have more projects yielding positive return, which would mean that the non-sponsored firms is expected to yield higher results. Despite the theories being supported by the results, it is not possible to draw conclusions on the explanatory power of a specific theory.

A possible explanation for the results showing differences in the long-term value creation between sponsored and non-sponsored spin-off can be found in Klein and Rosenfeld's research (2010). In their sample of American spin-offs, 30% of the firms had a sponsor entering the firm near the spin-off date. They found that the entering of sponsors near the spin-off date had a significant positive association with suboptimal levels of capital expenditures which affected the firm's long-run performance. It is possible that there are a significant number of sponsored spin-offs in my sample that have experienced the same phenomenon, which would affect sponsored firms' long-run performance negatively.

8. Conclusion

Based on my research and the previously elaborated theories, I am not able to draw any certain conclusions about which theories have explanatory power over value creation in spin-offs. However, it is possible to conclude that there is significant value creation on the day of announcing a spin-off. This is in line with the broader literature covering spin-off value creation. Despite showing positive excess returns on the announcement day, I found somewhat weaker positive results than Veld and Veld-Merkoulova (2004), who also conducted a study on European firms, although in a different period. The results of positive excess returns on the announcement day support the four theories in this study: the manager incentives theory, information asymmetry theory, focus and synergy theory, and tax and regulation theory.

The long-run share price development showed significant value destruction in the years following a spin-off, contrasting the results of prior research. Cusatis et al. (1993) found significant positive excess returns in the years following the spin-off. However, the results indicating negative excess returns in this study were based on a newly constructed risk-adjusted measure of excess return, including the relation between risk and expected return.

Regarding the ownership effects, the results show that sponsored spin-offs underperform their non-sponsored counterparts on the announcement day in terms of value creation for both the parent and the spun-off companies. This is in line with the manager incentives theory and the literature on agency theory which claims that sponsored firms are associated with more incentives. Furthermore, the literature claims that the marginal benefit of incentives decreases the more incentives are in place, indicating that sponsored firms would yield less benefit from incentive-increasing actions such as spin-offs. The results are also in line with the information asymmetry theory claiming that there is a positive relationship between information asymmetry and cost of equity capital and further that this relationship is weaker for sponsored firms. Thus, non-sponsored firms should decrease their cost of equity capital more than sponsored firms, enabling them to take on more profitable projects in the future.

The results further indicate differences in the long-run value creation between sponsored and non-sponsored firms for both the parent and spun-off entity. These results are additionally in line with the manager incentives theory and the information asymmetry theory. However, these results might also be explained by the study conducted by Klein and Rosenfeld (2010). They suggested that many spin-offs are performed by firms that have been acquired by sponsors close to the spin-off date. The authors further found that the association between sponsors entering close to the spin-off date and suboptimal capital expenditures are positively related, affecting the long-run performance of both the parent company and the spun-off entity. As my sample includes the types of spin-offs analyzed by Klein and Rosenfeld, this can substantially impact the results of the long-run performance of the spin-offs.

In the process of developing and performing this study, various ideas for further research have appeared. It would be of interest to test spin-off performance in individual countries and compare corporate cultural differences as well as legislation. This would allow for a more detailed analysis and might shed light on further drivers of spin-off value creation. However, the data needed would impose challenges and require sophisticated methods to mirror country-specific characteristics. Another interesting topic would be to add risk-adjusting measures in combination with further firm characteristics using the Fama and French three-factor model. This could possibly reveal further explanatory power to what creates value in a spin-off.

I acknowledge the limitations of the limited sample size, the model used for risk-adjusted excess returns, and the peer-based Beta used to calculate the expected return. Since including risk-adjusted measures of excess return in the spin-off literature is limited, I believe this can be further improved. Firstly, by using more detailed models which encapsulate more factors. Secondly, using more accurate Beta values would mirror the company's actual Beta more accurately. I believe that these limitations have potentially been a factor in why some of my tests did not achieve statistical significance. Furthermore, they may have affected my results.

9. References

Ahn, S., & Walker, M. D. (2007). Corporate governance and the spin-off decision. *Journal of Corporate Finance*, *13*(1), 76-93. https://www.sciencedirect.com/science/article/abs/pii/S0929119906000071

Aron, D. J. (1991). Using the capital market as a monitor: Corporate spin-offs in an agency framework. *The Rand Journal of Economics*, 505-518. https://www.jstor.org/stable/2600985

Campbell, J. L., Ettredge, M., Guo, F., & Wiebe, Z. (2020). Information Asymmetry in Spin-offs: The Role of Incremental Disclosure. *Available at SSRN 3220724*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3220724

Chevalier, J. (2004). What Do We Know About Cross-subsidization? Evidence from Merging Firms. *Advances in Economic Analysis & Policy*, *4*(1), 1218. https://www.proquest.com/docview/207581291?pq-origsite=gscholar&fromopenview=true

Comment, R., & Jarrell, G. A. (1995). Corporate focus and stock returns. *Journal of financial Economics*, *37*(1), 67-87. https://www.sciencedirect.com/science/article/pii/0304405X9400777X

Cusatis, P. J., Miles, J. A., & Woolridge, J. R. (1993). Restructuring through spin-offs: The stock market evidence. *Journal of Financial Economics*, *33*(3), 293-311. https://www.sciencedirect.com/science/article/abs/pii/0304405X9390009Z

Daley, L., Mehrotra, V., & Sivakumar, R. (1997). Corporate focus and value creation evidence from spin-offs. *Journal of financial economics*, *45*(2), 257-281. https://www.sciencedirect.com/science/article/abs/pii/S0304405X97000184

Davidson III, W. N., & McDonald, J. L. (1987). Evidence of the effect on shareholder wealth of corporate spin-offs: the creation of royalty trusts. *Journal of Financial Research*, *10*(4), 321-328. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1475-6803.1987.tb00505.x

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of accounting and economics*, *50*(2-3), 344-401. https://www.sciencedirect.com/science/article/abs/pii/S0165410110000339

Desai, H., & Jain, P. C. (1999). Firm performance and focus: long-run stock market performance following spin-offs. *Journal of financial economics*, *54*(1), 75-101. https://www.sciencedirect.com/science/article/abs/pii/S0304405X9900032X

Edelen, R. M., Ince, O. S., & Kadlec, G. B. (2016). Institutional investors and stock return anomalies. *Journal of Financial Economics*, *119*(3), 472-488. https://www.sciencedirect.com/science/article/abs/pii/S0304405X16000039

Erickson, T., & Whited, T. M. (2012). Treating measurement error in Tobin's q. *The Review of Financial Studies*, *25*(4), 1286-1329. https://academic.oup.com/rfs/article-abstract/25/4/1286/1579094?login=false

Faccio, M., & Lang, L. H. (2002). The ultimate ownership of Western European corporations. *Journal of financial economics*, *65*(3), 365-395. https://www.sciencedirect.com/science/article/abs/pii/S0304405X02001460

Fulghieri, P., & Sevilir, M. (2011). Mergers, spin-offs, and employee incentives. *The Review of Financial Studies*, *24*(7), 2207-2241. https://academic.oup.com/rfs/article-abstract/24/7/2207/1625594?login=false

Goshen, Z., & Squire, R. (2017). Principal costs: A new theory for corporate law and governance. *Colum. L. Rev.*, *117*, 767. https://heinonline.org/HOL/LandingPage?handle=hein.journals/clr117&div=26&id=&page=

Graham, J. R., Lemmon, M. L., & Wolf, J. G. (2002). Does corporate diversification destroy value?. *The journal of finance*, *57*(2), 695-720. https://onlinelibrary.wiley.com/doi/abs/10.1111/1540-6261.00439

Habib, M. A., Johnsen, D. B., & Naik, N. Y. (1997). Spinoffs and information. *Journal of Financial Intermediation*, *6*(2), 153-176. https://www.sciencedirect.com/science/article/abs/pii/S1042957397902126

Hertzel, M., Lemmon, M., Linck, J. S., & Rees, L. (2002). Long-run performance following private placements of equity. *the Journal of Finance*, *57*(6), 2595-2617. https://onlinelibrary.wiley.com/doi/abs/10.1111/1540-6261.00507

Hite, G. L., & Owers, J. E. (1983). Security price reactions around corporate spin-off announcements. *Journal of Financial Economics*, *12*(4), 409-436. https://www.sciencedirect.com/science/article/abs/pii/0304405X83900429

Hsieh, T. Y., Shiu, Y. M., & Chang, A. (2019). Does institutional ownership affect the relationship between accounting quality and cost of capital? A panel smooth transition regression approach. *Asia Pacific Management Review*, *24*(4), 327-334. https://www.sciencedirect.com/science/article/pii/S1029313216303463

Janakiraman, S., Radhakrishnan, S., & Tsang, A. (2010). Institutional investors, managerial ownership, and executive compensation. *Journal of Accounting, Auditing & Finance*, *25*(4), 673-707. https://journals.sagepub.com/doi/abs/10.1177/0148558x1002500409

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review*, *76*(2), 323-329. https://www.jstor.org/stable/1818789

Jensen, M. C., & Murphy, K. J. (1990). Performance pay and top-management incentives. *Journal of political economy*, *98*(2), 225-264. https://www.journals.uchicago.edu/doi/abs/10.1086/261677

Khan, R., Dharwadkar, R., & Brandes, P. (2005). Institutional ownership and CEO compensation: a longitudinal examination. *Journal of Business Research*, *58*(8), 1078-1088. https://www.sciencedirect.com/science/article/abs/pii/S0148296304000621

Klein, A., & Rosenfeld, J. (2010). The long-run performance of sponsored and conventional spin-offs. *Financial Management*, *39*(1), 227-247. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1755-053X.2010.01071.x

Krishnaswami, S., & Subramaniam, V. (2015). Unlocking value by improving transparency: the case of spin-offs. *Corporate Ownership & Control*, *13*(1), 701-711. https://pdfs.semanticscholar.org/63d9/eb17fe05ef494656931b2fa4f2971b7bcb8d.pdf

Lintner, J. (1965). Security prices, risk, and maximal gains from diversification. *The journal of finance*, *20*(4), 587-615. https://www.jstor.org/stable/2977249

Majd, S., & Myers, S. C. (1987). Tax asymmetries and corporate tax reform. In *The effects of taxation on capital accumulation* (pp. 343-376). University of Chicago Press. https://www.nber.org/system/files/chapters/c11354/c11354.pdf

Miles, J. A., & Rosenfeld, J. D. (1983). The effect of voluntary spin-off announcements on shareholder wealth. *The Journal of Finance*, *38*(5), 1597-1606. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-6261.1983.tb03843.x

Markowitz, 1959

Nanda, V., & Narayanan, M. P. (1999). Disentangling value: Financing needs, firm scope, and divestitures. *Journal of Financial Intermediation*, *8*(3), 174-204. https://www.sciencedirect.com/science/article/abs/pii/S1042957399902656

Palich, L. E., Cardinal, L. B., & Miller, C. C. (2000). Curvilinearity in the diversification–performance linkage: an examination of over three decades of research. *Strategic management journal*, *21*(2), 155-174. https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1097-0266(200002)21:2%3C155::AID-SMJ82%3E3.0.CO;2-2

Pucheta-Martínez, M. C., & García-Meca, E. (2014). Institutional investors on boards and audit committees and their effects on financial reporting quality. *Corporate Governance: An International Review*, *22*(4), 347-363. https://onlinelibrary.wiley.com/doi/abs/10.1111/corg.12070

Rajan, R., Servaes, H., & Zingales, L. (2000). The cost of diversity: The diversification discount and inefficient investment. *The journal of Finance*, *55*(1), 35-80. https://onlinelibrary.wiley.com/doi/abs/10.1111/0022-1082.00200

Scharfstein, D. S., & Stein, J. C. (2000). The dark side of internal capital markets: Divisional rent-seeking and inefficient investment. *The journal of finance*, *55*(6), 2537-2564. https://onlinelibrary.wiley.com/doi/abs/10.1111/0022-1082.00299

Schipper, K., & Smith, A. (1983). Effects of recontracting on shareholder wealth: The case of voluntary spin-offs. *Journal of financial Economics*, *12*(4), 437-467. https://www.sciencedirect.com/science/article/abs/pii/0304405X83900430

Servaes, H. (1996). The value of diversification during the conglomerate merger wave. *The Journal of Finance*, *51*(4), 1201-1225. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-6261.1996.tb04067.x

Seward, J. K., & Walsh, J. P. (1996). The governance and control of voluntary corporate spin-offs. *Strategic Management Journal*, *17*(1), 25-39. https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1097-0266(199601)17:1%3C25::AID-SMJ797%3E3.0.CO;2-G

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

Shin, H. H., & Stulz, R. M. (1998). Are internal capital markets efficient?. *The Quarterly Journal of Economics*, *113*(2), 531-552. https://academic.oup.com/qje/article-abstract/113/2/531/1915751?login=false

Veld, C., & Veld-Merkoulova, Y. V. (2004). Do spin-offs really create value? The European case. *Journal of Banking & Finance*, *28*(5), 1111-1135. https://www.sciencedirect.com/science/article/abs/pii/S0378426603000451

Veld, C., & Veld-Merkoulova, Y. V. (2009). Value creation through spin-offs: A review of the empirical evidence. *International Journal of Management Reviews*, *11*(4), 407-420. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-2370.2008.00243.x

Velury, U., & Jenkins, D. S. (2006). Institutional ownership and the quality of earnings. *Journal of business research*, *59*(9), 1043-1051. https://www.sciencedirect.com/science/article/abs/pii/S0148296306000919

V Gopikumar, Nair Smitha; Sisodia Gyanendra Singh." The effect of financial reporting quality on institutional ownership" *Applied economics letter, 2022* (2022): p. 1-4 https://www-tandfonline-com.ez.hhs.se/doi/full/10.1080/13504851.2022.2089341

10. Appendix

10.1. Definitions

Term	Definition
Announcement day	Refers to the day the company communicates the intent of conducting a spin-off
CAPM	Abbreviation for Capital Asset Pricing Model, which is a model that describes the relationship between systematic risk and the expected return of an asset
Earnings quality	Earnings quality is a measure of how reliable earnings are for assessing the company's current and future performance
Excess return	Refers to the return of a stock in excess of the market return over a period. The definition is the following: *Excess Return$_{i,t}$ = $r_{i,t}$ – $r_{m,t}$* Where $r_{i,t}$ refers to the return of the stock over a period t and $r_{m,t}$ refers to the return of the market over period t.
Incentive	A benefit offered to encourage behavior or action of a manager
Marginal benefit	The additional benefit arising from a unit increase in a particular activity
Marginal cost	The additional cost arising from a unit increase in a particular activity
Non-sponsor	Owners that are not an outside investor
Parent company	The firm which conducts the spin-off and distributes shares of the spun-off entity
Pre-spin-off entity	The combined entity consisting of the parent company and the spun-off company before the date of the spin-off
ROA	Return on assets defined as: *Operating income / Book value of total assets*
Spin-off	When a company distributes at least 80% of its shares to existing shareholders on a pro rata basis, thus, creating a separate publicly owned company
Sponsor	Owners that are outside investors whom own more than 5% in the firm
Spun-off entity	The newly created firm following the spin-off
SIC code	Abbreviation for Standard Industry Classification which is a six-digit number describing firms' industry
Winsorize	Transformation of statistics by limiting extreme values of statistical data to reduce effects of false extreme values