LUND UNIVERSITY
School of Economics and Management

The Corporate Governance Scorecard

Testing an investment strategy focusing on spin-offs
with strong corporate governance

by
Sebastian Lindeborg and John Kleven Falck
May 2019

Master's Programme in Accounting and Finance

Supervisor: Håkan Jankensgård
Examiner: Reda Moursli

Abstract

Seminar date: 03/06/2019

Course: BUSN79 Business Administration: Degree Project in Accounting and Finance, 15 credits

Authors: John Kleven Falck and Sebastian Lindeborg

Advisor: Håkan Jankensgård

Key words: Spin-offs, agency theory, efficient market hypothesis, investment strategy, corporate governance, The Corporate Governance Scorecard

Purpose: The purpose of this paper is to test an investment strategy investing solely in spin-offs with strong corporate governance to achieve superior abnormal returns

Methodology: This paper designs and adopts a binary scorecard called The Corporate Governance Scorecard, which is used to create two groups of spin-offs with strong and weak corporate governance respectively. T-statistics have been adopted to test the difference in buy-and-hold abnormal return between the two groups. Moreover, OLS multiple regressions have been performed to analyse the individual variables of The Corporate Governance Scorecard

Theoretical perspectives: Agency theory, the efficient market hypothesis, long-term wealth effect of spin-offs and factors explaining wealth effects of spin-offs

Empirical foundation: The empirical foundation consists of 160 spin-offs completed in Western Europe between 2000 to 2015. For the spin-offs, return data, corporate governance data and financial data has been collected, resulting in a total of 2 720 data points

Conclusions: The study concludes that the portfolio of spin-offs with strong corporate governance outperforms a group with weak corporate governance with mean abnormal return differences of 14.9, 35.0 and 42.1 percent for holding periods of one, two and three years. The difference is statistically significant at a five percent level for the two-year holding period and ten percent level for the three-year period. Further, two of out of the six individual corporate governance variables had a statistically significant relationship with abnormal returns

Contents

1. Introduction

This paper tests an investment strategy investing solely in spin-offs with strong corporate governance to achieve superior abnormal returns. To determine whether spin-offs have strong corporate governance or not, the authors have designed a scorecard called "The Corporate Governance Scorecard", which is based on six corporate governance variables. The investment strategy is tested by analysing the difference in mean abnormal return between two groups of spin-offs with strong and weak corporate governance respectively.

Investors adopt various sorts of investment strategies in attempts to achieve abnormal returns. While some strategies merely include investing passively in major stock indices, other more rigorous strategies may comprise advanced investment processes where each specific financial asset is evaluated carefully before investing in it. In recent years, corporate spin-offs, which are transactions where a corporation (typically abbreviated as "parent") divests a subsidiary (henceforth abbreviated as "spin-off") and distributes the shares pro rata to existing shareholders, have become increasingly popular in today's financial markets (S&P Global, 2017), where the focus on specialisation and maximisation of shareholder value is evident. Previous researchers have documented that a passive investment strategy that focuses on investing solely in spin-offs on the first day of trading yields average abnormal returns of 9.4, 17.1 and 21.7 percent on a one-year, two-year and three-year basis respectively (see Table 1). While these returns seem attractive at a glance, a passive investment strategy entails investments not only in the high performing spin-offs, but also poorly performing ones with negative returns. This might hold for stocks in general, but it becomes even more important for spin-offs. This is because the variance of spin-offs is higher than for stocks, and strong abnormal returns have been argued to come from a relative few spin-offs in a large sample (McConnell, Sibley & Xu, 2015). Should investors be able to separate the winners from the losers in a group of spin-offs and actively choose to invest in a majority of winners, they would be able to attain even higher returns than those mentioned above.

To understand the overperformance of spin-offs, a wide range of variables have been tested against abnormal returns. Commonly, previous papers refer to either improvements in corporate focus, deconglomeration or improvements in corporate governance (Berger & Ofek, 1995; Daley,

Mehrotra & Sivakumar, 1997; Krishnaswami & Subramaniam, 1999; Qian & Sudarsanam, 2007; Feldman, 2016). For instance, Daley, Mehrotra and Sivakumar (1997) argue that spin-offs' overperformance can be related to the increase in corporate focus that a spin-off event entails, given that subsidiaries may previously be negatively affected by a conglomerate structure. Another common thesis is to test whether deconglomeration is attributable to the value gains. Some of these studies are inspired by Berger and Ofek (1995), who argue that there is an average of 13 to 15 percent value loss derived from negative diversification effects. While most of these studies allude to improvements in corporate governance, only limited attention has been given to better understanding and defining the specific corporate governance mechanisms that improve as a result of a spin-off. Seward and Walsh (1996) show how spin-offs improve several governance factors, but fail to show how this is correlated with abnormal returns. Veld and Veld-Merkoulova (2004) use a corporate governance index by La Porta et al (2000) to test against spin-off performance, but fail to show any significance to abnormal returns in either the short- or long-run. Qian and Sudarsanam (2007) document evidence of how improvements in corporate governance of post spin-off firms are associated with long-run performance. They define corporate governance as board independence, director ownership, institutional blockholders, leverage and analyst coverage (Qian & Sudarsanam, 2007). However, they also note that their conclusions might be limited due to a limited sample of firms and a subjective assessment of board independence, and thus recommend future research to examine the issue using better data sources and more accurate measurements of corporate governance to strengthen the thesis.

The authors of this paper have identified a gap in the literature, where the effect of corporate governance on spin-offs' long-run abnormal return has not been examined thoroughly. Although several corporate governance variables have been linked to spin-offs' excess return individually, no previous study has examined whether an investment strategy that includes investing solely in companies with strong corporate governance can yield excess return for a portfolio. Considering the opportunities for investors to attain substantial abnormal return by conducting an active investment strategy to separate winners from losers in a group of spin-offs, this paper aims to explore whether strong corporate governance could be the recipe for spin-offs' superior abnormal return. By adopting a scorecard designed by the authors and called "The Corporate Governance Scorecard", this paper combines several corporate governance variables that have been linked to

spin-offs' long-run abnormal return individually to identify spin-offs with strong respective weak corporate governance and test for any potential differences in abnormal return between the two groups. The variables have previously been connected to firm value or abnormal returns through agency theory, which is the main theoretical foundation of this paper. The six variables constituting The Corporate Governance Scorecard are external board, insider CEO, variable CEO compensation, analyst coverage, insider ownership and leverage.

The results imply that a portfolio of spin-offs with strong corporate governance outperforms the group with weak corporate governance with mean abnormal return differences of 14.9, 35.0 and 42.1 percent across all three holding periods tested, including one, two and three years, when adjusting the returns for sector performance. The results are statistically significant at a five and ten percent level on a two- and three-year holding period respectively. Furthermore, the results show that only around 50 percent of all spin-offs show positive abnormal returns in three years, with a median return of -0.7 to 1.9 percent. This is notable given that the accumulated abnormal returns for the group are 34.4 to 36.1 percent. The same distribution holds for one- and two-year returns, displaying anecdotal evidence of the high variance of spin-offs. To further analyse the individual variables that constitute The Corporate Governance Scorecard, a multivariate regression analysis has been performed. The regressions indicate that two of out of the six tested corporate governance variables had a statistically significant relationship with abnormal returns. A higher number of analyst covering a stock indicated lower abnormal returns, while a higher level of performance based CEO compensation were positively associated with higher abnormal returns.

The next section presents previous empirical research on spin-offs. Section three presents the theoretical framework of this study, consisting of the efficient market hypothesis and agency theory. Section four introduces and describes The Corporate Governance Scorecard. Section five describes the empirical methodology of this paper, including research approach, abnormal return calculations, and econometric methodology. Section six introduces the data sample of the paper. In section seven, the empirical analysis is presented. Section eight presents the conclusion and section nine includes the authors' reflections on the implications of the study.

2. Literature Review

2.1. Definition of Corporate Spin-Offs

A corporate spin-off could be described as a transaction where a parent company divests a business unit or division and is divided into two companies. The shares of the new company are distributed to the shareholders of the parent company as a dividend on a pro-rata basis. After the transaction, the new company operates independently of the parent company. Unlike other divestiture methods, a spin-off does not generally allow the parent company to receive cash from the divestment (Schipper & Smith, 1983).

2.2. Purposes of Spin-Offs

Although Modigliani and Miller (1958) argue that divestitures have no impact on company value, there are several potential motives for a spin-off. First, spin-offs can have positive effects on companies' transparency, as the spun off company will operate separately from the parent company. This is ought to decrease the business complexity and prevent earnings management, resulting in increased possibilities to monitor management, improved communication to capital markets, strengthened corporate governance and possibly a more accurate valuation (Glassman, 1998). This argument is supported by Qian and Sudarsanam (2007), who show that post spin-off parent companies have stronger corporate governance than non-spin-off companies, and that an improvement in corporate governance is positively related to long-run spin-off performance. Second, a prevalent reason for spin-offs relates to company-specific strategies. A parent company may for example strive to focus on its core operations and profitable business areas and thus be interested in divest its non-core and unprofitable segments (Markides, 1995). Third, financial controlling may be an issue for larger companies with different business areas, as performance targets are not always customised for each division's specific characteristics. Hence, a spin-off may enable both the parent company and the spun off entity to set tailor made key targets such as required rate of return of new investments, decreasing the risk to reject projects with positive net present values (Chemmanur and Paeglis, 2001). Regulatory and fiscal constraints form another motivation for spin-offs, as large companies are often subject to stricter financial and legal regulations than smaller companies. Thus, wealth from regulatory and tax advantages can be

created when divesting relatively small business units from a large company group (Schipper & Smith, 1983).

2.3. Wealth Effects of Spin-Offs

The wealth effects of spin-offs can be divided into short-term and long-term wealth effects. The short-term wealth effects are most commonly measured by the announcement day performance, i.e. the abnormal returns of the spin-offs on the first day of trading or the stock price reaction of the parent at announcement of the planned spin-off, while abnormal return up to three years post completion is used as a proxy for long-term wealth effects. Extensive research has been made on spin-offs' short-term wealth effects, where researchers agree that spin-offs yield significant abnormal announcement day return of between 1.8 and 5.4 percent (e.g. Hite & Owens, 1983; Miles & Rosenfeld, 1983; Vijh, 1994; Desai & Jain, 1999; Kirchmaier, 2003; Rudisuli, 2005; Sin & Ariff, 2006; Veld & Veld-Merkoulova, 2008).

The long-term wealth effects of spin-offs have not been covered as widely as the short-term wealth effects in previous research. This may relate to difficulties in measuring long-term spin-off effects due to other company specific characteristics that influence firm performance (Barber & Lyon, 1997). Further, according to the efficient market theory, one might argue that the announcement date returns already reflect expectations of future returns, which would limit the relevance to study long-term abnormal returns. Nevertheless, researchers such as Limmack (1991) and Sirower and O'Byrne (1998) show that the market systematically over- or underestimates the long-term financial performance from the announcement day. Given this study's purpose to identify investment opportunities in spin-offs that yield long-term abnormal return, the literature review will focus on long-term wealth effects. Considering that far less research has focused on long-term wealth effects than short-term, this selection of focus is further motivated.

In Table 1, a selection of the most relevant previous empirical studies on long-term wealth effects of spin-offs are presented. All of the studies measure excess return through the Buy-and-Hold Abnormal Return (BHAR) methodology. The oldest identified empirical studies on the topic was conducted by Cusatis, Miles and Woolridge (1993), who examined 141 spin-offs between 1965 and 1990. They found significant positive BHARs for the spin-offs after two and three years, where

they generated 25 and 34 percent in excess return respectively at a five percent significance level. These findings fueled further research on the topic and Desai and Jain (1999) found significant positive BHAR for spin-offs in all tested time periods at a one percent significance level, when researching 162 spin-offs in the US between 1975 and 1991. Further, their study shows that an increase in company focus drives long-term abnormal returns for spin-offs. Hence, their study shows not only that spin-offs outperform the market but also that some spin-offs perform better than others. In line with Cusatis, Miles and Woolridge (1993) and Desai and Jain (1999), McConnell, Ozbilgin and Wahal (2001) found positive abnormal returns for spin-offs in the US between 1989 and 1995 for all holding periods except for the three-year period. In contrast to previous researchers however, McConnell, Ozbilgin and Wahal's (2001) results did not show any statistical significance.

While the majority of previous empirical studies have been focusing on the US, more light has been shed on Europe recently. The first identified study on long-term abnormal return for spin-offs in Europe dates back to 2003 and was conducted by Kirchmaier (2003) who covered 41 spin-offs between 1989 and 1999. Kirchmaier's results were inconclusive and not statistically significant. Other researchers that have focused on the European market include Veld and Veld-Merkoulova (2004) and Qian and Sudarsanam (2007). Although none of them found statistical significance for long-term spin-off abnormal return, both studies show that their sample of 70 respective 142 spin-offs experienced average three-year abnormal returns of 15.2 and 23.0 percent. Rudisuli (2005) on the other hand, found that his data sample consisting of 336 European and US spin-offs between 1990 and 2003 experienced average abnormal returns of 18.9, 30.9 and 55.8 percent on a one-, two- and three-year holding period respectively. The results for the one- and two-year holding periods showed strong statistical significance at a one percent level, while the three-year results showed significance at a five percent level.

In 2012, Credit Suisse published an empirical report on spin-offs between 1995 and 2012 where they found that spin-offs underperform compared to relevant benchmark index for the five first days of trading. After one year of trading, the spin-offs overperformed the market by 13 percent, albeit the authors were not able to find any statistical significance. S&P Global (2017) published a similar study on spin-offs between 1989 and 2016 where they also found that spin-offs

underperform the market in the first days of trading. After six months however, they outperformed the market and found 22 percent abnormal return on a five percent significance level after three years. Further, the study analysed if spin-off returns could be explained by certain characteristics and found that the size of the spin-off in relation to the parent company as well as whether the spin-off increase industry focus or not are attributable to higher returns.

McConnell, Sibley and Xu (2015) provided evidence of how large the divergence of returns can be within the group of spin-offs. In their study, covering 12 years and 146 US spin-offs, they confirmed statistically significant mean abnormal returns using a BHAR approach over six months, one year, two years, two-and-a-half years and three years. Further, they provided documentation for higher standard deviation among spin-offs in comparison to their parent companies, as the difference between the mean return, the 25th percentile return and 75th percentile return was substantially larger for the spin-off compared to the parent.

Although several researchers have focused on the long-run performance of spin-offs and a substantial part of them have found significant excess returns, they have failed to provide an optimal active investment strategy to capitalize on the implications and results.

2.3.1. Factors Explaining Long-Term Wealth Effects of Spin-Offs

In this section, previous researchers' explanatory factors for spin-off long-term abnormal return are presented, discussed and summarised. The most established factors will later form the basis for The Corporate Governance Scorecard and function as control variables in the statistical testing part of the paper, to test if the abnormal returns are distorted by factors that previously has been proven to drive excess returns.

2.3.1.1. Corporate Governance

Previous literature has attempted to explain abnormal returns from spin-offs referring to improvements in corporate governance. This line of argumentation is mostly inspired from research finding that corporations with weak corporate governance systems perform worse than their peers and the overall market (Core, Holthausen & Larcker, 1999; Bhagat & Bolton, 2008). While most such studies will rely on agency cost theory, i.e. that improved governance systems

mitigate agency costs and hence improve firm value (Fama & Jensen, 1983), the definition of strong or weak corporate governance differs. For example, Seward and Walsh (1996) argue that deconglomeration should be viewed as positive based on their impact on internal control. They test a number of corporate governance variables towards abnormal returns of spin-off firms, and use a sample of 72 spin-offs made between 1972 and 1987 in the US. They are able to identify a number of measurements working as a proxy for the governance improvements associated with a spin-off, and then link these to spin-off performance. The key variables used by Seward and Walsh (1996) include insider CEO (CEO coming from the parent), CEO compensation (compensation includes stock options, aligning incentives with owners) and external board of directors (external board members that work for the owners rather than the CEO or company).

While Seward and Walsh (1996) fail to prove a strong correlation with positive market performance and most of the variables mentioned above, Qian and Sudarsanam (2007) describe how the underlying mechanism of the long-run abnormal returns stem from the strengthening of corporate control and thus an reduction in agency costs. They examine 170 European spin-offs completed between 1987 to 2005, and use t-tests, z-statistics and Wilcoxon signed rank test to assure the quality of their findings. By examining ownership structure, board structure, capital structure and analyst coverage, Qian and Sudarsanam (2007) find that improvements in corporate governance of post-spin-off firms are positively correlated to long-run abnormal returns. Moreover, there is also research showing how outside CEO succession leads to below-average firm performance (Datta & Guthrie, 1994), further enforcing the thesis of positive abnormal returns' linkage to strong corporate governance.

Similarly, a number of studies has been aimed at linking relationships with the parent post spin-off with positive market performance. Semadeni and Cannella (2011) apply a transaction cost and agency cost perspective as they consider post spin-off performance of spin-offs. They consider a sample of 142 spin-offs completed between 1986 and 1997 in the US, and test variables such as ownership, board oversight and relationship with parent. Arguing that a successful spin-off will lead to some, but not too few or too many, business relationships with the parent, Semadeni and Cannella (2011) link relationships to governance and then in turn to performance (see also Woo, Willard & Beckstead, 1989; Veld & Veld-Merkoulova, 2004; Moschieri & Mair, 2012). Another

common line of arguing follows the literature concerning corporate focus partly described in Section 2.3.1.2. below, which argues that divestiture of unrelated businesses might reduce complexity and create a more flexible organisation, resulting in abnormal returns for shareholders (Berger & Ofek, 1995; Krishnaswami & Subramaniam, 1999).

Insider ownership has also seen significant scrutiny in recent literature as a possible explanatory factor for abnormal spin-off returns. High insider ownership might indicate mitigated agency costs as incentives of managers and shareholders become increasingly aligned. While Semadeni and Canella (2011) test ownership of parents as a potential governance factor relating to the relationship with the parent, other studies investigate the potential governance and performance effects in family owned firms (e.g. Feldman, Amit & Villalonga, 2016). However, the linkage between actual insider ownership and performance remains inconclusive. Further, Qian and Sudarsanam (2007) test spin-off performance against both institutional and family ownership, all of which are meant to capture the potential abnormal returns associated with insider holdings. The authors are able to show a linkage between improving corporate governance and long-run performance, although the insider ownership variable does not receive any particular focus in the study.

Analyst coverage is used as a complementary measurement of governance, as increased company scrutiny is positively associated with strong external control and hence firm value (Chung & Jo, 1996). Following this argumentation, Qian and Sudarsanam (2007) use analyst coverage as a proxy for control. However, Credit Suisse (2012) and Belisario (2017) take the other side of the argument, arguing that lack of analyst coverage is correlated with abnormal returns of spin-offs. The argumentation is closely linked to the fundamental assumptions of the efficient market hypothesis, arguing that financial analysts' roles is one of a intermediate supposed to mitigate the information asymmetry of shareholders and managers. Hence, when a stock has limited coverage, information will not be properly disseminated and thus increase the risk of mispricing, leading to potential abnormal returns.

Leverage has an agency monitoring function (Jensen, 1986) and can hence be used as a governance factor, indicating the level of oversight and stakeholder scrutiny (Qian & Sudarsanam, 2007). This

becomes relevant in the case of spin-offs since parent companies tend to possess significant discretion when deciding on how much debt should be retained within the parent company and how much should be carried by the spin-off (Schipper & Smith, 1983). What level of debt is optimal when completing a spin-off has seen some scrutiny, given inconclusive results regarding optimal usage of debt. Berk and Demarzo (2017) argue that too much leverage might lead to under investments, and hence risk of underperformance, while at the same time arguing that high leverage might improve managerial performance, and hence lead to overperformance. Leverage, which often is measured as the ratio of the book value of debt to the market value of equity, is also commonly used as a control variable (Krishnaswami & Subramaniam, 1999).

Seward and Walsh (1996) describe how an external board and an insider CEO could be seen as suitable proxies of strong governance in relation to a spin-off. While a majority of external board members will mitigate agency problems, an insider CEO, meaning that the CEO follows the spin-off from the parent company, will be natural and logical given that the CEO already has strong knowledge of the business (Seward & Walsh, 1996). The logic of this argumentation has lead to several later studies testing insider CEO and external board for significance in relation to governance improvements or abnormal returns, where insider CEO has seen some significant results while external board has been harder proving (Qian & Sudarsanam, 2007; Semadeni & Cannella, 2011; Feldman, Amit & Villalonga, 2016; Feldman, 2016).

A governance variable that has received significant attention in relation to market performance, but only limited attention in relation to spin-offs, is CEO compensation. Agency theory suggests that the alignment of CEO compensation with minority owners will reduce agency cost and increase firm value (Brick, Palmon & Wald, 2006). Devers et al (2007) describes how earlier work on the subject failed to show significant correlation between CEO pay and firm performance, but as scrutiny of the subject has increased, studies have been able to show relationships between variable pay and firm performance. A few studies have also suggested that CEO compensation should, theoretically, improve through a spin-off (Seward & Walsh, 1996; Feldman, 2016). This line of arguing suggest that post spin-off compensation improves managers' incentives since it is only based on the new entity rather than pre spin-off, where compensation is based on the parent's

performance (Seward & Walsh, 1996; Feldman, 2016). Feldman (2016) tests this hypothesis and provides some evidence of improved incentive alignment with market performance post spin-off.

2.3.1.2 Industrial Focus

One of the most well-known and researched factors explaining abnormal returns of spin-offs is diverging industrial focus, or more commonly quantified as different Global Industry Classification Standard (GICS)-codes of the parent and spin-off (Daley Mehrotra & Sivakumar, 1997; Krishnaswami & Subramaniam, 1999; Dittmar, 2004). Desai and Jain (1999) provide evidence that announcement day abnormal returns for spin-offs with separated GICS-codes are significantly higher than average abnormal returns for spin-offs when looking at 155 spin-offs between 1975 and 1991. Similar results are found both for announcement day abnormal returns and long-term abnormal returns by Daley, Mehrotra and Sivakumar (1997), Krishnaswami and Subramaniam (1999) and Veld and Veld-Merkoulova (2004).

The most common rationales provided for abnormal returns as explained by industrial focus include a reduction of information asymmetry and improved managerial focus (Daley, Mehrotra & Sivakumar, 1997; Krishnaswami & Subramaniam, 1999). Daley, Mehrotra and Sivakumar (1997) note that managerial skills might be well suited to the core business of the company, but not for the subsidiary given a different market structure. Examining 85 spin-offs from 1975 to 1991 in the US, they test for operational improvements by comparing metrics from two years before a spin-off to three years after the spin-off. They further argue that by separating responsibility and control over these businesses, corporations can thus increase their operational and managerial efficiency, which they refer to as "the Corporate Focus Hypothesis". Furthermore, Daley, Mehrotra and Sivakumar (1997) and Krishnaswami and Subramaniam (1999) argue that through separation, performance incentives for managers in the spun off entity improves, as well as becomes increasingly aligned with shareholders. Since managers' remuneration only becomes tied to their actions rather than the full corporate entity's actions, Daley, Mehrotra and Sivakumar (1997) argue that this might explain overperformance due to improved industrial focus. While this thesis was further confirmed by Desai and Jain (1999), S&P Global (2017) show how three-year returns of the spin-off actually improved when the parent and the spin-off were in the same industry, addressing the somewhat conflicting findings on the subject.

2.3.1.3. Relative Size

A common finding among previous researchers is that wealth effects are significantly larger when the relative size is larger, measured as the ratio of the market capitalization of the new entity to the market capitalization of the parent company (Hite & Owers, 1983; Linn & Rozeff, 1984; Woo et al, 1989; Krishnaswami & Subramaniam, 1999). Hite and Owers (1983), analysing short term effects of 123 US spin-offs between 1963 and 1981, argue that operational benefits improve when the relative size of the spin-off is larger due to better comparative advantages for each entity, as they can negotiate separate specialized contracts, explaining potential abnormal returns. Due to the intuitive nature of this explanation (Hite & Owers, 1983), it is one of the most common control variables used in spin-off research (Schipper & Smith, 1983; Semadeni & Cannella, 2011; Chemmanur, Krishnan & Nandy, 2014). Another line of argumentation is presented by Banz (1981), who argues that smaller stocks outperform larger ones due to the so-called size premium. As several factors are not being properly discounted by the markets, smaller stocks tend to show higher abnormal returns over time than medium and large stocks. Thus, results are conflicting, although the overall bulk of previous research indicates that smaller stocks outperform large stocks in the long run.

2.3.1.4. Conglomerate Structure

Building on the arguments in Section 2.3.1.2, there are several other benefits of splitting up conglomerates. Berger and Ofek (1995) show how complex and highly diversified company structures, i.e. conglomerates, decrease firm value, as they analyse 3 659 firms and a total of 16 181 observations of firm segments. Hence, by selling subsidiaries, there is a theoretical wealth benefit from diluting conglomerate structures. Colak and Whited (2007) explain this wealth effect with improving investment policies, however, the aforementioned study also argues that it is hard to prove the validity of this reasoning. While results are inconclusive, this is a common control variable in existing spin-off research (Krishnaswami & Subramaniam, 1999; Feldman, 2016; Feldman, Amit & Villalonga, 2016).

2.3.1.5. Valuation

To reflect investor sentiment about the long term returns of stocks, several spin-off studies incorporate market based ratios to explain abnormal returns (Woo, Willard & Daellenbach, 1992;

Dittmar, 2004). This is often inspired by original work by Fama and French (1992), who documented that valuation matters for returns, and that stocks that have a low valuation outperform stocks with a high valuation. The most commonly used variable is a market-to-book ratio, measured as market value of equity divided by the book value of debt plus the market value of equity (Dittmar, 2004).

2.3.1.6. Company Fundamentals

A majority of previous empirical studies on spin-offs include one or several operational performance ratios as control variables. While the valuation metrics described above are reflective of long-term performance, Rappaport (1981) describes how accounting metrics are static by nature and hence fail to incorporate future earnings potential. Static, accounting based measurements commonly used in previous literature include sales growth (Woo, Willard & Beckstead, 1989; Woo, Willard & Daellenbach, 1992; Qian & Sudarsanam, 2007), net income (Feldman, 2016; Feldman, Amit & Villalonga, 2016; Chemmanur, Krishnan & Nandy, 2014) or cash flow margin (Johnson, Klein & Thibodeaux, 1996). Further, previous literature often use return metrics such as return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) (Woo, Willard & Beckstead, 1989; Dittmar, 2004; Qian & Sudarsanam, 2007) or sales volatility (Chemmanur, Krishnan & Nandy, 2014). Moreover, several previous studies use total assets (see e.g. Johnson, Klein & Thibodeaux, 1996; Colak & Whited, 2006) or market capitalization (Krishnaswami & Subramaniam, 1999) as size proxies.

2.3.1.7 Other Variables

While not in the focus of this paper, it is worth noting that a range of other various factors has been tested in relation to spin-off performance. Depending on the niche focus of the study itself, some of the other variables relevant to take note of include mergers and acquisitions (M&A)-activity (Feldman, Amit & Villalonga, 2016), productivity (Chemmanur, Krishnan & Nandy, 2014), R&D/sales (Dittmar, 2004) and Tobin's Q (Colak & Whited, 2006). Moreover, as described by e.g. Krishnaswami and Subramaniam (1999), certain spin-offs may be taxable, suggesting that taxes could be interesting to use as an explanatory variable. Similarly, differences in regulation or regulatory changes due to the spin-off have been subject for a number of previous studies, such as Schipper and Smith (1983) or Krishnaswami and Subramaniam (1999).

Since spin-offs, similar to M&A or other capital allocation decisions, tends to be somewhat cyclical (S&P Global, 2017), several spin-off studies adjust for this by including an off-setting control variable, such as dummies for certain "hype periods" or industry growth (Qian & Sudarsanam, 2007; Chemmanur, Krishnan & Nandy, 2014; Feldman, Amit & Villalonga, 2016). Thus, by including such a variable, temporary overperformance due to other factors related to irrational exuberance can be fully or partly eliminated. However, given this thesis' extensive time period (2000-2015), the authors argue that these effects are mitigated over the time of several such cycles and over several industries.

2.4. Contribution From The Study

As discussed, spin-offs as a topic has previously been widely researched. There is a strong consensus that spin-offs yield positive abnormal returns on the announcement day and a convincing bulk of studies indicates that spin-offs outperform the market in the long run as well, measured six months, one year, two years and three years after the spin-off event. Several factors have been identified to affect the spin-offs' long-run excess return, including leverage, size, industry and other aforementioned variables. Researchers have also repeatedly attributed the excess returns to improvements in corporate governance, since spin-offs have several effects that may improve shareholder alignment, oversight and other critical governance functions. Although several of these corporate governance variables have been linked to spin-offs' excess returns individually, no previous study has examined whether an investment strategy that includes investing solely in companies with strong corporate governance can yield excess return for a portfolio. By adopting a scorecard designed by the authors, this paper will combine several corporate governance variables that have been linked to spin-offs' long-run abnormal return individually to identify spin-offs with strong respective weak corporate governance and test for any potential differences in abnormal return between the two groups. Given the lack of similar empirical studies in previous research, the authors of this paper expect to contribute to the research with a new perspective on spin-offs and shed light on how investors may attain abnormal return by selectively investing in spin-offs with strong corporate governance.

3. Theoretical Framework

3.1. Efficient Market Hypothesis

Introduced by Fama (1970), the efficient market hypothesis is a well known financial theory that has been applied in several previous studies on spin-offs. According to the theory, all information is fully reflected in assets' prices in an efficient market. Consequently, it is impossible to attain higher returns without acquiring increased risk. Given that all market participants are assumed to possess all information, financial assets' future returns cannot be predicted by investors. Hence, abnormal returns should not occur.

For a market to be considered efficient, three assumptions need to be true. First, all market participants are ought to possess correct information regarding risk and return. Second, all market participants are assumed to be rational and react on information in the same manner, without under- or overreacting. The third assumptions concerns arbitrage, where a mispricing of a financial assets, caused by irrational investors, will be corrected by rational investors that takes advantage of the mispricing until the market has reached equilibrium (Zacks, 2011).

There are three levels of market efficiency strength, which are determined by the level of information efficiency (Fama, 1970). First, the weak level reflects a market where participants have access to historical data. Analysis based on previously known facts cannot result in abnormal returns, given that market prices already takes all historical information available into consideration. The weak form of market efficiency suggests that it is useless to engage in technical analysis to predict future returns (Fama, 1970). The semi-strong level of market efficiency assumes that market participants have access to historical data and all publicly available information (Dupernex, 2007). Since all information is available for all market participants, the market prices already reflect all information. Hence, it is impossible to achieve abnormal returns at this level by using historical and publicly available data. The semi-strong level of market efficiency further suggests that there is no point to conduct technical analysis or fundamental analysis to enjoy abnormal return (Fama, 1970). The third level of market efficiency is the strong form. At this level, market prices are assumed to reflect all information relevant to the respective asset, including

insider information (Arnold, 2005). Given the absence of information asymmetry at this level, no investor can achieve abnormal returns (Fama, 1970).

The efficient market hypothesis has been widely debated and tested. Although the weak level and semi-strong level are both generally more accepted than the strong level, several researchers have found that their fundamental investment strategies have been proved to outperform market performance (Malkiel, 2003). For example, Piotroski (2000) found that one can separate winners from losers and consequently outperform the market by analysing historical financial data.

3.2. Agency Theory

The agency theory dates back to the 1970s and was first proposed by Stephen Ross and Barry Mitnick (Mitnick, 2006). The agency theory focuses on the relationship between a principal (e.g. shareholders) and an agent of the principal (e.g. management), where a conflict of interest can arise between the two different parties due to asymmetric information and differences in incentives. Since these theories are very broad in its definition, agency theory has been applied to a variety of disciplines, such as accounting, economics, marketing or finance (Eisenhardt, 1989). For the field of finance, Fama (1980) could be said to have presented the foundational work, as he introduced the separation of owners and managers and defined their various roles. Defining the firm as a set of contracts, Fama (1980) explains how the manager's role is vastly separated from equity ownership and that incentives may not be aligned. Because of this, problems with asymmetric information arises, where firm value might be affected negatively because of misalignments between owners and managers.

The problems associated with asymmetric information are especially evident in large publicly listed corporations with a wide range of diluted owners with limited insight into the companies' operations. Should management pursue strategies and objectives that are not aligned with maximization of shareholder value, information asymmetry can result in inefficient decision making and value destruction. (Arnold, 2005; Kim & Nofsinger, 2007)

In previous research, it has been proven that companies pursuing spin-offs have higher levels of information asymmetry than peers and the information asymmetry problems decrease considerable

post spin-off. Moreover, the gains associated with spin-offs are positively related to the degree of information asymmetry (Krishnaswami & Subramaniam, 1999). Jensen (1986) explains how the conflicts between managers and shareholders is evident in that when cash is paid out to shareholders, managers' resources are reduced. This problem is reflected with spin-offs, where distributing a spin-off with positive free cash flows theoretically benefits shareholders while reducing the resources' of managers. Thus, agency theory is often referred to in connection to spin-offs, given the potential to reduce agency costs when performing spin-offs.

3.3. Hypothesis Development

The main hypothesis of this paper originates from previous research, where various researchers have linked several corporate governance variables to abnormal return for spin-offs. Further, agency theory is used to create the rules dictating how strong and weak governance is defined. Moreover, the efficient market hypothesis constitutes the theoretical foundation for analysing abnormal returns. Hence, the authors of this paper has formulated the following hypothesis:

Hypothesis 1: Spin-offs with strong corporate governance experience higher abnormal returns than spin-offs with weak corporate governance.

4. The Corporate Governance Scorecard

This study attempts to test whether a set of selective corporate governance factors may explain abnormal returns of spin-offs. In order to do so, the authors have developed a scorecard which aims to identify spin-offs with *strong* corporate governance versus *weak* corporate governance. As mentioned above, the variables and their respective connection to firm value or abnormal returns are primarily based on agency theory and previous research.

The scorecard, referred to as "The Corporate Governance Scorecard", is based on six corporate governance variables, all of which have been linked to positive long-run abnormal returns of companies or spin-offs. The variables used for the scorecard include outside board directors, a dummy for an inside CEO, performance-based CEO compensation, analyst coverage, insider ownership and leverage. Based on certain thresholds described in detail below, the variables are either given a score of 1 or score of 0, thus creating a binary scoring system. These values are then added together to create a governance score between 0 and 6, where low numbers are indicative of weak corporate governance and high numbers are assumed to represent strong corporate governance. Based on the score, two portfolios will be created, where one group will consist of spin-offs with weak corporate governance and the other will include spin-offs with strong corporate governance.

The binary scorecard approach may be appropriate when trying to separate the best and worst performing stocks. Piotroski (2000) use a binary scoring system, ranking stocks between 0-9 based on a number of financial measurements. As one of the most popular quantitative investment strategies known to the common investor, the system has been proven to work in a wide range of markets and time periods. The Corporate Governance Scorecard is thus inspired by this approach given its applicability and computability with easier statistical tests.

4.1. The Purpose of The Scorecard

As described in Section 2, spin-offs as a group has historically been shown to yield abnormal returns. Further, McConnell, Sibley and Xu (2015) show how the variance of returns is higher for spin-offs than for stocks in general. Thus, the authors argue that this represents an opportunity to expand those abnormal returns even further. The scorecard is therefore designed to test whether corporate governance factors may contribute to investors' ability to select more of the spin-offs performing above the mean and disregard more of the spin-offs performing below the mean.

The purpose of the scorecard is to 1) examine whether corporate governance factors are determinants of positive long-run performance of spin-offs, and 2) provide a suggestion for investors on how to optimise positive long-run abnormal returns of spin-offs.

4.2 The Constituents of The Corporate Governance Scorecard

As aforementioned, the constituents of The Corporate Governance Scorecard are outside board directors, a dummy for an inside CEO, performance-based CEO compensation, analyst coverage, insider ownership and leverage. In Table 2 and 3, an overview of the variables, their theoretical foundation and backing as well as the intuition of the variable can be found.

All of the variables have some theoretical backing in agency theory, which also serves as the theoretical foundation of this paper. However, as seen in Table 2 and 3, some of the variables has seen criticism and scrutiny from other noteworthy schools of literature. As previously mentioned, higher analyst coverage is ought to, out of an agency cost perspective, increase firm value as agency costs are mitigated. However, based on the efficient market hypothesis one might argue that limited analyst coverage will lead to higher information asymmetry which should lead to mispricing, which in turn can lead to abnormal returns. Further conflict can be found regarding leverage. While Jensen (1986) argues that higher leverage improves firm oversight, mitigating agency costs and increasing firm value, there is also widespread acknowledgement regarding debt overhang leading to underinvestments, which have a negative effect on firm value (Berk & Demarzo, 2017).

Based on the theoretical foundation shown in Table 2, an intuition regarding the variables linkage to performance is formulated, as can be seen in Table 3. Further, the scoring definition, or threshold, is accounted for and further explained. Moreover, the authors take note of potential correlation and casualties between the different variables. While the study controls for multicollinearity, the most noteworthy casualties include variable CEO compensation and insider ownership as well as insider CEO. If, for example, the CEO is an insider that has worked for the parent during the past ten years, receiving a high level of performance based pay, insider ownership will most likely be higher than when the CEO is an outsider.

4.2.1 External Board

External board reflects the percentage of board members that does not represent significant shareholders in the company. External board is a proxy for effective monitoring, which, according to agency theory, reduces agency cost and enhance firm value (Semadeni & Cannella, 2011). Thus, a higher percentage of external board members should, according to this theoretical line of argumentation, yield lower agency costs and higher firm value. Using the sample average of 58 percent as a threshold, the variable external board score is equal to 1 if above 58 percent and equal to 0 if below. While this might have some theoretical significance, the authors also take note of the potential shortfalls of using external board as a corporate governance proxy, as more external board members by no means automatically have to equal better monitoring by shareholders.

4.2.2 Insider CEO

Insider CEO is a dummy that takes the value 1 if the CEO of the spin-off comes from the parent or 0 if the CEO is externally hired. Seward and Walsh (1996) argue that agency cost is mitigated when the CEO comes from the parent since incentives become increasingly aligned with owners of the spin-off. This is mainly because the CEO now is awarded for the spin-off performance and not the parent performance. Further, an inside CEO will most likely have better knowledge of the firm which might be beneficiary as the firm becomes independent. However, the authors do note that this variable is complementary in its purpose, as CEO compensation and insider ownership both have similar functions in the variable construction.

4.2.3 Variable CEO compensation

CEO compensation is defined as the share of the CEO's total compensation that is linked to stock market- or company performance and hence align incentives with owners, reducing agency costs (Seward & Walsh, 1996; Feldman, 2016). The threshold for score 1 has been set to 29 percent based on a data sample average, meaning that firms with performance based CEO compensation that is more than 29 percent should, according to the scorecard, perform better than firms with less than 29 percent variable compensation. Of course, this line of argument should only be considered in combination with other complementary factors such as insider ownership, given the high level of variability between different compensation schemes and how well they actually work.

4.2.4 Analyst Coverage

Analyst coverage is measured as the number of recommendations from financial analysts available for the spin-off at completion date. Chung and Jo (1996) argues that increased analyst coverage leads to improved stakeholder scrutiny and hence lower agency costs. Thus, the scorecard assign a positive signal (score = 1) if the number of analyst recommendation per the first day of trading is more than three, implying that agency costs will be lower over time as information asymmetry is reduced. On the other hand, Credit Suisse (2012) argues that high spin-off returns are associated with low analyst coverage. This is similar to the findings of Belisario (2017), who also documents that lower analyst coverage is closely linked to abnormal returns. However, given this thesis focus on agency costs, The Corporate Governance Scorecard nonetheless assigns a positive score to spin-offs with more than three analysts.

4.2.5 Insider Ownership

Insider ownership is the percentage of all outstanding shares owned by company insiders (defined as board members or members of the executive board). The intuition of the variable is that higher insider ownership means better alignment of CEO incentives and shareholder incentives, mitigating potential agent-principal problems. However, Qian and Sudarsanam (2007) document how performance results for family firms (majority insider ownership) are very inconclusive, with proof of both negative and positive relations to abnormal returns. While higher insider ownership may lead to lower transparency and hence increased agency costs, lower insider ownership may lessen the management's and the board's incentive alignment with minority owners.

4.2.6 Leverage

This study defines leverage as the ratio of book value of debt to the market value of equity. The theoretical foundation of leverage is that it induce oversight and hence mitigate agency costs, as information asymmetry is reduced (Jensen, 1986). Thus, the scorecard assigns a score of 1 if leverage is higher than the sample average of 95 percent, meaning that firms that have more oversight, according to agency theory, perform better than firms with less oversight. In contradiction, Berk and Demarzo (2017), among others, argue that higher leverage can be associated with poor performance due to debt overhang. However, the same authors also argue that higher leverage can improve managerial performance, thus improving performance.

4.4 Limitations and Critique Against The Scorecard

The Corporate Governance Scorecard relies on agency theory and previous literature. Most of the metrics included in the scorecard have seen significant scrutiny in previous literature, often with inconclusive results where different methods and approaches has yielded different results. The scorecard is a binary system as it either assign a positive or negative value to a metric, meaning, by definition, that the system has a degree of subjectivity built into it. Moreover, the nature of a binary scoring system has certain issues in its design, as it ignores relativity in the data. Even if the difference between two variables is minimal, a binary system will assign different scores to the variables if the threshold is set in between and consequently there is a risk that information will be lost. Further, the way the binary systems assess what is good and bad can be problematic. While some variables are more intuitive, such as insider ownership (either there is insider ownership or there is not), variables such as leverage or performance-based compensation are more difficult to determine. Thus, the variables in the scorecard that are not very intuitive have been assigned positive or negative values based on their relative value in comparison to the rest of the sample by using simple averages. As previously mentioned, all of the thresholds can be seen in Table 3.

First addressing the divergence of results for most of the metrics in previous research, it seems almost unavoidable given how this is often case specific and correlates with a number of other variables, implying cross-effects. The high variability in results have led to several schools of literature developing and implying the opposite results of each other. For example, while agency

cost theory suggest that leverage increase oversight which reduce agency cost and improve firm value, debt overhang theories suggest that underinvestments reduce firm value in the long-run as the firms can be opportunistic in investing into net positive value projects. Most likely, none of these theories is completely accurate, since it is difficult to isolate one factor and attribute that factor any major importance. Hence, the authors argue that the scorecard should follow one school of literature to be consistent in its arguments, not regarding which line of argumentation feels most suitable for each variable. In this study, the authors base their assignment of scores on the implications of agency theory. Furthermore, since the authors will perform regressions of all variables after the initial t-tests, each variable and their importance will be independently assessed and evaluated based on their functionality or non-functionality.

In conclusion, The Corporate Governance Scorecard should be seen as an extension of agency cost theory in relation to spin-offs, and not per say the optimal investment strategy. While this might be a significant limitation of the thesis, the authors still argue that the scorecard could lead to improved abnormal returns of spin-offs.

5. Methodology

5.1. Research Approach

This paper adopts a long-horizon event study framework, backed by Fama's (1991) recommendation to use long-horizon event studies when studying efficiency of capital markets. To perform an event study, four steps are most commonly employed. First, the event and event window need to be defined. Second, abnormal returns are calculated. Third, the estimation window are defined and lastly, the abnormal returns should be analysed statistically (MacKinlay, 1997). The event of interest in this study is the spin-off transaction and the event windows for which abnormal returns are calculated six months, one, two and three years after the event. The last two steps are described in the following sections.

5.2. Long-Run Abnormal Return

As previously mentioned, all empirical studies reviewed for this paper adopt BHAR to measure long-run abnormal return. This is predominantly because it is considered more relevant from a long-term investor perspective than other measurements such as Cumulative Abnormal Return (CAR). Unlike CAR, BHAR incorporates the compounding effects on stock returns (Barber & Lyon, 1997). The stock returns are adjusted for the spin-offs' respective industry and country to determine abnormal returns. In line with previous researchers, the authors focus more on the industry adjusted abnormal returns than the country adjusted abnormal returns given that it is considered slightly more relevant, although all tests will be performed for both measurements. The industry benchmarks consist of S&P Global's global industry indices whereas the country benchmarks relate to each country's main stock exchange. In line with previous research (see Table 1), the stock returns will be adjusted for holding periods of six months, one year, two years and three years with the following formula:

$$\mathrm{BHAR}_{i,t} = \prod_{t=1}^{\mathrm{T}}(1 + \mathrm{R}_{i,t}) - \prod_{t=1}^{\mathrm{T}}(1 + \mathrm{R}_{j,t}) - 1$$

Here, BHAR is defined as the difference between actual and normal return. The actual returns represent total return for each observation, including reinvestment of dividends, which is in line with the concept of BHAR (Barber & Lyon, 1997). Further, *t* represents the first trading date of the spin-off and T is the last trading day in the period. R_{it} represents the spin-offs' total return on day *t* and R_{jt} of the matching benchmark on day *t*. The average BHAR (ABHAR) is calculated with the following equation:

$$\mathrm{ABHAR}_{t,\mathrm{T}} = \frac{1}{\mathrm{N}} \sum_{i=1}^{\mathrm{N}} \mathrm{BHAR}_{i,t,\mathrm{T}}$$

To test whether ABHAR is different from zero, the t-statistic presented by Barber and Lyon (1997) has been adopted:

$$t = \frac{\mathrm{ABHAR}_{t,\mathrm{T}}}{\mathrm{SD}(\mathrm{BHAR}_{t,\mathrm{T}}) \Big/ \sqrt{\mathrm{N}}}$$

5.3. Econometric Methodology

5.3.1. Significance Test

Given the study's purpose to determine whether one can achieve superior long-run return by selectively investing in companies with strong corporate governance and not investing in companies with weak corporate governance, a significance test is performed. The significance test enables us to separate the spin-offs with strong corporate governance from the spin-offs with weak corporate governance and test whether there is a significant difference in long-run return between the groups. More specifically, a one-tailed two-sample t-test with assumed unequal variances has been performed. Here, spin-offs are classified to have strong corporate governance if they have a total corporate governance scorecard score of 4-6 and considered to have weak corporate governance if they score 0-3. The classification of strong corporate governance implies that spin-offs must score 1 on a majority of the parameters in The Corporate Governance Scorecard. The

spin-offs with strong and weak corporate governance form two different portfolios respectively and are tested to assess if the difference in total shareholder return is significant. The following hypotheses are formulated:

$$H_o: \beta_1 = 0$$

$$H_1: \beta_1 > 0$$

Since the null hypothesis suggests that there is no significant difference between the two portfolios, the null hypothesis can be rejected if the variables are statistically significant. The significance levels of 99, 95 and 90 percent reflect p-values lower than 0.01, 0.05 and 0.1.

5.3.2. Limitations and Critique Against Significance Test

Albeit a significance test compares the excess return of spin-offs with strong respective weak corporate governance in a straightforward way, and that the use of it may seem suitable for the research question of this paper, it does not come without limitations. Previous researchers such as Merton (1985) have criticized the use of t-tests when analyzing financial data, as its validity risks to be disproved if the statistic construction is influenced by empirical relations derived from the data used in the test. This study only apply t-statistics to confirm any potential statistical significance. Hence, one cannot be certain that the t-statistics comes with statistical reliability. Barber and Lyon (1997) argue that this problem is evident in almost any significance test for abnormal returns. Furthermore, a t-test merely analyses potential differences in abnormal returns between the two different portfolios and does not break down the impact of the different individual parameters in The Corporate Governance Scorecard. Theoretically, it is difficult to know which factors in The Corporate Governance Scorecard that are more or less correlated with excess returns than others. In addition to this, as discussed in The Corporate Governance Scorecard section, the scorecard system is discretionary and affected by the authors' decisions. Given the apparent limitations of a simple significance test, an ordinary least square (OLS) methodology is also adopted to further break down the effect of each variable on abnormal return.

5.3.3. OLS Multiple Regression Analysis

To complement the significance test described above and analyse the effects of the different factors that compute The Corporate Governance Scorecard on long-run abnormal return, a multivariate regression analysis is performed.

Consistent with the theoretical background and hypothesis development, the dependent variable is long-run abnormal total stock return of the spin-offs. As aforementioned, this thesis adopts two different measurements for this, where the abnormal return is adjusted for global benchmark sector performance and country benchmark performance respectively. "s36mr" represents the spin-offs' three-year abnormal return adjusted for global sector performance, which is determined based on a two-digit GICS code. "c36mr" reflects the spin-offs' three-year abnormal return adjusted for the country benchmark performance, represented by a country stock index.

Several control variables are also included to improve the results of the regressions. The function of the control variables are described in Section 2.3. The variables included are GICS codes, size, segment, M/B ratio and ROCE. GICS codes (*indu*) is a dummy that will take the value of 1 if the two-digit GICS code is the same for the spin-off and the parent and 0 if they are different. Size (*size*) is the market capitalization of the spin-off at completion divided by the market capitalization of the parent. Segment (*cong*) is the number of segments the parent holds ahead of the spin-off. M/B-ratio (*mbratio*) is the market value of the firm's equity divided by the firm's book value of assets. ROCE (*roce*) is the return on capital employed, calculated as the Earnings Before Interest and Taxes (EBIT) divided by capital employed.

The independent corporate governance variables are external board, insider CEO, variable CEO compensation, analyst coverage, insider ownership and leverage. External board (*exboard*) is the percentage of board members that does not represent significant shareholders in the company (defined as over 0 percent ownership). Insider CEO (*inceo*) is a dummy that takes the value 1 if the CEO of the spin-off originate from the parent or 0 if the CEO is externally hired. CEO compensation (*ceocomp*) is defined as the share of the CEO's total compensation that is linked to company or stock performance. Analyst coverage (*anacov*) is measured as the number of recommendations from financial analysts available for the spin-off at completion date. Insider

ownership (*insown*) is the percentage of all outstanding shares owned by company insiders (defined as board members or members of the executive board). Leverage (*lev*) is defined as book value of debt divided by market value of equity.

Based on previous paragraphs, the following two general regressions are tested:

$$s36mr_{i,t} = \beta_0 + \beta_1 roce + \beta_2 mbratio + \beta_3 cong + \beta_4 size + \beta_5 indu + \beta_6 lev + \beta_7 insown + \beta_8 anacov + \beta_9 ceocomp + \beta_{10} insceo + \beta_{11} exboard + \mu$$

$$c36mr_{i,t} = \beta_0 + \beta_1 roce + \beta_2 mbratio + \beta_3 cong + \beta_4 size + \beta_5 indu + \beta_6 lev + \beta_7 insown + \beta_8 anacov + \beta_9 ceocomp + \beta_{10} insceo + \beta_{11} exboard + \mu$$

The coefficients $ß_{1\text{-}11}$ measures the average impact on three-year returns from each of the variables. For all variables measured as percentage, one percentage point increase results in one percentage point increase in three-year returns, assuming a $ß_x$ equal to one. This is true for *roce, size, lev, insown, ceocomp* and *exboard.* Thus, $ß_1$, $ß_4$, $ß_6$, $ß_7$, $ß_9$ and $ß_{11}$ captures incremental effects of each subcomponents effect on three-year returns. For *mbratio,* a one point increase reflects that 100 percent of the book value has been added to the market value of equity, meaning that $ß_2$ captures the effect of a market revaluation on returns. $ß_3$ captures the effect on adding one more segment to a corporations' effect on returns. $ß_5$ captures the effect of spinning off a subsidiary within the same industry as the parent. $ß_8$ captures the effect of one more analyst covering a spin-off. $ß_{10}$ captures the effect of appointing a inside CEO when completing a spin-off.

To test whether the residuals are equally distributed and in line with the Gauss-Markov assumption of homoscedasticity, a Breusch-Pagan test is conducted. Should this indicate heteroscedasticity, robust standard errors will need to be incorporated in the regression. To control for multicollinearity, a Variance Inflation Factor (VIF) test is performed. According to Gujarati and Porter (2010), VIF values that exceed ten are very likely to be affected by multicollinearity issues, while VIF values between five and ten are somewhat likely to do so. Should the VIF values be under five, the sample is not expected to experience multicollinearity issues.

6. Data

6.1. Data Sources and Sample Construction

The data sample consists of spin-offs that occurred in United Kingdom, Switzerland, Sweden, Spain, Portugal, Norway, Netherlands, Italy, Ireland, Iceland, Greece, Germany, France, Finland, Cyprus, Belgium and Austria between January 1, 2000 and December 31, 2015. A European spin-off is defined as a spin-off where the spun off entity is listed on any of the aforementioned countries' stock exchanges. The data sample of this thesis has been identified and collected primarily using Bloomberg. The first step resulted in a data sample consisting of 359 European spin-offs, identified using spin-off International Securities Identification Number (ISIN) codes. The data sample is then adjusted for dual listings (where a spin-off is listed on two or more exchanges). Further, for inclusion, a complete set of governance, financial and stock performance data must be available. 160 spin-offs that meet these criteria have been identified, constituting the data sample of this paper.

There are several reasons for focusing on the Western European market. First, the access to company data on returns and variables is extensive for these countries. Moreover, the accounting standards are assumed to be of high quality and relatively similar across the region. Additionally, as mentioned in the literature review, a majority of previous empirical studies have been focusing on the US market, which motivates further research on other markets such as Europe. The length of the time span ranging from 2000 to 2015 is in line with previous empirical papers and enables the sample of 160 spin-offs. The sample size is also in line with previous research, where the average number of observations amounts to 201 (see Table 1).

All data has initially been collected from Bloomberg, accessed via the LINC Lab at Lund University School of Economics and Management. Whenever data was incomplete, complementary data has been gathered by hand from regulatory filings such as company annual reports.

6.2. Descriptive Data

The sample distribution over the time period can be seen by year in Figure 1. The figure displays some indications of cyclicality with peak levels in 2006 (22 spin-offs) and trough levels in 2000 (0) and 2009 (1). The distribution of the sample is also displayed based on region and four time intervals in Table 4. United Kingdom is the biggest single country with 53 spin-offs during the full time period, representing 33 percent of the sample. The Nordic region (Sweden, Norway, Finland and Iceland, no spin-offs in Denmark) represents 20 percent of the sample while Rest of Europe represents the residual of 47 percent. The most intensive period in the sample is 2004-2007, where 47 percent of all spin-offs were completed. This is contrasted to 2000-2003 which only represents 15 percent of all spin-offs in the data sample.

In Figure 2 the data sample is illustrated based on the split of two-digit GICS codes. The sector that, during the period, saw most spin-offs was Consumer Discretionary (19 percent) followed by Materials (16 percent) and Industrials (14 percent). The least number of spin-offs were in the Utility sector (3 percent).

Table 5 displays the distribution of size, defined as market capitalization in million USD, in the sample. The average market capitalization in the sample is 3 773 million USD while the median is 513 million USD. The large divergence is explained by looking at the 25th and 75th percentile, which at 47 million USD and 2 514 million USD displays the variety of sizes in the sample.

7. Empirical Analysis

7.1. Spin-Off Return Analysis

Table 6 displays how the spin-off sample data indicates average abnormal returns over six-month (5.0-5.1 percent), one-year (12.0-12.3 percent), two-year (19.9-19.6 percent) and three-year (36.1-34.4 percent) holding periods when adjusted for sector benchmark returns and country benchmark returns. Further, the table provides the distribution of average total shareholder returns over six months (9.7 percent), one year (23.0 percent), two years (39.2 percent) and three years (63.5 percent). The proportion of spin-offs that earn a positive return is consistently around 50 percent and medians for abnormal returns vary between -3.6 and 1.9 percent for all holding periods.

The results are in line with the general thesis of this paper, i.e. that spin-off returns will have a high variation and that a few spin-offs will drive abnormal returns, making individually identifying attractive spin-offs highly relevant for long-run abnormal returns. Furthermore, this is in line with McConnell, Sibley and Xu (2015), who documented that strong performance of spin-offs could be attributed to very strong performance of a few spin-offs. Moreover, these results make intuitive sense given the discussion in previous sections regarding the reasons of spin-offs being made; some are to create values for shareholders in the spin-off while some are done to create value for the shareholders of the parent. For example, most of the large contributors to the abnormal returns in the sample have low levels of leverage, have a inside CEO and high levels of insider ownership, while most of the remuneration is performance based. These are all signs of strong corporate governance, which might strengthen valuations and improve firm value, in line with the argumentation of Glassman (1998).

To further emphasize this point, Figure 3, Figure 4 and Figure 5 display one-, two- and three-year returns of spin-offs divided by the 25th and 75th percentile of performance. The figures display both total shareholder return of spin-offs, sector benchmark adjusted abnormal returns and country benchmark adjusted abnormal returns. For example, three-year country and sector adjusted abnormal returns were 36.1 and 34.4 percent, while only circa 50 percent were positive performers. This, in combination with a median performance of -0.7 and 1.9 percent is indicative of abnormal

returns being driven by a few large winners as explained above. As illustrated in Figure 4, the 75th percentile abnormal returns are around 70-80 percent, while the 25th percentile returns are negative 40-50 percent. Similar patterns can be seen in Figure 3 and Figure 5, accentuating the variance of spin-off returns and providing anecdotal evidence of the importance of carefully picking spin-offs for long-run returns.

7.1.1. Spin-Off Returns Over Time and Sectors

Figure 6 displays the annual distribution of total shareholder returns from the spin-off data sample, sector benchmark adjusted abnormal returns as well as country benchmark adjusted abnormal returns, all measured on one-year returns from spin-off completion. Total returns are positive in 11 out of 14 possible periods. Sector and country adjusted abnormal returns are positive in 10 out of 14 periods. Furthermore, two-year total shareholder returns and sector adjusted abnormal returns are displayed in Figure 7. Total returns, measured based on a two-year holding period, are positive in 12 out of 14 periods, while sector adjusted abnormal returns are positive in 10 out of 14 periods. Figure 8 provides three-year total shareholder returns and sector adjusted abnormal returns. Both total shareholder returns and abnormal returns are positive in 10 out of 13 periods.

The returns are further broken down in Table 7, 8 and 9. The tables display the mean and median returns for total shareholder returns, sector adjusted abnormal returns and country adjusted abnormal returns (for one-year returns). The returns are divided into four periods, each spanning four years (2000-2003, 2004-2007, 2008-2011 and 2012-2015). Further, the percentage of positive returns for each category and time period are accounted for.

One-year returns are positive for average total shareholder returns (13.6-38.8 percent), sector adjusted abnormal returns (6.1-21.1 percent) and country adjusted abnormal returns (4.2-19.2 percent). At the same time, median returns are not as consistent, where median sector adjusted abnormal returns range from -5.3 to 7.2 percent and median country adjusted abnormal returns range from -5.4 to 2.5 percent. Table 8 and Table 9 show anecdotal signs of similar distributions. While mean returns are positive across-the-board, both for total shareholder returns as well as for sector adjusted abnormal returns, median returns are not necessarily positive for all periods and categories. For example, mean returns in 2004-2007 are 10.1 percent for a two-year holding period

and 13.4 percent for a three-year holding period, but median returns are -12.1 and -26.8 percent respectively, again reiterating the importance of picking the right spin-offs.

7.1.2. Spin-Off Returns Summary

The results show that the data sample of 160 spin-offs in Western Europe between 2000 and 2015 yields positive abnormal returns. Hence, this paper contributes with additional anecdotal evidence that spin-offs outperform the market, although this is not tested statistically due to the paper's focus on explanatory factors for abnormal return rather than proving abnormal return in itself. Given that little attention has been given to the European market by previous researchers, this paper adds a particularly relevant perspective to the empirical research on the topic. The results are of similar nature as previous research, where the sector adjusted abnormal returns for the total sample amount to 5.0, 12.0, 19.9 and 36.1 percent for six months, one year, two year and three year holding periods respectively, compared to the average abnormal returns in previous empirical studies of 6.6, 9.4, 17.1 and 21.7 percent for the same time periods (see Table 1). Although both this study and previous research show substantial excess returns for spin-offs, this study yields even higher returns than the average returns of previous studies on a six-month, one-year, two-year and three-year basis. The results indicate that a passive investment strategy investing in all spin-offs yields excess returns. However, the median excess returns are close to zero or even negative for all time periods, ranging from -3.6 percent on a six-month basis to -3.1, 1.2 and -0.7 for one-, two- and three-years respectively when adjusting for benchmark sector returns. This implies that far from all spin-offs yield positive abnormal returns, which is in line with McConnell Sibley and Xu's (2015) argument that high mean returns of spin-offs are related to very strong performance of relatively few spin-offs. On the back of this argument, it becomes even more relevant for investors to partake in an active investment strategy instead of a passive, where they might be able to separate winners from losers in a spin-off group where the returns evidently are diverse.

7.2. The Corporate Governance Scorecard Analysis

The distribution of the sample's scores on The Corporate Governance Scorecard can be seen in Figure 9. The bell-shaped curve indicates, while not confirming, a fair scoring system as the average of the 160 total scores is 3.06. As previously described, The Corporate Governance Scorecard divides the spin-off data sample into one group of strong governance spin-offs and one group of weak governance spin-offs. These groups are then tested and compared to each other, and results are interpreted based on long-run abnormal returns. While this thesis also regress all included variables to further test the reliability of the scorecard, this section provides descriptive statistics and analysis of the sample to further provide an understanding of the potential contributors to long-run abnormal returns.

7.2.1. Results of The Scorecard

The strong governance group is a total of 56 spin-offs, while the weak governance group includes 104 spin-offs. As seen in Table 10 and Figure 10 and 11, the descriptive statistics between the two groups are relatively dispersed. First considering the governance variables, the strong governance group has above average values for all variables, as should be expected. Notable differences can be seen in circa 1.5 more analysts on average covering strong governance companies than weak governance companies. In accordance with the efficient market hypothesis, a higher number of analyst should lead to better information dissection and more efficient pricing of stocks. This would be an indication of semi-strong level of market efficiency, since the higher number of analyst allows for all historical and public information to be available for investor (Dupernex, 2007), while abnormal returns still are achievable. However, this thesis shows a negative relationship between number of analysts, which is in line with the results of Credit Suisse (2012) and Belisario (2017), i.e. that a lower number of analyst leads to higher risk of mispricings and hence better opportunities for abnormal returns. Further, Qian and Sudarsanam (2007) also found statistical significant negative correlation with abnormal returns, in line with this thesis' results. Hence, it can be concluded that attributing a positive score to a higher number of analysts' covering the stock actually is negative for abnormal returns, given the results of the regressions, in contradiction to the intuition of theories of Chung and Jo (1997) or Dupernex (2007).

Insider ownership is more than double as high in the strong group versus the weak group, as seen in Figure 10. Higher insider ownership should lower the probability of managers pursuing strategies and objectives which is not aligned with minority owner, reducing the risk for value destruction (Arnold, 2005; Kim & Nofsinger, 2007). Further, there has been some linkage with positive returns and insider ownership in previous research (see e.g. Feldman, Amit & Villalonga, 2016) Thus, higher insider ownership should indicate improved long-run returns due to the lower agency cost and more well aligned management and owner incentives, which is in line with the results of this paper.

In Table 10 and Figure 11, the characteristics in terms of control variables are displayed. The differences should be interpreted together with the multivariate regressions described in Section 7.3. The three variables that show statistical significance are ROCE, M/B-ratio and relative size, while industry focus and conglomerate structure could not be assumed to be statistically related to abnormal returns. ROCE showed to be positively statistical significantly related to abnormal returns. Previously, researcher like Daley et al (1996) and Dittmar (2004) has been able to prove positive relationships between return metrics and abnormal returns, in line with this papers' results. Thus, it is interesting to take note of the large difference in ROCE between the strong and the weak governance group, where the strong group has an average ROCE of ten percent in comparison to an average ROCE of zero percent for the weak group. While this correlation with the higher governance score might dilute the value of the score, since investors instead might disregard of the scorecard and just choose spin-offs based on ROCE, other characteristics of the scorecard disprove this assumption, as described below.

Table 10 shows that the M/B-ratio of the strong governance group is 4.00 in comparison to an average 2.33 ratio for the weak group. Table 20 and 21 show how the M/B-ratio is negatively associated with abnormal returns, indicating that higher M/B-ratios is related to lower abnormal returns. This is in line with work by e.g. Fama and French (1992) who showed how low valuation stocks tended to outperform high valuation stocks. Thus, the authors of this paper argue that the augmented performance the strong governance group sees from a higher ROCE is at least partly offset by a higher valuation, which contributes negatively to long-run abnormal returns.

The third control variable that, with statistical significance, showed a relationship with abnormal returns, was relative size. The negative coefficient indicated that smaller relative sizes of the spin-off was associated with higher abnormal returns. This would be in line with arguments put forward by e.g. Banz (1981), who argues that there is a size premium for larger companies, improving abnormal returns of smaller companies. However, it also contradicts theories minted by e.g. Hite and Owers (1983), that argues that operational benefits improve with the relative size of the spin-off, since comparative advantages improve for each entity with the size of the spin-off.

In Table 11 and 12, the abnormal return for all governance score variables are presented. Table 11 shows the sector adjusted abnormal return by score variable after one, two and three years, while Table 12 documents the country adjusted abnormal return of the same variables and time periods. In Table 11, the spin-offs with a score of 1 outperform the spin-offs with score 0 across all variables except for analyst coverage after one year. When extending the time period to two years, the two variables inside CEO and insider ownership show higher abnormal returns for spin-offs with the score 0. After three years, the results revert back again as the only variable where spin-offs that score 0 experience higher abnormal returns than spin-offs that score 1. In total, spin-offs with score 1 outperforms spin-offs with score 0 across the variables and time periods at 14 out of 18 occasions. The results in Table 12 are similar, where spin-offs with score 1 outperforms spin-offs with score 0 across the variables and time periods at 12 out of 18 occasions. Notably, spin-offs with score 0 on external board experience higher abnormal returns than those with score 1 for all time periods. In line with Table 11, analyst coverage is a variable where the spin-offs that score 0 outperform those that score 1, here after three years.

The results document that analyst coverage is one of few variables where spin-offs with score 0 seem to perform better than those that score 1. Although one of this paper's main predictions is that strong corporate governance lead to strong abnormal return and that it further assumes that analyst coverage is a suitable proxy for corporate governance, these results are far from surprising. As discussed in the literature review, Belisario (2017) and Credit Suisse (2012) argue that the lack of analyst coverage leads to abnormal returns, as this might hinder corporate information to be properly accessible to the public market and thus increase the risk of mispricing.

The inconclusiveness in results for the external board variable is evident, as the spin-offs that score a 0 yield lower sector benchmark adjusted abnormal return than those with score 1 across all time periods, and the results are reversed for country benchmark adjusted returns. Hence, one may predict that external board will not be shown to have any significant effect in abnormal return in the OLS regressions that are presented later, which also is the case.

7.2.2 Scorecard Significance Test

Table 13, 14 and 15 document sector adjusted abnormal returns for the corporate governance scorecard while Table 16, 17 and 18 reflect the country adjusted abnormal returns. As previously mentioned, the spin-offs that score 4-6 are categorised as spin-offs with strong corporate governance, and their counterparts with score 0-3 are classified as having weak corporate governance.

As shown in Table 13, the strong governance portfolio experiences an average sector benchmark adjusted abnormal return of 21.7 percent, which is substantially superior to the weak governance portfolio's mean abnormal return of 6.8 percent. The difference of 14.9 percentage points is not statistically significant when using t-statistics. The two-year sector adjusted abnormal return show that difference between the strong and weak governance portfolios has increased from 14.9 percentage points to 35.0 percentage points, as the strong governance group yields 42.0 percent compared to the weak governance portfolio that experiences 7.0 percent abnormal returns. The difference is significant at a five percent significance level using t-statistics. In Table 15, it is shown that the strong governance portfolio achieves a mean three-year sector adjusted return of 56.8 percent compared to the weak governance portfolio of 14.7 percent, reflecting a 42.1 percentage point difference. Once again, the difference between the portfolios increases as the time period is extended. The difference is statistically significant at a ten percent level using t-statistics. The results for the country adjusted abnormal returns, presented in Table 16, 17 and 18, are very similar to the results described above with the significance on the same levels.

It can be concluded that the spin-offs with strong corporate governance experience higher abnormal returns than those with weak corporate governance. While the results are not statistically significant on a one-year time frame, they are significant at a five and a ten percent significance

level after two and three years respectively. Further, the tables outline the average abnormal returns for spin-offs at each score level, ranging from 0 to 6. As there are only very few observations with the extreme scores 0 and 6, one cannot determine whether the relationship between corporate governance score and abnormal returns is linear or not. Instead, the results merely implies that the portfolio consisting of spin-off with, according to the scorecard, strong corporate governance outperform those with weak corporate governance.

7.2.3 Scorecard Summary

The Corporate Governance Scorecard is based on six corporate governance variables and designed to act as a foundation for an investment strategy focusing on investing in spin-offs with strong corporate governance. Measured as average abnormal return, the results show that a high score portfolio, consisting of spin-offs with strong corporate governance, outperforms a low score portfolio, consisting of spin-offs with weak corporate governance. The difference in sector adjusted average abnormal return between the groups amounts to 14.9, 35.0 and 42.1 across the one-, two- and three-year holding periods. When using t-statistics, the difference is statistically significant at a five and ten percent level for the two- and three-year holding periods respectively. In addition, the median abnormal return for the strong governance portfolio exceeds weak governance portfolio's counterpart. The outperformance is evident for both sector adjusted returns and country adjusted returns across all holding periods of one, two and three years. Although the significance is not very strong, the results imply that it is possible to attain superior abnormal return by selectively invest in spin-offs that rank high on The Corporate Governance Scorecard. Hence, the authors dismiss the null hypothesis stating that spin-offs with strong corporate governance does not experience higher abnormal returns than spin-offs with weak corporate governance.

7.3. Regressions

7.3.1. Regression Results

The Corporate Governance Scorecard displays some evidence of being able to separate the most attractive spin-offs from the worst spin-offs, as indicated above. However, as discussed earlier in the paper, the constituents of The Corporate Governance Scorecard are subject to subjectivity, and are built on a foundational basis of agency theory, which is contradicted by other theories and evidence. Hence, this thesis seeks to confirm which variables seem to work in terms of creating abnormal returns, which is why this section will describe and show individual OLS regressions of all the constituents of The Corporate Governance Scorecard. Further, to control for firm-specific characteristics and other non-governance variables driving abnormal returns, this thesis adds five of the most common control variables used in previous spin-off research.

Table 20 and Table 21 present the results of the multivariate regressions testing this paper's variables against one-, two- and three-year abnormal returns of spin-offs. The dependent variable in the regressions is abnormal return, while the independent variables are the governance factors and the control variables are other relevant metrics. The governance metrics, as described in Section 4.2, are either dummies (such as insider CEO) or absolute values (such as variable CEO compensation). The control variables are all absolute values except industrial focus, which is a dummy.

In order to test for heteroskedasticity, a Breusch-Pagan / Cook-Weisberg test is performed. The test yields a chi^2 of 0.0000, as seen in Table 22, indicating potential heteroskedasticity. To adjust for this, the regressions are performed with robust standard errors. Furthermore, to test for multicollinearity, a VIF test is performed yielding no indication of multicollinearity in the data sample. This is further evidenced in the correlation matrix presented in Table 19. Some correlation, or causality, as described above, is expected. For example, variable CEO compensation, which often is in equity, should result in higher insider ownership. Further, an insider CEO should, as long as the compensation was paid in part equity, have higher insider ownership than an outside CEO. Moreover, certain control variables should be expected to have signs of correlation or causality. For example, a larger sized firm should cause higher analyst coverage of the stock, i.e.

indicating a one-way causality. However, the variables should be independent enough to not indicate any significant levels of correlation. As seen in Table 19, no correlation between independent or control variables are equal to, or above 1.0, which further indicates the absence of multicollinearity.

Table 20 and 21 show how two corporate governance variables and three control variables are statistically significant at either a one, five or ten percent level. This holds true both for sector adjusted and country adjusted abnormal returns. The other four corporate governance variables and two control variables cannot be verified as statistically significant. The results indicate that while some variables may be more or less important, it is when combined the scorecard really is able to identify abnormal returns. Further, the tests of the control variables are overall in line with previous research, as further expanded on below.

Table 20 and 21 indicate a positive, statistically significant relationship at a ten percent level (one-year) and one percent level (two- and three-year) between variable CEO compensation and adjusted abnormal returns, both on a sector and country adjusted basis. Previous research has been able to identify improvements in CEO compensation in relation to spin-offs (Seward & Walsh, 1996), where better alignment with minority owners reduce agency costs (Feldman, 2016), as well as a positive relation between long-run abnormal returns and improvements in corporate governance factors such as CEO compensation (Qian & Sudarsanam, 2007). This thesis defines the variable in line with argumentation of e.g. Devers et al (2007) and Feldman (2016), where good CEO compensation is proxied by level of compensation that is dependent on firm or stock performance. The positive relationship shown below indicates that this holds true, i.e. that spin-offs with CEO compensation dependent on firm or stock performance perform better than those where most of the CEO remuneration is fixed.

The regressions also indicate a negative, statistically significant relationship on a ten percent level between analyst coverage and three-year sector and country adjusted abnormal returns. Previous research has been inconclusive on the effects of analyst coverage, where Chung and Jo (1996) argue that increased analyst coverage is associated with stronger external control and hence reduced agency costs, while Belisario (2017) argues that the lack of analyst coverage can lead to

mispricings and hence abnormal returns. For The Corporate Governance Scorecard, this paper follows the line of argumentation of Chung and Jo (1996) and Qian and Sudarsanam (2007) and assign a positive score to higher analyst coverage. However, the results below indicates this to be wrong, given the negative relationship between higher analyst coverage and higher abnormal returns. Hence, the results are rather in line with Belisario (2017) and Credit Suisse (2012), e.g. that a lower number of analyst should be indicative of potential mispricings and hence, in the long-run, be associated with abnormal returns of spin-offs.

Table 20 and 21 also show how three out of five control variables are show a statistically significant relationship with abnormal returns. ROCE is positively, statistically significantly related at a ten percent level when analysed against three-year sector and country adjusted abnormal returns, in line with previous spin-off research considering return variables (see e.g. Woo, Willard & Beckstead, 1989; Dittmar, 2004; Qian and Sudarsanam, 2007). Market to book ratio indicates a negative relationship, statistically significant at a five percent level, against three-year returns. The negative relationship implies that higher valuation leads to worse returns in the long-run, in line with previous research (Woo, Willard & Daellenbach, 1992; Dittmar, 2004). Size is negatively, statistically significant at either a one or five percent level towards both country and sector adjusted returns, and in all measured holding periods. While size is one of the most scrutinized variables in relation to previous spin-off research, the results are still somewhat inconclusive. Krishnaswami and Subramaniam (1999) find that smaller firms will most likely be incentivized to complete spin-offs due to information asymmetry improvements, and that these changes were associated with abnormal returns. They find a positive relationship between the relative size of the spin-off and abnormal returns, in line with Miles and Rosenfeld (1983). Contradictory, Banz (1981) was one of the first researchers to provide evidence of small stock outperformance versus larger stocks and hence introduced the size premium, a theory hence shown to hold by many subsequent researchers. The latter theory, i.e. that smaller sized stocks will outperform large stocks in the long run is in line with the results of this thesis, given the negative relationship between size and abnormal returns.

The regressions show no statistically significant relationship between long-run abnormal returns and leverage, insider ownership, insider CEO or external board. Further, the included control

variables conglomerate structure and industrial focus fail to show any statistically significant relationship. Previous research have been inconclusive on all of the aforementioned variables, often with widely dispersed theories and results regarding the effect of these variables.

7.3.2. Regressions Summary

In conclusion, the regressions both confirm and disapprove the thesis of this paper. While one governance variable hold true statistically, CEO compensation, analyst coverage has a negative effect on abnormal returns. Further, while several governance factors does not show any statistical significance at all, the scorecard overall manages to capture stocks with higher average abnormal returns, as several factors seems to contribute to long-run abnormal returns.

The authors are not necessarily surprised by lackluster results of the individual regressions. With the high level of subjectivity and theoretical reasoning surrounding the application of these variables, some are destined not to be accurate. Further, some variables might be counterintuitive, such as leverage or analyst coverage. While a moderate level of leverage can enhance business performance, very high levels are usually an alarming signal for investors. And while a high level of analyst coverage might lead to substantial investor oversight, the risk of crowd behaviours and other behavioural pitfalls increase. Further, the opportunities of making abnormal returns become less apparent the more people that know about it. Thus, the results are expected. However, bearing this in mind, better governance will most likely improve long-run business performance, which is a likely reason for the results of The Corporate Governance Scorecard.

8. Conclusion

The purpose of this paper is to test an investment strategy focuses on investing in spin-offs with strong corporate governance by constructing a scorecard called The Corporate Governance Scorecard. The data shows that a passive investment strategy that invests in all spin-offs outperforms the market, with sector adjusted mean excess returns of 5.0, 12.0, 19.9 and 36.1 percent for six-month, one-, two- and three-year holding periods respectively. Although these are seemingly attractive returns, the sector adjusted median excess returns of -3.6, -3.1, 1.2 and -0.7 for the same time periods imply that there is a large group of spin-offs that does not experience positive abnormal return. Instead of adopting a passive investment strategy that captures both winners and losers, investors could benefit from conducting active investment strategies to separate the best performing spin-offs from the worst performing.

Previous researchers have introduced various variables that are believed to affect spin-offs long-run abnormal returns, out of which several are related to corporate governance. With substantial emphasis on agency theory, the authors have computed The Corporate Governance Scorecard, which is based on the six corporate governance variables. The results show that a portfolio of spin-offs that score high (4-6) on The Corporate Governance Scorecard outperforms a portfolio of spin-offs with low scores (0-3) with statistical significance on a five- and ten percent level on a two- and three-year holding period respectively. Notably, the strong corporate governance portfolio outperforms the weak corporate governance portfolio both when adjusting the abnormal returns for sector and country, and across all time periods of one, two and three years. In summary, the results imply that it is possible to attain superior abnormal return by selectively invest in spin-offs that rank high on The Corporate Governance Scorecard. Hence, the null hypothesis stating that spin-offs with strong corporate governance do not experience higher abnormal returns than spin-offs with weak corporate governance is dismissed.

When analysing the different variables in The Corporate Governance Scorecard individually, the results are somewhat inconclusive. The spin-offs with score 1 outperform the spin-offs with score 0 for a vast majority of the individual variables. One of the few variables where spin-offs with score 0 outperformed those with score 1 is analyst coverage. An argument for this could be that lack of analyst coverage leads to abnormal returns, as this might hinder corporate information to

be properly accessible to the public market and thus increase the risk of mispricing. When performing OLS regressions, this argument is further fortified, as analyst coverage is proven to be negatively correlated with abnormal return at a ten percent significance level. Other than analyst coverage, the regressions showed one more corporate governance variable to be positively, statistically significantly related to abnormal returns. Variable CEO compensation, which is defined as the share of CEO remuneration that is tied to either firm or stock performance, showed statistically significant correlation at a ten percent level for one-year returns and at a one percent level for two- and three-year returns. Previous research has explained this relationship with theories regarding alignment of owner and manager incentives. Moreover, this thesis provides further evidence of statistical significant correlations between long-run abnormal returns of spin-offs and relative size, M/B-ratio and ROCE. The significance is in line with previous evidence of similar relationships. Furthermore, four governance variables and two control variables did not show any statistically significant relationship with long-run abnormal returns of spin-offs. All of these variables have seen inconclusive previous evidence of their relationship to abnormal returns of spin-offs. It also provides anecdotal evidence that The Corporate Governance Scorecard works best when considering several governance aspects at the same time.

9. Implications of The Study

This paper has two major contributions and implications. First, this study complements previous research on spin-offs by using an up-to-date data sample of long-run spin-off returns in Europe. Using a sample of 160 European spin-offs between 2000 and 2015, the paper provides of spin-off performance in Europe, an object which previously has seen only limited attention. Second, this paper provides investors with a framework for selectively picking spin-offs for improved long-run abnormal returns. The Corporate Governance Scorecard appears to be able to improve the already existing abnormal returns of spin-offs by selecting winners and excluding losers otherwise included in a passive investment strategy.

Since this paper attempts to test a thesis which has been given limited attention previously, there is naturally many subjects for further research. First, the results of the regressions imply that there are evident opportunities to improve the scorecard. For example, this study finds statistical significance for analyst coverage, although negatively related to abnormal return. An interesting approach would be to adjust these variables to that the regressions match the scoring of The Corporate Governance Scorecard. Further, another interesting extension of the scorecard would be to include other, non-governance variables. Since this paper finds statistically significant relationships between certain control variables and abnormal returns of spin-offs, a future study could build on this framework to understand the origins of abnormal returns of spin-offs even better. For example, relative size and ROCE is indicated having correlation with positive long-run abnormal returns, and building a framework including these variables would as such be a potentially interesting subject for further research.

10. Reference list

Arnold, G.(2005). Corporate Financial Management (3rd edn), Pearson Education Ltd, Essex

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of financial economics*, 9(1), 3-18.

Barber, B. and Lyon, J. D. (1997). Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. *Journal of Financial Economics*, 43(3), 341-372.

Belisario, P. (2017). Information Spillovers: The Effect of Analyst Coverage on Returns Co-movements. ISES Business School, University of Navara

Berger, P. G. and E. Ofek. (1995). Diversification's Effect On Firm Value. *Journal of Financial Economics*, 37(1), 39-65.

Berk, J., and Demarzo, P. (2017). Corporate finance, 4th ed. Pearson.

Bhagat, S., and Bolton, B. (2008). Corporate governance and firm performance. *Journal of corporate finance*, 14(3), 257-273.

Brick, I.E., Palmon, O. and Wald, J.K. (2006). CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance,* (12), 403-423.

Chemmanur, T. J., and Paeglis, I. (2001). Why issue tracking stock? Insights from a comparison with spin-offs and carve-outs. *Journal of Applied Corporate Finance*, 14(2), 102-114.

Chemmanur, T. J., Krishnan, K., and Nandy, D. K. (2014). The effects of corporate spin-offs on productivity. *Journal of Corporate Finance*, 27, 72-98.

Çolak, G., and Whited, T. M. (2006). Spin-offs, divestitures, and conglomerate investment. *The Review of Financial Studies*, 20(3), 557-595

Credit Suisse (2012). Quantitative Research: Do Spinoffs Create or Destroy Value?

Cusatis, P. J., Miles, J. A., and Woolridge, J. R. (1993). Restructuring through spinoffs: The stock market evidence. *Journal of Financial Economics*, 33(3), 293-311.

Daley, L., Mehrotra, V. and Sivakumar, R. (1997). Corporate Focus and Value Creation Evidence From Spinoffs. *Journal of Financial Economics,* 45(2), 257-281.

Datta, D. K., and Guthrie, J. P. (1994). Executive succession: Organizational antecedents of CEO characteristics. *Strategic Management Journal*, 15(7), 569-577.

Desai, H., and Jain, P. C. (1999). Firm performance and focus: long-run stock market performance following spinoffs. *Journal of financial economics*, 54(1), 75-101.

Devers C.E., Cannella A.A., Reilly G.P. and Yoder M.E. (2007). Executive compensation: a multidisciplinary review of recent developments. *Journal of Management,* 33(6), 1016–1072.

Dittmar, A. (2004). Capital structure in corporate spin-offs. The Journal of Business, 77(1), 9-43.

Dupernex, S. (2007). Why might share prices follow a random walk. *Student Economic Review*, 21(1), 167-179.

Chung, K.E. and Jo, H. (1996). The Impact of Security Analysts' Monitoring and Marketing Functions on the Market Value of Firms, *Journal of Financial and Quantitative Analysis,* 31(4), 493-512.

Core, J. E., Holthausen, R. W., and Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of financial economics*, 51(3), 371-406.

Eisenhardt, K. (1989). Agency Theory: An Assessment and Review. *Academy of Managerial Review*, 14(1), 57-74.

Fama, E (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, 25(2).

Fama, E. (1980). Agency problems and the theory of the firm. *Journal of Political Economy,* 88, 288-307.

Fama, E.F. and Jensen, M.C. (1983), 'Separation of Ownership and Control', *Journal of Law and Economics,* 26(2), 301-326.

Fama, E. F. (1991). Efficient capital markets: II. *The journal of finance*, 46(5), 1575-1617.

Fama, E. F. and French, K. (1992). The Cross-Section of Expected Stock Returns. *Journal of Finance*, 47, 427-65.

Feldman, E. R. (2016). Managerial Compensation and Corporate Spinoffs. *Strategic Management Journal,* 37*,* 2011-2030.

Feldman, E. R., Amit, R. and Villalonga, B. (2016). Corporate Divestitures and Family Control. *Strategic Management Journal,* 37, 429-446.

Glassman, D. M. (1988). Spin-offs and spin-outs: Using ”securitization”to beat the bureaucracy, *Journal of Applied Corporate Finance*, 1, 82-89.

Gujarati, D. and Porter, D. (2010). Basic Econometrics.

Harris, O., and Madura, J. (2010). Cause and effects of poison pill adoptions by spinoff units. *Journal of Economics and Business*, 307-330.

Hite, G. L., and Owers, J. E. (1983). Security price reactions around corporate spin-off announcements. *Journal of Financial Economics*, 12(4), 409-436.

Jensen, M.C. (1986), 'Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers', *Journal of Finance,* 76(2), 323-329.

Johnson, S. A., Klein, D. P., and Thibodeaux, V. L. (1996). The effects of spin-offs on corporate investment and performance. *Journal of Financial Research*, 19(2), 293-307.

Kim, K. and Nofsinger J. (2007). Corporate governance (Second edition), Pearson International Edition. *The International Journal of Accounting*, 44(4), 418-421.

Kirchmaier, T. (2003). The performance effects of European demergers. *Centre for Economic Performance Discussion,* 566.

Krishnaswami, S., and Subramaniam, V. (1999). Information asymmetry, valuation, and the corporate spin-off decision. *Journal of Financial economics*, 53(1), 73-112

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics,* 3–28.

Limmack, R. (1991). Corporate mergers and shareholder wealth effects. *Accounting and Business Research*, 21(83), 239-252.

Linn, S. C., and Rozeff, M. S. (1984) The effect of voluntary spin-offs on stock prices: The anergy hypothesis.

MacKinlay, C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature,* 35(1), 13-39.

Markides, C. (1995). Diversification, Restructuring and Economic Performance. *Strategic Management Journal*, 16(2).

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of economic perspectives*, 17(1), 59-82.

McConnell, J. J., Ozbilgin, M., and Wahal, S. (2001). Spin-offs, ex ante. *The Journal of Business*, 74(2), 245-280.

McConnell, J. J., Sibley, S. E., and Xu, W. (2015). The stock price performance of spin-off subsidiaries, their parents, and the spin-off ETF, 2001-2013. *Journal of Portfolio Management*, 42(1), 143.

McConnell, J., and Ovtchinnikov, A. (2004). Predictability of long-term spinoff returns. *Journal of Investment Management*, 2(3), 35-44.

Merton, R. C. (1985). On the current state of the stock market rationality hypothesis.

Miles, J. A., and Rosenfeld, J. D. (1983). The effect of voluntary spin-off announcements on shareholder wealth. *The Journal of Finance*, 38(5), 1597-1606.

Mitnick, B. (2006). Origin of the Theory of Agency

Modigliani, F., and Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, 261-297.

Moschieri, C. and Mair, J. (2012). Managing Divestitures Through Time - Expanding Current Knowledge. *Academy of Management Perspectives,* 26(4), 35-50.

Piotroski, J. D. (2000). Value investing: The use of historical financial statement information to separate winners from losers. *Journal of Accounting Research*, 38, 1-52.

Powers, Eric A. (2001) Spinoffs, Selloffs and Equity Carveouts: An Analysis of Divestiture Method Choice.

Qian, B., and Sudarsanam, S. (2007). Shareholder Value Gains from European Spinoffs. EFMA conference paper.

Rhodes, R. A. W. (1996). The new governance: governing without government. Political studies, 44(4), 652-667.

Rudisuli, R. (2005). Value Creation of Spin-offs and Carve-outs (Doctoral dissertation, University of Basel).

S&P Global (2017). Capital Market implications of Spinoffs. Quantamental research.

Schipper, K., and Smith, A. (1983). Effects of recontracting on shareholder wealth: The case of voluntary spin-offs. *Journal of financial Economics*, 12(4), 437-467

Semadeni, M. and Cannella Jr., A. A. (2011). Examining the Performance Effects of Post Spin-Off Links to Parent Firms: Should the Apron String Be Cut? *Strategic Management Journal*, 32, 1083-1098.

Seward, J. K., and Walsh, J. P. (1996). The governance and control of voluntary corporate spin-offs. *Strategic Management Journal*, 17(1), 25-39.

Sin, Y. C., and Ariff, M. (2006). Corporate spin-offs and the determinants of stock price changes in Malaysia. Working Paper, Monash University.

Sirower, M., and O'Byrne, S. (1998). The measurement of post-acquisition performance. *Journal of Applied Corporate Finance*, 11, 107-121.

Veld, C., and Veld-Merkoulova, Y. V. (2004). Do spin-offs really create value? The European case. *Journal of Banking & Finance*, 28(5), 1111-1135.

Woo, C. Y., Willard, G. E., and Beckstead, S. M. (1989). Spin-offs: What are the gains?. *Journal of Business Strategy*, 10(2), 29-32.

Vijh, A. M. (1994). The spin-off and merger ex-date effects. *The Journal of Finance*, 49(2), 581-609

Woo, C. Y., Willard, G. E., and Daellenbach, U. S. (1992). Spin-off performance: A case of overstated expectations?. *Strategic Management Journal*, 13(6), 433-447.

Zacks, L. (2011). The Handbook of Equity Market Anomalies: Translating Market Inefficiencies into Effective Investment Strategies. 1sted. Hoboken, N.J., Wiley, 1-59, 91-126, 265-281.

Tables

Table 1: Previous research.

					Excess return (%)			
Authors	Year	Region	Research period	Sample size	t+6m	t+12m	t+24m	t+36m
Cusatis, Miles and Woolridge	1993	US	1965-1988	141	1.0	4.5	25.0**	33.6**
Desai and Jain	1999	US	1975-1991	162	NA	15.7***	36.2***	32.3***
McConnell, Ozbilgin and Wahal	2001	US	1989-1995	96	8.9	7.2	5.8	-20.9
Powers	2001	US	1981-1998	187	NA	-6.3	NA	NA
Kirchmaier	2003	EU	1989-1999	41	4.2	4.6	-0.6	NA
Veld and Veld-Merkoulova	2004	EU	1987-2000	70	12.0	12.6	13.7	15.2
McConnell and Ovtchinnikov	2004	US	1965-2000	311	12.2	10.6**	8.2**	2.9**
Rudisuli	2005	US/EU	1990-2003	336	NA	18.9***	30.9***	55.8**
Sudarsanam and Qian	2007	EU	1980-2005	142	NA	7.2	17.5	23.0
Harris and Madura	2010	US	1981-2006	311	NA	17.3***	24.6***	26.2***
Credit Suisse	2012	US	1995-2012	151	NA	13.4	NA	NA
McConnell, Sibley and Xu	2015	US	2001-2013	153	4.8*	8.5*	17.1**	26.5**
S&P Global	2017	US/EU	1989-2016	516	3.3*	8.4**	10.2**	22.1**
Average				201	6.6	9.4	17.1	21.7

Table 1 summarises previous research on spin-off abnormal return. The oldest identified empirical study dates back to 1993, while the most recent was conducted in 2017. The table presents several key metrics for each study. One of these is the excess return for the data sample, where statistical significance is flagged with "*" for significance at a ten percent level, "**" for significance at a five percent level and "***" significance at a one percent level.

Table 2: Constituents of The Corporate Governance Scorecard.

Variable	Relation to performance	Theoretical foundation	Reference study
External Board (%)	+	Agency costs: Improved oversight	Seward and Walsh (1996)
Insider CEO (1/0)	+	Agency costs: Incentives improve with spin-off	Feldman (2016)
Variable CEO Compensation (%)	+	Agency costs: Improved alignement with firm performance and shareholders	Brick et al (2006)
Analyst Coverage (# analysts)	+ / -	Agency costs: Improved oversight / EHM: Mitigation of information asymmetry	Chung and Jo (1996) and Belisario (2000)
Insider Ownership (%)	+	Agency costs: Improved incentives of managers and shareholders	Qian and Sudarsanam (2007)
Leverage (D/E, %)	+ / -	Agency costs: Improved oversight / Leverage theory: Debt overhang vs mangerial performance	Jensen (1986) and Berk and Demarzo (2017)

Table 2 displays the constituents of The Corporate Governance Scorecard, including six corporate governance variables. Moreover, the table includes a notion of relation to performance, theoretical and reference study. The relation to performance indicates whether an increase in the variables affect firm performance positively or negatively, according to the reference studies. Theoretical foundation shows which theoretical foundation the variables are based on. The reference study column reflects the source of the variables.

Table 3: Intuition and scoring of The Corporate Governance Scorecard.

Variable	Intuition	Scoring threshold
External Board (%)	High share of external board members improve performance	= 1 if >average (58%)
Insider CEO (1/0)	If the CEO is coming from within the parent, performance improve	= 1 if insider
Variable CEO Compensation (%)	Higher share of performance-linked remuneration improve performance	= 1 if >average (29%)
Analyst Coverage (# analysts)	More financial analysts covering the stock improves performance	= 1 if >3
Insider Ownership (%)	High level of insider ownership improves performance	= 1 if >0%
Leverage (D/E, %)	Higher level of leverage improves performance	= 1 if >average (95%)

Table 3 shows the intuition and scoring system of the constituents of The Corporate Governance Scorecard, including six corporate governance variables. The intuition reflects how the variables are assumed to affect firm performance, based on previous research. The scoring threshold shows at what level each variable yields score 1 in the binary scoring system.

Table 4: Descriptive data - spin-offs by region and time period.

Interval	2000-2003	2004-2007	2008-2011	2012-2015	Total
United Kingdom	10	19	12	12	53
Percentage	*42%*	*35%*	*38%*	*24%*	*33%*
Nordics	3	15	4	10	32
Percentage	*13%*	*27%*	*13%*	*20%*	*20%*
Rest of Europe	11	21	16	27	75
Percentage	*46%*	*38%*	*50%*	*55%*	*47%*
Total	24	55	32	49	160
Percentage	*15%*	*34%*	*20%*	*31%*	*100%*

Table 4 presents the data sample by time period and domicile. Note that the country or region is where the spin-off was listed, which per say is not where the parent was listed at the time.

Table 5: Spin-offs and parent companies by size.

Spin-offs by size (mUSD)	Mean	25th Percentile	Median	75th Percentile
Spin-off size	3 773	47	513	2 514
Parent size	8 843	95	1 021	4 945
Spin-off as % of parent	36%	14%	30%	56%

Table 5 shows the data sample by size, including mean, the 25th percentile, median and 75th percentile. The figures are shown for spin-offs, parent companies and spin-offs as a percentage of parent companies.

Table 6: Spin-off returns.

Returns for Spin-Offs			
Total Shareholder Returns (%)	Mean	Median	Percentage Positive
6-month return	9.7	2.0	53.1
1-year return	23.0	10.0	61.9
2-year return	39.2	27.2	63.2
3-year return	63.5	20.6	60.1
Sector benchmark adjusted (%)			
6-month return	5.0	-3.6	44.4
1-year return	12.0	-3.1	46.9
2-year return	19.9	1.2	50.7
3-year return	36.1	-0.7	49.3
Country benchmark adjusted (%)			
6-month return	5.1	-2.4	47.5
1-year return	12.3	-0.9	49.4
2-year return	19.6	1.8	50.7
3-year return	34.4	1.9	52.2

Table 6 displays the data sample's total shareholder returns, sector adjusted abnormal returns and country adjusted abnormal returns based on six-months, one-, two- and three-year returns. Both mean and median figures are presented. Percentage positive refers to the total share of spin-offs that has positive returns.

Table 7: One-year spin-off returns.

1-year returns			
Returns %	Mean	Median	Percentage Positive
Total shareholder return			
2000-2003	13.6	3.9	54.2
2004-2007	38.8	15.1	67.3
2008-2011	13.7	2.7	53.1
2012-2015	16.1	11.0	65.3
Sector benchmark adjusted			
2000-2003	7.5	7.2	37.5
2004-2007	21.1	-5.3	47.3
2008-2011	8.6	-0.4	50.0
2012-2015	6.1	-3.1	49.0
Country benchmark adjusted			
2000-2003	12.1	-5.4	45.8
2004-2007	19.2	2.5	50.9
2008-2011	13.0	0.6	50.0
2012-2015	4.2	-0.2	49.0

Table 7 displays the data sample's total shareholder returns, sector adjusted abnormal returns and country adjusted abnormal returns based on a one-year holding period. The returns are further divided into four four-year periods. Both mean and median figures are presented. Percentage positive refers to the total share of spin-offs that has positive returns.

Table 8: Two-year spin-off returns.

2-year returns			
Returns %	Mean	Median	Percentage Positive
Total shareholder return			
2000-2003	84.5	55.1	70.8
2004-2007	29.4	5.5	59.2
2008-2011	26.5	9.2	51.6
2012-2015	34.8	31.5	70.8
Sector benchmark adjusted			
2000-2003	58.6	17.4	66.7
2004-2007	*10.1*	*-12.1*	*38.8*
2008-2011	*11.2*	*-8.1*	*45.2*
2012-2015	*16.0*	*16.6*	*58.3*

Table 8 displays the data sample's total shareholder returns and sector adjusted abnormal returns based on a two-year holding period. The returns are further divided into four four-year periods. Both mean and median figures are presented.

Table 9: Three-year spin-off returns.

3-year returns			
Returns %	Mean	Median	Percentage Positive
Total shareholder return			
2000-2003	125.6	102.3	78.3
2004-2007	32.9	-24.8	38.6
2008-2011	54.3	14.4	55.2
2012-2015	67.9	49.1	76.2
Sector benchmark adjusted			
2000-2003	85.8	80.5	69.6
2004-2007	13.4	-26.8	31.8
2008-2011	23.1	-11.1	44.8
2012-2015	41.5	11.9	59.5

Table 9 displays the data sample's total shareholder returns and sector adjusted abnormal returns based on a three-year holding period. The returns are further divided into four four-year periods. Both mean and median figures are presented.

Table 10: Sample characteristics of The Corporate Governance Scorecard .

All values are sample averages	Strong governance (score 4-6)	Weak governance (score 1-3)
Governance variables		
External board	60%	58%
Inside CEO	0.95	0.72
CEO compensation	35%	26%
Analyst coverage	4.11	2.57
Insider ownership	9%	4%
Leverage	127%	78%
Control variables		
ROCE	10%	0%
M/B ratio	4.00	2.33
Conglomerate	2.16	1.57
Relative size	107%	154%
Industry focus	0.80	0.47

Table 10 shows the characteristics of the strong and the weak corporate governance groups, both in terms of governance variables and control variables. All values are sample means. The strong governance group consists of 56 spin-offs and the weak governance group consists of 104 spin-offs.

Table 11: Sector adjusted abnormal return by score variable.

Returns %	1 year	2 years	3 years	n
External board				
0	11.5	19.1	27.1	66
1	12.2	19.4	31.1	94
Inside CEO				
0	6.7	25.4	18.3	37
1	13.5	17.4	32.8	123
CEO compensation				
0	11.9	13.1	25.0	122
1	12.1	39.2	43.8	38
Analyst coverage				
0	12.2	17.3	32.4	131
1	10.8	28.1	16.5	29
Insider ownership				
0	9.7	22.1	26.0	89
1	15.4	16.0	33.7	71
Leverage				
0	3.2	2.7	11.3	30
1	14.0	23.1	33.7	130

Table 11 shows benchmark sector adjusted abnormal returns for each constituent of The Corporate Governance Scorecard, displayed by which variables received a score of 0 and a score of 1. The scores are distributed based on a binary system further explained in Section 4, or as displayed in Table 3.

Table 12: Country adjusted abnormal return by score variable.

Returns %	1 year	2 years	3 years	n
External board				
0	14.2	22.3	29.6	66
1	10.9	15.9	27.1	94
Inside CEO				
0	5.8	22.5	12.7	37
1	14.2	17.3	32.8	123
CEO compensation				
0	12.0	10.6	22.3	122
1	13.1	43.7	46.9	38
Analyst coverage				
0	11.6	15.0	28.7	131
1	15.3	34.4	25.7	29
Insider ownership				
0	9.5	22.8	25.2	89
1	16.1	13.4	31.7	71
Leverage				
0	6.5	5.1	14.3	30
1	13.6	21.6	31.3	130

Table 12 shows benchmark country adjusted abnormal returns for each constituent of The Corporate Governance Scorecard, displayed by which variables received a score of 0 and a score of 1. The scores are distributed based on a binary system further explained in Section 4, or as displayed in Table 3.

Table 13: One-year sector adjusted abnormal return.

Abnormal return			
	Mean	Median	n
All spin-offs	12.0	-3.1	160
Governance score			
0	14.8	14.8	2
1	-14.6	-16.8	10
2	-9.4	-20.7	33
3	19.1	-3.1	59
4	17.8	8.1	46
5	45.0	11.3	8
6	17.4	17.4	2
Weak governance	6.8	-9.8	104
Strong governance	21.7	9.7	56
Difference (Strong - Weak)	14.9	19.5	-
P (T<=t one tail)	0.140	-	-
T-value	1.083	-	-

Table 13 shows benchmark sector adjusted abnormal returns distributed over the scorecards' assigned scores, including individual scores and the combined groups. The table displays adjusted abnormal returns assuming a one-year holding period post completion day of the spin-off. All numbers are percentage points. For example, the mean one-year abnormal return of the two spin-offs that received a score of 0 is 14.8 percent. The P value is based on a one-tailed two-sample t-test with assumed unequal variances. If present, one asterix "*" shows significance at a ten percent level, two asterixis "**" indicates significance at a five percent level and three asterixis "***" indicates significance at a one percent level.

Table 14: Two-year sector adjusted abnormal return.

Abnormal return			
	Mean	Median	n
All spin-offs	19.3	2.9	160
Spinoff score			
0	2.4	2.4	2
1	31.3	-8.1	10
2	0.0	-9.9	33
3	13.9	-3.9	59
4	37.6	16.6	46
5	31.7	34.9	8
6	-16.7	-16.7	2
Weak governance	7.0	-8.1	104
Strong governance	42.0	17.9	56
Difference (Strong - Weak)	35.0	26.0	-
P (T<=t one tail)	0,031**	-	-
T-value	1.888	-	-

Table 14 shows sector adjusted abnormal returns assuming a two-year holding period. The same methodology as described under Table 13 is used.

Table 15: Three-year sector adjusted abnormal return.

Abnormal return			
	Mean	Median	n
All spin-offs	29.5	-1.8	160
Spinoff score			
0	-23.3	-23.3	2
1	38.9	-42.1	10
2	1.4	-22.7	33
3	25.6	-8.9	59
4	59.7	15.5	46
5	15.5	19.4	8
6	-38.7	-38.7	2
Weak governance	14.7	-17.4	104
Strong governance	56.8	15.5	56
Difference (Strong - Weak)	42.1	32.9	-
P (T<=t one tail)	0,06*	-	-
T-value	1.573	-	-

Table 15 shows sector adjusted abnormal returns assuming a three-year holding period. The same methodology as described under Table 13 is used.

Table 16: One-year country adjusted abnormal return.

Abnormal return			
	Mean	Median	n
All spin-offs	12.3	-0.9	160
Spinoff score			
0	21.7	21.7	2
1	20.0	-3.3	10
2	-7.8	-14.9	33
3	17.0	-6.2	59
4	17.1	11.1	46
5	17.6	12.3	8
6	23.5	23.5	2
Weak governance	6.7	-9.9	104
Strong governance	22.6	11.6	56
Difference (Strong - Weak)	15.9	21.6	-
P (T<=t one tail)	0.121	-	-
T-value	1.177	-	-

Table 16 shows benchmark country adjusted abnormal returns assuming a one-year holding period. The same methodology as described under Table 13 is used.

Table 17: Two-year country adjusted abnormal return.

Abnormal return			
	Mean	Median	n
All spin-offs	18.5	3.5	160
Spinoff score			
0	7.4	7.4	2
1	40.0	-3.7	10
2	-1.7	-9.8	33
3	11.0	-4.7	59
4	34.5	11.8	46
5	48.8	61.8	8
6	-8.2	-8.2	2
Weak governance	6.0	-6.9	104
Strong governance	41.6	13.2	56
Difference (Strong - Weak)	35.6	20.2	-
P (T<=t one tail)	0,029**	-	-
T-value	1.926	-	-

Table 17 shows benchmark country adjusted abnormal returns assuming a two-year holding period. The same methodology as described under Table 13 is used.

Table 18: Three-year country adjusted abnormal return.

Abnormal return			
	Mean	Median	n
All spin-offs	28.1	2.5	160
Spinoff score			
0	-35.5	-35.5	2
1	46.0	-26.6	10
2	-0.8	-25.9	33
3	22.4	-5.3	59
4	55.7	7.9	46
5	38.2	3.1	8
6	-29.7	-29.7	2
Weak governance	12.8	-16.4	104
Strong governance	56.6	7.4	56
Difference (Strong - Weak)	43.8	23.8	-
P (T<=t one tail)	0,052*	-	-
T-value	1.641	-	-

Table 18 shows benchmark country adjusted abnormal returns assuming a three-year holding period. The same methodology as described under Table 13 is used.

Table 19: Correlation matrix including all variables used in the regressions.

Correlation matrix	**exboard**	**insceo**	**ceocomp**	**anacov**	**insown**	**lev**	**indu**	**size**	**cong**	**mbratio**	**roce**
exboard	1										
insceo	0.1957**	1									
ceocomp	0,0235	-0,053	1								
anacov	-0,1017	0,0545	-0,0621	1							
insown	0,0469	0,0733	0.2586***	0,0904	1						
lev	0,1097	0,1234	0.2144***	0,1163	0,0834	1					
indu	-0,0505	-0,0063	0.1708**	0,0565	0,0652	0.1384*	1				
size	0,1077	0,1181	-0,1201	0,1019	-0,0754	0,026	-0.2048***	1			
cong	-0.1424*	0,1125	-0,0528	0.2983***	0,0101	-0.165**	0,0195	-0,0235	1		
mbratio	-0,0362	0,0785	0,1224	0,113	-0,0056	0.2731***	0.2173***	0,003	0,0383	1	
roce	0,0847	0,0368	-0,0355	0,1248	0,0733	-0,0406	-0,0321	0,0625	0,0964	0.1683**	1

Table 19 displays correlations between all dependent, independent and control variables, as computed in Stata. One asterix "*" shows significance at a ten percent level, two asterixis "**" indicates significance at a five percent level and three asterixis "***" indicates significance at a one percent level. Some correlation and causality is expected, as described in Section 7.3.1, between for example variable CEO compensation and insider ownership. However, no correlation is above 0.8, indicating that there is no multicollinearity in the sample.

Table 20: Regression results for sector adjusted abnormal returns.

Multivariate regression			
Sector adjusted abnormal returns	1-year returns	2-year returns	3-year returns
roce	0.00388	0.0525	0.149***
	(0.0511)	(0.0426)	(0.0482)
mbratio	-0.00857	-0.0193	-0.0443**
	(0.0122)	(0.0145)	(0.0214)
cong	0.0259	0.0378	0.0640
	(0.0250)	(0.0389)	(0.0584)
size	-0.0367**	-0.0353**	-0.0446**
	(0.0169)	(0.0157)	(0.0184)
indu	-0.110	-0.219	-0.260
	(0.177)	(0.189)	(0.227)
lev	-0.0159	0.0589	0.0416
	(0.0462)	(0.0521)	(0.0712)
insown	0.322	0.0271	1.303
	(0.667)	(0.593)	(1.561)
anacov	-0.00671	-0.0108	-0.0206*
	(0.00739)	(0.00921)	(0.0122)
ceocomp	0.579*	1.235***	2.337***
	(0.316)	(0.387)	(0.733)
insceo	0.0781	0.0344	0.397
	(0.152)	(0.237)	(0.275)
exboard	0.252	-0.547	-0.990
	(0.529)	(0.539)	(0.663)
Constant	-0.146	0.256	0.0291
	(0.215)	(0.387)	(0.316)
Observations	160	160	160
R-squared	0.065	0.156	0.277

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 20 shows the estimation results of the multivariate regression made with benchmark sector adjusted abnormal returns as the dependent variable. The output is from Stata. Given this thesis data sampling method, all variables, including dependent, independent and control variables, have 160 measurement, i.e. one for each spin-off. This amounts to a total of 2 720 individual measurements. An OLS approach with robust standard errors is used.

Table 21: Regression results for country adjusted abnormal returns.

Multivariate regression			
Country adjusted abnormal returns	1-year returns	2-year returns	3-year returns
roce	0.00388	0.0525	0.149***
	(0.0511)	(0.0426)	(0.0482)
mbratio	-0.00857	-0.0193	-0.0443**
	(0.0122)	(0.0145)	(0.0214)
cong	0.0259	0.0378	0.0640
	(0.0250)	(0.0389)	(0.0584)
size	-0.0367**	-0.0353**	-0.0446**
	(0.0169)	(0.0157)	(0.0184)
indu	-0.110	-0.219	-0.260
	(0.177)	(0.189)	(0.227)
lev	-0.0159	0.0589	0.0416
	(0.0462)	(0.0521)	(0.0712)
insown	0.322	0.0271	1.303
	(0.667)	(0.593)	(1.561)
anacov	-0.00671	-0.0108	-0.0206*
	(0.00739)	(0.00921)	(0.0122)
ceocomp	0.579*	1.235***	2.337***
	(0.316)	(0.387)	(0.733)
insceo	0.0781	0.0344	0.397
	(0.152)	(0.237)	(0.275)
exboard	0.252	-0.547	-0.990
	(0.529)	(0.539)	(0.663)
Constant	-0.146	0.256	0.0291
	(0.215)	(0.387)	(0.316)
Observations	160	160	160
R-squared	0.065	0.156	0.277

Robust standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 21 shows the estimation results of the multivariate regression made with benchmark country adjusted abnormal returns as the dependent variable. The output is from Stata. Given this thesis data sampling method, all variables, including dependent, independent and control variables, have 160 measurement, i.e. one for each spin-off. This amounts to a total of 2 720 individual measurements. An OLS approach with robust standard errors is used.

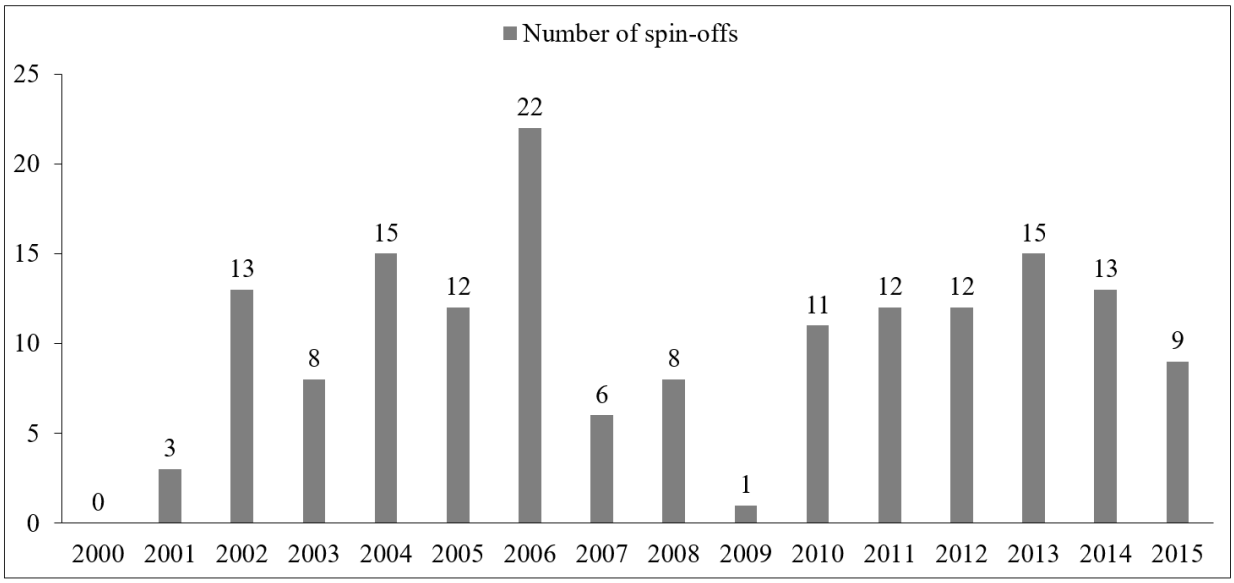
Table 22: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: roce mbratio cong size indu lev insown anacov ceocomp insceo exboard
chi2(11) = 181.43
Prob > chi2 = 0.0000

To test for heteroskedasticity in the data sample, all independent and control variables are tested with a Breusch-Pagan test, using a constant variance. The Chi2 fo 0.0000 indicates that there is heteroskedasticity in the sample.

Figures

Figure 1: The data sample divided into years, ranging from 2000 to 2015.



The figure displays the distribution of the data sample per year, containing a total of 160 spin-offs completed in Europe during 2000 to 2015. Evident in the figure is the cyclicality, wherest boom period such as 2004 to 2007 sees a high activity, while 2000 to 2001 or 2008 to 2009 is more limited in terms of completed spin-offs.

Figure 2: Spin-off data sample illustrated based on GICS code.

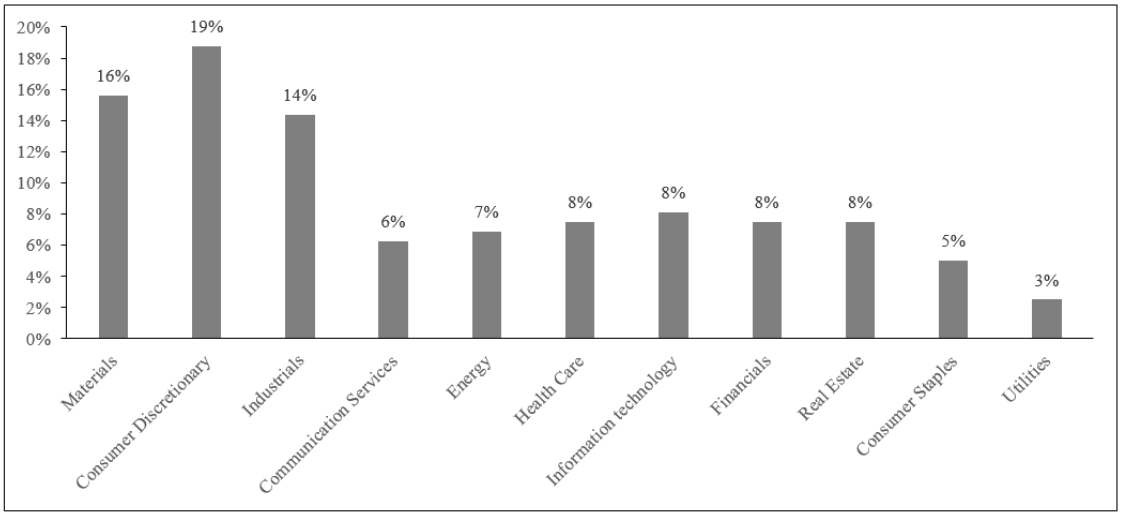
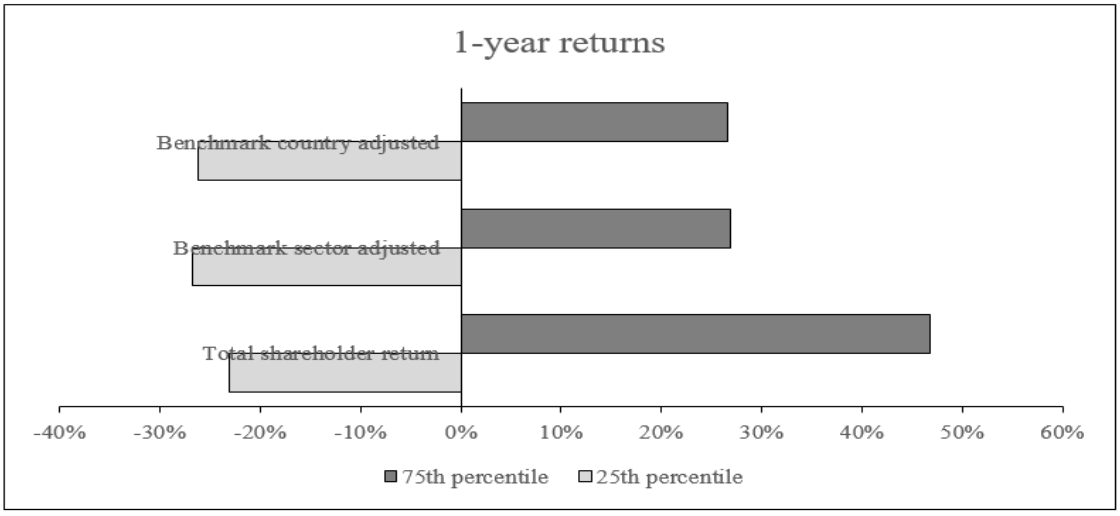


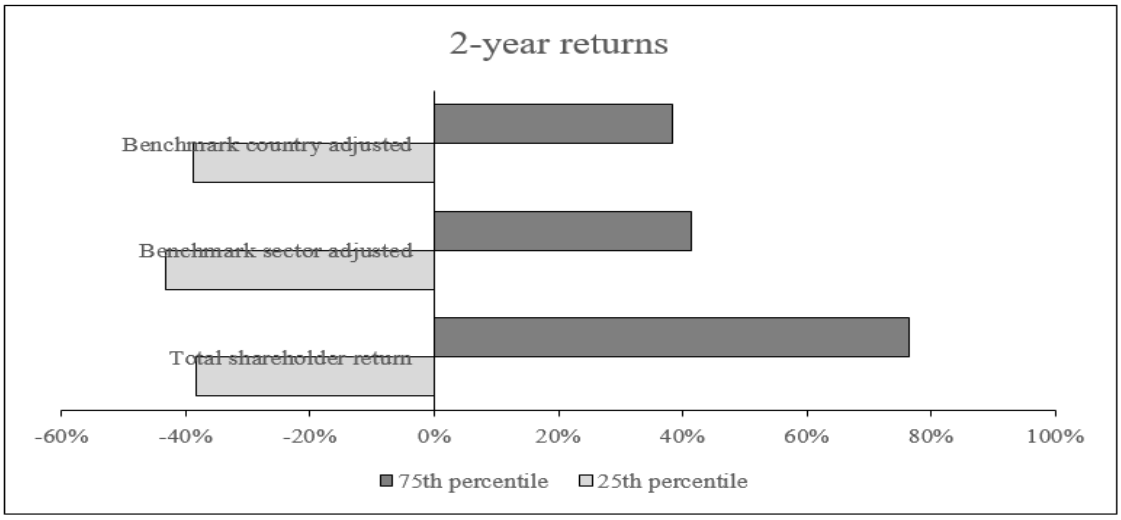
Figure 2 displays the distribution of the data sample in terms of industry groups. The total sample contains 160 European spin-offs completed between 2000 to 2015. The figure displays a well diversified data sample, which also can be evidenced throughout the paper since country- and sector adjusted abnormal returns often are similar, which would not be the case would the data sample be more concentrated to one industry group.

Figure 3: 25th and 75th percentiles of one-year returns.



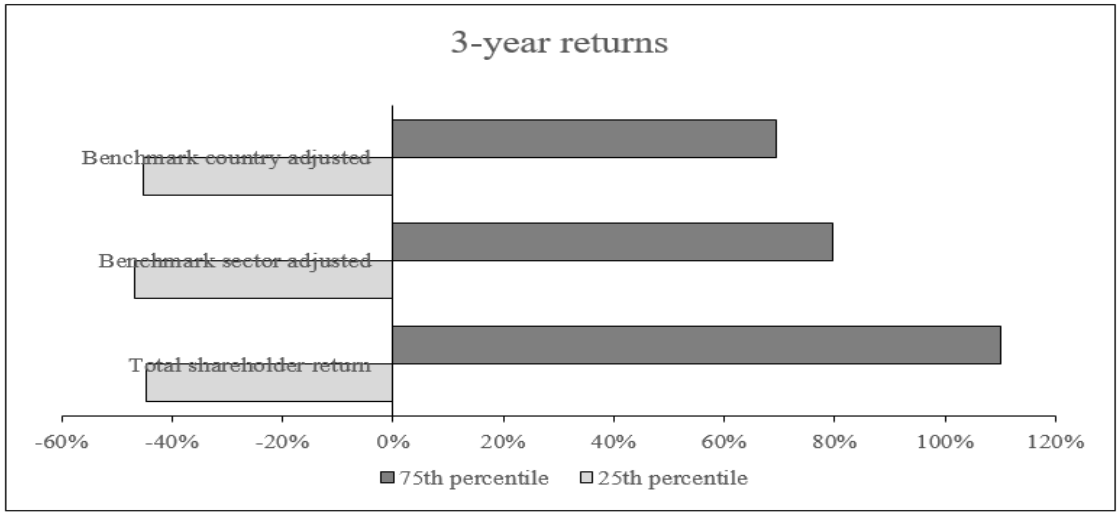
The figure shows the 25th and 75th percentile of returns of the full sample, including 160 spin-offs. When adjusted for country returns, the most relevant country index has been used to adjust for abnormal returns. For sector, two-digit (level 1) GICS codes are used to identify the relevant sector index.

Figure 4: 25th and 75th percentiles of two-year returns.



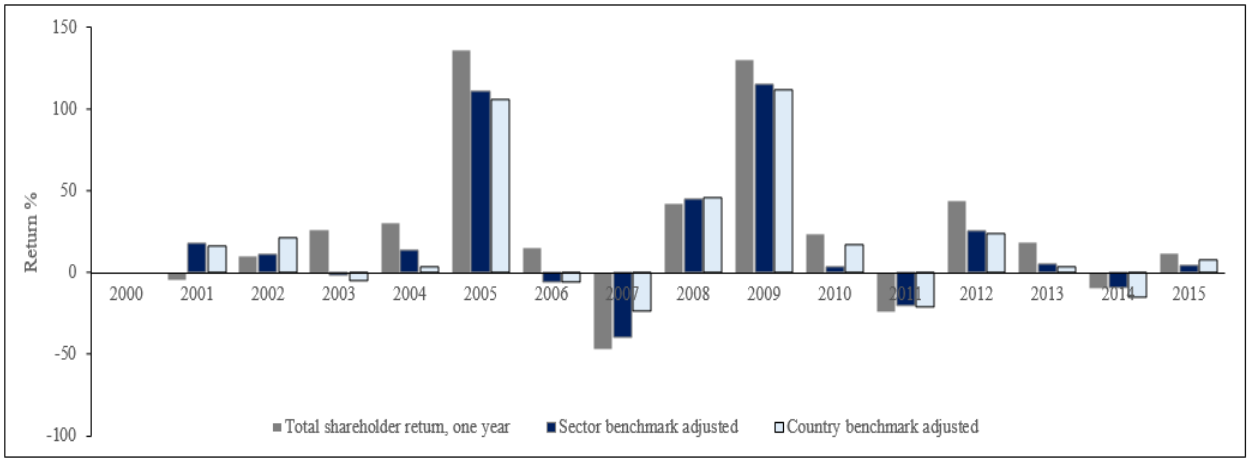
The figure shows the 25th and 75th percentile of returns of the full sample, including 160 spin-offs. When adjusted for country returns, the most relevant country index has been used to adjust for abnormal returns. For sector, two-digit (level 1) GICS codes are used to identify the relevant sector index.

Figure 5: 25th and 75th percentiles of three-year returns.



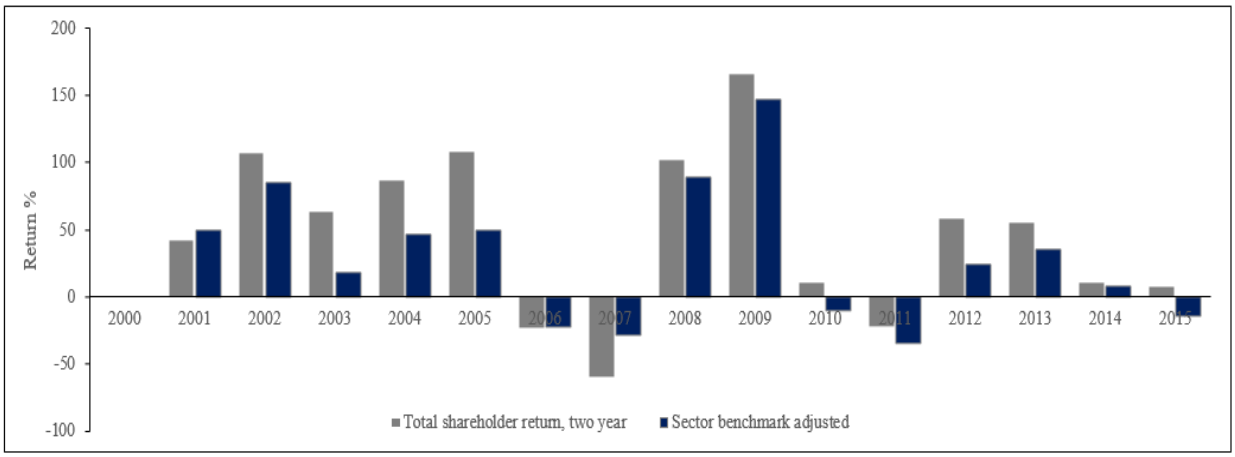
The figure shows the 25th and 75th percentile of returns of the full sample, including 160 spin-offs. When adjusted for country returns, the most relevant country index has been used to adjust for abnormal returns. For sector, two-digit (level 1) GICS codes are used to identify the relevant sector index.

Figure 6: One-year returns by spin-off completion year.



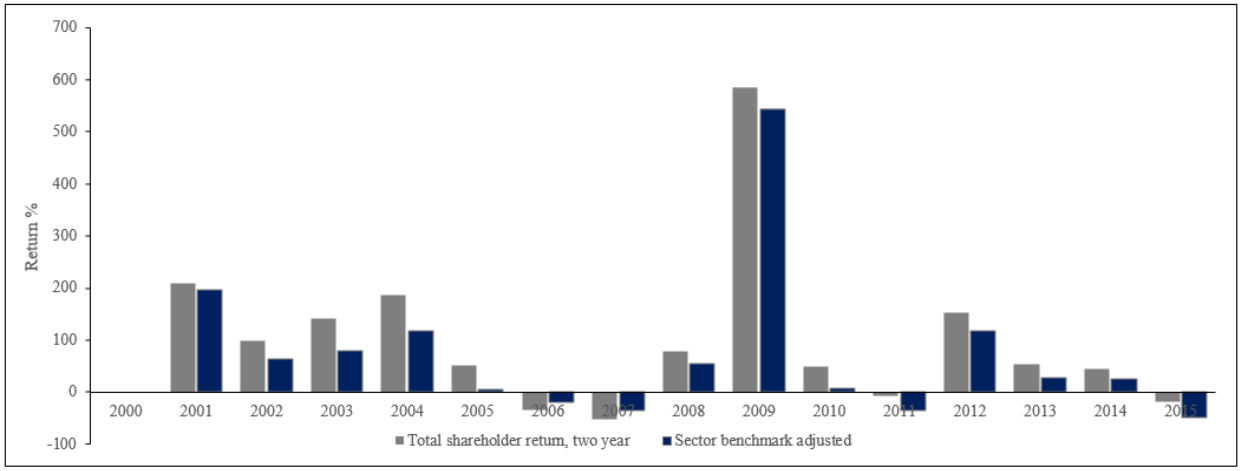
One-year returns of spin-offs, both adjusted and not adjusted for country and sector returns. The figure displays the returns over each year of the data sample. For example, if a spin-off was made during 2001, the 2001 bar in the figure will display the returns that the spin-off generated one year post completion date (i.e. measured as between 2001 and 2002).

Figure 7: Two-year returns by spin-off completion year.



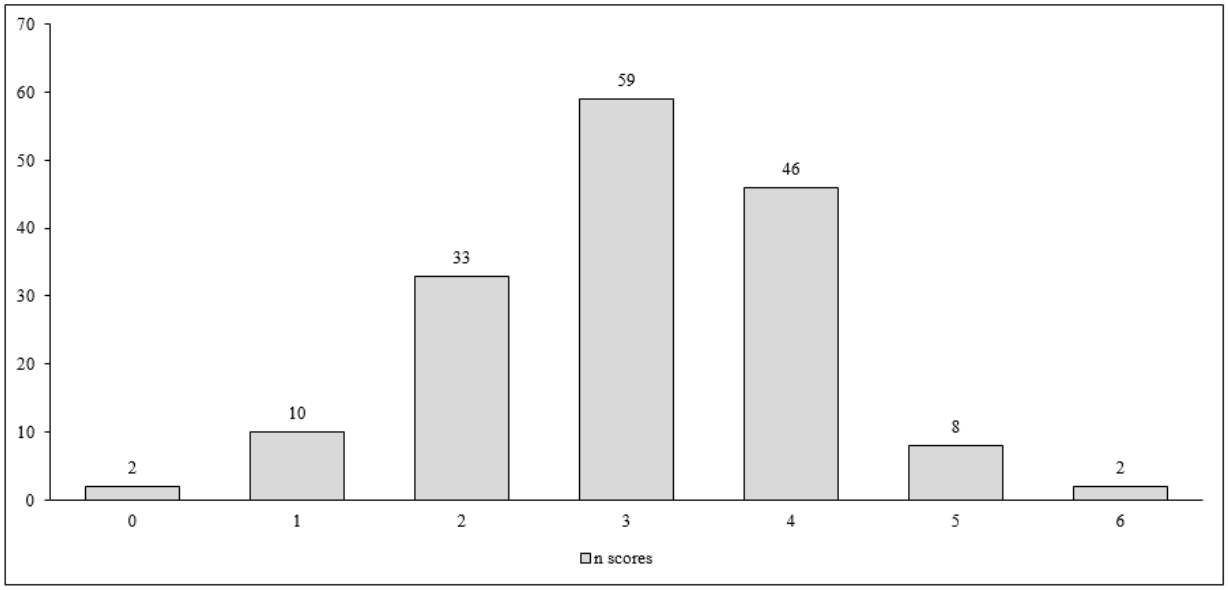
One-year returns of spin-offs, both adjusted and not adjusted for country and sector returns. The figure displays the returns over each year of the data sample. For example, if a spin-off was made during 2001, the 2001 bar in the figure will display the returns that the spin-off generated one year post completion date (i.e. measured as between 2001 and 2002).

Figure 8: Three-year returns by spin-off completion year.



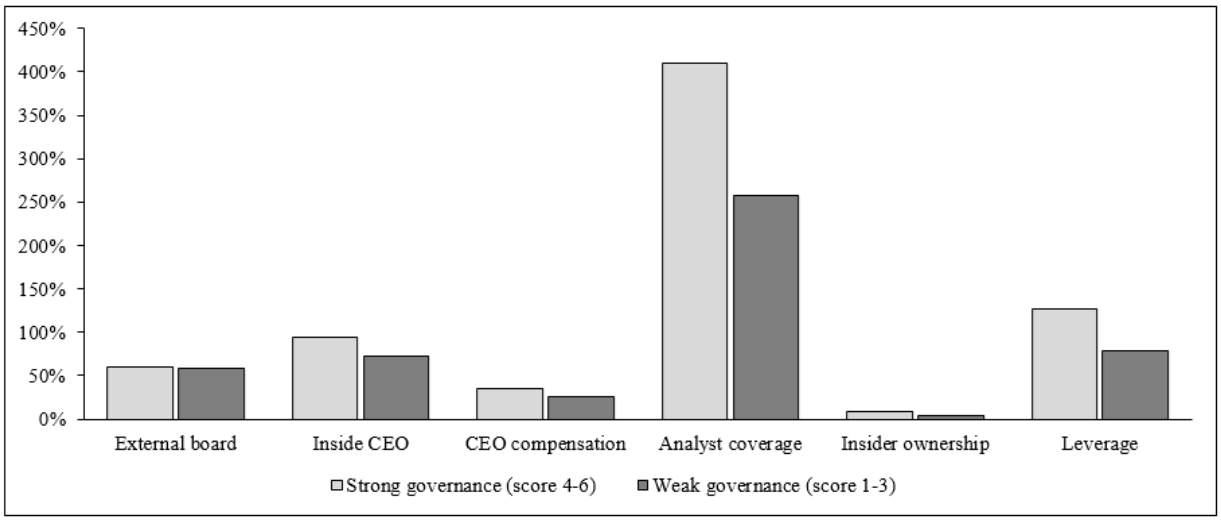
One-year returns of spin-offs, both adjusted and not adjusted for country and sector returns. The figure displays the returns over each year of the data sample. For example, if a spin-off was made during 2001, the 2001 bar in the figure will display the returns that the spin-off generated one year post completion date (i.e. measured as between 2001 and 2002).

Figure 9: The distribution of scores of The Corporate Governance Scorecard.



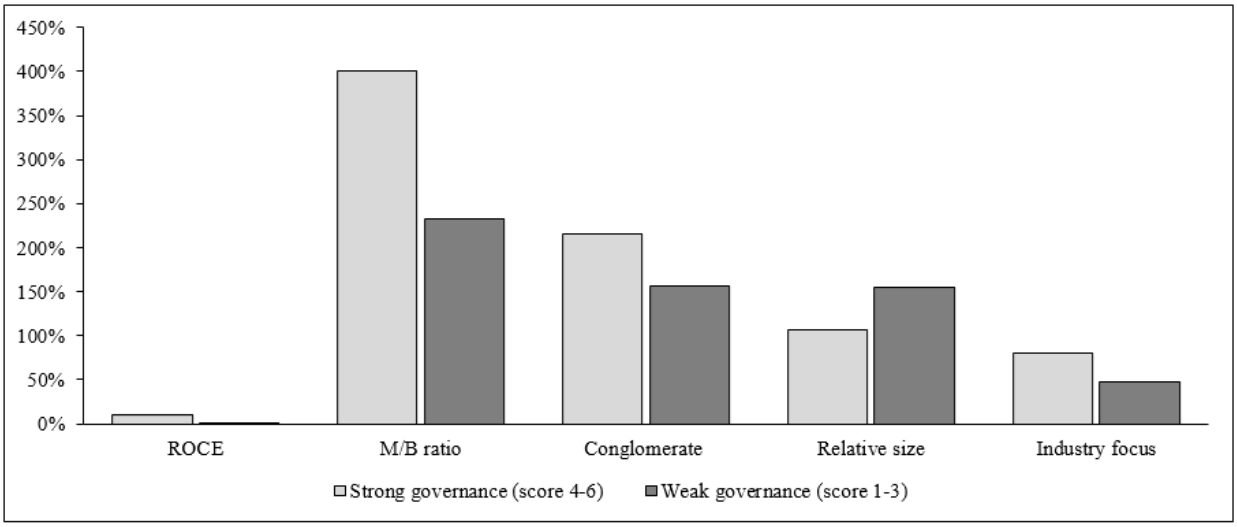
The figure displays the data samples distribution over scores. The average score amounts to 3.03.

Figure 10: Absolute values of corporate governance variables.



Absolute number distribution for the constituents of The Corporate Governance Scorecard. For example, the strong governance group has an average of 60 percent external board members while the weak governance group has an average of 58 percent. The actual values are displayed in Table 10.

Figure 11: Absolute values of control variables.



Characteristics of the governance group, distributed by control variables. The actual values are displayed in Table 10.