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# The Spinoff Scorecard: An Investment Strategy to Separate the Best Performing Spinoffs from the Worst


Staffan Bülow
Nils Glave Mjörnemark

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Copenhagen Business School
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Professor Peter Feldhütter

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# Abstract

This paper designs and tests an investment strategy for spinoffs which we call The Spinoff Scorecard. The scorecard is a binary scoring system based on ten variables which measure the spinoff from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. We show that investing in a portfolio of spinoffs that receives a high score, earns on average a 60.5 % one-year excess return between 2000 and 2015. The corresponding figure for a low score portfolio is -23.5 %. A passive investment strategy that invests in all spinoffs earns on average a 7.3 % one-year excess return. Hence, a high score portfolio outperforms all spinoffs by 53.1 %. Therefore, our results indicate that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing The Spinoff Scorecard. The results from the scorecard imply that this study provides new insights into which variables that may explain why some spinoffs outperform and some underperform. Earlier research has primarily focused on spinoffs return performance and concludes that they outperform the market on average by 10.9 % (excess one-year return). However, no previous study has provided any extensive evidence that answers why spinoffs outperform the market and which variables that determine the strong performance and how to exploit this through a concrete active investment strategy.

The success of the scorecard may be attributed to spinoffs generally being neglected by analysts and institutional investors. Our results document that spinoffs have a median analyst coverage of only one analyst. We argue from a behavioral finance perspective that this neglection may cause owners and investors to act in a biased manner and spinoffs may, therefore, become subject for inefficient pricing. Hence, this neglection may be exploited by a systematic and unbiased investment strategy as The Spinoff scorecard. This study utilizes a dataset of spinoffs which covers the United States, Canada and Western Europe between 2000 and 2015. The data sample of 690 spinoffs is the largest sample size in comparison to studies we have identified, which test spinoffs' long run excess performance.



**Keywords:** Spinoffs, Investment Strategy, Market Efficiency, Behavioral Finance.

# Table of Contents

# List of Tables

# List of Figures

# 1. Introduction

This paper designs and tests an investment strategy for spinoffs which we call The Spinoff Scorecard. The scorecard is a binary scoring system based on ten variables which measure the spinoff from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality.

A vast body of evidence document spinoffs' return performance in Europe and the United States from 1965 to 2013 and concludes that they outperform the market. These studies find that spinoffs earn on average an excess one-year return of 10.9 %[1] (Custais et al., 1993; Desai and Jain, 1999; McConnell et al. 2001, 2004, 2015; Rüdisüli, 2005; Credit Suisse, 2012; S&P Global, 2015). Further, the Bloomberg US Spinoff Index shows that spinoffs in the United States have earned 14 % annually between 2003 and 2019 while the corresponding figure for the S&P 500 Index is 7 % (see figure 1). Hence, a passive investment strategy that buys a portfolio of spinoffs has historically yielded a strong return performance. However, such a strategy must also accept the weak return performance from a large group of spinoffs. McConnell et al. (2015) show that the strong mean return is dependent on the strong performance of relatively few spinoffs. Further, we find that only 44.4 % of spinoffs earn a positive excess one-year sector adjusted[2] return. Because of spinoffs' diverse return performance, they provide an opportunity for an active investor to discern the best performing spinoffs from the worst performing. Hence, this paper aims to contribute to the literature by designing an investment strategy which can single out the strongest performing spinoffs. To do this, we utilize a dataset of spinoffs which covers the United States, Canada and Western Europe between 2000 and 2015. The data sample of 690 spinoffs is the largest sample size in comparison to studies we have identified, which test spinoffs' long run excess performance.

A spinoff is a divestiture where a publicly traded company divests a subsidiary or a segment through the distribution of shares on a pro-rata[3] basis to its existing shareholders. The result is the creation of a new publicly traded independent company from its parent company. The implication for shareholders is that they become holders in two companies, the spinoff and the parent company (Frank and Harden, 2001). The most common reasons for a company to pursue a spinoff transaction is to increase strategic focus, divesting unrelated businesses, improve capital efficiency

[1] 10.9 % is the average excess one-year return from all studies. Excess return is defined as the return above the benchmark index.
[2] The sector adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for its corresponding sector benchmark index (See section 4.3).
[3] Pro-rata means on a proportional basis. For example, a shareholder holding ten shares in the parent company will receive ten shares in the spinoff.

(capital allocation), increase information, reaching a more accurate valuation due to a conglomerate discount, incentive alignments, de-levering or legal/compliance matters.

Spinoffs have several interesting characteristics which offer an opportunity to investigate and include for an investment strategy. When a subsidiary/segment is disintegrated from its parent company through a spinoff transaction it tends to create a driving force of positive change in the spinoff in terms of incentives, corporate governance, organizational structure and return on capital. First, spinoffs tend to improve and align insider incentives. Several spinoffs tend to have large insider holdings. Further, large insider ownership firms have shown to outperform low insider ownership firms (Charoenwong et al., 2016). Second, spinoffs tend to substantially improve corporate governance by reducing agency costs (Feldman 2016). Third, spinoffs tend to create a purer organizational structure where an unrelated business can be separated from its parent company (Greenblatt, 1999). Also, divisions that belong to a conglomerate are commonly valued to a discount due to the difficulty in recognizing the true value of each entity in a complex conglomerate organizational structure (Heppelmann and Hoffleith, 2009). Hence, a spinoff may directly recognize value by eliminating the value gap created by the conglomerate discount. Finally, spinoffs tend to improve operational efficiency by increasing its return on capital (Emrick et al., 2017).

However, some parent companies disintegrate a subsidiary/segment through a spinoff in a value-destroying manner. First, some parent companies pursue spinoffs to get rid of a low performing business. If a parent company separates its low performing business via a spinoff, it is obvious that this may negatively affect subsequent return performance (Greenblatt, 1999). Second, the parent company controls the spinoff's capital structure. A spinoff enables the parent company to either shift debt or cash to the spinoff. Since the parent company has the power to structure the spinoff's debt and cash levels, it is possible that the parent company overload the spinoff with debt. Further, this could lead to a debt overhang problem or a potential bankruptcy issue (Berk and Demarzo, 2017).

An additional interesting spinoff characteristic is that they tend to be neglected by analysts and institutional investors. We document that spinoffs on average are covered by only three analysts and a median of one. Belisario (2017) finds that stocks with low analyst coverage outperform those with high coverage. Also, there is a tendency for institutions to initially sell-off the spinoff and Credit Suisse (2012) argues that the tendency for this selling is a consequence of fund mandates not allowing for holding spinoffs. Hence, this neglection from analysts and institutions can create

an inefficiently mispriced spinoff which creates opportunities for investors that invest time in evaluating spinoffs.

In summary, all spinoff characteristics (insider incentives, corporate governance, organizational structure, return on capital, capital structure and market neglection) offer a unique opportunity to capture if spinoffs have several positive signals such as incentivized insiders, improved corporate governance or contrarily if the spinoff have several negative signals such as debt overload and weak return on capital, etc. Therefore, it appears that it is intuitively possible to separate spinoffs with positive signals from those with negative signals.

The main purpose of this paper is to find an investment strategy, based on spinoffs' characteristics that can separate the best performing spinoffs from the weakest performing spinoffs. To pursue this purpose, we design a scorecard which we call The Spinoff Scorecard. The Spinoff Scorecard is a binary scoring system based on ten variables. The ten variables measure the spinoff from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score one) is expected to generate a better return than a negative signal (score zero). All ten variables summarize to a composite spinoff score (Spinoff score = Ownership + Inside CEO + CEO power + Cross-industry + Conglomerate + Analyst coverage + Institutional selling + Leverage + EV/EBIT + ROCE) for each spinoff. The composite score for each spinoff can range from zero to ten. Score zero is expected to have the weakest return performance and score ten is expected to have the best return performance. To pursue The Spinoff Scorecard strategy, the first step is to identify all spinoffs. Second, calculate the composite score for each spinoff based on The Spinoff Scorecard on the spinoff's completion date[4]. Finally, the investor buys and hold an equally weighted portfolio of all spinoffs that receives a high composite score over a preferred holding period of either one, two or three years.

The results show that a passive investment strategy that invests in all spinoffs generates excess returns which is consistent with earlier studies. The documented mean one-, two- and three-year total shareholder return is 15.3 %, 35.4 % and 40.0 %. The corresponding sector adjusted return is 7.3 %, 19.2 % and 15.4 %. Similar results are documented for country adjusted[5] returns. Since our

[4] The completion date is the spinoff's first trading day.
[5] The country adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for its corresponding country benchmark index (See section 4.3).

sample size is the largest sample in comparison to other studies it provides additional evidence of spinoffs' excess return performance.

The sample of spinoffs exhibits an abnormal return of 9 % measured as Jensen's alpha[6], which is significant on the 10 % level. Moreover, medium and large sized spinoffs outperform smaller spinoffs which is inconsistent with the size premium. In conclusion, it appears that spinoffs return performance contradicts the notion of risk compensation according to the Capital Asset Pricing Model and the size premium which suggests that spinoffs' returns are anomalous.

The results from The Spinoff Scorecard indicates that the methodology of this paper appears to be successful in designing an investment strategy for spinoffs. The results find that a high score portfolio outperforms a low score portfolio and a portfolio of all spinoffs. The high score portfolio earns on average a 60.5 % one-year total sector adjusted return and the corresponding figure for a low score portfolio is -23.5 %. Further, spinoffs with a higher score earn on average a higher mean return relative to spinoffs with a lower score. In addition, the percentage spinoffs with a positive return increase with a higher score. These findings hold for all three holding periods one-, two- and three-year, both unadjusted and sector adjusted. In conclusion, our results indicate that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing The Spinoff Scorecard.

In addition, investing in a high score portfolio appear to hold over time. The high score portfolio outperforms its corresponding sector benchmarks 13 out of 16 years, measured as one-year total shareholder return while the sector adjusted return for a portfolio of all spinoffs outperforms 7 out of 16 years. In conclusion, these results support the robustness of The Spinoff Scorecard since it holds over time.

The results from The Spinoff Scorecard indicates that it is possible to single out the best performing spinoffs from the worst performing spinoffs by utilizing the score variables that are based on spinoff characteristics. Utilizing simple variables to create an almost linear relationship of the worst performing to the best performing spinoffs, measured as score zero to ten, opposes the notion of a semi-efficient market. A semi-efficient market implies that investors cannot utilize a strategy based on simple variables to earn excess returns. Hence, it appears that the market does not efficiently evaluate spinoffs. Since spinoffs appear not to be efficiently priced we analyze this from a behavioral finance perspective. Two typical characteristics of spinoffs are that they tend to have limited information and be neglected by analysts and institutional investors. We argue that these

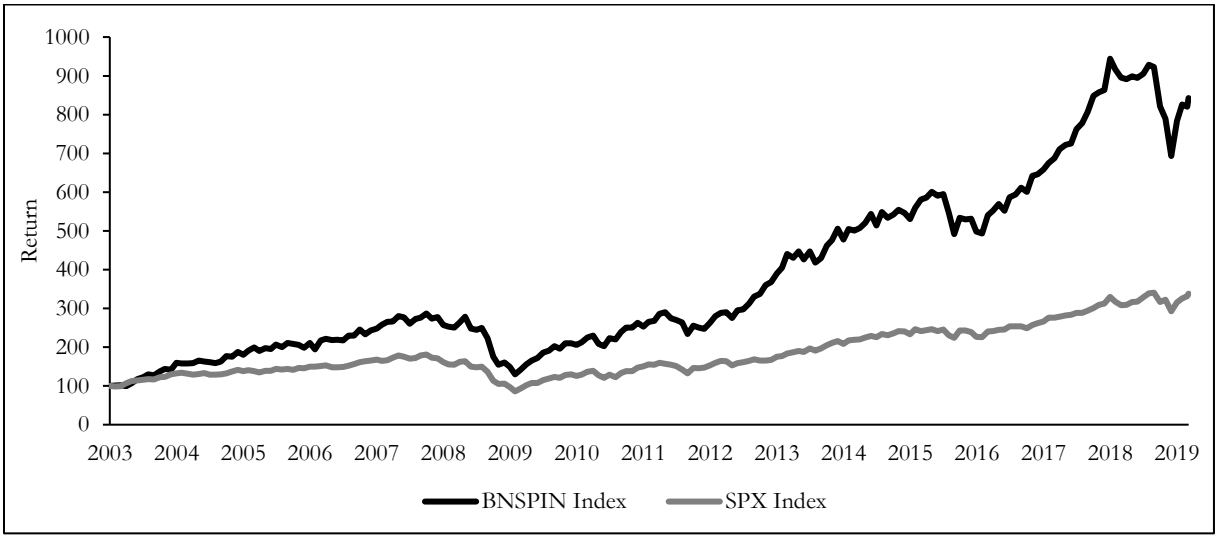
[6] Jensen's Alpha according to the Capital Asset Pricing Model.

characteristics may cause investors to act in a biased manner in terms of the familiarity bias, ambiguity aversion, herding and absence of excessive optimism from analysts. As a result, spinoffs may initially become neglected by the investment community. The neglection may explain why The Spinoff Scorecard appears to work since it is an investment strategy that evaluates spinoffs in a systematic and unbiased manner.

Earlier research has focused on spinoffs excess return performance. However, no previous study has provided any extensive evidence that answers why spinoffs outperform the market and which variables that determine the strong performance. Additionally, no study has previously shed light on a comprehensive investment strategy addressing spinoffs. Therefore, this paper contributes to the literature by identifying typical characteristics of spinoffs and from these designing an investment strategy. Our results indicate that The Spinoff Scorecard is successful. Also, we analyze spinoffs from a behavioral finance perspective which to the best of our knowledge no earlier study has done. Hence, we can provide new insights into why spinoffs outperform and how to invest in spinoffs.

The next section reviews the theoretical foundation and earlier research on the efficient market hypothesis, asset pricing models, anomalies, behavioral finance and spinoffs. Section three defines, motivates and describes how to utilize The Spinoff Scorecard. Section four explains the methodology and performed tests. Section five and six presents the results and analysis of the results. Finally, section seven concludes.

## Figure 1: Bloomberg Spinoff Index (BNSPIN) vs. S&P500 (SPX INDEX)




The figure illustrates the Bloomberg US Spinoff Index, which is an index that contains all US spinoffs over $1 billion, and the S&P 500 Index between 2003 and 2019.

# 2. Theoretical Foundation

## 2.1 Efficient Market Hypothesis

One of the cornerstones of modern financial theory is the *Efficient Market Hypothesis*, primarily articulated by Eugene Fama (1970). The theory states that in an efficient market all information fully reflects the asset´s price, and as a consequence is it impossible to achieve higher returns without incurring more risk. According to the theory has all fundamental analysis already been done by the market participants and subsequently is it futile to try and beat the market. As a result of this financial assets follows a random walk, which cannot be predicted by any investor. The view on efficient financial markets by Fama (1970) is shared by Jensen (1978) who states that a market is efficient with respect to information when it is impossible to make economic profits by trading on that information. Malkiel (1992) further states that a capital market is efficient if it fully and correctly reflects all relevant information.

The idea that financial assets would follow a random walk was first discovered by Kendall and Hill (1953). The authors were unable to distinguish any patterns in the stock price data, and as a consequence, there is no way of predicting the price movements. The result from Kendall and Hill (1953) sparked the idea that random price movements indicated a well-functioning, or efficient, market and not an irrational one (Bodie, Kane and Marcus, 2014). However, Dupernex (2007) distinguishes between the efficient market hypothesis and the idea that stocks follow random walks. According to Dupernex (2007) does a random walk of stock prices not imply an efficient market with rational investors. Thus a random walk might still mean that the market is inefficient.

For a market to be deemed as efficient, according to the efficient market hypothesis, are there three primary factors that have to be fulfilled. The first factor infers that all investors have elementary knowledge, which implies that the market participants have outright information concerning the risk and return. The second factor assumes that all investors are rational, meaning that they treat the information in an orderly fashion. Therefore, investors process information in an unbiased manner without over or underreacting. Lastly, an efficient market assumes there are no limits to arbitrage. This has the following implications, if there is a mispricing arbitrageur will take advantage of this until the market has reached equilibrium. This means that wrongfully priced securities, by irrational investors, will be corrected by rational investors that exploit the arbitrage (Zacks, 2011).

A markets efficiency can be divided into groups depending on what type of information that is available (Bodie et al., 2014). Fama (1970) defined three states of a market to define its efficiency;

Weak, Semi-strong and Strong. The weak form is the most basic form of the hypothesis and it assumes that investors have access to historical prices. This implies that it is impossible to earn superior risk-adjusted returns that are based on historical prices (Dupernex 2007; Shleifer, 2000). The weak form of the efficient market hypothesis thus suggests that it is futile to partake in technical analysis in order to earn abnormal returns. The weak form is what constitutes the random walk hypothesis, i.e., that returns are unpredictable, and unforecastable using historical data.

The semi-strong form of the hypothesis assumes that investors have access to historical *and* all publicly available information (Dupernex, 2007). The implication of this form of efficiency is that it is not possible to earn abnormal returns using historical and publicly available data. The implication for the individual investor is that it is pointless to use any form of technical analysis *and* fundamental analysis in order to outperform the market. Because all information is already available, the market has already incorporated this information into the price of the share.

The final and most efficient form of the hypothesis is the strong form. This form states that stock prices reflect *all* information relevant to the firm, even information only available to company insiders (Bodie et al., 2014). This means that it is impossible to earn abnormal risk-adjusted profits using historical, current and private information.

The efficient market hypothesis has been under scrutiny since it was first introduced (See Shostak, 1997; Malkiel 2003). Though the strong form is generally disputed, the semi-strong form is to a greater extent more accepted. However, some academics dispute even the semi-strong form since their fundamental strategies appear to outperform the market. For example, Piotroski (2000) showed that by using historical financial statement data he could predict future returns.

The efficient market hypothesis according to Fama (1991) needs to be jointly tested against an equilibrium model, an asset pricing model, to determine the efficiency of a market. To assert whether a security is efficiently priced must it be valued against a model that can determine its true value. If there is a discrepancy between the market price and its intrinsic value could this signify a market inefficiency. The joint hypothesis problem stated by Fama (1991) is difficult to overcome since it is problematic to determine whether markets are inefficient or if the equilibrium model is erroneous. However, Fama (1991) still states that market inefficiencies and asset pricing models are still greatly valued from a scientific perspective and should thus not be disregarded.

## 2.2 Asset Pricing Models

The importance of an effective asset pricing model is imperative to discover market inefficiencies. Thus, to understand whether an investment strategy is superior to the market it is necessary to have a reliable benchmark. The literature on asset pricing models have been dominated by three primary models, the Capital Asset Pricing Model (CAPM), The Fama-French Three-factor model and the Arbitrage Pricing Theory model (APT) (Bodie et al., 2014). However, the most commonly used model when estimating the cost of capital, and the most widely taught, is the CAPM (Fama and French, 2004). The basis for all models though is the Mean-variance model provided by Markowitz (1952) which is the bedrock of modern financial theory.

The foundation of modern finance is traced back to Markowitz (1952) paper on portfolio selection. Markowitz (1952) constructs a model where investors invest in a portfolio at time-period $T_{-1}$ and receive a stochastic return at period T. Furthermore, are all investors risk-averse and only concerned with each portfolio's mean and variance. As a result, investors maximize their return (mean) concerning the variance. Markowitz (1952) showed with his model that investors can reduce their risk (variance) while still increasing returns (mean) due to the effects of diversification. Secondly did Markowitz (1952) show that capital allocation is a question of how much to invest in risk-free assets and the tangency portfolio. The tangency portfolio is the portfolio of risky assets that maximizes expected returns with respect to the variance. As a result will investors, depending on their risk preferences, invest in a portfolio consisting of risk-free assets and the tangency portfolio. The two main results from Markowitz (1952), i.e., that investors will hold the tangency portfolio (and a risk-free asset) and that diversification reduces risk, have laid the groundwork for the asset pricing models.

### 2.2.1 The Capital Asset Pricing Model

The most widely used and taught pricing model is the Capital Asset Pricing Model (Fama and French, 2004). The Capital Asset Pricing Model was independently introduced by William Sharpe (1964), John Lintner (1965) and Jan Mossin (1966), and is built on the portfolio choice model developed by Markowitz (1952). Sharpe (1964) and Lintner (1965) adds two additional assumptions to the Markowitz (1952) model. The first assumption is that all market participants are in *complete agreement* regarding the joint distribution of the asset returns from time period $T_{-1}$ to T. Secondly, Sharpe (1964) and Lintner (1965) assume that there is borrowing and lending at a risk-free rate, which is consistent for all investors and independent of the amount borrowed and lent. When all

investors agree to the distribution of returns investors have the same opportunity set and subsequently invest in the same tangency portfolio or *market portfolio*.

The results from Sharpe (1964) and Lintner (1965) implies that the market portfolio has to be a mean-variance efficient portfolio for asset markets to clear. Secondly, the weight of each risky asset in the market portfolio will be the total market value of all outstanding units of the asset divided by the total market value of all risky assets (Fama and French, 2004). This result leads to the final derivation of the CAPM. Since the total risk in the CAPM is the weighted average of all assets included in the Market portfolio will an individual asset´s risk be its covariance with the market portfolio. This means that the return of the asset will be proportional to its risk contribution, and thus its covariance with the market portfolio.

The derivation of the CAPM is somewhat technical, but its result can be summarized rather elegantly. Firstly, does the model differentiate between systematic and idiosyncratic risk. Since Markowitz (1952) shows that you can remove risk by diversifying and Sharpe (1964) and Lintner (1965) demonstrates that all investors will hold the market portfolio, the only risk that investors are compensated for is the systematic risk. After all, if you can diversify away from the idiosyncratic risk, you should not be rewarded for it. Secondly, you should only be compensated for the amount of systematic risk you are willing to bear. Since the risk you carry for each asset is proportional to the market portfolio, should you only be compensated for the amount of systematic risk each asset carries (Byström, 2014).

The results from Sharpe (1964), Lintner (1965) and Mossin (1966) summarizes to the CAPM formula:

$$E[r_i] = r_f + \beta_i(r_M - r_f)$$

$$\text{Where } \beta_i = \frac{Cov(r_i, r_M)}{Var(r_M)}$$

The formula states that the expected return of asset *i* is the risk-free rate plus the market risk premium multiplied by the assets beta. The assets beta is its covariance with the market, and it measures the assets systematic risk and consequently its risk compensation factor. The model shows the simple relationship between risk and reward and since the model is an equilibrium model is it also useful to test market efficiency. The underlying assumptions in the model assume that markets are efficient, thus if a mispricing occurs is that a consequence of inefficiency. In a truly efficient market will the CAPM hold and as a result will the efficient market hypothesis also hold.

The CAPM offers a simplistic and intuitive prediction about how to measure risk and expected returns. However, the model has been criticized for its lack of precision (Fama and French, 2004). Furthermore, did Dayala (2012) found the model to be fundamentally flawed while Fernandez (2015) called the model *absurd* and argues that the model's assumptions are unrealistic such as homogenous expectations. Despite its critique is the model still highly regarded and the standard model used when testing returns and market efficiency.

### 2.2.2 Size Premium and Value Premium

The criticism of the CAPM mainly stems from the fact that a single factor, the market beta, might not be enough to determine the expected return of an asset. More factors could possibly explain the returns of assets that the CAPM misses. Early research on additional explanatory factors was done by Basu (1977). The author found that when common stocks are sorted on their earnings-price ratio the future returns on stocks with a high ratio higher than predicted by the CAPM. However, the most predominant factors when explaining returns have been *Size* and *Value* which have led to more extensive pricing models.

Banz (1981) was one of the first researchers to discover the *size premium*. The author found that smaller stocks outperformed larger ones, even when risk-adjusted. Smaller stocks, on average, have a higher return in relation to its beta, compared to larger companies who have lower returns compared to their beta. The CAPM might thus fail to capture the inherent risks in smaller companies. Chan and Chen (1991) further analyzed the difference in returns between smaller and larger companies and found similar results as Banz (1981). They argue that the CAPM might fail to capture the risk that is associated with smaller firms, such as leverage and production efficiency but also liquidity risk. The market beta might thus not be sufficient to explain returns.

In addition to the *size premium*, a major factor that has been discussed in academia is the *value premium*. The discovery was first made by Rosenberg, Reid and Leinstein (1985) who found that stocks with a high book to price ratios outperformed stocks with a low ratio. The excess returns of value stocks have been explained by Fama and French (1992) as extra compensation for bearing financial distress risk since they document that value stocks tend to be more financially distressed. The *value premium* is thus another possible factor that the CAPM might fail to capture.

The discovery of the *size- and value premium* led to the extension of the CAPM, the Fama-French Three-Factor Model, introduced by Fama and French (1992, 1993). Their model adds a *Small minus big factor* (SMB) which captures the outperformance of smaller companies, and secondly, they add

a *High minus Low factor* (HML) which is intended to capture the outperformance of high book to market stocks. Their final model is mathematically written as follows:

$$E(R_{i,t}) = R_{ft} + \beta_{i,M}[E(R_M) - R_{ft})] + \beta_{is}SML + \beta_{ij}SMB$$

The Fama-French Three-Factor model has been empirically shown to better explain returns than the CAPM, with a higher $R^2$ (see Gaunt, 2004; Bahl, 2006; Bodie et al., 2014). However, the idea of using multiple factors to determine returns has been criticized by Black (1992) who warns that the factors might be a consequence of data mining. Black (1992) observed that risk premiums associated with firm size have been inconsistent throughout time. The outperformance of small stocks first discovered by Banz (1981) has since disappeared and reappeared. Furthermore, did Loughran (1997) find that book-to-market had no significant effect in explaining returns during his time-period of study. The inconsistency of the small stock outperformance and book-to-market might thus suggest that the CAPM is still the best model to utilize when testing for outperformance.

The effect size and value has had on asset pricing puts the efficient market hypothesis into question. Some academics partly attribute the outperformance to market inefficiency, but simultaneously are their arguments that suggest that it might be an efficient market after all. Lakonishok, Shleifer and Vishny (1994) find that high book-to-market stocks tend to be stocks with prior poor performance. This causes investors to form overly pessimistic expectations concerning the returns of the stock which causes returns to appear abnormal. The excess returns might thus be explained by irrational expectations which partly suggests an inefficient market. However, Lakonishok et al. (1994) also find that value stocks are not riskier than growth stocks which implies an efficient market. Additionally, does La Porta et al. (1997) suggest that the outperformance of value stocks is due to earnings surprises that are systematically more positive for value stocks, which further suggests that investors are more pessimistic regarding value stocks. Furthermore, does Fama and French (1992) and Chen and Zhang (1998) show that the superior returns from value stocks are not a mispricing signal but rather a risk compensation for bearing more risk concerning leverage, dividend reductions and earnings deviations.

The efficient market hypothesis rests upon the idea that you can test it against an equilibrium model, or an asset pricing model. The models provided by Sharpe (1964), Lintner (1965) and Mossin (1966) offers a baseline to test whether abnormal returns and thus proves markets to be inefficient. Although there are several possible models (see Fama and French, 1992, 2015; Carhart, 1997; Ross, 2013) to test the efficient market hypothesis, the CAPM is the purest model with probably the strongest theoretical foundation.

### 2.2.3 Abnormal Returns

The CAPM gives a theoretical expected return when markets are in equilibrium. Thus, when the actual returns deviate from the models can abnormal returns be made, and markets are possibly inefficient. Measuring the outperformance is vital in order to establish whether an investment strategy is superior to the market. A considerable body of literature has covered performance measures (see Sharpe, 1994; Modigliani and Modigliani, 1997; Jensen, 1968; Treynor, 1965) whereof the most critical performance measure concerning asset pricing models is Jensen´s Alpha.

Jensen´s Alpha is a risk-adjusted performance measure with a basis in the CAPM that determines how much an asset, or portfolio, outperforms the expected return given by the CAPM. The measurement originates from a paper by Jensen (1968) who has also given its name. Jensen (1968) analyzed 115 mutual funds between 1945 and 1964 to determine whether the funds outperformed the CAPM. Although, the results from the study showed no significant outperformance did the performance measure itself become a standardized metric to determine abnormal returns. The definition of Jensen´s alpha is derived from the CAPM as the difference between actual return minus the expected return of the CAPM.

$$\alpha = R_{i,t} - (R_f + \beta(R_m - R_f))$$

Jensen´s alpha has been widely used in academia as a benchmark to determine efficiency. Although, its extensive usage has the metric been criticized for assigning negative performance to a market timer (see Admati and Ross, 1985; Dybvig and Ross, 1985). Though, despite some of its shortcomings is the metric still a valuable performance measure and a useful tool to determine outperformance. Finding assets with a positive alpha will provide the investor with abnormal returns without incurring more risk.

## 2.3 Anomalies

The occurrence of outperformance in financial markets puts the efficient market to test, and multiple anomalies have been found. Stock market anomalies are empirical results that seem to be inconsistent with the efficient market hypothesis and asset pricing theory (Schwert, 2003). There is a growing body of literature that suggests that it could be possible to earn abnormal returns without incurring more risk. As previously mentioned, have anomalies concerning small-cap stocks been

discovered (see Banz, 1981) and high book to market stocks (see Rosenberg et al., 1985). Additional anomalies concerning technical analysis have also been found. The *momentum anomaly* concerns the positive correlation with past returns. De Bondt and Thaler (1985) discovered that recent winners in the stock market tended to continue to outperform. De Bondt and Thaler (1985) did thus disprove the weak form of the efficient market hypothesis since they proved that historical performance could be used to predict future returns. The effect of momentum has also been shown to move the other way, i.e., recent poor performing stocks continue to underperform. Anomalies have also been associated with certain trading days of the year. The *January effect* is the effect where returns in January have been shown to outperform the other months. The anomaly was first discovered by Rozeff and Kinney (1976) who analyzed seasonality in stock returns. Their research showed that the average return in January was 3.5 percent while the other months only average 0.5 percent. The anomaly was further studied by Reinganum (1983) who partly attributes the January effect to tax-loss selling though the author cannot fully explain the anomaly. The findings of anomalies have put the efficient market hypothesis into question and do suggest that abnormal risk-adjusted returns can be made.

The fundamental issue of concluding an anomaly is the joint hypothesis problem that was previously described. The issue amount to whether markets are inefficient, or the asset pricing models are faulty. Under the assumption that the asset pricing models are correct is the anomaly due to inefficient markets. If markets are inefficient, then one or more of the three criteria's that are essential to market efficiencies have to be unfulfilled. If investors have limited knowledge, are biased or irrational and if there are limits to arbitrage, then this might lead to inefficiencies.

There is a growing body of literature on behavioral finance discussing the impact of behavior on the stock market and its implications for the efficient market hypothesis, which will be discussed in the next section

## 2.4 Behavioral Finance

The rise of anomalies, which are evidence that appears to contradict market efficiency has contributed to creating the rather new academic field behavioral finance. Behavioral finance aims to understand how individuals' decision-making affects markets, managers and investors by utilizing finance and psychology. The efficient market hypothesis assumes that individuals are rational. In contrast, behavioral finance contends the notion of rationality and argues that individuals can act irrationally from time to time since they may be subjects to cognitive biases.

The consequence of individuals acting irrationally is that inefficiencies such as mispricing and anomalies may occur (Baker and Ricciardi, 2014).

The notion of rationality in traditional finance assumes that individuals can process all relevant information and from that make the best decision. However, decision-making in the real world of uncertainty entails that individuals are faced with a restricted time window, have limited information and limited possibility to evaluate all available information. These factors may impede individuals from processing all information and have resulted in the establishment of heuristics (shortcuts) for decision-making. In other words, heuristics implies that individuals only evaluate a fraction of all information to come up with a best guess decision. When a heuristic fails to provide a rational decision, it is denoted as a bias. Hence, biases may lead individuals to act irrationally by taking biased decisions (Baker and Ricciardi, 2014).

One common bias discussed in behavioral finance is the familiarity bias. This bias implies that individuals have a preference for things that they are familiar with and already have knowledge about. Conversely, the bias implies the dislike of the unfamiliar. The consequence of the familiarity bias is that individuals are comfort-seeking and select familiar things over unfamiliar even though the unfamiliar is more rational (Baker and Ricciardi, 2014). A real-world implication of the familiarity bias is that investors tend to hold local/domestic stocks, which can lead to an irrational undiversified portfolio (Huberman, 2001).

Another bias is ambiguity aversion which is a tendency to prefer taking risk with unambiguous outcomes over ambiguous outcomes. In other words, people prefer known risks over unknown risks. According to this bias, individuals prefer the unambiguous bet over the ambiguous bet even though the expected value is higher for the ambiguous bet (Baker and Ricciardi, 2014). An example of ambiguity aversion is documented by a study from Ellsberg (1961). The study asks test subjects if they prefer to 1) place a bet on a black or a red ball drawn from an urn with 50 black and 50 red balls, or 2) place a bet on a black or a red ball from an urn with 100 balls with unknown amounts of black and red balls. Most of the subjects preferred the first bet. However, since the unconditional probability is the same they should not rationally prefer 1) or 2).

Representativeness is a heuristic which is defined as "the degree to which [an event] (i) is similar in essential characteristics to its parent population, and (ii) reflects the salient features of the process by which it is generated" (Kahneman and Tversky, 1972). Hence, this heuristic is about people thinking that two similar events/objects are correlated with each other. An implication of representativeness is that it may render in the extrapolation bias. This bias is the tendency to overweight recent information to future outcomes. For example, if the stock market is up six

months in a row and an individual extrapolate that it will continue to go up due to the six-month trend, then the individual has been a subject to the extrapolation bias (Baker and Ricciardi, 2014).

Overconfidence is a bias which is individuals' tendency to overestimate their performance, think that they are better than average and overestimating the precision of their knowledge/beliefs. A consequence of overconfidence is that individuals may exhibit excessive optimism and overweight positive information (Baker and Ricciardi, 2014).

Herding is a bias that manifests when individuals base their decisions solely on what the collective is doing. Hence, this may lead to groupthink and that behavior converge. A consequence of herding is that decision-making in financial markets may correlate too much (Baker and Ricciardi, 2014).

Kahneman and Tversky (1979) identified something that is called loss aversion which implies that loses looms larger than gains. For example, an individual that loses 1,000 dollars will feel a greater loss in satisfaction than the gained satisfaction from winning 1,000 dollars. Loss aversion does not only have to be about money, but it could also concern reputation. For example, Pelster and Hofmann (2018) show that reputational loss appears to loom larger than the corresponding reputational win.

Behavioral finance is not a field freed from criticism. A major critique is the methodology for finding biases. Behavioral finance typically utilizes an experimental setting where test subjects answer questionnaires or participate in games. The critique is that this experimental setting does not reflect the real world. First, individuals know that they are participating in an experiment which could change their behavior. Second, the test subjects may be constrained with unrealistic time constraints or other limitations that do not resemble the real world. In conclusion, those biases that appear to exist in a lab setting may not exist in a real-world setting (Thaler and Barberis, 2005).

## 2.5 Spinoffs

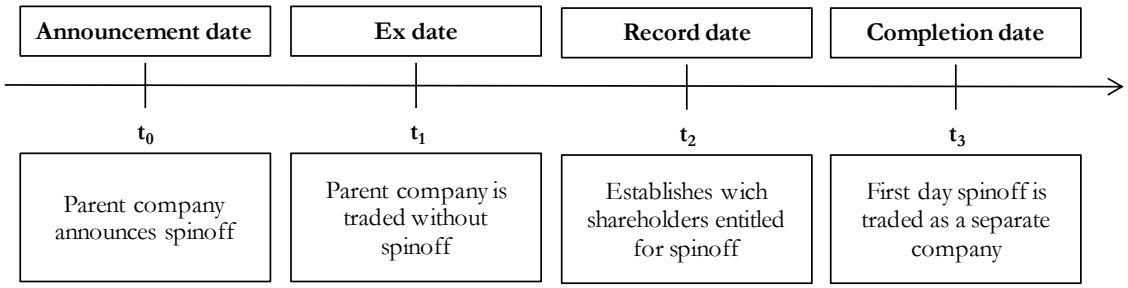
### 2.5.1 Definition of a Spinoff

A spinoff is a form of corporate restructuring when the shareholders of the parent company are given a *pro-rata*, i.e., proportional, distribution of nearly all shares in the subsidiary (Frank and Harden, 2001). A corporate spinoff is thus a divestiture where a large entity, the *parent*, spins off a business unit, the *subsidiary*, and the newly formed subsidiary is traded as an independent entity. The subsidiary is not sold but merely distributed, which means that no cash is generated from the

transaction. The transaction is, as a consequence, tax-free and more or less costless for the parent company. The aftermath of a spinoff is thus only that the initial shareholders of the parent company are now also shareholders in the subsidiary, and that a new entity is formed. See figure 3 for an overview of the corporate structure pre-spinoff and post-spinoff.

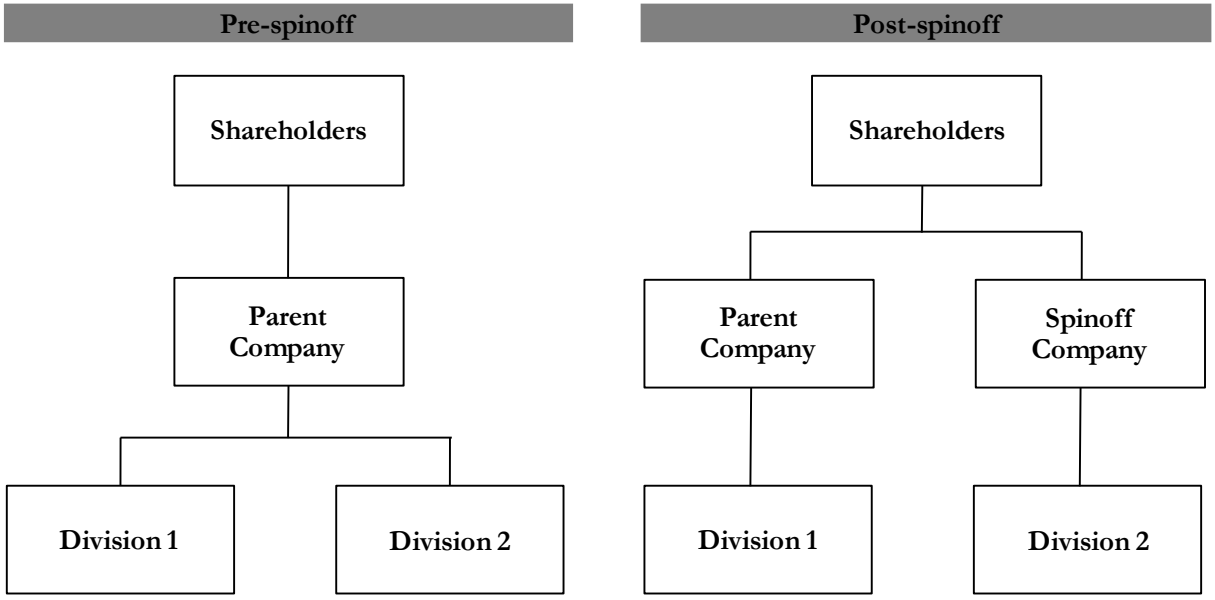
There are four important dates in a Spinoff transaction that investors need to be aware of. Firstly, is the *announcement date*, when the parent company announces the spinoff. Secondly, is the *ex-date* which is the date the parent company is traded without the spinoff. This implies that the value of the parent company will fall by the corresponding value of the spinoff. Thirdly, the *record date* is the date which establishes which shareholders that are entitled to shares in the spinoff. Finally, the completion date is the first day the spinoff trades as an independent company (SEC, 2017). See figure 2 for an overview of the timeline.

## Figure 2: Timeline from Announcement to Completion of Spinoff




The figure shows important dates in a spinoff transaction ranging from the announcement date to the completion date.

**Figure 3: Overview of the Corporate Structure Pre-Spinoff and Post-Spinoff**



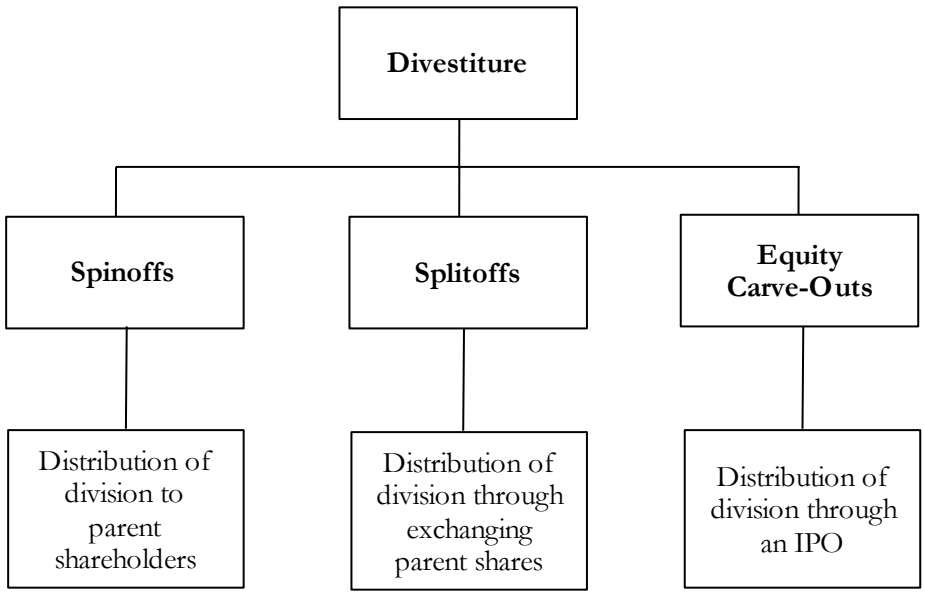

The figure shows the corporate structure pre-spinoff and post-spinoff for a company with two divisions.

### 2.5.2 Spinoff – One of Many Corporate Restructurings

Corporate restructuring has been a highly discussed topic since the 1980s with the boom in mergers and acquisitions (see Ravenscraft, 1987). Corporate restructuring is an act of reorganizing an entity financially and operationally in order to improve its efficiency (Pomerleano and Shaw, 2005). There are several ways of restructuring a company, though the major restructurings usually entail *Mergers and Acquisitions* [M&A], *Equity Carve-Outs, Splitoffs* and *Spinoffs*, with M&A being the most common restructuring. The difference in restructurings is determined by the goal of the new structure. M&A builds on the idea that there are synergies to be gained by combining entities (Berk and DeMarzo, 2017). Equity carve-outs, splitoffs and spinoffs, on the other hand, assume that smaller more focused entities are more efficient. An *equity carve-out* is a particular transaction in which a portion of a wholly owned subsidiary´s common stock is offered for sale to the public, much like an IPO (Schipper and Smith, 1986). Unlike a pure spinoff is an equity carve-out a positive cash transaction for the parent since a portion is sold. A *Splitoff* is a divestiture, like a spinoff, but where shareholders will have to give up shares in the parent in order to receive shares in the subsidiary (Mintz, 1950). A splitoff is closely related to a stock buyback, but instead of using cash to repurchase the shares is the shares of the subsidiary used. Unlike the other types of restructurings is a pure spinoff only a distribution of shares. Thus, the net effect of the spinoff is only the creation of an independent, publicly traded entity and a parent company with one less business unit. The initial shareholders are still owners of both the parent and the subsidiary meaning that they are not worse off. Even

though M&A is the predominant form of large corporate restructurings are spinoffs increasingly growing. The number of spinoffs has grown exponentially since the early 1990s (S&P Global, 2017), which highlights the importance of researching them. See figure 4 for an overview of restructuring through divestiture.

## Figure 4: Overview of Restructuring Through Divestiture




The figure displays different transactions types for utilizing a divestiture.

### 2.5.3 Purposes of the Spinoff

The purpose of any restructuring is typically to increase efficiency, either financially, operationally or both and using spinoffs to restructure can provide several benefits. Tübke (2004) defines two different types of spinoffs, *restructuring* or *entrepreneurial*. Even though both can be considered a corporate restructuring is the rationale behind them different. A pure restructuring spinoff is initiated by the parent company in order to restructure itself. An entrepreneurial spinoff, on the other hand, is initiated by one or more individuals within the company who wishes to exploit unused potential within the division. The only significant difference between the two types is who initiates the process. An entrepreneurial spinoff might face internal struggles since the process is not necessarily initiated by the top management of the parent company. Restructuring spinoffs are more likely to be received with a positive response if they have good intentions behind the spinoff.

Regardless of type, the purpose of the spinoff is to increase value. There are several motives to why a company might perform better as a sole entity though the major arguments usually put forward are: *increased focus* (see Cusatis, Miles and Woolridge, 1993; Tübke, 2004; Chemmanur and Paegelis, 2001), *more accurate valuation* (See Heppelmann and Hoffleith, 2009; Ammann, Hoechle and Schmid, 2012), *aligning interests and incentives* (See Charoenwong, Ding and Pan, 2016; Greenblatt, 2010) and *increase information* (see Campbell, Ettredge, Guo and Wiebe, 2018; Krishnaswami and Subramaniam, 1999; Bergh, Johnson and Dewitt, 2008). Since a pure spinoff transaction is cashless is the increased value expected to come from the operational improvements mentioned above.

A major restructuring argument when it comes to spinoffs is to increase strategic focus (See Tübke, 2004; Cusatis et al., 1993). Focus is increased when a firm is allowed to concentrate its resources on its main product. A purely focusing spinoff involves the parent divesting an unrelated business division in order to refocus its core business. This can have positive effects for both the parent and the subsidiary since both companies will be able to focus on its core function. A focusing spinoff assumes, unlike M&A, that there are no positive synergies by running the business together but rather hindrances. Thus, detaching the two business units will increase value by removing the negative synergies. Restructuring through a spinoff can be a prudent method for conglomerates, with widely different business divisions, in order to increase shareholder value. The literature on conglomerates have found that they are traded at a discount compared to the sum of their parts (See Heppelmann and Hoffleith, 2009; Ammann, Hoechle and Schmid, 2012; Khorana, Shivdasani, Stendevad and Sanzhar, 2011). Thus, disbanding a conglomerate can potentially increase value.

Closely related to increased focus is increased capital efficiency. By divesting a business unit, will the management team of both the subsidiary and the parent be better able to allocate capital efficiently. By running a smaller business, can decisions be made more rapidly and with greater precision which further increases value. Feldman (2016) suggests that managers in spinoffs can devote more attention to capital allocation within their business unit after separating from their parent. Thus, increasing focus also increases capital efficiency and subsequently value.

Further value can potentially be created by increasing information concerning the firm. By divesting a business unit, will information concerning its underlying business be more readily available. Research by Krishnaswami and Subramaniam (1999) found compelling results that firms who partake in spinoff transactions have greater information asymmetry and that those asymmetries were reduced after the spinoff. Thus, value could be created by spinning off a division. Additional potential value creators from spinoffs are increased incentives. By dividing a company into smaller pieces, will each division's performance be closely tied to each managers performance. The linkage

between division performance and managers' performance are not as intertwined when a business division is part of a larger company. The performance of one division could be offset by the performance of another, meaning that the stock price of the enterprise might move sideways. By dividing a company into several, will the performance of each company be fully reflected by the performance of the managers. Greenblatt (2010) suggests that one of the reasons why spinoffs are great restructuring tools is that they help align incentives and furthermore increases value.

Although all restructurings are intended to increase performance can some be done due to other reasons. Some spinoffs can be undertaken due to legal or compliance issues. The performance of compliance spinoffs has been shown by Hite and Owers (1983) to underperform at the announcement date which shows that voluntary spinoffs are preferable. Other potentially value-destroying Spinoffs could be de-levering spinoffs. A parent company can de-lever itself during a spinoff by assigning the spinoff with a large amount of debt. This might be advantageous for the parent company, but it could be detrimental for the spun-off entity. Mayer (2008) implies that de-leveraging spinoffs are more likely to fail. Though, the majority of spinoffs are intended to increase value can some be done due to other reasons. Understanding the rationale behind the spinoff can thus be essential.

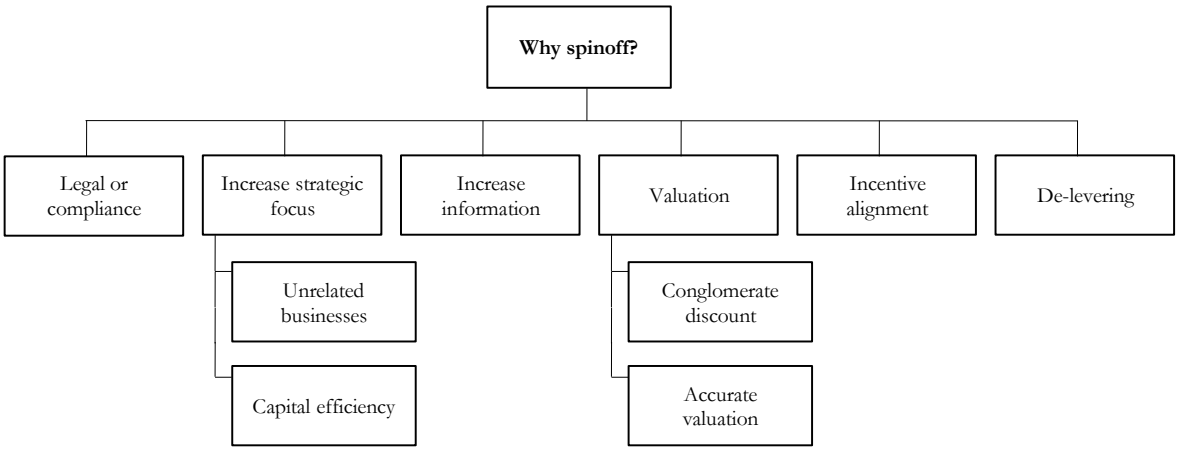
William Thorndike (2012) has researched the best CEOs in terms of creating shareholder value from the last 50 years. In his book The Outsiders, he describes characteristics of the CEOs that have created the most shareholder value. One typical characteristic he identifies is that those CEO that dares to optimize shareholder value through shrinking by for instance spinoffs have been successful in creating shareholder value. As he describes it in his book:

"At the core of their shared worldview was the belief that the primary goal for any CEO was to optimize long-term value per share, not organizational growth. This may seem like an obvious objective; however, in American business, there is a deeply ingrained urge to get bigger. Larger companies get more attention in the press; the executives of those companies tend to earn higher salaries and are more likely to be asked to join prestigious boards and clubs. As a result, it is very rare to see a company proactively shrink itself. And yet virtually all of these CEOs shrank their share bases significantly through repurchases. Most also shrank their operation through asset sales or **spinoffs**, and they were not shy about selling (or closing) underperforming divisions. Growth, it turns out, often doesn't correlate with maximizing shareholder value."

To summarize the most common reasons to pursue a spinoff transaction is, increased strategic focus, divesting unrelated businesses, increased capital efficiency (capital allocation), increase

information, undervaluation due to conglomerate discount, incentive alignment, de-levering and legal/compliance matters. See figure 5 for an overview of the main purposes of pursuing a spinoff.

## Figure 5: Overview of the Main Purposes of Pursuing a Spinoff




The figure displays different purposes for pursuing a spinoff.

## 2.6 Literature Review on Spinoffs

The performance of corporate spinoffs and the parent companies have been under academic scrutiny for the last four decades. The previous literature on Spinoffs has mainly been concerned with two questions. Firstly, how the announcement of the spinoff effects shareholder wealth (see Hite and Owers 1983; Miles and Rosenfeld 1983; Schipper and Smith 1983; Kirschmaiser 2003) and secondly, the long run performance of spinoffs (see Cusatis, Miles and Woolridge 1993; Desai and Jain 1999; McConnell and Ovtchinnikov 2004). A large body of literature has been focused on the US market, while European and Asian studies are scarcer. There has been a vast amount of research done on the first question, but far less has been done on the second. As a result, is there a need for more research on how to optimize an investment strategy for spinoffs.

### 2.6.1 Announcement Day Performance

Early research on the wealth effects around the announcement date was conducted by Hite and Owers (1983). The authors examined the security price reaction around the announcement date of the Spinoff for 123 entities between 1963 and 1981. The results decisively showed significant excess

returns around the announcement date. Additionally, did the results show that there is no wealth transfer from bondholders to stockholders which implies that the Spinoff makes everyone better off.

The results from Hite and Owers (1983) are confirmed by Shipper and Smith (1983), who analyzed 93 Spinoffs during the same period, 1963-1981. The authors found a significant average share price increase around the announcement date. Furthermore, did the authors conclude that the gains to the shareholders did not come at the expense of the bondholders, thus once again confirming the results by Hite and Owers (1983). Shipper and Smith (1983) attribute these gains to tax and regulatory advantages that arise from the Spinoff and also managerial efficiencies which might emerge from running two separate entities.

During the same period as Hite and Owers (1983) did Miles and Rosenfeld (1983) study 55 Spinoffs and the wealth effect around the announcement date. The research showed positive excess returns around the announcement date. In addition to confirming previous research did Miles and Rosenfeld (1983) conclude that a larger spinoff is associated with larger returns around the announcement. Thus, larger spinoffs have a stronger positive effect on shareholder wealth.

The early research provided by Hite and Owers (1983), Shipper and Smith (1983) and Miles and Rosenfeld (1983) has since been followed up by several authors. Daley, Mehtrotra and Sivakumar (1997) found positive significant excess returns around the announcement date when analyzing 85 US spinoffs between 1975 and 1991. Kirchmaiser (2003) extended the previous research by evaluating European Spinoffs and found significant excess returns as well, though his result showed that smaller spinoffs had a greater effect on returns around the announcement date unlike Miles and Rosenfeld (1983). The most comprehensive study of announcement day returns of Spinoffs was done by Rüdisüli (2005). The author researched over 1000 Spinoffs and found similar results as the previous research.

### 2.6.2 Long Run Performance

The previous literature on the wealth effects around the announcement date has categorically found positive returns, table 2, summarizes the previous results. However, far less research has been made when examining the long run stock market returns of spinoffs and their parent companies.

The first major paper to cover the long run performance of spinoffs was written by Cusatis, Miles and Woolridge (1993). The authors covered 141 Spinoffs and 131 parent companies between 1965

and 1990. Their results showed that both the spinoff and the parent demonstrated excess returns in the long run. Initially though, did the spinoff underperform for the first six months. However, the result showed no statistical significance. After two and three years had the spinoff outperformed by 25% and 35% at a 5%-significance level. The parent showed significant excess return during the first two years after the spinoff. Cusatis et al. (1993) had thus shown that spinoffs create long term value for the shareholders and not just short term.

The results found by Cusatis et al. (1993) spurred on further research on the long run performance of spinoffs. Desai and Jain (1999) studied 155 spinoffs between 1975 and 1991 and found abnormal excess returns three years after the entity was spun off. The authors additionally found that focusing spinoffs, i.e., spinoffs where an unrelated business was spun off, outperformed non-focusing spinoffs. Desai and Jain (1999) did thus not just confirm that spinoffs outperform the market but also that certain spinoffs are better than others when it comes to increasing shareholder wealth.

As the previous research showed the positive effects of investing in Spinoffs McConnell and Ovtchinnikov (2004) further analyzed the potential benefits of Spinoffs as an investment. Their paper covered 311 spinoffs over 36 years and they found that Spinoffs, on average, outperformed their benchmarks by over 20% over the first three years. Additionally, did they research the performance of the parent company. Their findings signify that parent companies are a less lucrative investment over longer periods, compared to their subsidiaries, since their excess returns showed no statistical significance. They conclude that including spinoffs in an already well-diversified portfolio offers positive performance improvements, though an optimal investment strategy was not derived. Although, in a later paper by McConnell, Sibley and Xi (2015) do the authors conclude that the wealth-maximizing strategy is to buy the spinoff immediately after the completion date and hold it for 22 months.

The idea of utilizing spinoffs in an investment portfolio has previously been researched by McConnell, Ozbilgin and Wahal (2001), though their results were not as conclusive as McConnell and Ovtchinnikov (2004). The authors used a sample of 96 spinoffs between 1989 and 1995 and found excess returns though not statistically significant. When comparing the spinoff portfolio against a benchmark it generally showed significant excess returns. Their results suggest to some degree that markets are inefficient but not conclusively.

Even though Spinoffs in general provide significant excess returns, has an optimal investment strategy not yet been derived, though McConnell, Sibley and Xi (2015) did suggest a few guidelines. However, there are still several proponents of including spinoffs in one´s portfolio. Joel Greenblatt (2010) strongly suggests that spinoffs should be invested in since they have been shown to provide

excess returns. Peter Lynch (2000) concurs with Greenblatt and also suggests that spinoffs could be a great asset in one's stock portfolio. The excess returns of spinoffs have not just been an academic topic but in recent years have attracted the watchful eye of the business community. Financial institutions have made their own reports on the long run performance of spinoffs.

Credit Suisse (2012) published a quantitative report where they covered the long run performance of both the spinoff and the parent company. The researchers found that the spinoff initially underperforms for the first five trading days but then starts to recover and over the following 12 months does the spinoff portfolio outperform the benchmark by 13.4%. In more recent years have Standard and Poor´s (2017) published a similar report. The results from S&P were comparable to Credit Suisse´s. The spinoff did initially drop in value but after 12 months had the entity outperformed its peers. S&P (2017) further analyzed whether different types of spinoffs outperformed their peers. Their results suggest that the size of the spinoff and whether the spinoff is focusing or not could offer higher returns. However, they do not offer an optimal investment strategy when it comes to spinoff investing.

The previous research has mainly been concerned with the announcement day returns and to a lesser extent the long run performance of the spinoff. The majority of research has found excess long run returns but have failed to offer an optimal strategy to capitalize on the results. The literature review is summarized in table 1 and 2 below.

## Table 1: Summary of Earlier Studies on Spinoffs' Long Run Return Performance

**Long run excess return**

| Authors | Year | Area | n | Period | 6 Months | 12 Months | 24 months | 36 Months |
|---|---|---|---|---|---|---|---|---|
| Cusatis et al. | 1993 | USA | 141 | 1965-1990 | -1.0% | 4.5% | 25.0%** | 33.6%** |
| Desai and Jain | 1999 | USA | 155 | 1975-1991 | | 15.7%*** | 36.2%*** | 32.3%*** |
| McConnell et al. | 2001 | USA | 96 | 1989-1995 | 8.9% | 7.2% | 5.8% | -20.9% |
| McConnell et al. | 2004 | USA | 311 | 1965-2000 | 12.2% | 10.6%** | 8.2%** | 2.9%** |
| Rüdisüli | 2005 | USA/Europe | 229 | 1990-2003 | | 18.9%*** | 30.9%*** | 55.8%*** |
| Credit Suisse | 2012 | USA | 151 | 1995-2012 | | 13.4% | | |
| McConnell et al. | 2015 | USA | 153 | 2001-2013 | 4.8%* | 8.5%* | 17.1%** | 26.5%** |
| S&P Global | 2015 | USA/Europe | 516 | 1989-2016 | 3.3%* | 8.4%** | 10.2%** | 22.1%** |

The table displays an overview of earlier studies on spinoffs' long run return performance. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. The number of spinoffs corresponds to n.

## Table 2: Summary of Earlier Studies on Spinoffs' Announcement Day Return

**Announcement day returns**

| Authors | Year | Area | n | Period | Event Window | Excess Returns |
|---|---|---|---|---|---|---|
| Hite & Owers | 1983 | USA | 123 | 1963-1981 | (-1, 0) | 3.3% |
| Schipper & Smith | 1983 | USA | 93 | 1963-1981 | (-1, 0) | 2.8% |
| Miles and Rosenfeld | 1983 | USA | 55 | 1963-1981 | (0, 1) | 3.3% |
| Copeland et al. | 1987 | USA | 188 | 1962-1982 | (-1, 0) | 3.0% |
| Seifert and Rubin | 1989 | USA | 51 | 1968-1983 | (-1, 0) | 3.3% |
| Vijh | 1994 | USA | 113 | 1964-1990 | (-1, 0) | 2.9% |
| Allen et al. | 1995 | USA | 94 | 1962-1991 | (-1, 0) | 2.2% |
| Seward and Walsh | 1996 | USA | 78 | 1972-1987 | (-1, 0) | 2.6% |
| Johnson et al. | 1996 | USA | 104 | 1975-1988 | (-1, 0) | 4.0% |
| Daley et al. | 1997 | USA | 85 | 1975-1991 | (-1, 0) | 3.4% |
| Desai and Jain | 1999 | USA | 144 | 1975-1991 | (-1, 1) | 3.8% |
| Krishnaswami et al. | 1999 | USA | 118 | 1978-1993 | (-1, 1) | 3.3% |
| Mulherin and Boone | 2000 | USA | 106 | 1990-1998 | (-1, 1) | 4.5% |
| Gertner et al. | 2002 | USA | 160 | 1981-1996 | (-1, 1) | 3.9% |
| Maxwell and Rao | 2003 | USA | 79 | 1976-1990 | (0, 1) | 3.6% |
| Kirchmaier | 2003 | Europe | 48 | 1989-1999 | (-1, 1) | 5.4% |
| Rudisuli | 2005 | USA/Europe | 772 | 1990-2003 | (-1, 0) | 2.8% |
| Sin and Ariff | 2006 | Malaysia | 85 | 1986-2002 | (-1, 0) | 1.8% |
| Veld et al. | 2008 | World | 91 | 1995-2002 | (-1, 1) | 3.1% |

The table displays an overview of earlier studies on spinoffs' announcement day returns. All studies in the table documents a significance level of 1 %. The number of spinoffs corresponds to n.

### 2.6.3 Characteristics of Spinoffs

The rather conclusive evidence that spinoffs outperform the market, and its peers, in the long run, begs the question why. The most comprehensive research done on the success factors of spinoffs was written by Tübke (2004), though his research mainly concerned how a successful spinoff is conducted and not why it succeeds in the long run. However, the literature primarily attributes the success of the spinoff to a few major factors, *Incentives* (see Aron, 1991; Cusatis et al 1993), *Governance factors* (See Ahn and Walker, 2007; Feldman, 2016; Seward and Walsh, 1996; Law and Yu, 2018), *market factors* (see Greenblatt, 2010; Lynch and Rothchild, 2000; Credit Suisse, 2012; S&P Global, 2017), *organizational structure* (see Desai and Jain, 1999; S&P Global, 2017,Heppelmann and Hoffleith, 2009; Schmid and Walter, 2009; Ammann, Hoechle and Schmid, 2012), *Capital Structure* (see John, 1993; Mayer, 2008) and *Capital Efficiency* (Emrick, Kohrana, Shivdasani and Venotouras , 2017). Though some factors can be attributed to all firms, and not just spinoffs, are they especially relevant for spinoffs. Incentives factors are mainly concerned with reducing agency

costs and aligning interest. Governance factors are closely related to incentives factors but are primarily concerned with how the spinoff is governed and by whom. The organizational structure regards the pre-spinoff structure of the firm which can be broken down to two subfactors, conglomerates and firm focus. The market factors are attentive to market neglect and types of ownership while the capital structure is concerned with the leverage of the firm and Capital efficiency attends to the return on capital. To optimize an investment strategy is it imperative to understand the underlying characteristics of spinoffs to capture potential positive and negative signals.

All factors, apart from market factors, are related in the sense that they provide information regarding the health of the business and thus its long run performance. They also grant vital information concerning the reason why the entity was spun off. Both capital structure and capital efficiency can help foretell the future of the spinoff since it reveals the rationale behind the spinoff. Restructurings that are undertaken in order to de-lever or to dispose of an unprofitable business unit are more likely to fail. Leverage is thus a highly important factor concerning spinoffs (see Mayer, 2008) but also profitability and efficiency (Woo, Willard and Daellenbach, 1992).

Furthermore, is the organizational structure of the pre-spinoff imperative as it can help provide information regarding the potential efficiency gains that are expected due to the spinoff (See Desai and Jain, 1999; Daley et al., 1997). As shown by Hite and Owers (1983) is the reason for spinning off an entity of utmost importance when it comes to shareholder wealth. Spinoffs that were undertaken due to legal reasons had a negative impact on shareholder wealth. The two defined Spinoffs, entrepreneurial and restructuring, by Tübke (2004) also gives an insight into the potential future of the Spinoff. An entrepreneurial spinoff that faces internal struggles is more prone to fail, as a result, is corporate governance and incentives also imperative when it comes to the future success of the company.

#### 2.6.3.1 Incentives

The long run abnormal performance of spinoffs has been suggested, in part, to improved interest alignment due to better incentives. Cusatis et al. (1993) suggest that improved incentives in spinoffs can explain parts of the outperformance. However, they do not conduct any further research on that topic. Moreover, Aron (1991) constructed a model that analyzed incentives and spinoffs. The model takes the perspective of the subsidiary in which the potential for improved incentives from a spinoff competes with the economies of scope that are associated with the parent. The model

suggests that changes in the relative value of these factors can induce a spinoff. Thus incentives, by themselves, can be a reason to spinoff an entity. Aron (1991) further explains the intuition behind why incentives might improve performance. A manager of a business division in a large company that lacks a compensation plan linked to the stock of the company will not be rewarded for improving his division. As a result, will the manager not be incentivized to improve his division. However, even if there is a compensation plan might the manager not be sufficiently rewarded for his efforts. If the manager improves his division, but another business unit in the company is failing, then the net effect on the stock might be zero. Thus, even if one manager improves his business might he still not be rewarded. By spinning off a business division, will the performance of the stock and the performance of the manager be more intertwined, thus aligning interests. A positive signal for spinoffs might thus be if insider incentives are aligned. One important variable within incentives is insider ownership.

**Insider Ownership**

One of the oldest and most widely cited theories concerning corporate governance and incentives is the *Principal-agent theory* (Ross, 1973). Its origins can be traced back to the 1960s when economists started to examine risk sharing among individuals and groups (see Arrow, 1971; Wilson, 1968). The Principal-agent theory in its broadest form highlights the issue when cooperating parties have different goals and division of labor (Eisenhardt, 1989). In corporations, where ownership and management are separated, can the agency issue occur if the interest of owners is not aligned with the interest of management. An agency relationship is a contract where an agent is assigned to perform a task for a principal. If both parties are utility maximizers is there a good reason to believe that the agent will not perform its task with the best interest in mind to the principal (Jensen and Meckling, 1973). The actions taken by the agent might maximize his or her utility, but it could come at the expense of the principal. Thus, in corporations might management (agent) act in their own best interest rather than their shareholders (principal).

The agency issue has plagued corporate governance since its inception. Managers are incentivized to let firms grow beyond optimal size due to the increased power managers gain (Jensen, 1986). The agency issue can thus cause *empire building*, which further leads to greater inefficiencies (Kanniainen, 2000). Mitigating the agency issue can thus increase corporate value, by aligning interests, and can help explain why spinoffs tend to outperform. Feldman (2016) found that in spinoff firms are interests more aligned which indicates that spinoffs on average improve incentives. Shipper and Smith (1983) also attribute the performance of spinoffs due to improvements in management incentives.

The reduction of agency costs can improve shareholder wealth and may explain increased returns. An effective way to align interests between managers and shareholders is to tie managers' compensation to shareholder wealth, or simply makes managers' shareholders which thus removes the utility maximization problem. A paper by Charoenwong, Ding and Pan (2016) found that spinoffs that had large insider holdings outperformed spinoffs with lower insider holdings. The authors demonstrate results that indicate that it might be a positive signal to buy spinoffs where insiders are large shareholders in the company. Furthermore, does Lynch and Rothchild (2000) suggest investing in stocks where insiders have large holdings or to invest in stocks when insiders are increasing their holdings. Allen (2001) additionally finds that corporate insiders are substantial buyers of spinoff shares and that the trades are significantly related to the spinoffs returns. The importance of incentive alignments in spinoffs may thus not only explain their outperformance but also help to optimize a strategy. Buying spinoffs where insiders are heavily invested could be a positive signal.

#### 2.6.3.2 Corporate Governance Factors

The issue of aligning interests can be especially tricky in larger more diversified corporations. The governance of large firms is also of great importance to understand the rationale behind the spinoff. Inefficiencies in large corporations can partly be attributed to poor corporate governance, which could further explain why corporations choose to spin off a division. Core, Holthausen and Larcker (1999) found that corporations with weak governance structures have greater agency problems and as a result does the firm perform worse. Furthermore, did Bhagat and Bolton (2008) find that operational performance is highly correlated with efficient corporate governance.

Corporate governance is the structure by which organizations are directed and controlled. It involves giving the enterprise an overall direction and overseeing and controlling the executive actions of management (Rhodes, 1996). The topic of corporate governance has been highly researched and discussed and the importance of effective governance has been shown to be vital for the success of a company. Inefficient governance has also been attributed to why corporations might spin off a business unit (See Seward and Walsh, 1996; Ahn and Walker, 2007; Tübke, 2004). Effective governance means mitigating agency costs that might occur due to, not only weak incentives structures but also a poorly composited board or an underperforming CEO. Ahn and Walker (2007) found that agency issues are contributing to destroying value in firms with a diversification strategy, i.e., a conglomerate. A spinoff might thus mitigate the agency costs that

arise due to conglomeration. Spinoffs that improve corporate governance may, therefore, act as a positive signal.

Efficient corporate governance means lowering agency costs. For spinoffs does that mean having, not only an efficient incentives package but a CEO with the right knowledge and commitment and an effectively managed board. Finding Spinoffs with optimal corporate governance can thus help to find the most advantageous spinoff, and help optimizing an investment strategy. Two important variables within corporate governance are inside CEO and CEO duality.

**Inside CEO**

A majorly important factor in the corporate governance of spinoffs is the appointment of a chief executive officer. When the parent spins off a business unit is it faced with the decision of internally recruiting a CEO for the spinoff or externally. In the case of entrepreneurial spinoffs (See Tübke, 2004) is the natural succession to recruit an inside CEO because usually is it an insider that initiates the spinoff in the first place. The most suitable CEO should thus be the one that believes he or she can improve the business unit as an independent entity. However, for restructuring spinoffs is the optimal choice not as clear cut.

The optimal CEO choice in spinoffs has been scarcely researched, however research for CEO succession is more readily available (See Charan, 2005; Miller, 1993; Friedman and Singh, 1984). A paper by Seward and Walsh (1996) analyzed the governance of voluntary spinoffs where they analyzed the stock performance of spinoffs and several governance factors. The authors conclude that the market reaction is positive when an inside CEO is recruited and especially when the CEO of the parent company is recruited to the subsidiary. Thus, an internal CEO from the parent might be the optimal choice. Studies have found that outside CEO succession, on average, leads to inferior post-succession firm performance (Zhang and Rajogopalan, 2010; Datta and Guthrie, 1994). Shen and Cannella (2002) analyzed 228 CEO succession and found that outside CEOs had a negative impact on operational performance. The authors attribute the decrease in performance due to the outside CEO´s lack of firm-specific knowledge. The importance of inside knowledge of the business is thus imperative.

The research by Seward and Walsh (1996) along with Zhang and Rajogopalan (2010) and Datta and Guthrie (1994) implies that it is optimal to hire an inside CEO. There is also an intuition and rationale behind their results. An internal CEO will have a better understanding of the underlying business and thus have a better understanding of how the business is to be run. Furthermore, has Feldman (2016) found that incentive alignments are most effective when the CEO is internally

recruited. The research by Feldman (2016) showed that incentive alignments increase after the manager´s compensation is tied to the stock performance of the spinoff, and this was especially prominent among CEOs who were internally recruited. Thus, it appears that incentive alignments are most effective when the CEO is internally recruited, and this can further be a positive signal for the spinoff.

**CEO Duality**

Effective corporate governance involves having an efficient and well-balanced board of directors to supervise the executives. A governance issue that can arise is if the board of directors is headed by the chief executive officers, i.e., CEO duality. The problem with CEO duality is linked to the agency issue. If the CEO gains more power, he can further maximize his utility without considering the shareholder's well-being. Board structure in spinoffs has previously been analyzed by Denis, Denis and Walker (2014; 2015) and Feldman (2016). Denis et al. (2014) find that boards are generally well-composited post-spinoff, where many directors have industry-specific knowledge that is useful to the spinoff. However, CEO duality has been shown to be an issue, at least among certain spinoffs. Berardino (2016) found that CEO duality does not enhance firm performance among new technology venture spinoffs. Furthermore, does Pi and Timme (1993) find that there is a negative relationship between firm performance and CEO duality, although their study did not specifically analyze spinoffs. Also, Berg and Smith (1987) found an adverse relationship between CEO duality and return on investments when analyzing their dataset. Tang (2017) additionally, finds a negative relationship between firm performance and CEO duality when the CEO had dominant power relative to the other directors. CEO duality can thus be an issue that concerns the performance of the company. Excluding companies with possible governance issues might be a sign of positive signals for the spinoff.

#### 2.6.3.3 Market Factors

Effective incentives and corporate governance appear to be important factors concerning spinoffs. However, market factors have been indicated to also be of importance. Market factors are components that can affect the return of the spinoff due to market imperfections and neglection. Though, market neglection and imperfection can have an impact on all firms, and not just spinoffs, are they especially prone to influence them. The previous literature on market factors for spinoffs has mainly shed light on two areas of neglection: analyst coverage and institutional investors.

**Analyst Coverage**

One major factor that has been attributed to spinoffs is *analyst coverage*, or rather a lack of coverage. This implies that spinoffs initially tend to be neglected. Credit Suisse (2012) argues that one of the reasons spinoffs tend to drop in value initially but then outperforms is due to the lack of analyst coverage. Further, Lynch and Rothchild (2000) argue that spinoffs neglection may create attractive investment opportunities for investors actually evaluating the spinoffs.

The intuition behind the lack of analyst coverage stems from the efficient market hypothesis. The role of a financial analyst is to bridge the information gap between actors in the financial market. In an entirely efficient market is information readily available and already priced into the shares. However, when there is little information available and few market players conveying the information can this lead to mispricing. Glosten and Harris (1988) found that the bid-ask spread increases with information asymmetry, thus are stocks to some extent mispriced when there are large information imbalances. The result by Glosten and Harris (1988) is further confirmed by Fang and Peress (2009) who found that stocks that were less covered by the media and by analyst outperformed stocks with high coverage. In addition to Fang and Peress (2009) did Belisario (2017) found that stocks with low analyst coverage outperform stocks with high coverage, even when controlling for betas, size, book-to-market, momentum and liquidity. Excessive analyst coverage can lead to overvaluation, while low coverage can lead to undervaluation (Belisario, 2017). Although spinoffs are intended to decrease information asymmetry might this only be true for the parent, and not the spinoff.

The implications of low coverage can especially affect spinoffs primarily for two reasons. Firstly, are spinoffs in general smaller companies which usually attracts less analyst coverage. A report by Stanhope and Meredith (2015) found that smaller companies average six analysts per company while larger companies average 27. Additionally, is the result highly skewed, as 20 percent of small companies lack coverage completely and 40 percent have three or fewer analysts. The result by Stanhope and Meredith (2015) is confirmed by Fortin and Roth (2007) who found that analyst coverage is highly correlated with market size and trading volume. Secondly, are spinoffs more likely to be less covered by analysts due to their lack of previous history. Since spinoffs are new entities trading separately from their parent is there a shortage of historical information. The efficient market hypothesis weak form states that it is impossible to earn abnormal returns using historical data (see Malkiel and Fama, 1970; Bodie et al., 2014). However, since there is little, or no, historical information is it challenging to reflect the information in the share price fully.

The lack of historical information and a tendency for low analyst coverage can create attractive investment opportunities for an active investor.

Belisario (2017) proposed a trading strategy involving shorting the stocks with high analyst coverage and going long in stocks with low analyst coverage. From a spinoff perspective can this be highly advantageous and worth keeping in mind when constructing a spinoff portfolio and investment strategy.

**Institutional Investors**

The potential gains by low analyst coverage are further amplified by low holdings with institutional investors and can further help optimizing an investment strategy. The initial drop in the value of spinoffs the first few trading days discovered by Credit Suisse (2012) and S&P Global (2017) can be attributed to institutional investors unloading shares of the spinoff, and this can be capitalized upon. Furthermore, does Lynch and Rothchild (2000) strongly suggest investing in stocks with little or no institutional investors.

Institutional investors can affect spinoffs primarily in two ways. Firstly, as shown by Credit Suisse (2012) and S&P Global (2017), can they create large drops in the value of the spinoff, which can be utilized. Institutional investors are usually restricted by strict rules concerning their fund mandates (See Bodie et al, 2014; Cao, Han and Wang, 2017) which means that they cannot invest freely in any stock. When a company spins off a business segment will the shareholders of the parent company initially receive the shares of the spinoff, which they can later sell. For institutional investors can this be problematic because spinoffs are usually smaller companies and institutional investors are often constrained to only invest in large companies. As a consequence of the investment rules forced upon the institutional investors will they have to sell their shares of the spinoff and this will initially suppress the price of the share. A paper by Abarbanell, Bushee and Raedy (1998) find that investment strategy restrictions of institutional investors strongly affect their demand for spinoffs. Gompers and Metrick (2001) find that institutional investors mainly invest in large companies and have decreased their holdings in smaller businesses. Additionally, has it been found that stocks with a high degree of institutional investors have higher share prices, which could suppress returns (See Osagie, Osho and Sutton, 2005). Institutional investors sell-off can affect the spinoff's share price substantially if they hold a big position in the spinoff, and this may explain why spinoffs in general decline in value initially.

The second way institutional investors might influence spinoffs is highly related to the previous section concerning analyst coverage. Stocks owned by institutions are in general more highly covered by analysts (O´Brien and Bhushan, 1990). Since the coverage is greater with institutionally owned stocks is the information asymmetry minimized and as a subsequence are stocks more fairly priced. Additionally, are institutions staffed with investing professionals that continuously monitor

their assets, but since spinoffs rarely enter institutions portfolios have they far less coverage. Thus, can institutional investors influence spinoffs firstly by their sell-off that causes the share price to fall and secondly can they influence spinoffs through their lack of coverage. As an investor can both of these factors be exploited in order to optimize a strategy.

#### 2.6.3.4 Organizational Structure

The rationale for most spinoffs is that it is more efficient to run two separate entities rather than one. This, unlike M&A, assumes that there are no positive synergy effects between the two different business units, but rather negative effects. The increase in performance and efficiency by some spinoffs are thus a consequence of disposing negative synergies. As a result of this is the industry relationship between the subsidiary and the parent of the utmost importance when optimizing an investment strategy. Companies that are expected to remove negative synergies are likely to be in different industries or be part of a conglomerate which makes them interesting variables to analyze.

**Within industry/unrelated businesses**

Negative, or non-existing, synergies are expected to be found where the businesses are widely different. Primary reasons for mergers and acquisitions are increases in economies of scope and scale (Berk and Demarzo, 2017). However, if the merged entities are too widely apart can the synergies fail to come. In spinoff transactions has it been found that when the parent company spun off an unrelated business unit were there significant improvements in operating performance in the year after the spinoff (Daley et al., 1997). The separation of business units thus led to improvements in efficiency. Desai and Jain (1999) also found significant operational improvements when the parent spun off an unrelated business unit. The operational improvements in the parent company could be due to the reduction of negative synergies. S&P Global (2017) found that when the parent company spun off an unrelated business division were the first year returns of the parent higher than when compared with a within-industry spinoff. Also, the three-year returns were higher with a cross-industry transaction compared to a within-industry. Thus, industry focusing spinoffs are more valuable to shareholders of the parent. However, the results for the spun off entity showed a different result. S&P Global (2017) found that the spun off entity showed higher one and three-year returns when the spinoff came from the same industry as the parent. Thus, were shareholders of the spinoff better off when a related business division was spun off.

**Conglomerate Discount**

Efficiency gains by increasing focus have also been found by Wernerfelt and Montgomerey (1988) who suggests that narrowly diversified companies outperform highly diversified firms. For conglomerate businesses can this be vital information and can further help explain why spinoffs might outperform, and possibly especially spinoffs from conglomerates. The importance of spinoff performance and conglomerates can be found in the *conglomerate discount*. When a conglomerate is traded below the value of the sum of its underlying businesses is it said to be traded at a conglomerate discount (Heppelmann and Hoffleith, 2009). On average has the discount been found to be between five and ten percent, though some outliers have been as much as 20 percent (Heppelmann and Hoffleith, 2009). The rationale for spinning off some underlying businesses could thus be to eliminate the discount.

The justification for forming a conglomerate is usually that a large, diversified, business will increase economies of scope, lower the tax burden and lower the risk of bankruptcy, due to diversification, and as a result lower borrowing costs (Berk and DeMarzo, 2017). For financial institutions can being a conglomerate offer financial guarantees from the central bank or government due to their large size and systemic importance (Schmid and Walter, 2009). The rationale, regardless of business, is that conglomerates can increase their value due to their size. However, Schmid and Walter (2009) show that financial conglomerates destroy value for its shareholders. Furthermore, did Burch and Nanda (2003) show that conglomerates drain value, and shareholders are better off after the conglomerate split up. Moreover, did Ammann, Hoechle and Schmid (2012) show that the conglomerate discount varies between eleven and twenty-one percent, when using a fixed effects regression.

The reason why conglomerates might destroy value is due to reduced strategic and business focus, business with divergent growth profiles and suboptimal capital structure (Khorana, Shivdasani, Stendevad and Sanzhar, 2011). When the business segments are more related is the discount lower and increases with a low degree of relatedness (Khorana et al., 2011). The conglomerate discount can also be explained by governance factors. Roll (1986) derived the *hubris hypothesis* which helps to explain corporate takeovers. The hypothesis explains why corporate takeovers are usually bought at a premium, which Roll (1986) concludes are explained by managers hubris in their ability to run a large company. A conglomerate can be more challenging to manage and be explained by managers' overconfidence and as a consequence is value destroyed for the shareholders.

Due to the conglomerate discount, spinoffs may realize value by closing this valuation gap. If the discount averages between five and twenty percent (See Heppelmann and Hoofleith, 2009; Amman et al., 2012) that may catalyze the spinoff to increase in value by a similar amount. Thus, investing

in conglomerate spinoffs can directly offer high returns due to the suppressed market value of the conglomerate.

#### 2.6.3.5 Capital Structure

In a world free of imperfections should capital structure not affect the cost of capital and firm value (Modigliani and Miller, 1958), however when there are imperfections can capital structure affect firm value through its effect on bankruptcy (see Berk and Demarzo, 2017; Baxter, 1967). For spinoffs can this be highly important when considering long run performance. One crucial variable within capital structure is leverage.

**Leverage**

When a parent company restructures through a spinoff can it choose to assign the spun off entity with some of its debt. A paper by Schipper and Smith (1983) found that in most cases will the spinoff be designated some debt from the parent. Depending on the goal of the restructuring can the parent company de-lever significantly by shifting debt to the spinoff, which leaves the parent in a better financial position while putting the spinoff in a precarious position. A paper by John (1993) analyzed the optimal debt allocation of spinoffs and found that if the parent company is optimally funded, then the spinoff should be allocated some debt and the most profitable of the two entities should be allocated the most amount. However, the model provided by John (1993) assumes that the parent is optimally funded, i.e., the capital structure is on par. If this is not the case, then the spinoff might be allocated an unfavorable amount of debt. If the parent company is overly levered, then it can shift its debt to the spinoff which might let the parent company reach its optimal capital structure, but the spinoff could be facing financial distress.

According to the trade-off theory first formulated by Kraus and Litzenberger (1973) will the firm value decrease with increased leverage since the present value of the bankruptcy costs increases as well. This means, unlike what Modigiliani and Miller (1958) suggest, that capital structure matters. From an investment perspective is this information highly valuable. Investing in Spinoffs that are overly levered could be poor investments since they might be facing bankruptcy in the long run. Thus, an optimal investment in spinoffs means avoiding extremely levered firms since they might be part of a scheme to de-lever the parent. Mayer (2008) suggest that spinoffs that were part of a de-levering arrangement are more likely to fail in the long run. Too much leverage might lead to

underinvestment due to debt overhang, where even profitable investments fail to get funding due to too much leverage (Berk and Demarzo, 2017).

Hence, leverage could be an important factor to evaluate when investing in spinoffs. However, Berk and Demarzo (2017) argue that there could be managerial gains through high leverage. A firm facing financial distress will force managers to work towards reducing leverage which means increasing profitability more proactively. Although, if the company is overly levered it may be prone to fail regardless of the managerial gains.

#### 2.6.2.6 Capital Efficiency

**Capital efficiency**

The success of spinoffs, in the long run may also be derived to improved capital efficiency. It has been shown that spinoffs that improve capital efficiency also tends to outperform. A paper by Emrick, Kohrana, Shivdasani and Venotouras (2017) found that a critical success factor of spinoffs was their ability to increase their return on invested capital. Emrick et al. (2017) attribute the abnormal returns of spinoffs due to their increase in capital efficiency. Thus, optimizing an investment strategy could involve investing in spinoffs with capital efficiency improvements.

Investing in entities with high capital efficiency is not new though. Greenblatt (2006) formulated an investing strategy which involved investing in companies with high returns on capital. Additionally, did Piotroski (2000) also suggest a trading strategy which involves going long in firms with strong accounting fundamental signals, while shorting those which have corresponding weak signals. Even though high returns on capital might be an applicable trading strategy for all stocks can it especially be important for spinoffs. By sorting spinoffs on their ability to increase capital efficiency is it may be possible to screen spinoffs with strong operational performance.

# 3. The Spinoff Scorecard

The main purpose of this study is to find an investment strategy based on spinoff variables that can separate the best performing spinoffs from the weakest performing spinoffs. In order to pursue this purpose, we design a scorecard which we call *The Spinoff Scorecard.*

The Spinoff Scorecard is a binary scoring system, which is based on ten variables. The ten variables measure the spinoff from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score one) is expected to generate a better return than a negative signal (score zero). If our Spinoff Scorecard is successful, it implies that we will have provided a suggestion for:

1) Answers to why spinoffs have excess return performance and
2) A proposal of how to invest in spinoffs with a concrete investment strategy

In this section, we present how the variables in The Spinoff Scorecard relates to current research/literature on spinoffs, why a scorecard is a suitable method, an overview of how to utilize The Spinoff Scorecard and finally how we define all variables and scores in The Spinoff Scorecard.

## 3.1 The Spinoff Scorecard – The Aim of Unifying All Theory of Spinoffs

As documented in the literature review section, most research has been focusing on the announcement effect, long-term return performance and various variables relating to spinoffs such as incentives, corporate governance, organizational structure, etc. Earlier studies have concluded that spinoffs outperform the market over the holding periods one, two and three years. However, no study has shed light on why spinoffs have long run excess performance and which variables that determine the excess performance. Therefore, we would like to find an answer to why spinoffs have excess return performance and further identify which spinoff specific variables can explain this strong return. The implication of finding answers to which variables explain the strong return performance of spinoffs is that we can identify the best performing spinoffs and thus providing a proposal of how to invest in spinoffs.

Earlier studies have documented that spinoffs have strong return performance and outperform benchmark indexes. However, the return performance of spinoffs is diverse and the strong mean return is dependent on the strong performance of relatively few spinoffs while accepting weak performance from some spinoffs. McConnell, Sibley and Xi (2015) documents that spinoffs have a strong mean return, a lower median than the mean, and further a big difference between the 25$^{th}$ and 75$^{th}$ return percentile. This study indicates that spinoffs' return performance is diverse. Hence,

an investment strategy that can separate the best performing spinoffs from the weakest will strongly improve the mean return.

The literature review section, 2.6.3 (Characteristics of Spinoffs), captures variables that could be classified within the categories incentives, corporate governance, organizational structure, market neglection, capital structure and quality. Table 3 summarizes the findings from the discussed variables and the intuition of each variable. All variables in table 3 are indicative of either positive or negative performance. The findings in the literature review section are the foundation for the selected score variables in the scorecard.

## Table 3: Overview of Variables and Spinoffs' Performance

**Studies relating to variables and spinoffs' performance**

| # | Variable | Intuition of variable | Study (example) |
|---|---|---|---|
| *1* | *Incentives* | *Spinoffs tend to align incentives* | |
| 1.1. | Insider ownership | Large insider ownership outperform low insider ownership | Charoenwong et al. (2016) |
| *2* | *Corporate governance* | *Spinoffs tend to reduce agency costs* | |
| 2.1. | Inside CEO | Incentive alignment more efficient for inside CEO than outside CEO | Feldman (2016) |
| 2.2. | CEO Duality | Negative relationship between stock performance and CEO duality | Pi & Timme (1990) |
| *3* | *Organizational structure* | *Spinoffs tend to unlock value* | |
| 3.1. | Within industry | Studies indicate better performance within industry | S&P Global (2017) |
| 3.2. | Unrelated busineses | Studies indicate better performance for unrelated businesses | Daley et al. (1997) |
| 3.3. | Conglomerate | Demerging leads to increased strategic/business focus | Khorana et al. (2011) |
| | | Incentive alignment for managers and employees | Khorana et al. (2011) |
| | | Conglomerate discount (5-20%) | Heppelmann (2009) |
| *4* | *Market neglection* | *Spinoffs tend to be neglected* | |
| 4.1. | Analyst coverage | On average low analyst coverage | Credit Suisse (2012) |
| 4.2. | Institutional selling | Tendency for sell-off by institutions | S&P Global (2017) |
| *5* | *Capital structure* | *Spinoffs tend to have various debt load* | |
| 5.1. | Leverage | Tendency for debt overload on some spinoffs | Berk & DeMarzo (2017) |
| *6* | *Quality* | *Spinoffs tend to improve return on capital* | |
| 6.1. | Return on Capital | Tendency for improved return on capital post-spinoff | Emrick (2017) |

The table displays an overview of variables that relates to spinoffs' performance from the literature overview section.

## 3.2 The scorecard – A Method for Capturing Quantitative and Qualitative Variables

The reason for utilizing a binary scoring system is because it allows us to include several variables that are both quantitative and qualitative. The literature review section concludes that spinoffs have

characteristics ranging from corporate governance to leverage and we aim to capture all of these. This aim can be fulfilled with a binary scoring system.

An additional advantage of a scoring system is the easy availability for any investor to implement the strategy. The ease of implementing the strategy is of utmost importance since the purpose of this paper is to design and test an investment strategy for spinoffs which could be used in practice.

Also, a scorecard method captures if a variable is deemed to be a positive or a negative signal for the spinoffs' expected return performance. In order to classify a variable as either positive or negative, it requires a thorough literature review. Hence, a scorecard starts from the intuition, i.e., what is intuitively a positive signal based on earlier literature. First, after the intuitive foundation has been laid out, the data processing can be initiated. Consequently, a scorecard can help to avoid the problems data snooping or data mining. Data snooping refers to finding patterns in data, which can be stated as statistically significant when there is no real underlying significant pattern. Data snooping typically involves data mining, which is the process of finding patterns by testing several datasets (Lo and MacKinlay, 1990). In summary, the scorecard method is utilized by first creating an intuition and rationale for score variables, followed by data processing. Therefore, this process may mitigate the data snooping and data mining issue.

The scorecard method is inspired by Piotroski's F-Score. Piotroski (2000) examines if a scorecard based on fundamental analysis could separate the best performing value stocks from the weakest performing value stocks. Piotroski F-score is constructed as a binary scoring system that measures a firm from the categories, profitability, leverage, liquidity and operating efficiency. The F-score includes nine variables that are classified as either a positive signal (score one) or a negative signal (score zero). The investment implication from F-Score is to buy value stocks that receive a high composite F-Score. Piotroski (2000) documents that a portfolio of high F-Score earned on average a one-year market-adjusted return of 7.5%. The binary scoring system that we utilize in The Spinoff Scorecard is thus inspired by Piotroski's F-score.

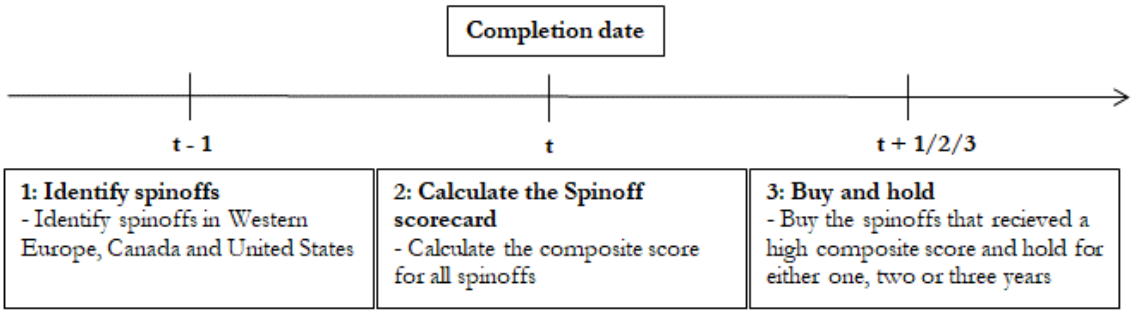
Piotroski is a Professor of accounting at Stanford and was prior an Associate Professor at the University of Chicago. Piotroski's article "Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers" which constructed the F-Score has received considerable publicity and been regarded as a successful strategy for investing in value stocks. Given that the binary scoring method has been utilized by an accounting Professor at Stanford and received positive publicity we regard the method as legitimate.

## 3.3 Overview of The Spinoff Scorecard Investment Strategy

Figure 6 displays an overview of how to pursue The Spinoff Scorecard investment strategy. As the figure illustrates, the first step is to identify all spinoffs. Second, calculate the composite score for each spinoff based on The Spinoff Scorecard on the spinoff's completion date (first trading day). Finally, the investor buys and hold all spinoffs that receive a high composite score over a preferred holding period of either one, two or three years.

The motive for choosing longer holding periods (i.e., one, two or three years) is because the literature review section concluded that the strongest return performance is for longer holding periods. The reason for choosing the start date, t, as of the completion date is because spinoffs tend to initially be ignored by institutional investors and have low analyst coverage, which may lead to inefficiently priced spinoffs. Hence, this may create opportunities for a systematic strategy, as The Spinoff Scorecard.

### Figure 6: Overview of The Spinoff Scorecard Investment Strategy




The figure displays an overview of The Spinoff Scorecard investment strategy.

## 3.4 The Spinoff Scorecard Methodology

We have constructed a binary scoring system, called The Spinoff Scorecard, which is based on ten variables. The ten variables measure the spinoff from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score one) is expected to generate a better return than a negative signal (score zero). Below we define variables within the seven

perspectives and provides a theoretical intuition of why a positive signal should generate a higher return relative to a negative signal.

### 3.4.1 Insider Incentives

The variable ownership captures the perspective of *insider incentives*.

**Definition (ownership):** Ownership is defined as the number of shares owned by insiders as a percentage of the spinoff's shares outstanding. If insider ownership exceeds 0 % of shares outstanding the variable receives score one and if insider ownership equals 0 % of shares outstanding it receives score zero. The threshold for insider ownership is set to 0 % since it would be hard to define what would be considered as high insider ownership. The data for the variable is retrieved from Bloomberg's holdings data.

**Intuition:** Charoenwong, Ding and Pan (2016) documents that spinoffs with large insider ownership outperform spinoffs with low insider ownership. The portfolio manager Joel Greenblatt writes in his book, "You can be a stock market genius", that high management ownership is a key to successful spinoff investments. The intuition of ownership is straightforward; a higher percentage owned by the management should increase management incentives to create shareholder value (Greenblatt, 1999). This is further accentuated by the portfolio manager Peter Lynch who is an advocator of investing in companies with large insider holdings (Lynch, 2000). Therefore, we deem insider ownership as a positive signal.

### 3.4.2 Corporate Governance

The perspective of corporate governance is captured by the variables *inside CEO* and *CEO power*.

**Definition (Inside CEO):** Inside CEO is defined as an internally recruited CEO from the spinoff's parent company. If the spinoff's CEO is internally recruited the variable receives score one and if the spinoff's CEO is externally recruited, it receives score zero. The data for the variable is manually retrieved from each company's annual reports.

**Intuition:** An internally recruited CEO from the parent company should logically be better incentivized relative to an externally recruited CEO. The intuition is that an inside CEO changes the identity from being a divisional manager or subsidiary manager to a CEO of a publicly traded company which yields a promotion-based motivation (e.g., Seward, 1996 and Aron, 1991). Also, it

is reasonable to expect that an internal CEO have a better understanding of the company and its underlying business than an outside CEO. Shen and Cannella (2002) analyzed 228 CEO succession and found that outside CEOs hurt operational performance. Therefore, we deem inside CEO as a positive signal.

**Definition (CEO Power):** CEO power is defined as the CEO also being chairman of the board. If the CEO is not the chairman of the board the variable receives score one and if the CEO is chairman of the board it receives score zero. The data for the variable is manually retrieved from each company's annual reports.

**Intuition:** The consensus of the corporate governance literature of CEO power is that it is associated with weaker corporate governance (Law, 2018). The board of directors acts as a cornerstone for making sure that management act in the owners' and other stakeholders' interest. Hence, the composition of the board and its chairman of the board is of utmost importance. CEO power is associated with lower accounting profitability (Bebchuk, 2011), biased salary and bonus pay (Morse, 2011), relatively higher cost of debt (Liu, 2010), harder for the board to dismiss a CEO (Morck, 1989). Further, Pi and Timme (1990) document a negative relationship between CEO power and stock performance. Therefore, we deem CEO power as a negative signal.

### 3.4.3 Organizational Structure

The variables *within industry* and *conglomerate* capture the perspective organizational structur*e*.

**Definition (Within industry):** Within industry is defined as the spinoff's industry equals the same industry as the parent's industry. Further, industry is defined with Standard & Poor's (S&P) Global Industry Classification Standard (GICS) level 1.[7] If the spinoff's industry code equals the parent's industry code, the variable receives score one and if the spinoff's industry code is not equal to the parent's industry code, it receives score zero. The data for the variable is retrieved from Bloomberg.

**Intuition:** S&P Global (2017) finds that spinoffs from a parent company within the same industry performs better than a cross-industry spinoff in terms of one-year return. However, the inverse relationship holds for the parent company, i.e., the parent company performs better in a cross-industry spinoff. This may seem counterintuitive since one typical motive for carrying out a spinoff is to separate an unrelated business from the parent company (Greenblatt, 1999). We utilize the GICS industry classification standard which broadly classifies companies into eleven industry

[7] See Appendix B for Standard & Poor's (S&P) Global Industry Classification Standard (GICS).

classes (S&P Global, 2018). For example, the industry class Consumer Staples contains companies that operate in everything ranging from Food Retail to Tobacco Products. So even though a parent company carries out a spinoff transaction where both are in the same industry, they may be unrelated businesses. Further, Daley et al. (1997) find operational improvements in the spinoff where the parent company spun off an unrelated division. Therefore, we deem within industry as a positive signal.

**Definition (Conglomerate):** Conglomerate is defined as a company with more than three business entities/divisions. If the spinoff (pre-spinoff) belonged to a conglomerate, the variable receives score one and if the spinoff did not belong to a conglomerate, it receives score zero. Since there is lacking a consensus of a conglomerate's definition, the threshold of three business entities/division is subjectively defined. The data for the variable is retrieved from Bloomberg.

**Intuition:** The positive signal for a spinoff originating from a conglomerate can be derived from the three major pillars conglomerate discount, strategic and business focus, and incentive alignment. First, Heppelmann and Hoffleith (2009) document a conglomerate discount of 5-20 % since there is a tendency for the conglomerate to be valued below its sum of the parts value. Consequently, a spinoff from a conglomerate may directly realize value creation by eliminating the conglomerate discount.

Second, Khorana et al. (2011) find that conglomerates may destroy value since it reduces strategic and business focus, which further closely relates to that conglomerates may have divisions with different growth profiles, capital allocation needs and different optimal capital structures. Hence, it is difficult for senior executives in the conglomerate to oversee all divisions' opportunities in terms of value creation. Disintegrating a division from a conglomerate may increase strategic and business focus to be completely aligned with its growth profile, capital allocation need and optimal capital structure.

Thirdly, a spinoff from a conglomerate may directly align incentives for the spun off division. For example, if a conglomerate incentive plan is based on the conglomerate hitting a target on operating profit, it may be difficult to align all divisions' incentives. If a division contributes to 10 % of the conglomerate's operating profit, the overall performance of the conglomerate will have more impact on hitting the target than the division's performance. In the case of a spinoff, the incentive plan can directly be structured to align the division's performance which consequently aligns incentives with the performance from both managers and employees (Khorana et al., 2011). Hence, this reduces the agency costs since the spun-off entity's incentive plan may be better aligned to

create shareholder value for the principal (shareholders). Therefore, we deem conglomerate as a positive signal.

### 3.4.4 Market Neglection

The variables *analyst coverage* and *institutional selling* capture the perspective of market neglection.

**Definition (analyst coverage):** Analyst coverage is defined as coverage from an investment bank or financial institution. If the spinoff is covered by less than three analysts, the variable receives score one and if the spinoff is covered by more (or equal) than three analysts it receives score zero. Since there is lacking a definition of what is considered a covered stock in terms of number of analyst followers the threshold of three analysts is subjectively defined. The data for the variable is retrieved from Bloomberg.

**Intuition:** Spinoffs are typically exposed to low to no analyst coverage (Credit Suisse, 2012). This on average low analyst coverage may induce that spinoffs are on average ignored and henceforth more likely to be inefficiently mispriced. Joel Greenblatt (1999) mentions this as a primary driver of why spinoffs create attractive investment opportunities which are further accentuated by Lynch (2000). Fang and Peress (2009) and Belisario (2017) find that equities with low analyst coverage outperform those with high coverage.

In addition to the low analyst coverage, spinoffs have by nature limited historical information on for example financial data. The combination of low analyst coverage and limited historical information implies it is difficult for investors to evaluate spinoffs. Consequently, it is likely that spinoffs with low coverage do not fully reflect all information which creates opportunities for investors that invest time in evaluating spinoffs. Therefore, we deem low analyst coverage as a positive signal.

**Definition (institutional selling):** Institutional selling is defined as a proxy for a spinoff's size relative to the parent company. Further, size is defined as market capitalization. If the spinoff's market capitalization as a percentage of the parent's market capitalization is less than 50 % the variable receives score one and if the spinoff's market capitalization as a percentage of the parent's market capitalization is greater (or equal) than 50% it receives score zero. The reason for setting the threshold of 50 % is because we subjectively believe that a spinoff which is half the size or less of the parent company may trigger several institutions to a forced sell-off. Several institutions fund

mandates encompass size in terms of market capitalization as a restriction. The data for the variable is retrieved from Bloomberg.

**Intuition:** Spinoffs tend to drop in value the initial trading days/weeks according to Credit Suisse (2012) and S&P Global (2017). This drop can partly be attributed to institutional investors and index funds selling off their received spun-off share. The reason for this sell-off may not be voluntary. If the spinoff trades on a different index from the parent company, some institutions may be forced to sell off their spun off shares. For example, if the parent company belongs to a large cap index and the spinoff starts trading on a small cap index, the institution's fund mandates may not encompass equities on small cap indices and therefore forces them to sell-off the spinoff (Credit Suisse, 2012). Since analyst coverage is greater with institutionally owned equities (O'Brien and Bhushan, 1990), this sell-off may consequently hamper analyst coverage and therefore amplifying the market neglection of the spinoff. Fang and Peress (2009) and Belisario (2017) find that equities with low analyst coverage outperform those with high coverage. Institutional selling that is caused by forced selling may create an inefficiently mispriced spinoff and creates opportunities for an investment strategy that evaluates spinoffs.

Joel Greenblatt (1999) mentions institutional selling as a primary driver of why spinoffs create attractive investment opportunities. Further, Lynch (2000) is an advocator of investing in equities with low to no ownership from institutions. Therefore, we deem institutional selling as a positive signal.

### 3.4.5 Capital Structure

The perspective of capital structure is captured by the variable *leverage*.

**Definition (Leverage):** Leverage is defined as net debt/EBITDA. If net debt/EBITDA is less than three and EBITDA is greater than zero, the variable receives score one and if net debt/EBITDA is greater (or equal) than three or EBITDA is negative (or equal zero) it receives score zero. The metric net Debt/EBITDA is used since Moody's consider it as a core ratio of measuring leverage. The net debt/EBITDA threshold of 3 is set since that is what Moody's generally consider as a medium risk level of leverage (Moody's, 2017). The data for the variable is retrieved from Bloomberg.

However, the metric net debt/EBITDA is not a relevant measure of leverage for companies within the financial industry. Hence, for financial companies, we utilize a debt to equity ratio instead of

net debt/EBITDA. If debt/equity is less than ten the variable receives score one and if debt/equity is greater (or equal) than ten it receives score 0. The metric debt to equity is used since Standard & Poor's key credit factor for leverage is debt to equity for financial companies. The debt to equity threshold of 10 is set since that is what Standard & Poor's consider as aggressively leveraged (Standard & Poor's, 2014). The data for the variable is retrieved from Bloomberg.

**Intuition:** A spinoff transaction enables the parent company to either shift debt or cash to the spinoff company. One reason for the parent company to shift debt or cash could be that it loses EBITDA in conjunction with the spinoff and that it wants to maintain a similar level of leverage. This goal can be achieved by shifting debt or cash to the spinoff. Another reason for the parent company could be to monetize on the spinoff by shifting cash to the parent company and de-lever by shifting debt to the spinoff company (Schipper and Smith, 1983). Since the parent company has the power to structure the spinoff's leverage, it is crucial for spinoff investors to keep track of the leverage post-spinoff. To ensure that the spinoff is not debt overloaded which could lead to a debt overhang problem or a potential bankruptcy issue, we utilize a leverage ratio with medium risk in The Spinoff Scorecard.

Joel Greenblatt (1999) argues that spinoffs with high leverage are more attractive investments because it may create leveraged earnings attributable to shareholders. On the other hand, it is a risk that the parent company dumps too much debt on the spinoff. In other words, it is essential to ensure that the leverage level is not too risky. Therefore, we deem a sound leverage level as a positive signal.

### 3.4.6 Valuation

The perspective of valuation is captured by the variable *EV/EBIT* and *P/B* (for companies within the financial and real estate industry).

**Definition (EV/EBIT and P/B):** EV (Enterprise value) is defined as market capitalization plus net debt and EBIT as earnings before interest and taxes for twelve trailing months. If the spinoff's EV/EBIT is less than its benchmark country index average EV/EBIT and if EV/EBIT is positive the variable receives score one. Further, if the spinoff's EV/EBIT is greater (or equal) than its benchmark country index average EV/EBIT or if EV/EBIT is negative (or equal 0), it receives score zero. The threshold of benchmark country index (see Appendix A for utilized benchmark indices) EV/EBIT is used since it readily captures if the spinoff is under- or overvalued relative to an index. The data for the variable is retrieved from Bloomberg.

However, the metric EV/EBIT is not a relevant measure of valuation for companies within the financial and real estate industry. Hence, for financial and real estate companies we utilize a Price to Book (P/B) ratio instead of EV/EBIT. Price is defined as market capitalization and book is defined as common equity. If the spinoff's P/B is less than its benchmark country index average P/B the variable receives score one and if the spinoff's P/B is greater (or equal) than its benchmark country index average P/B, it receives score zero. The data for the variable is retrieved from Bloomberg.

**Intuition:** Valuation is one of the most important factors when it comes to evaluating an investment. Valuation is the only variable in the scorecard that is not spinoff specific since it is a generally important factor for all investments in equities. The reason for the importance is because valuation is a good predictor of expected returns.

Lakonishok et al. (1994), Fama and French (1992) and Rosenberg (1984) document that low valuation stocks outperform high valuation stocks. Fama and French (1992) argue that the outperformance is due to increased risk in lowly valued equities and is therefore consistent with market efficiency. On the other hand, Lakonishok et al. (1994) argue that lowly valued equities have a tendency of being ignored by investors and are subject to overly pessimistic expectations of future earnings which can result in inefficient pricing. Further, Laporta et al. (1997) show that lowly valued equities tend to be subject to earnings surprises. One reason for the low valuation could be that analysts expect low earnings growth while they expect strong earnings growth for highly valued stocks. Laporta et al. (1997) documents that stocks with low expectations of earnings outperform those with high expectations. Also, Piotroski (2000) shows that value stocks tend to have low analyst coverage which accentuates that these stocks tend to be ignored.

Since earlier research supports the idea that low valuation firms outperform high valuation firms we include valuation in our scorecard and advocates low valuation spinoffs over high valuation spinoffs.

The reason for utilizing an EV/EBIT multiple is because enterprise value includes equity and debt and EBIT is operating earnings attributable to both equity and debt holders. Hence, the EV/EBIT multiple allows comparing companies with different debt levels and tax rates unlike a P/E multiple (Greenblatt, 2006). Further, the reason for choosing a P/B multiple for financials and real estate companies is because it is one of the most utilized valuation metrics in academic studies (see for example Fama and French, 1992).

### 3.4.7 Quality

The perspective quality is captured by the variable *Return on Capital Employed (ROCE)* and *Return on Equity (ROE)* for companies within the financial and real estate industry.

**Definition (ROCE and ROE):** ROCE (Return on Capital Employed) is defined as EBIT to Capital Employed. EBIT is defined as earnings before interest and taxes for twelve trailing months and Capital Employed is defined as fixed assets plus net working capital. If the spinoff's ROCE is greater than its benchmark country index average ROCE the variable receives score one and if the spinoff's ROCE is less (or equal) than its benchmark country index average ROCE it receives score zero. The threshold of benchmark country index (see Appendix A for utilized benchmark indices) ROCE is used since it readily captures if the spinoff has stronger or weaker profitability relative to the index. The data for the variable is retrieved from Bloomberg.

However, the metric ROCE is not a relevant measure of quality for companies within the financial and real estate industry. Hence, for financial and real estate companies we utilize the variable ROE (Return on Equity) instead of ROCE. ROE is defined as net income to common equity. If the spinoff's ROE is greater than its benchmark country index average ROE the variable receives score one and if the spinoff's ROE is less (or equal) than its benchmark country index average ROE it receives score zero. The data for the variable is retrieved from Bloomberg.

**Intuition:** Quality can be defined in different ways, but most authors and practitioners measure quality through a profitability metric, where some profit measure is scaled to some asset measure. Novy-Marx (2014) shows that investing in stocks with high profitability generates superior returns, adjusted for both CAPM and Fama and French three-factor model. Investing in high profitability firms between 1963 and 2010 generated an alpha of 1.4% (Novy-Marx, 2014).

We utilize Greenblatt's view of quality which is Return on Capital Employed. Greenblatt (2006) argues that ROCE is the preferable return on capital measure because it considers how much operating assets that are needed to generate operating earnings (EBIT). EBIT is operating earnings attributable to both equity and debt holder and it allows comparing companies with different debt levels and tax rates. Capital Employed captures how much capital is needed to operate. Net working capital captures the fact that a company have to finance their inventory and accounts receivables net of accounts payable (since it is practically a non-interest-bearing loan). Further, fixed assets capture that a company must fund property, plant and equipment, etc. to operate. By scaling the operating earnings (EBIT) to the operating assets (capital employed) it measures how much return on operating assets the company achieves.

Further, the reason for choosing a Return on Equity metric for financials and real estate companies is because the metric is one of the most utilized quality metrics within those industries (see for example Koller et al., 2015).

Another important aspect of profitability is that it is one of the fundamental factors that drive a higher valuation multiple. Deriving the multiples EV/EBIT and P/B results in the equations below:

$$\frac{EV}{EBIT} = \frac{ROIC-g}{ROIC*(WACC-g)} * (1-T)$$

$$\frac{P}{B} = \frac{ROE-g}{COE-g}$$

Where $ROIC$ corresponds to return on invested capital $WACC$, corresponds to weighted average cost of capital, $g$ corresponds to long term growth, $T$ corresponds to effective tax rate, $ROE$ corresponds to return of equity, $COE$ corresponds to cost of equity (UBS, 2001). Although, we utilize ROCE it is practically the same as ROIC with the exception of that capital employed includes cash.

In conclusion, these derivations identify that higher profitability should be rewarded by a higher valuation multiple, all else equal (UBS, 2001). Hence, spinoffs with higher profitability should theoretically be awarded with higher valuation multiples. Therefore, we deem high quality as a positive signal.

### 3.4.8 Composite Score

All ten variables summarize to a composite spinoff score (Spinoff score = Ownership + Inside CEO + CEO power + Cross-industry + Conglomerate + Analyst coverage + Institutional selling + Leverage + EV/EBIT + ROCE) for each spinoff. The spinoff score for financials and real estate companies is adjusted so that the spinoff score = Ownership + Inside CEO + CEO power + Cross-industry + Conglomerate + Analyst coverage + Institutional selling + Leverage + P/B + ROE. The composite score for each spinoff can range from zero to ten. Score zero is expected to have the weakest return performance and score ten is expected to have the best return performance.

The data for the variables are retrieved from Bloomberg while some are manually retrieved from the companies' annual reports. All variables are calculated/retrieved from the spinoff's completion

date (first trading day). Further, all accounting data variables correspond to twelve trailing months (TTM) values. For a summary of all variables and definitions in The Spinoff Scorecard, see table 4 below and for adjustments concerning financials and real estate companies see table 5.

## Table 4: The Spinoff Scorecard

| Variable | Definition | Score defintion |
|---|---|---|
| *Insider incentives* | | |
| Ownership | Ownership is defined as percentage owned of shares outstanding | Ownership = 1, if insider ownership > 0 % of shares outstanding<br>Ownership = 0, if insider ownership = 0 % of shares outstanding |
| *Corporate governance* | | |
| Inside CEO | Inside CEO is defined as an internally recruited from the parent company | Inside CEO = 1, if the spinoff's CEO is internally recruited<br>Inside CEO = 0, if the spinoff's CEO is externally recruited |
| CEO power | CEO power is defined as the CEO also being chairman of the board | CEO power = 1, if the CEO is not chairman of the board<br>CEO power = 0, if the CEO is chairman of the board |
| *Organizational structure* | | |
| Within industry | Within industry is defined as the spinoff's industry = the parent's industry<br>Industry is defined by Global Industry Classification Standard (GICS) | Within industry = 1, if the spinoff's industry code = the parent's industry code<br>Within industry = 0, if the spinoff's industry code ≠ the parent's industry code |
| Conglomerate | Conglomerate is defined as a company with > 3 entities/divisions | Conglomerate = 1, if the spinoff belonged to a conglomerate<br>Conglomerate = 0, if the spinoff did not belong to a conglomerate |
| *Market neglection* | | |
| Analyst coverage | Analyst coverage is defined as coverage from an investment bank | Analyst coverage = 1, if the spinoff is covered by < 3 analysts<br>Analyst coverage = 0, if the spinoff is covered by ≥ 3 analysts |
| Institutional selling | Institutional selling is defined as a proxy for spinoff's size relative to parent<br>Size is defined as market cap | Insitutional selling = 1, if the spinoff's market cap / parent's market cap < 50%<br>Insitutional selling = 0, if the spinoff's market cap / parent's market cap ≥ 50% |
| *Capital structure* | | |
| Leverage | Leverage is defined as net debt/EBITDA | Leverage = 1, if net debt/EBITDA < 3 and EBITDA > 0<br>Leverage = 0, if net debt/EBITDA ≥ 3 or EBITDA ≤ 0 |
| *Valuation* | | |
| EV/EBIT | Enterprise value is defined as market cap + net debt<br>EBIT is defined as earnings before interest and taxes (TTM) | EV/EBIT = 1, if the spinoff's EV/EBIT < benchmark country index average EV/EBIT<br>EV/EBIT = 0, if the spinoff's EV/EBIT ≥ benchmark country index average EV/EBIT |
| *Quality* | | |
| ROCE | ROCE = EBIT / Capital employed<br>Capital Employed = fixed assets + net working capital<br>EBIT is defined as earnings before interest and taxes (TTM) | ROCE = 1, if the spinoff's ROCE > benchmark country index average ROCE<br>ROCE = 0, if the spinoff's ROCE ≤ benchmark country index average ROCE |
| *Composite score* | | |
| Spinoff score | Spinoff score = Ownership + Inside CEO + CEO power + Within industry + Conglomerate + Analyst coverage + Institutional selling + Leverage + EV/EBIT + ROCE | Spinoff score = x<br>0 ≤ x ≤ 10<br>All scores are calculated/retrieved from the spinoff's first trading day |

The table shows the definition of score variables and how the score is set for The Spinoff Scorecard.

## Table 5: The Spinoff Scorecard, Adjustments for the Financial and Real Estate Industry

| Variable | Definition | Score defintion |
|---|---|---|
| *Capital structure* | | |
| Leverage | Leverage for financials is defined as debt/equity | Leverage = 1, if debt/equity < 10<br>Leverage = 0, if debt/equity ≥ 10 |
| *Valuation* | | |
| P/B | Price is defined as market cap<br>Book is defined as common equity | P/B = 1, if the spinoff's P/B < benchmark country index average P/B<br>P/B = 0, if the spinoff's P/B ≥ benchmark country index average P/B |
| *Quality* | | |
| ROE | ROE = Net Income / common equity | ROE = 1, if the spinoff's ROE > benchmark country index average ROE<br>ROE = 0, if the spinoff's ROE ≤ benchmark country index average ROE |
| *Composite score* | | |
| Spinoff score | Spinoff score = Ownership + Inside CEO + CEO power + Within industry + Conglomerate + Analyst coverage + Institutional selling + Leverage + P/B + ROE | Spinoff score = x<br>0 ≤ x ≤ 10<br>All scores are calculated/retrieved from the spinoff's first trading day |

The table shows The Spinoff Scorecard with adjustments for companies within the financial and real estate industry.

# 4. Methodology

## 4.1 Sample Selection

We used Bloomberg to identify all spinoffs with a completed deal status and sufficient data for our scorecard variables, listed in the United States, Canada and Western Europe (Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom) between January 1st 2000 and December 31st 2015. With these screening criteria's we obtained a sample selection of 690 spinoffs.

The United States, Canadian and Western European equity markets are selected for several reasons. These countries have extensive data availability when it comes to retrieving all the data needed for the seven perspectives in the scorecard and pricing data for return calculations. Further, there is generally high quality of accounting standards is in these regions. Also, these regions are probably the most efficient markets globally.

Most studies that we have identified have generally included no more than one region or country. Since spinoff transactions are a relatively unusual corporate restructuring event the number of spinoffs is relatively few per country. Hence, by extending the number of regions to three, we can substantially increase the sample size.

The time-period of 2000 to 2015 is selected to test whether the historical excess return performance that earlier research has documented still holds for this period and across all our regions (United States, Canada and Western Europe). In addition, by testing the return performance for a new data set, we may conclude that previous studies that consistently document excess return for spinoffs are not just accidental patterns that arise due to data snooping. Data snooping refers to finding patterns in data, which can be stated as statistically significant when there actually is now real underlying significant pattern (Lo and MacKinlay, 1990). We further believe that the time-period captures a sufficiently long period and enough spinoffs. Studies which test spinoffs' long run excess performance that we have identified have covered a sample size from 96 spinoffs up to 516 spinoffs. Hence, our sample size is 34 % greater than the most extensive study in terms of the number of spinoffs covered.

## 4.2 Timing

The starting date for all calculation of returns and scorecard variables are defined as the completion date of the spinoff. The completion date is the first trading day for the spinoff as an independently listed company.

The objective for choosing the start date as of the completion date is because earlier research has argued that spinoffs tend to be ignored by institutional investors and have low analyst coverage (e.g., Credit Suisse, 2012). In conclusion, the neglection of institutions and analysts may result in inefficiently priced spinoffs and this may be exploited by The Spinoff Scorecard which systematically evaluates spinoffs.

## 4.3 Calculations of Returns

For each spinoff we compute total shareholder returns and benchmark adjusted returns for the time periods t + five days, t + 1 month, t + 3 months, t + 6 months, t + 1 year, t + 2 years and t + 3 years, whereof t is defined as the spinoff's completion date. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested, over a specified period. Total shareholder return, $R_i$, is calculated as in the equation below:

$$R_i = \frac{(P_{t+days/months/years} - P_t + Dividends)}{P_t}$$

Total shareholder return for relevant benchmark, $BR_i$, is calculated as in the equation below.

$$BR_i = \frac{(P_{t+days/months/years} - P_t + Dividends)}{P_t}$$

The benchmark adjusted return, $BAR_i$, is defined as the total shareholder return for the spinoff, $R_i$, subtracted by the total shareholder return for the benchmark, $BR_i$, see the equation below:

$$BAR_i = R_i - BR_i$$

Each spinoff's return is benchmarked against a country index and a global sector index. The chosen country indices are based on what is generally considered as leading indices, which captures most of a country's market capitalization. Further, the chosen sector indices are based on Standard & Poor's (S&P) global sector indices, which captures most of the companies within a sector classified with S&P's Global Industry Classification Standard (GICS). These sector indices are chosen

because of readily comparability between the spinoff's industry classification and sector index. See Appendix A for utilized country indices and sector indices.

We categorize the firms by size terciles (i.e., divides the data into three parts, each consisting a third of the data) based on its market capitalization. We assign the companies into either the small, medium or the large tercile. Further, we calculate the total shareholder return for the equally weighted portfolio of small spinoffs, medium spinoffs and large spinoffs. The motive for calculating returns by size is to test whether the strong return from spinoffs can be attributed to a size effect.

Total shareholder return is calculated as percentiles ($10^{th}$, $25^{th}$, median, $75^{th}$, $90^{th}$) and means. The objective for presenting percentiles and means is because we expect the returns to exhibit a diverse performance.

## 4.4. Calculation of The Spinoff Scorecard

For definitions and calculations of the score variables, and how the score is set in The Spinoff Scorecard, see table 4 and 5 in section 3.4.

## 4.5 Calculation of Returns for The Spinoff Scorecard – Portfolio Construction

For each spinoff, we calculate the composite spinoff score (as defined in chapter 3.4). All spinoffs with the same composite score are grouped in to separate portfolios. Hence, all spinoffs with a composite spinoff score of zero are grouped into one portfolio and all spinoffs with a composite score of one are grouped into one portfolio, etc. Consequently, eleven portfolios are constructed for each composite spinoff score ranging from zero to ten. The returns for all portfolios are calculated as the equally weighted average total shareholder return for the periods one year, two years and three years. The motive for choosing longer holding periods (i.e., one, two or three years) is because the literature review section concluded that the strongest return performance is for longer holding periods. Further, our scorecard is built on fundamental factors which better fits with a longer investment horizon.

In addition, for each variable in The Spinoff Scorecard, we construct one portfolio for all spinoffs with score one and one portfolio for all with score zero. Hence, two portfolios for each variable is

constructed, resulting in 22 portfolios. The returns for the portfolios are calculated as the equally weighted average total shareholder return for the periods one year, two years and three years. The purpose of testing all variables individually is to test if all variables with a positive signal (score one) outperform those with a negative signal (score zero). If that is the case, we can conclude that our expectations appear to hold and that each variable is successful in predicting returns. Also, by testing the variables separately, we can discern which variables that contribute to the strongest and weakest returns in The Spinoff Scorecard.

Total shareholder return is calculated as percentiles ($10^{th}$, $25^{th}$, median, $75^{th}$, $90^{th}$) and means. The objective for presenting percentiles and means is because we expect the returns to exhibit a diverse return distribution.

## 4.6 Performed Tests

### 4.6.1 Significance Test of Spinoffs

One of the central purposes of this study is to test if The Spinoff Scorecard can separate high return spinoffs from low return spinoffs. To test if this holds, we group all low score spinoffs (0-2) into one portfolio and all high return spinoffs (8-10) into one portfolio.

To assess if the total shareholder return differences are significant, we perform a one-tailed two-sample t-test with assumed unequal variances. The null hypothesis ($H_o$) and the alternative hypothesis ($H_1$) is set to:

$$H_o: \beta_1 = 0$$

$$H_1: \beta_1 > 0$$

The null hypothesis concludes that the two tested variables exhibit no relationship. Hence, if the variables are statistically significant, we reject the null hypothesis. The significance levels 90%, 95% and 99% corresponds to p-values lower than 0.1, 0.05 and 0.01.

### 4.6.2 Risk-Adjusted Returns

Another objective is to test if spinoffs return performance can be attributed to additional risk or if the return performance is purely alpha generating. To test this, we calculate the expected return

according to the CAPM. As concluded in the theoretical foundation section, the CAPM formula states that the expected return is:

$$E[r_i] = r_f + \beta_i(r_M - r_f)$$

$$\text{Where } \beta_i = \frac{Cov(r_i, r_M)}{Var(r_M)}$$

The formula states that the expected return of asset *i*, $E[r_i]$ is the risk-free, $r_f$, rate plus the market risk premium, $(r_M - r_f)$, multiplied by the asset's beta, $\beta_i$. The asset's beta is its covariance with the market divided by the asset's variance, and it measures the assets systematic risk and consequently its risk compensation factor.

We use the 10-year government bond as a proxy for risk-free rate for each country which the spinoff is located in. For the market risk premium variable, we utilize Bloomberg's country risk premium for each spinoff dependent on its country location. Further, the beta value is calculated by performing a regression of the historical prices of the spinoff over two years using weekly data against the benchmark country index for each spinoff. The independent variable is the benchmark country index and the dependent variable is the stock price. The data for all variables are retrieved from Bloomberg.

After the expected return, as of CAPM, have been calculated we risk-adjust the returns by calculating Jensen's Alpha. Jensen (1968) defines Jensen's Alpha as:

$$r_i = \alpha_j + r_f + \beta_i(r_M - r_f)$$

Which can be rearranged as:

$$\alpha_j = r_i - [r_f + \beta_i(r_M - r_f)]$$

Which can further be rearranged as:

$$\alpha_j = (r_i - r_f) - \beta_i(r_M - r_f)$$

All notations of variables are the same as in the CAPM formula except for $r_i$ and $\alpha_j$ which denotes actual return and Jensen's alpha. Jensen's alpha measures the abnormal return over the expected return from CAPM.

To assess if the actual returns and the expected return differences (according to CAPM) are significant, we perform a one-tailed two-sample t-test with assumed unequal variances. The null hypothesis ($H_o$) and the alternative hypothesis ($H_1$) is set to:

$$H_o: \beta_1 = 0$$

$$H_1: \beta_1 > 0$$

The null hypothesis concludes that the two tested variables exhibit no relationship. Hence, if the variables are statistically significant, we reject the null hypothesis. The significance levels 90%, 95% and 99% corresponds to p-values lower than 0.1, 0.05 and 0.01. If we reject the null hypothesis, we can conclude that the actual returns of spinoffs significantly outperform their corresponding expected returns. In other words, the actual returns are alpha generating.

## 4.7 Critical Perspectives

In this study, we calculate excess return relative to a benchmark and test for abnormal returns by calculating Jensen's Alpha. Analyzing financial data to uncover possible anomalies have been questioned since the beginning of financial research. The issue at hand is partly down to the joint hypothesis problem but also down to data mining, measurement errors and selection bias. The issue has been extensively covered by Lo and MacKinlay (1990), Black (1993) and Merton (1985). The primary issue is the inherent bias when researching anomalies. Researchers that analyze anomalies will test their hypothesis and conduct their analysis with the intent of finding irregularities. As a result, will only the most significant studies be published (see Lo, 1994; Ross, 1987). This can partly be attributed to a selection bias that will enforce the anomaly. Black (1993) further suggests that the discovery of anomalies is down to extensive data mining and that anomalies tend to disappear as soon as they have been discovered. The problems concerning selection bias have also been discussed by Khotari, Shanken and Sloan (1995). The authors suggest that the discrepancy between the CAPM and other pricing models, such as the Fama-French Three-factor model, can be traced back to selection biases. Thus, the CAPM may still be the best model to use when estimating the cost of capital despite the fact that other models might have better explanatory power. The result from Khotari et al. (1995) is supported by Breen and Korjaczyk (1993) which found some evidence that suggest selection biases.

The issue of selection bias and significance tests have also been questioned by Merton (1985) as he suggests that it might not be feasible to use a standard t-test when analyzing financial data. The validity of t-test might be compromised when the construction of the statistic is affected by the empirical relations derived from the same data used in the test. The issue of significant t-test has further been disputed by Harvey, Liu and Zhu (2016). The authors argue that most claimed research

findings in finance are probably faulty. Empirical findings in finance are thus difficult to pinpoint accurately.

In this study, we only utilize t-statistics for concluding statistical significance and we cannot be sure that the t-statistics provides statistical reliability. This problem arises in almost any significance test for excess returns (Barber and Lyon, 1997). The problem with a t-test is that it may be biased due to the underlying assumptions. When performing a t-test, we assume that the means of the samples are normally distributed which may be a biased assumption. However, due to our large sample size should the t-test be valid, and we should thus fulfill that assumption. Although, if the sample size would be lower the Wilcoxon signed-rank test could possibly be a better alternative. This is a hypothesis test that is utilized when the data set cannot be presumed to be normally distributed.

This study has used an unaltered sample set of all available spinoffs in the US, Canada and Western Europe between 2000 and 2015 to minimize selection bias. The breadth of geographical locations may help to ensure a more precise result while the large sample will improve statistical testing. Additionally, has the return data been tested against several benchmarks in order to ensure an accurate result. The purpose is to construct an investment strategy on ten simple variables to help maximize shareholder return. By using a simple model is the result more easily applicable for portfolio managers and investors and thus to a greater use. Further, the scorecard method has been used by Piotroski (2000) which gives it academic credibility.

# 5. Results

## 5.1. Descriptive Statistics

The data sample includes 690 spinoffs between 2000 and 2015. Table 6 presents the distribution of spinoffs by region and by four-year time intervals. Most of the spinoffs occurred in the United States (56 % of all spinoffs) followed by Western Europe (28 % of all spinoffs) and Canada (17 % of all spinoffs). The most active time for spinoffs was between 2012 and 2015 (38 % of all spinoffs) and the least active period was between 2000 and 2003 (15 % of all spinoffs). To understand why the number of spinoffs differs over time we investigate if there is a relationship between the Mergers and Acquisitions (M&A) cycle or the Initial Public Offerings (IPO) cycle. Figure 7, 8 and 9 illustrates the number of spinoffs by year and the corresponding number of M&A deals and IPOs for the same countries and time-period as our spinoff sample.

M&A tends to follow cycles. These cycles are generally dependent on stock prices, interest rate and credit availability. There is a tendency for higher M&A activity when stock prices have risen since higher prices induce managers to be more optimistic about M&A. Also, low interest rates stimulate M&A activity since debt financing is cheaper. Further, the M&A cycle is driven by credit availability which stimulates access to debt financing for M&A (Koller et al., 2015). Figure 8 displays the number of M&A deals for our time-period and regions, and the results support that M&A tend to follow cycles.

By looking at figure 7 and 8 simultaneously, we can conclude that it appears that spinoffs tend to follow the M&A cycle with some lag. However, since our sample size covers a relatively short period for determining cyclical trends, it is relatively hard to draw any extensive conclusions.

It is intuitive why a possible spinoff cycle may follow the M&A cycle. A higher M&A activity implies that more firms are consolidating and diversifying their business model. The most common reasons to pursue a spinoff transaction is increased strategic focus, increased capital efficiency (capital allocation), increase information, divesting unrelated businesses, incentive alignment, undervaluation due to conglomerate discount (see section 2.5.3). M&A activity contributes to decreasing strategic focus, decreasing capital efficiency, etc. In other words, M&A activity increases the utility and demand for pursuing spinoffs intuitively.

Initial Public Offerings also tend to follow cycles in terms of the number of IPOs and proceeds from IPOs. For example, between 1975 and 2014 the number of IPOs and proceeds from IPOs peaked in 2000. Further, the next IPO peak was in 2007. Hence, the number of IPOs increases when the economy is booming and decreases in economic downturns. The cyclical pattern is intuitive since it is reasonable to expect more growth opportunities later in the cycle, which raises the need for capital. However, the magnitude of the swings is a bit of a puzzle. For example, over 75 % of the IPO volume proceeds dropped between 2000 and 2003. Hence, it is not reasonable that the number of IPOs is entirely driven by demand for capital (Berk & DeMarzo, 2017). Figure 9 displays the number of IPOs for our time-period and regions, and the results support that IPO tends to follow cycles.

It is interesting to compare the IPO cycle to the spinoff cycle since it appears that the IPO cycle historically has been a good hindsight economic indicator. By inspecting figure 9 (number of IPOs) and figure 7 (number of spinoffs) we can see that number of spinoffs peaked in 2006 and bottomed in 2009 while the corresponding years for IPOs are 2007 and 2009. Since 2009, both spinoffs and IPOs have increased rather linear. In conclusion, the number of spinoffs appears to some extent follow the IPO cycle and therefore appears to be cyclical.

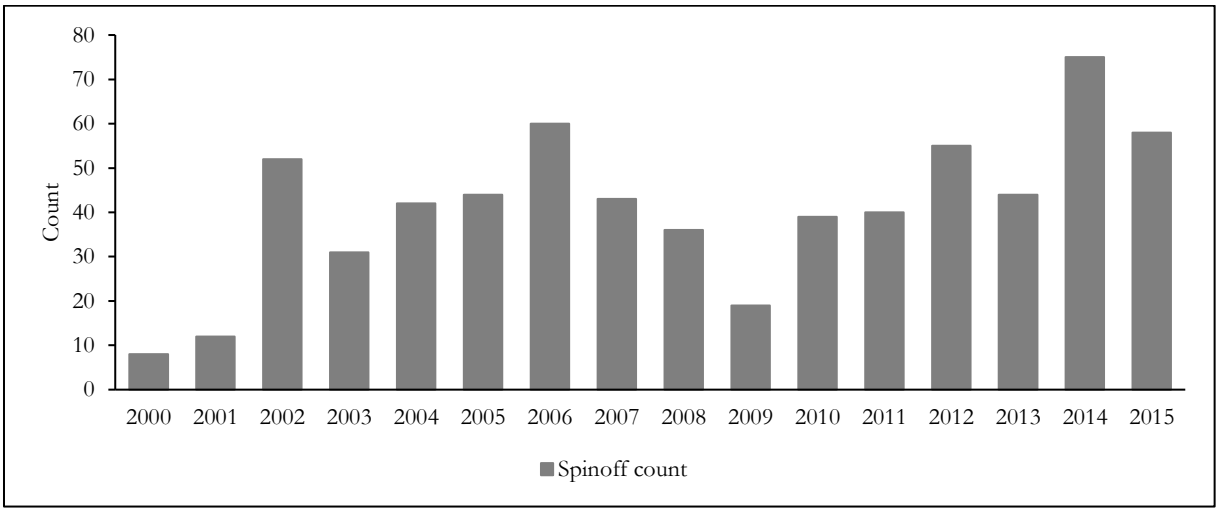
## Table 6: Number of Spinoffs by Region and Time

**Spinoffs by region**

| **Interval** | **2000-2003** | **2004-2007** | **2008-2011** | **2012-2015** | **Total** |
|---|---|---|---|---|---|
| *Region* | | | | | |
| Canada | 4 | 39 | 28 | 44 | 115 |
| *Percentage* | *4%* | *21%* | *21%* | *17%* | *17%* |
| United States | 67 | 89 | 64 | 163 | 383 |
| *Percentage* | *65%* | *47%* | *48%* | *62%* | *56%* |
| Western Europe | 32 | 61 | 42 | 57 | 192 |
| *Percentage* | *31%* | *32%* | *31%* | *22%* | *28%* |
| Total | 103 | 189 | 134 | 264 | 690 |
| *Percentage* | *15%* | *27%* | *19%* | *38%* | *100%* |

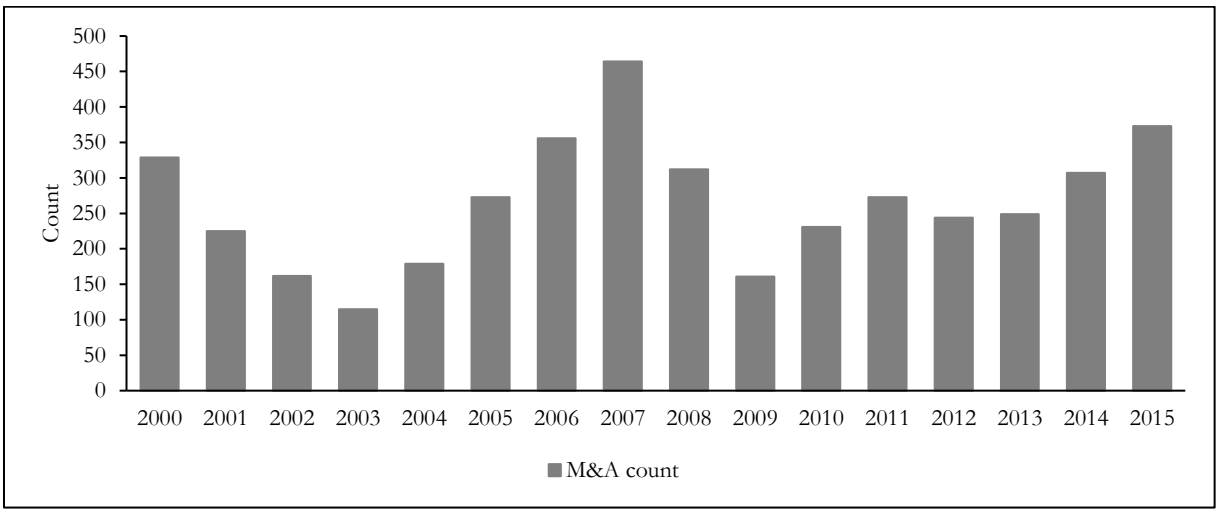
The table shows the number of spinoffs by region and four-year time interval. The sample consists of 690 spinoff observations between 2000 and 2015. Western Europe includes Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Figure 7: Number of Spinoffs by Year



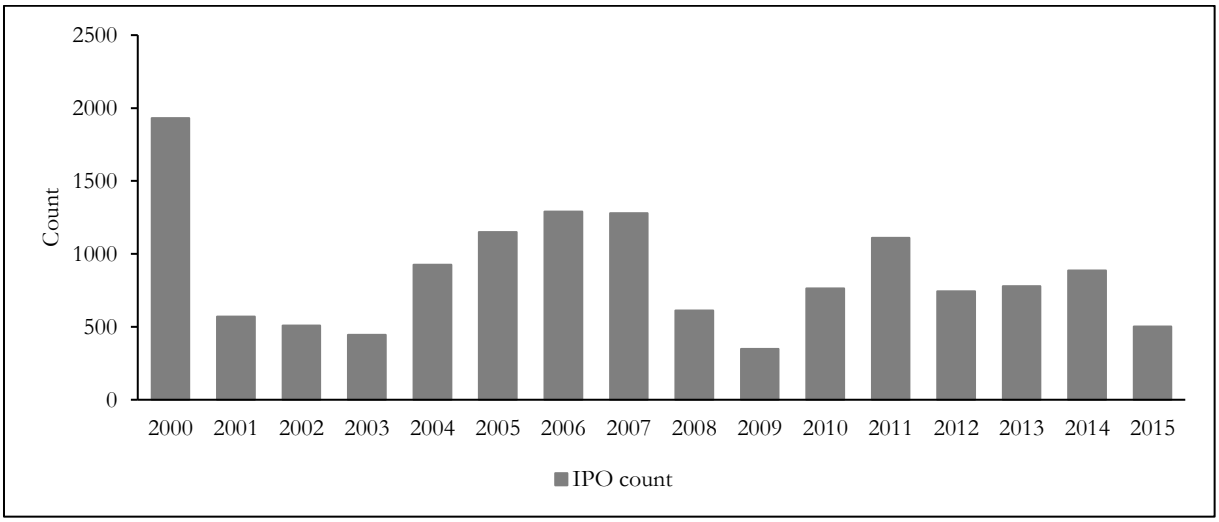

The figure displays the number of spinoffs by year. The sample consists of 690 spinoff observations between 2000 and 2015 for the United States, Canada and Western Europe.

## Figure 8: Number of M&A Deals by Year




The figure displays the number of M&A deals by year. The sample consists of 4,253 M&A observations between 2000 and 2015 for the United States, Canada and Western Europe.

## Figure 9: Number of IPOs by Year




The figure displays the number of IPO offerings by year. The sample consists of 13,847 IPO observations between 2000 and 2015 for the United States, Canada and Western Europe.

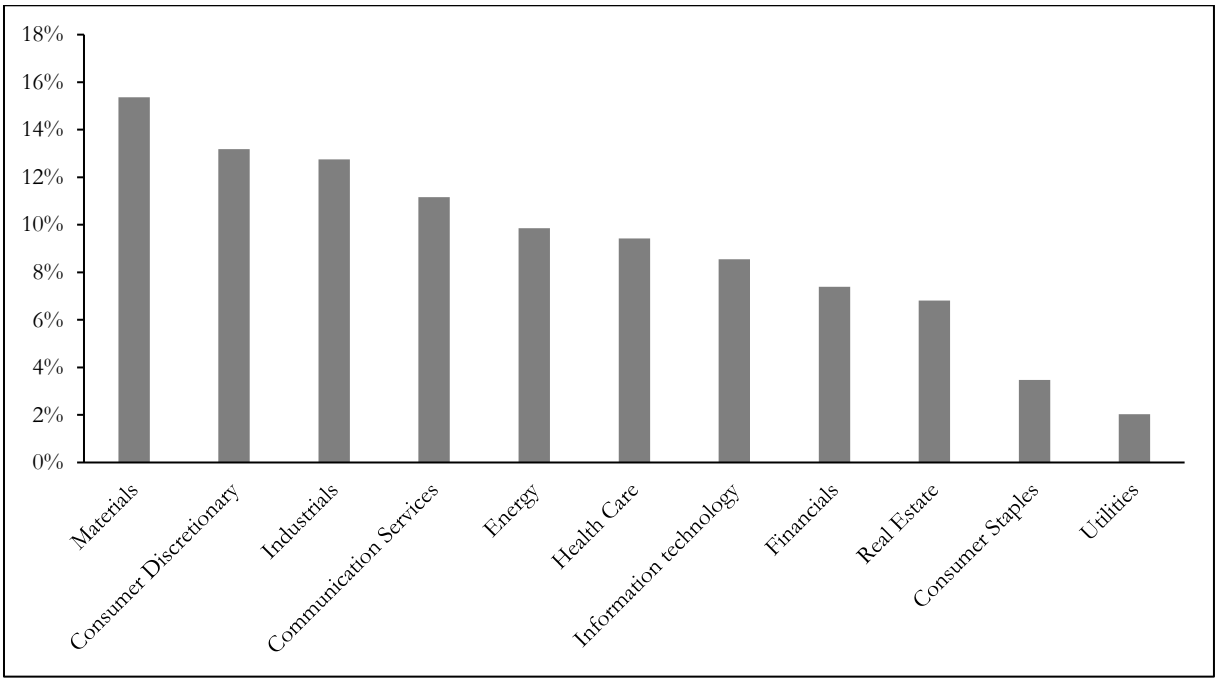
Table 7 lists the sector breakdown for the spinoffs and parent companies by Standard & Poor's Global industry classification standard (GICS) by level 1. Further, figure 10 displays the percentage distribution of spinoffs by sector based on Standard & Poor's Global industry classification standard (GICS), level 1. The greatest number of spinoffs operates in the *Materials* sector followed by *Consumer Discretionary* and *Industrials* and the least number of spinoffs operates in *Utilities* followed by *Consumer Staples* and *Real Estate*. For a sector breakdown of GICS level 2, see Appendix B.

## Table 7: Sector Breakdown for Parent and Spinoff by GICS Level 1

| Sector breakdown | | | |
|---|---|---|---|
| **Sector code** | **Sector** | **Parent** | **Spinoff** |
| 10 | Energy | 85 | 68 |
| 15 | Materials | 87 | 106 |
| 20 | Industrials | 93 | 88 |
| 25 | Consumer Discretionary | 74 | 91 |
| 30 | Consumer Staples | 29 | 24 |
| 35 | Health Care | 51 | 65 |
| 40 | Financials | 109 | 51 |
| 45 | Information technology | 42 | 59 |
| 50 | Communication Services | 72 | 77 |
| 55 | Utilities | 15 | 14 |
| 60 | Real Estate | 33 | 47 |

The table shows the number of parents and spinoffs by sector based on Standard & Poor's Global industry classification standard (GICS). The table includes GICS level 1. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 10: Sector Breakdown for Spinoffs by GICS Level 1




The figure displays the percentage distribution of spinoffs by sector based on Standard & Poor's Global industry classification standard (GICS), level 1. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 8 documents number of delisted spinoffs by the delisting reasons: acquired, merged, bankruptcy and other. The total number of delisted spinoffs amounts to 155 (22.5 % of all spinoffs), whereof the reason acquired corresponds to 116 (16.8 % of all spinoffs). Further, the

table includes years and months from the completion date to delisting, by delisting reason. The median number of years from spinoff to delisting amounts to 2.8 years, corresponding to 33 months.

116 spinoffs in our data sample are acquired and the median period from completion date to acquisition is 2.6 years (31 months). Further, the median announcement premium of the acquired spinoffs is 26 %. An interesting note is that a private equity firm (or private equity consortium) acquired 19 of the 116 acquired spinoffs. The rather high occurrence of acquired spinoffs in our data sample is consistent with previous research. Cusatis et al. (1993) document a high incidence of acquisitions of spinoffs.

19 spinoffs (2.8 % of all spinoffs) in our data sample declared bankruptcy and the median period from completion date to bankruptcy is 4.9 years (59 months). These 19 spinoffs received a low composite score of median 4. Hence, our scorecard appears to be able to discern unsuccessful spinoffs that went bankrupt.

## Table 8: Delisted Spinoffs by Delisting Reason

| **Delisting reason** | | | | | |
|---|---|---|---|---|---|
| | **Acquired** | **Merged** | **Bankruptcy** | **Other** | **Total** |
| Delisted spinoffs | 116 | 2 | 19 | 18 | 155 |
| *Percentage of delisted spinoffs* | *74.8%* | *1.3%* | *12.3%* | *11.6%* | *100.0%* |
| *Percentage of all spinoffs* | *16.8%* | *0.3%* | *2.8%* | *2.6%* | *22.5%* |
| *Years to delisting* | | | | | |
| Median | 2.6 | 2.4 | 4.9 | 3.1 | 2.8 |
| *Months to delisting* | | | | | |
| Median | 31.1 | 28.5 | 58.6 | 36.8 | 33.1 |

The table documents the number of delisted spinoffs by the delisting reasons: acquired, merged, bankruptcy and other. Further, the table includes years and months from the completion date to delisting by delisting reason. The number of delisted spinoffs amounted to 155 between 2000 and 2015. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 9 shows size, measured as market capitalization (shares outstanding x share price), for spinoffs and parent companies on the completion date of the spinoff. Further, the table displays spinoff as a percentage of total, corresponding to the spinoff size divided by the combined value

of spinoff size and parent size. The median spinoff as a percentage of the total combined value amounts to 32%.

## Table 9: Spinoffs and Parents by Size (Market Cap)

**Size**

| | Mean | 25th Percentile | Median | 75th Percentile |
|---|---|---|---|---|
| Spinoff size | 3,839 | 41 | 430 | 2,024 |
| Parent size | 8,244 | 52 | 837 | 4,657 |
| Spinoff as percentage of total | 39% | 13% | 32% | 59% |

The table shows the size, measured as market capitalization (shares outstanding x share price), for spinoffs and parents on the completion date of the spinoff. Spinoff as a percentage of total corresponds to the spinoff size divided by the combined value of spinoff size and parent size. The sample consists of 690 spinoff observations between 2000 and 2015.

## 5.2. Returns for Spinoffs

Table 10 provides the distribution of total shareholder returns for all spinoffs across holding periods ranging from five days up to three years. The mean return is negative for the holding periods five-days (-1.3 %), 30-days (-0.8 %) and three-months (-0.9 %). Further, the mean return is positive for the holding periods six-months (2.2 %), one-year (15.3 %), two-year (35.4 %) and three-year return (40.0 %). The proportion of spinoffs that earns a positive return is around 50 % for the longer holding periods (six months up to three years). Hence, the right tail of the distribution contributes to the strong mean return (for the longer holding periods). In conclusion, there is a motivation for utilizing an investment strategy for identifying the best performing spinoffs and henceforth shifting the returns from the left tail to the right tail, since that would improve the mean return.

The results in table 10 are consistent with earlier academic research. For example, Cusatis et al. (1993), Desai (1999), McConnell et al. (2001, 2004 and 2015) document a strong return performance for one-year, two-year and three-year return performance from the spinoffs' completion date. Further, McConnell (2015) shows that the strong mean return is dependent on relatively few spinoffs. This is consistent with our results since we find that around 50% of spinoffs earn a positive return for the longer holding periods.

The initial negative returns for the first months documented in table 10 is consistent with earlier studies. Credit Suisse (2012) finds underperformance relative to index the first month from the

completion date. This is further supported by S&P Global (2015) which also documents an initial underperformance the first month relative to the benchmarks.

Credit Suisse (2012) derives four intuitive reasons for this initial drop. First, institutions may be forced to sell-off the spinoff due to that their fund mandates do not encompass to hold the spinoff. Second, owners of the parent company pre-spinoff invested with the intention to hold the entire parent company and post-spinoff they receive a company (the spinoff) which may not be aligned with their interest of portfolio exposure. Consequently, some owners may directly sell-off the spinoff since it does not match their portfolio criteria. Third, spinoffs have limited information regarding financial information which typically covers a short time frame. In conclusion, this may trigger owners to neglect to evaluate the spinoff due to limited evaluation possibilities and consequently sell their shares. Fourth, spinoffs tend to have low analyst coverage which makes it difficult for investors to evaluate the spinoff and consequently triggering owners to sell.

## Table 10: Total Shareholder Return Characteristics for Spinoffs

**Total shareholder return for spinoffs**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive |
|---|---|---|---|---|---|---|---|
| 5-day return | -1.3 | -14.1 | -6.6 | -1.6 | 3.3 | 10.4 | 37.0 |
| 30-day return | -0.8 | -27.8 | -11.7 | -1.6 | 8.3 | 21.9 | 43.7 |
| 3-month return | -0.9 | -46.8 | -20.4 | -1.5 | 15.2 | 32.0 | 46.3 |
| 6-month return | 2.2 | -57.3 | -28.3 | -0.3 | 21.2 | 57.4 | 49.1 |
| 1-year return | 15.3 | -70.7 | -37.9 | 2.0 | 39.5 | 85.3 | 51.2 |
| 2-year return | 35.4 | -81.8 | -50.0 | 5.7 | 60.1 | 163.8 | 53.3 |
| 3-year return | 40.0 | -91.3 | -56.7 | 0.0 | 73.7 | 200.6 | 50.0 |

The table shows the distribution of total shareholder returns for the whole sample of spinoffs. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 11 provides the distribution of sector benchmark adjusted total shareholder returns for all spinoffs across holding periods ranging from five days up to three years. The corresponding country benchmark adjusted total shareholder return distribution is documented in table 12. These two tables indicate the same results as table 10 above.

Table 11 and 12 documents that spinoffs outperform, measured as mean return, both its sector and country benchmark for longer holding periods (i.e., one-year to three-year returns) and

underperforms for shorter holding periods (i.e., five-day to six-month returns). The mean return (sector benchmark adjusted) is negative for the holding periods five-days (-1.3 %), 30-days (-1.5 %), three-months (-2.1 %) and six-months (-1.5 %). Further, the mean return is positive for the holding one-year (7.3 %), two-year (19.2 %) and three-year return (15.4 %). The mean return (country benchmark adjusted) is negative for the holding periods five-days (-1.4 %), 30-days (-1.5 %), three-months (-2.3 %) and six months (-1.4 %). Further, the mean return is positive for the holding one-year (7.0 %), two-year (18.2 %) and three-year return (12.2 %). As stated earlier, this excess long run return performance and the initial underperformance is consistent with earlier studies. A vast body of evidence document spinoffs' return performance and document that spinoffs on average earn an excess one-year return of 10.9 %[8] (Custais et al., 1993; Desai and Jain, 1999; McConnell et al. 2001, 2004, 2015; Rüdisüli, 2005; Credit Suisse, 2012; S&P Global, 2015). The evidence covers Europe and the United States from 1965 to 2013. The excess return in the studies is defined as actual return subtracted by a benchmark index (for example S&P500 is the most commonly utilized benchmark).

Our results demonstrate that the proportion of spinoffs that earns a positive benchmark adjusted return (table 11 and 12) is between 40 and 45% for the longer holding periods (i.e., one-year to three-year returns). Hence, the right tail of the distribution contributes to the strong mean return.

## Table 11: Sector Benchmark Adjusted Total Shareholder Return Characteristics for Spinoffs

**Sector benchmark adjusted total shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive |
|---|---|---|---|---|---|---|---|
| 5-day return | -1.3 | -13.5 | -6.6 | -1.6 | 3.0 | 10.6 | 37.6 |
| 30-day return | -1.5 | -27.4 | -11.9 | -2.8 | 6.4 | 19.3 | 39.4 |
| 3-month return | -2.1 | -41.1 | -20.9 | -4.0 | 10.9 | 28.3 | 41.8 |
| 6-month return | -1.5 | -55.5 | -26.6 | -4.4 | 15.7 | 46.5 | 42.6 |
| 1-year return | 7.3 | -67.7 | -40.6 | -6.6 | 26.8 | 73.4 | 44.4 |
| 2-year return | 19.2 | -89.8 | -53.5 | -8.7 | 35.5 | 130.0 | 43.9 |
| 3-year return | 15.4 | -105.8 | -69.2 | -16.1 | 38.0 | 157.3 | 42.9 |

The table shows the distribution of sector benchmark adjusted total shareholder returns for the whole sample of spinoffs. Sector benchmark indices are based on Standard & Poor's global sector indices, which captures a majority of the companies within a GICS sector. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

[8] 10.9 % is the average excess one-year return from all studies. Excess return is defined as return above the benchmark.

## Table 12: Country Benchmark Adjusted Total Shareholder Return Characteristics for Spinoffs

**Country benchmark adjusted total shareholder return**

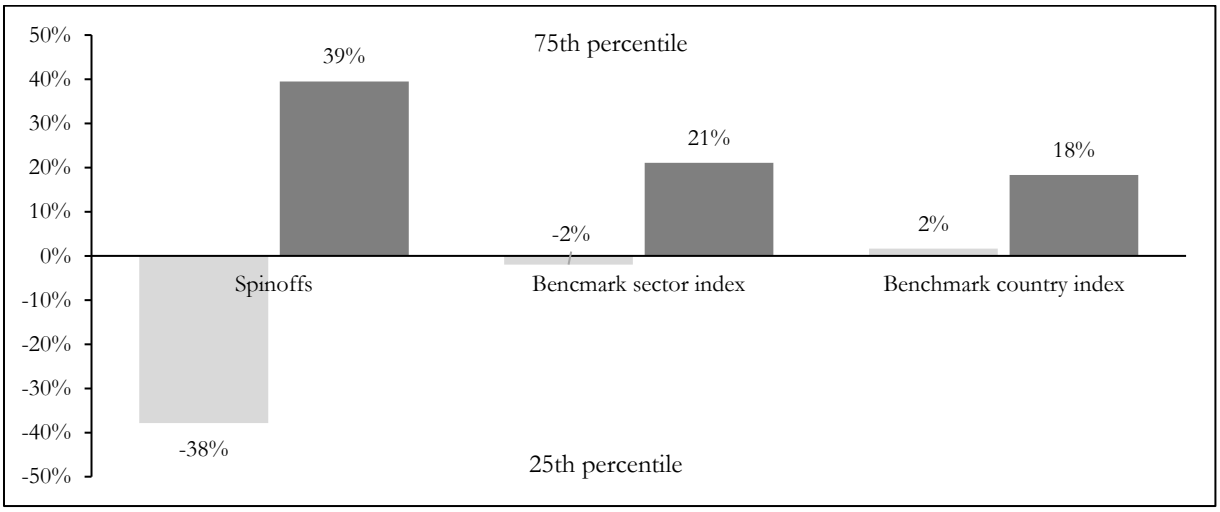
| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive |
|---|---|---|---|---|---|---|---|
| 5-day return | -1.4 | -13.7 | -6.6 | -1.6 | 2.9 | 9.9 | 38.0 |
| 30-day return | -1.5 | -28.3 | -12.4 | -2.5 | 6.7 | 19.5 | 38.0 |
| 3-month return | -2.3 | -43.4 | -21.0 | -4.4 | 10.9 | 27.3 | 37.4 |
| 6-month return | -1.4 | -56.2 | -28.3 | -3.9 | 16.1 | 47.3 | 44.4 |
| 1-year return | 7.0 | -70.1 | -41.8 | -7.5 | 26.5 | 73.0 | 43.9 |
| 2-year return | 18.2 | -93.9 | -56.0 | -9.1 | 37.1 | 123.7 | 43.6 |
| 3-year return | 12.2 | -114.2 | -71.4 | -21.6 | 38.0 | 152.1 | 41.0 |

The table shows the distribution of country benchmark adjusted total shareholder returns for the whole sample of spinoffs. Country benchmark indices are based on what is generally considered as leading indices, which captures a majority of a country's market capitalization. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

To accentuate the total shareholder return distribution that spinoffs documents, figure 11 displays the 25$^{th}$ return percentile and the 75$^{th}$ percentile for spinoffs and there corresponding sector benchmark and country benchmark. The figure illustrates that the difference between the 25$^{th}$ return percentile and the 75$^{th}$ percentile is larger for spinoffs in comparison to their corresponding benchmark sector and benchmark country. Hence, an active investor could substantially gain from evaluating spinoffs and discerning the worse performing spinoffs from the best performing spinoffs. However, a passive spinoff investor that creates an equally weighted portfolio of spinoffs would (in hindsight) generate an excess return above benchmarks.

The large difference between the 25$^{th}$ return percentile and the 75$^{th}$ is consistent with earlier research. McConnell et al. (2015) documents that spinoffs have a strong mean return, a lower median than the mean, and further a big difference between the 25$^{th}$ and 75$^{th}$ return percentile.

## Figure 11: Return Distribution for Spinoffs, Benchmark Sector and Benchmark Country




The table shows the 25th percentile and the 75th percentile for total shareholder return for spinoffs and their corresponding sector benchmark and country benchmark index. Sector benchmark indices are based on Standard & Poor's global sector indices, which captures a majority of the companies within a GICS sector. Country benchmark indices are based on what is generally considered as leading indices, which captures a majority of a country's market capitalization. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

### 5.2.1 Returns for Spinoffs Conditioned by Time Period

Table 13 presents the distribution of one-year total shareholder return, sector benchmark and country benchmark adjusted total shareholder returns across the four time-periods 2000-2003, 2004-2007, 2008-2011 and 2012-2015 for all spinoffs. The strongest return performance is between 2000-2003 (13.5% total shareholder return) and 2012-2015 (26.7% total shareholder return). Spinoffs outperform their benchmark indices for all time-periods, with the exception of 2004-2007.

Figure 12 displays one-year total shareholder return and sector benchmark adjusted total shareholder returns across all individual years for all spinoffs. From table 13 and figure 12 it is difficult to discern a pattern across time-periods. For example, spinoffs outperform their benchmark indices during the financial crisis of 2008 and underperform during the dot com bubble in 2000. Further, spinoffs have the strongest performance in 2005 and 2012. In conclusion, we cannot discern any cyclicality trend or pattern across time in terms of returns.

The results from table 13 and figure 12 show that the return performance is not consistent and varies over time. The average total shareholder return between 2012 and 2015 is 26.7 % and the corresponding return between 2008 and 2011 is 3.9 %. Further, the percentage of spinoffs with

positive returns is 55.7 % (2012-2015) and 45.7 % (2008-2011). As shown earlier, the average total one-year shareholder return for all spinoffs is 15.3 % (See table 10: Total shareholder return characteristics for spinoffs). However, as figure 12 documents, this mean return of 15.3 % exhibits a high variation over time since spinoffs documents a negative sector adjusted return 9 out of 16 years. In conclusion, a passive investor that buys an equally weighted portfolio of spinoffs must tolerate periods with negative returns.

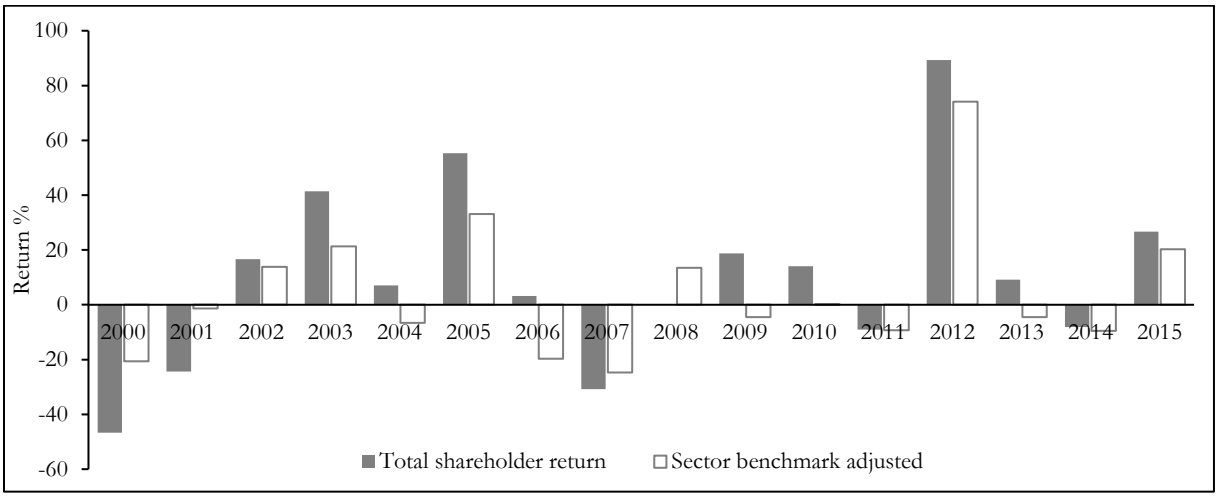
## Table 13: Total Shareholder Return Characteristics by Time-Period

**One-year returns**

| Returns % | Mean | Median | Percentage Positive |
|---|---|---|---|
| *Total shareholder return* | | | |
| 2000-2003 | 13.5 | 2.0 | 50.5 |
| 2004-2007 | 8.0 | 0.0 | 49.2 |
| 2008-2011 | 3.9 | -3.0 | 45.7 |
| 2012-2015 | 26.7 | 6.2 | 55.7 |
| *Sector benchmark adjusted* | | | |
| 2000-2003 | 11.4 | 0.8 | 45.7 |
| 2004-2007 | -5.9 | -16.4 | 37.3 |
| 2008-2011 | 0.3 | -6.5 | 44.2 |
| 2012-2015 | 18.6 | -3.0 | 49.0 |
| *Country benchmark adjusted* | | | |
| 2000-2003 | 10.4 | -7.8 | 45.4 |
| 2004-2007 | -2.8 | -13.4 | 40.7 |
| 2008-2011 | 1.4 | -2.9 | 45.7 |
| 2012-2015 | 15.3 | -5.1 | 44.7 |

The table presents the distribution of one-year total shareholder return, sector benchmark and country benchmark adjusted total shareholder returns across the four time periods 2000-2003, 2004-2007, 2008-2011 and 2012-2015 for all spinoffs. Sector benchmark indices are based on Standard & Poor's global sector indices, which captures a majority of the companies within a GICS sector. Country benchmark indices are based on what is generally considered as leading indices, which captures a majority of a country's market capitalization. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

**Figure 12: Total Shareholder Return and Sector benchmark Adjusted Return by Year**




The figure displays the one-year total shareholder return and sector benchmark adjusted total shareholder returns across all years for all spinoffs. Sector benchmark indices are based on Standard & Poor's global sector indices, which captures a majority of the companies within a GICS sector. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

### 5.2.2 Returns for Spinoffs Conditioned on Size

Table 14 shows the distribution of total shareholder return across size for all spinoffs across the holding periods one, two and three years. The size is based on market capitalization and all spinoffs are divided into the three terciles small, medium and large. The tercile calculations imply that small spinoffs have a market capitalization below 100 million USD, medium spinoffs have a market capitalization between 100 million USD and 1,300 million USD, and large spinoffs have a market capitalization above 1,300 million USD. The objective of measuring returns across size is to identify if the strong return performance can be attributed to a size effect or if the performance holds across all sizes.

Table 14 documents that the mean return is positive across all size terciles and holding periods. Medium sized firms perform better than small firms do across all holding periods. Large firms perform better than small firms do for the holding periods one and three years. Table 14 indicates that there is no size effect of spinoffs since medium and large spinoffs on average perform better than small spinoffs.

This return performance is not consistent with the notion of risk compensation. According to The Fama and French (1993, 1996) three-factor model, smaller firms have an inherently greater risk

than larger firms and should, therefore, be compensated with a higher expected return than larger firms. The results in table 14 appear to contradict this size effect since medium and larger firms perform better than smaller firms.

## Table 14: Total Shareholder Return Characteristics by Size

**Total shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive |
|---|---|---|---|---|---|---|---|
| *Small firms* | | | | | | | |
| 1-year return | 10.6 | -91.1 | -68.9 | -30.3 | 27.1 | 100.0 | 34.3 |
| 2-year return | 41.6 | -96.2 | -79.2 | -42.8 | 47.6 | 227.7 | 37.4 |
| 3-year return | 24.7 | -98.8 | -91.2 | -58.9 | 24.0 | 240.6 | 31.8 |
| *Medium firms* | | | | | | | |
| 1-year return | 24.1 | -50.2 | -20.8 | 7.9 | 48.2 | 115.3 | 58.9 |
| 2-year return | 43.3 | -65.8 | -27.4 | 16.9 | 83.5 | 188.3 | 59.3 |
| 3-year return | 56.3 | -75.4 | -31.8 | 20.7 | 88.4 | 220.1 | 57.8 |
| *Large firms* | | | | | | | |
| 1-year return | 11.1 | -44.9 | -19.6 | 8.0 | 36.6 | 57.9 | 59.7 |
| 2-year return | 22.2 | -60.4 | -33.9 | 15.2 | 53.9 | 104.9 | 62.1 |
| 3-year return | 38.4 | -56.7 | -27.2 | 23.5 | 88.1 | 148.7 | 59.5 |

The table shows the distribution of total shareholder returns across size for the whole sample of spinoffs. The size is based on market capitalization as of the completion date. All spinoffs are divided into the three terciles small, medium and large. The tercile calculations imply that small spinoffs have a market capitalization below 100 million USD, medium spinoffs have a market capitalization between 100 million USD 1,300 million USD and large spinoffs have a market capitalization above 1,300 million USD. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 15 provides the distribution of sector benchmark adjusted total shareholder returns across size for all spinoffs across holding periods one, two and three years. The corresponding country benchmark adjusted total shareholder return distribution is documented in table 16. These two tables indicate the same results as Table 14 above ("Total shareholder return characteristics by size"). Medium and larger firms achieve greater benchmark adjusted returns than smaller firms, with the exception for the holding period two-year. As stated earlier, this is not consistent with the notion of risk compensation which states that smaller firms should have a higher expected return due to a higher inherent risk in smaller firms.

## Table 15: Sector Benchmark Adjusted Total Shareholder Return Characteristics by Size

**Sector benchmark adjusted total shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive |
|---|---|---|---|---|---|---|---|
| *Small firms* | | | | | | | |
| 1-year return | 3.5 | -94.6 | -66.1 | -34.4 | 6.8 | 93.3 | 31.1 |
| 2-year return | 24.1 | -118.8 | -86.1 | -40.9 | 15.6 | 198.3 | 29.4 |
| 3-year return | -0.9 | -138.4 | -100.8 | -66.9 | 0.2 | 182.3 | 25.3 |
| *Medium firms* | | | | | | | |
| 1-year return | 15.6 | -55.0 | -25.0 | 4.3 | 38.6 | 89.0 | 51.8 |
| 2-year return | 24.1 | -80.9 | -39.4 | -1.4 | 48.9 | 156.6 | 48.8 |
| 3-year return | 28.3 | -87.6 | -51.7 | -5.2 | 48.1 | 201.6 | 43.8 |
| *Large firms* | | | | | | | |
| 1-year return | 2.9 | -43.1 | -18.4 | -0.7 | 20.5 | 46.3 | 49.8 |
| 2-year return | 10.1 | -54.2 | -28.5 | 3.2 | 31.1 | 82.7 | 52.6 |
| 3-year return | 18.1 | -69.2 | -29.0 | 5.1 | 47.0 | 116.6 | 54.5 |

The table shows the distribution of sector benchmark adjusted total shareholder returns across size for the whole sample of spinoffs. The size is based on market capitalization as of the completion date. All spinoffs are divided into the three terciles small, medium and large. The tercile calculations imply that small spinoffs have a market capitalization below 100 million USD, medium spinoffs have a market capitalization between 100 million USD 1,300 million USD and large spinoffs have a market capitalization above 1,300 million USD. Sector benchmark indices are based on Standard & Poor's global sector indices, which captures a majority of the companies within a GICS sector. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

## Table 16: Country Benchmark Adjusted Total Shareholder Return Characteristics by Size

**Country benchmark adjusted total shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive |
|---|---|---|---|---|---|---|---|
| *Small spinoffs* | | | | | | | |
| 1-year return | 2.8 | -91.4 | -67.7 | -41.7 | 10.6 | 85.2 | 29.6 |
| 2-year return | 23.3 | -114.5 | -90.9 | -45.9 | 13.7 | 212.0 | 30.3 |
| 3-year return | -3.4 | -136.7 | -111.4 | -69.2 | -2.0 | 202.3 | 24.0 |
| *Medium spinoffs* | | | | | | | |
| 1-year return | 15.3 | -54.0 | -26.5 | 3.4 | 40.6 | 90.3 | 53.4 |
| 2-year return | 24.5 | -81.1 | -46.7 | 0.0 | 50.5 | 165.5 | 46.6 |
| 3-year return | 27.0 | -53.9 | -53.9 | -5.7 | 52.2 | 191.2 | 45.5 |
| *Large spinoffs* | | | | | | | |
| 1-year return | 2.8 | -40.2 | -21.7 | -1.8 | 24.9 | 47.9 | 48.2 |
| 2-year return | 7.5 | -63.1 | -27.0 | -1.0 | 31.7 | 84.5 | 49.5 |
| 3-year return | 12.3 | -73.1 | -35.2 | 3.0 | 42.7 | 105.0 | 52.6 |

The table shows the distribution of country benchmark adjusted total shareholder returns across size for the whole sample of spinoffs. The size is based on market capitalization as of the completion date. All spinoffs are divided into the three terciles small, medium and large. The tercile calculations imply that small spinoffs have a market capitalization below 100 million USD, medium spinoffs have a market capitalization between 100 million USD 1,300 million USD and large spinoffs have a market capitalization above 1,300 million USD. Country benchmark indices are based on what is generally considered as leading indices, which captures a majority of a country's market capitalization. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. Further, the table includes the percentage of spinoffs with positive returns. The sample consists of 690 spinoff observations between 2000 and 2015.

### 5.2.3 Risk-Adjusted Returns

Table 17 presents actual one-year return, expected return according to CAPM and Jensen's alpha for all spinoffs. However, all spinoffs did not have sufficient data required for the CAPM calculations which resulted in 612 spinoffs (entire sample is 690). The difference between the actual return and the expected return is on average 9 % and this difference is statistically significant at the 10 % level using t-statistics. This implies that Jensen's alpha is on average 9 %.

The results in table 17 indicate that spinoffs have abnormal returns. In other words, the abnormal returns appear not to be consistent with the notion of the efficient market hypothesis since our

data sample performs better than their inherent risk according to CAPM. However, since the significance level is only 10 %, it is hard to draw any extensive conclusion concerning abnormal returns.

## Table 17: Capital Asset Pricing Model Risk-Adjusted Returns

**Risk-adjusted returns**

| % | Actual return | Expected return | Jensen's alpha |
|---|---|---|---|
| Mean | 19.2 | 10.2 | 9.0 |
| Median | 3.3 | 9.6 | -5.2 |
| Standard deviation | 155.6 | 15.9 | 145.0 |
| | | | |
| Actual return - Expected return | 9.0 | | |
| P(T ≤ t one tail) | 0.08* | | |
| T-critical | 1.65 | | |

The table shows actual return, expected return according to CAPM and Jensen's alpha. Actual return – Expected return is the difference between actual and expected return which corresponds to Jensen's alpha. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Actual return corresponds to total one-year shareholder return. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The expected return is the estimated return according to the CAPM. The start date for all return calculations is the completion date of the spinoff. The sample consists of 612 spinoff observations between 2000 and 2015.

## 5.3 The Spinoff Scorecard

Table 18 displays descriptive statistics for the score variables in The Spinoff Scorecard. The table indicates that most score variables exhibit a high standard deviation. For example, the median leverage amounts to a net debt/EBITDA of 0.9 and the standard deviation is 11.3. Further, the median ROCE amounts to 8.3 % and the standard deviation is 2,666. Also, the median EV/EBIT multiple amounts to 6.2 and the standard deviation is 479.4.

As shown in section 5.2, the results for the total shareholder return documents that the return performance of spinoffs exhibits a large difference between the 25$^{th}$ percentile and 75$^{th}$ percentile in comparison with the corresponding benchmark sector and benchmark country. Consistent with the diverse return performance, the descriptive statistics exhibit a wide operational performance in terms of ROCE, different risk profiles in terms of leverage and widespread valuation in terms of EV/EBIT. Hence, the diverse results of several score variables such as leverage, quality and valuation may explain the subsequent wide return performance for spinoffs.

## Table 18: Descriptive Statistics for Score Variables

**Score characteristics**

| Score variable | Mean | Median | Standard Deviation | Proportion with Score 1 |
|---|---|---|---|---|
| *Insider incentives* | | | | |
| Ownership | 2.9 | 0.1 | 7.7 | 64.1 |
| *Corporate governance* | | | | |
| Inside CEO | N/A | N/A | N/A | 78.6 |
| CEO power | N/A | N/A | N/A | 70.4 |
| *Organizational structure* | | | | |
| Within industry | N/A | N/A | N/A | 57.5 |
| Conglomerate | 2.3 | 2.0 | 1.5 | 24.5 |
| *Market neglection* | | | | |
| Analyst coverage | 3.1 | 1.0 | 5.3 | 68.7 |
| Institutional selling | 16.4 | 0.4 | 323.9 | 52.9 |
| *Capital structure* | | | | |
| Leverage | 1.7 | 0.9 | 11.3 | 51.0 |
| *Valuation* | | | | |
| EV/EBIT | -34.3 | 6.2 | 479.4 | 38.4 |
| *Quality* | | | | |
| ROCE | -82.5 | 8.3 | 2665.7 | 48.7 |

The table presents descriptive statistics for score variables in The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The table includes the variables' mean, median, standard deviation and percentage of spinoffs that received score 1. The sample consists of 690 spinoff observations between 2000 and 2015. N/A corresponds to not available.

### 5.3.1 Returns Conditioned on Spinoff Scorecard Variables

Before we present the return performance for the aggregated Spinoff Scorecard, we document all score variables separately. Table 19 presents one-, two- and three-year total shareholder return by each score variable. The results in table 19 documents that all ten score variables with score one (positive signal) have better return performance than its corresponding score variable with score

zero (negative signal). This performance holds for all three holding periods, one, two and three years. Hence, the intuition of the scorecard variables appear to work.

As documented in table 19, the strongest signal is given by the score variable conglomerate. An equally weighted portfolio that includes all spinoffs with score one (conglomerate) has on average a one-, two- and three-year return of 37.6 %, 61.3 % and 72.9 %. It is rather intuitive that a spinoff from a conglomerate yields the strongest return performance due to several positive effects from releasing a division through a spinoff. As stated in the theoretical foundation section a spinoff from a conglomerate entails potentially the three positive effects conglomerate discount, strategic and business focus, and incentive alignment. Heppelmann and Hoffleith (2009) document a conglomerate discount of 5-20 % which may be eliminated over time in a spinoff transaction. Khorana et al. (2011) find that a conglomerate may destroy value since it reduces strategic focus and spinning off a division can typically increase strategic focus to be completely aligned with the spinoff's growth profile, improve capital allocation and create an optimal capital structure. Further, the agency costs are typically reduced in a spinoff since its incentive plans relative to a conglomerate may be better aligned to create shareholder value for the principal (Khorana et al., 2011).

In the theoretical foundation section, we concluded that from a managerial perspective the whole purpose of spinoffs is to achieve the opposite effect from conglomerate build-ups. The parent company typically pursue a spinoff transaction to increase strategic focus, improve capital efficiency (capital allocation), increase information, divesting unrelated businesses, incentive alignment or undervaluation due to conglomerate discount (see section 2.6.3). Conglomerate build-ups contribute to decreasing strategic focus, decreasing capital efficiency, etc. So, the managerial intuition of spinning off a business seem to be successful since our results indicate that the conglomerate score yields the strongest return performance for all three holding periods (one-, two- and three-year).

Figure 13, 14, 15 illustrates the one-, two-, and three-year total shareholder return documented in table 19.

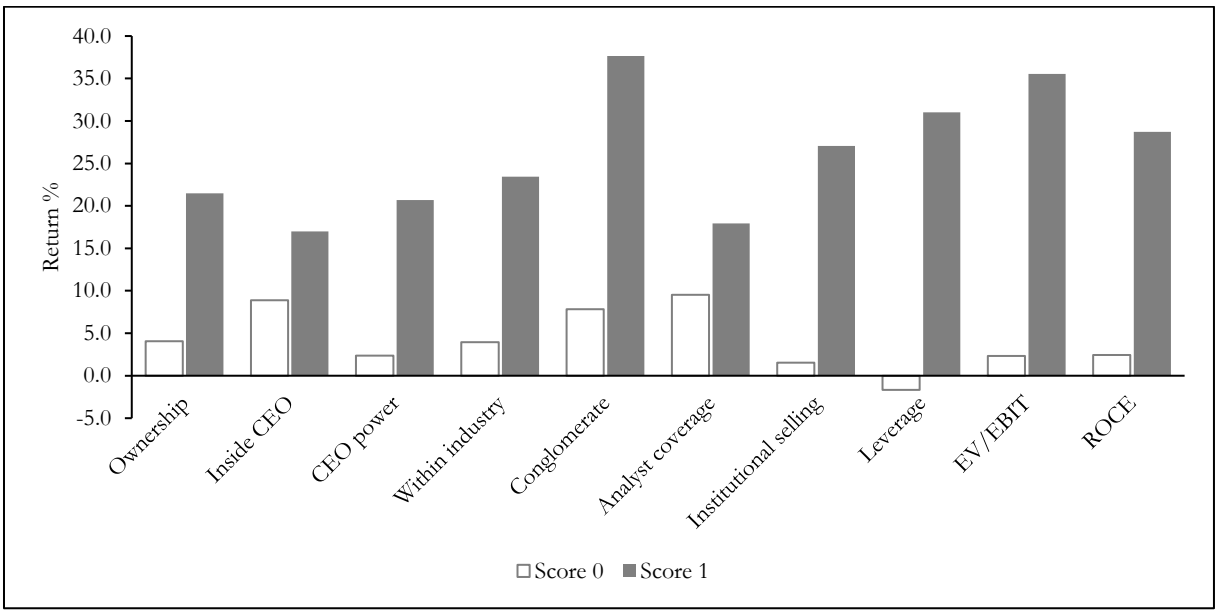
## Table 19: Total Shareholder Return by Score Variable

**Total shareholder return by score**

| Returns % | 1-year return | 2-year return | 3-year return | n |
|---|---|---|---|---|
| *Insider incentives* | | | | |
| Ownership | | | | |
| 0 | 4.1 | 32.7 | 35.5 | 248 |
| 1 | 21.5 | 36.9 | 42.5 | 442 |
| *Corporate governance* | | | | |
| Inside CEO | | | | |
| 0 | 8.9 | 23.7 | 30.2 | 148 |
| 1 | 17.0 | 38.6 | 42.8 | 542 |
| CEO power | | | | |
| 0 | 2.4 | 21.3 | 26.2 | 204 |
| 1 | 20.7 | 41.2 | 45.7 | 486 |
| *Organizational structure* | | | | |
| Within industry | | | | |
| 0 | 4.0 | 27.7 | 33.0 | 293 |
| 1 | 23.4 | 40.9 | 45.3 | 397 |
| Conglomerate | | | | |
| 0 | 7.8 | 27.0 | 29.3 | 521 |
| 1 | 37.6 | 61.3 | 72.9 | 169 |
| *Market neglection* | | | | |
| Analyst coverage | | | | |
| 0 | 9.5 | 22.4 | 31.2 | 216 |
| 1 | 17.9 | 41.2 | 43.9 | 474 |
| Institutional selling | | | | |
| 0 | 1.5 | 22.6 | 20.2 | 325 |
| 1 | 27.0 | 46.4 | 58.0 | 365 |
| *Capital structure* | | | | |
| Leverage | | | | |
| 0 | -1.7 | 23.4 | 16.3 | 338 |
| 1 | 31.0 | 46.5 | 61.5 | 352 |
| *Valuation* | | | | |
| EV/EBIT | | | | |
| 0 | 2.3 | 21.4 | 20.3 | 425 |
| 1 | 35.5 | 56.8 | 69.5 | 265 |
| *Quality* | | | | |
| ROCE | | | | |
| 0 | 2.5 | 30.7 | 29.3 | 354 |
| 1 | 28.7 | 40.1 | 50.4 | 336 |

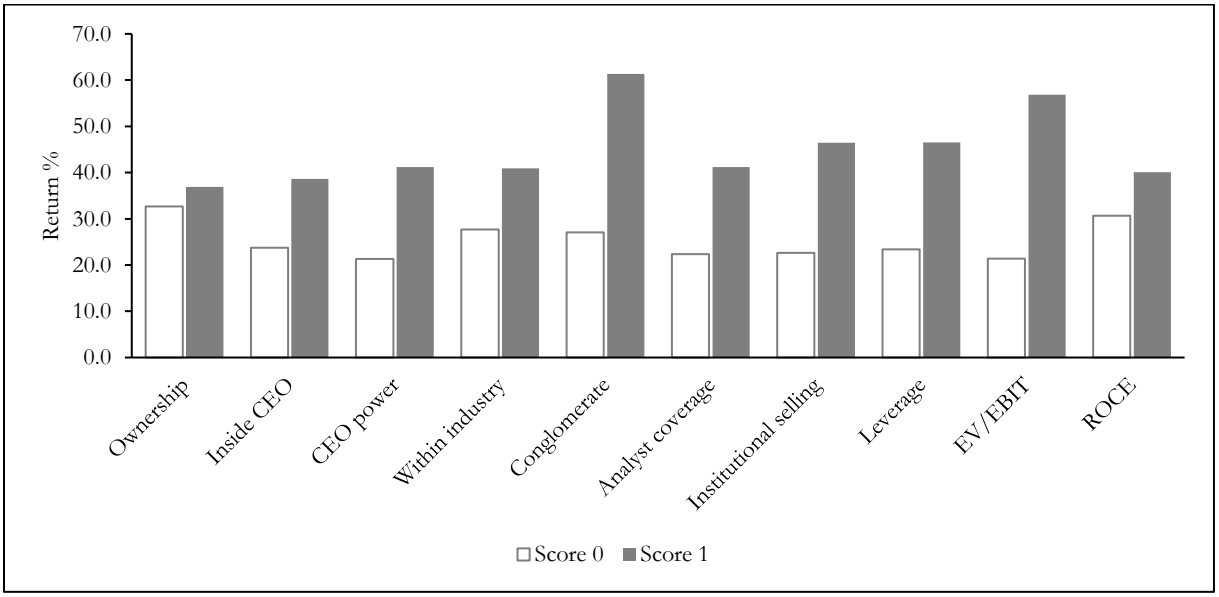
The table presents the one-, two- and three-year total shareholder return by score variable. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score 1) is expected to generate a better return than a negative signal (score 0). Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. Further, the table includes the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 13: One-Year Total Shareholder Return by Score Variable



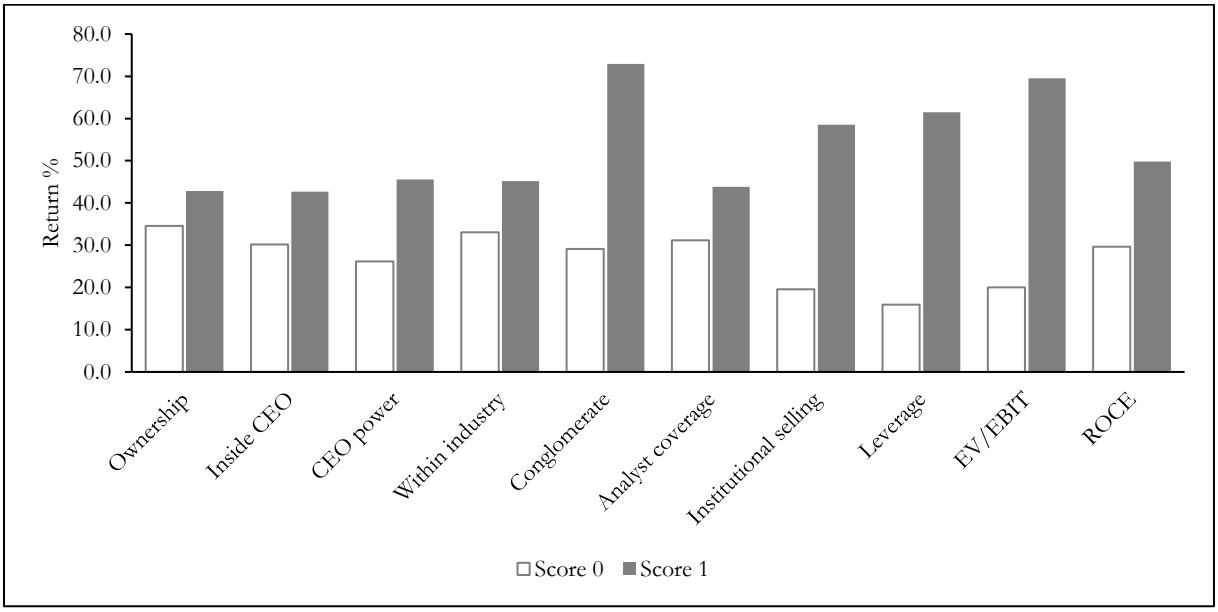

The figure presents the one-year total shareholder return by score variable. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score 1) is expected to generate a better return than a negative signal (score 0). Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 14: Two-Year Total Shareholder Return by Score Variable




The figure presents the two-year total shareholder return by score variable. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score 1) is expected to generate a better return than a negative signal (score 0). Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 15: Three-Year Total Shareholder Return by Score Variable




The figure presents the three-year total shareholder return by score variable. Either a variable is classified as a positive or a negative signal, whereof the score one is positive and the score zero is negative. Hence, a positive signal (score 1) is expected to generate a better return than a negative signal (score 0). Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 20 provides the one-year total shareholder return for The Spinoff Scorecard. The table documents the return for portfolios across all spinoffs, return for composite scores from zero to ten and returns for portfolios with a high and low composite score. Further, the table provides returns as means, 10$^{th}$ percentile, 25$^{th}$ percentile, median, 75$^{th}$ percentile and 90$^{th}$ percentile. In addition, the table includes the percentage of spinoffs with positive returns and the number of spinoffs, n.

The Spinoff Scorecard is defined and calculated as in table 4. A composite score of ten corresponds to the most positive signal and a composite score of zero is the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between two and four[9], and the high spinoff score portfolio is spinoffs with a composite score between eight and ten. High – All corresponds to the return difference between the high score portfolio and all spinoffs, and High – Low is the return difference between a high and low score portfolio.

[9] The reason for not choosing a low spinoff score portfolio with a composite between zero and two is because no spinoffs received score zero and one.

From table 20, we can conclude that a majority of the spinoffs receives a composite score between four and six. 87 spinoffs receives a high composite score (8-10) and 188 spinoffs receives a low composite score (2-4). The remaining 415 spinoffs are clustered around a mediocre score of five to seven.

Table 20 documents a relationship between the composite score and the mean one-year return. A higher score results in a higher mean return. The relationship exhibits a fairly linear increasing relationship where the portfolio of all spinoffs with a composite score of ten performs better than the portfolio with a composite score of nine etc. This does not just hold for mean returns. The $10^{th}$ percentile, $25^{th}$ percentile, median, $75^{th}$ percentile and $90^{th}$ percentile documents a higher return for a higher composite score.

The high score portfolio achieves a one-year mean return of 72.9 %, which significantly outperforms all spinoffs that earns a mean return of 15.3 %. As documented in table 20, the mean return difference (57.6 %) of the high score portfolio and all spinoffs are significant at the 10% level using t-statistics. Further, the return for the low score portfolio is -15.5 %. The difference between the high and low score portfolio (88.3%) is statistically significant at the 5 % level using t-statistics. Also, the high score portfolio has a percentage of spinoffs with a positive return of 73.3 % while the corresponding number for the low score portfolio is 31.1 %.

As discussed earlier, The Spinoff Scorecard is designed with the intent, to shift the return distribution from the left to the right tail. From the results in table 20, we can conclude that the $10^{th}$ percentile, $25^{th}$ percentile, median, $75^{th}$ percentile and $90^{th}$ percentile returns for the high score portfolio are higher than for the low score portfolio and all spinoffs. Hence, the results indicate that The Spinoff Scorecard can shift the return distribution from the left to the right tail.

In conclusion, our results indicate that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing The Spinoff scorecard.

## Table 20: One-Year Total Shareholder Return for The Spinoff Scorecard

**Total one-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 15.3 | -70.7 | -37.9 | 2.0 | 39.5 | 85.3 | 51.2 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -42.6 | -99.7 | -96.6 | -66.8 | -10.6 | 62.0 | 20.0 | 12 |
| 3 | -18.0 | -85.4 | -60.5 | -28.3 | 5.3 | 68.3 | 29.9 | 69 |
| 4 | -11.0 | -83.6 | -56.4 | -19.9 | 18.7 | 59.5 | 33.0 | 107 |
| 5 | 9.6 | -72.0 | -44.0 | -3.6 | 37.2 | 83.3 | 44.8 | 150 |
| 6 | 19.3 | -63.6 | -28.8 | 8.0 | 42.0 | 111.7 | 58.4 | 163 |
| 7 | 21.1 | -33.5 | -15.2 | 14.3 | 47.0 | 83.4 | 64.6 | 102 |
| 8 | 28.8 | -21.8 | -1.6 | 20.2 | 46.6 | 77.6 | 72.1 | 62 |
| 9 | 50.9 | -27.3 | -2.0 | 34.3 | 55.6 | 148.6 | 72.2 | 18 |
| 10 | 513.8 | -0.7 | 41.1 | 60.1 | 82.4 | 1384.8 | 85.7 | 7 |
| Low Spinoff score | -15.5 | -87.4 | -60.8 | -23.3 | 9.2 | 68.3 | 31.1 | 188 |
| High Spinoff score | 72.9 | -27.5 | -1.2 | 25.5 | 55.9 | 104.7 | 73.3 | 87 |
| | | | | | | | | |
| High - All | 57.6 | 43.2 | 36.7 | 23.4 | 16.4 | 19.4 | 22.0 | - |
| P(T<=t one tail) | 0.07* | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 88.3 | 59.9 | 59.6 | 48.8 | 46.8 | 36.4 | 42.2 | - |
| P(T<=t one tail) | 0.01** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |

The table presents the one-year total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 21 and 22 provides the two and three-year total shareholder return for The Spinoff Scorecard. The results in table 21 and 22 indicate similar results as in table 20.

The high score portfolio achieves a two-year mean return of 86.2 %, which significantly outperforms all spinoffs that earns a mean return of 35.4 % As documented in table 21, the mean return difference (50.8 %) of the high score portfolio and all spinoffs is significant at the 5% level

using t-statistics. Further, the return for the low score portfolio is 11.1 %. The difference between the high and low score portfolio (75.1 %) is statistically significant at the 1 % level using t-statistics.

The high score portfolio achieves a mean three-year return of 95.8 %, which significantly outperforms all spinoffs that earns a mean return of 40.0 % As documented in table 22, the mean return difference (55.8 %) of the high score portfolio and all spinoffs are significant at the 1% level using t-statistics. Further, the return for the low score portfolio is -11.1 %. The difference between the high and low score portfolio (106.9 %) is statistically significant at the 1 % level using t-statistics.

From table 20, 21 and 22 we can conclude that The Spinoff Scorecard documents a fairly linear relationship, i.e., a higher score implies higher returns and that a high score portfolio statistically significantly outperforms all spinoffs and the low score portfolio. Further, the percentage spinoffs with a positive return increase with a higher score. These conclusions hold for all three holding periods one-, two- and three-year.

## Table 21: Two-Year Total Shareholder Return for The Spinoff Scorecard

**Total two-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 35.4 | -81.8 | -50.0 | 5.7 | 60.1 | 163.8 | 53.3 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -49.4 | -99.6 | -97.3 | -75.5 | -30.1 | 61.2 | 20.0 | 12 |
| 3 | 16.7 | -96.5 | -83.1 | -42.3 | 12.7 | 50.4 | 30.8 | 69 |
| 4 | 13.7 | -89.4 | -63.4 | -20.2 | 26.8 | 94.6 | 37.1 | 107 |
| 5 | 18.9 | -79.6 | -51.9 | -6.1 | 66.8 | 153.3 | 48.0 | 150 |
| 6 | 38.1 | -75.5 | -46.8 | 12.2 | 58.1 | 170.5 | 57.2 | 163 |
| 7 | 51.4 | -54.5 | -5.6 | 23.9 | 82.2 | 167.0 | 72.0 | 102 |
| 8 | 60.4 | -43.3 | -4.5 | 26.5 | 94.6 | 190.0 | 72.4 | 62 |
| 9 | 108.4 | -32.3 | -12.2 | 21.0 | 106.1 | 356.3 | 68.8 | 18 |
| 10 | 249.0 | 1.1 | 43.9 | 78.0 | 115.0 | 631.5 | 85.7 | 7 |
| Low Spinoff score | 11.1 | -95.4 | -77.3 | -29.5 | 17.7 | 70.3 | 33.5 | 188 |
| High Spinoff score | 86.2 | -43.907 | -6.047 | 32.498 | 100.580 | 209.956 | 72.8 | 87 |
| | | | | | | | | |
| High - All | 50.8 | 37.9 | 44.0 | 26.8 | 40.4 | 46.1 | 19.5 | - |
| P(T<=t one tail) | 0.02** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 75.1 | 51.5 | 71.2 | 62.0 | 82.8 | 139.7 | 39.3 | - |
| P(T<=t one tail) | 0.01*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.65 | - | - | - | - | - | - | - |

The table presents the two-year total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Table 22: Three-Year Total Shareholder Return for The Spinoff Scorecard

**Total three-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 40.0 | -91.3 | -56.7 | 0.0 | 73.7 | 200.6 | 50.0 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -71.6 | -100.0 | -99.4 | -96.7 | -41.3 | -16.1 | 10.0 | 12 |
| 3 | -25.9 | -98.7 | -92.0 | -54.7 | 9.5 | 56.6 | 27.8 | 69 |
| 4 | 6.2 | -91.4 | -76.0 | -27.4 | 23.1 | 94.2 | 34.6 | 107 |
| 5 | 35.5 | -94.7 | -73.7 | -2.2 | 62.8 | 207.3 | 48.7 | 150 |
| 6 | 51.9 | -82.0 | -48.5 | 3.7 | 74.2 | 197.8 | 53.6 | 163 |
| 7 | 65.4 | -54.5 | -28.1 | 38.8 | 99.6 | 219.2 | 63.1 | 102 |
| 8 | 96.8 | -55.3 | -19.2 | 43.4 | 148.2 | 267.4 | 66.7 | 62 |
| 9 | 87.8 | -45.1 | 5.2 | 27.7 | 109.7 | 195.5 | 76.9 | 18 |
| 10 | 102.5 | -35.3 | 13.2 | 132.3 | 183.0 | 231.9 | 71.4 | 7 |
| Low Spinoff score | -11.1 | -97.8 | -88.2 | -46.7 | 11.7 | 80.4 | 30.3 | 188 |
| High Spinoff score | 95.8 | -55.3 | -15.9 | 42.1 | 149.6 | 253.2 | 68.9 | 87 |
| | | | | | | | | |
| High - All | 55.8 | 36.1 | 40.8 | 42.1 | 76.0 | 52.7 | 18.9 | - |
| P(T<=t one tail) | 0.01*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 106.9 | 42.5 | 72.3 | 88.8 | 137.9 | 172.8 | 38.6 | - |
| P(T<=t one tail) | 0.00*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |

The table presents the three-year total shareholder return for the Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

Table 23, 24 and 25 displays the one-, two- and three-year sector benchmark adjusted returns for The Spinoff Scorecard. For succinctness, the results are only shown for the sector benchmark adjusted returns and not for the country benchmark adjusted return since the relationship is close to identical. See Appendix C for the corresponding one-, two- and three-year country benchmark adjusted returns for The Spinoff Scorecard.

The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The results in table 23, 24 and 25 indicate the same results as in tables 20, 21 and 22 with the unadjusted total shareholder returns.

As documented in table 23, the high score portfolio achieves a one-year mean return of 60.5 %, which significantly outperforms all spinoffs that earns a mean return of 7.3 %. The mean return difference (53.1 %) of the high score portfolio and all spinoffs are significant at the 10 % level using t-statistics. Further, the return for the low score portfolio is -23.5 %. The difference between the high and low score portfolio (84.0 %) is statistically significant at the 5 % level using t-statistics.

As documented in table 24, the high score portfolio achieves a two-year mean return of 65.7 %, which significantly outperforms all spinoffs that earns a mean return of 19.2 %. The mean return difference (46.5 %) of the high score portfolio and all spinoffs are significant at the 5% level using t-statistics. Further, the return for the low score portfolio is -3.3 %. The difference between the high and low score portfolio (69.0 %) is statistically significant at the 5 % level using t-statistics.

As documented in table 25, the high score portfolio achieves a mean three-year return of 65.7 %, which significantly outperforms all spinoffs that earns a mean return of 15.4 %. The mean return difference (50.3 %) of the high score portfolio and all spinoffs are significant at the 5 % level using t-statistics. Further, the return for the low score portfolio is -34.6 %. The difference between the high and low score portfolio (100.3 %) is statistically significant at the 1 % level using t-statistics.

From table 20, 21 and 22 with unadjusted returns we concluded that The Spinoff Scorecard documents a fairly linear relationship, i.e., a higher score implies higher returns and that a high score portfolio statistically significantly outperforms all spinoffs and the low score portfolio. In addition, this does not just hold for mean returns. The $10^{th}$ percentile, $25^{th}$ percentile, median, $75^{th}$ percentile and $90^{th}$ percentile documents a higher return for the high score portfolio in comparison to all spinoffs and the low score portfolio. Further, the percentage spinoffs with a positive return increase with a higher score. These conclusions do also hold for the sector adjusted returns for all three holding periods one-, two- and three-year, documented in table 23, 24 and 25.

## Table 23: One-Year Sector Adjusted Total Shareholder Return for The Spinoff Scorecard

**Total one-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 7.3 | -67.7 | -40.6 | -6.6 | 26.8 | 73.4 | 44.4 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -51.5 | -103.3 | -95.0 | -70.0 | -20.9 | 29.7 | 20.0 | 12 |
| 3 | -25.9 | -85.8 | -65.5 | -36.3 | -1.9 | 50.1 | 25.4 | 69 |
| 4 | -19.2 | -83.3 | -54.1 | -19.9 | 5.7 | 44.8 | 28.0 | 107 |
| 5 | 3.4 | -69.0 | -49.9 | -11.5 | 23.8 | 69.0 | 42.9 | 150 |
| 6 | 13.1 | -54.4 | -28.9 | -2.7 | 33.4 | 94.0 | 48.8 | 163 |
| 7 | 12.4 | -47.6 | -16.3 | 4.6 | 37.9 | 70.4 | 54.1 | 102 |
| 8 | 17.7 | -33.3 | -11.7 | 11.4 | 31.2 | 75.0 | 60.7 | 62 |
| 9 | 35.5 | -39.1 | -3.7 | 19.3 | 50.5 | 122.6 | 72.2 | 18 |
| 10 | 497.4 | -18.9 | 16.9 | 53.0 | 59.3 | 1368.9 | 85.7 | 7 |
| Low Spinoff score | -23.5 | -87.9 | -64.6 | -28.2 | 2.9 | 43.9 | 26.6 | 188 |
| High Spinoff score | 60.5 | -38.9 | -10.3 | 15.5 | 38.5 | 80.8 | 65.1 | 87 |
| | | | | | | | | |
| High - All | 53.1 | 28.8 | 30.3 | 22.1 | 11.7 | 7.4 | 20.7 | - |
| P(T<=t one tail) | 0.09* | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 84.0 | 49.0 | 54.3 | 43.7 | 35.6 | 36.9 | 38.6 | - |
| P(T<=t one tail) | 0.02** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |

The table presents the one-year sector adjusted total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, is the high spinoff score portfolio are spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Table 24: Two-Year Sector Adjusted Total Shareholder Return for The Spinoff Scorecard

**Total two-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 19.2 | -89.8 | -53.5 | -8.7 | 35.5 | 130.0 | 43.9 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -64.2 | -119.0 | -114.6 | -85.7 | -19.5 | 16.9 | 20.0 | 12 |
| 3 | 2.6 | -123.1 | -85.7 | -49.7 | -7.2 | 32.4 | 23.1 | 69 |
| 4 | -0.8 | -100.1 | -68.6 | -23.8 | 9.3 | 59.6 | 29.2 | 107 |
| 5 | 1.4 | -95.9 | -58.5 | -19.5 | 48.6 | 121.4 | 39.3 | 150 |
| 6 | 25.8 | -76.6 | -48.8 | 8.6 | 37.4 | 131.4 | 53.0 | 163 |
| 7 | 31.1 | -58.9 | -24.5 | 10.3 | 56.4 | 145.9 | 54.3 | 102 |
| 8 | 40.3 | -57.9 | -34.2 | 5.8 | 76.6 | 174.6 | 55.2 | 62 |
| 9 | 84.7 | -38.7 | -16.0 | 5.6 | 67.7 | 313.6 | 56.3 | 18 |
| 10 | 232.8 | 8.2 | 33.4 | 55.5 | 72.9 | 606.9 | 85.7 | 7 |
| Low Spinoff score | -3.3 | -111.4 | -83.1 | -34.1 | 2.9 | 44.6 | 26.2 | 188 |
| High Spinoff score | 65.7 | -55.7 | -23.3 | 11.8 | 77.1 | 192.2 | 58.0 | 87 |
| | | | | | | | | |
| High - All | 46.5 | 34.1 | 30.2 | 20.6 | 41.6 | 62.2 | 14.1 | - |
| P(T<=t one tail) | 0.03** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 69.0 | 55.8 | 59.7 | 45.9 | 74.3 | 147.6 | 31.8 | - |
| P(T<=t one tail) | 0.01** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.65 | - | - | - | - | - | - | - |

The table presents the two-year sector adjusted total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Table 25: Three-Year Sector Adjusted Total Shareholder Return for The Spinoff Scorecard

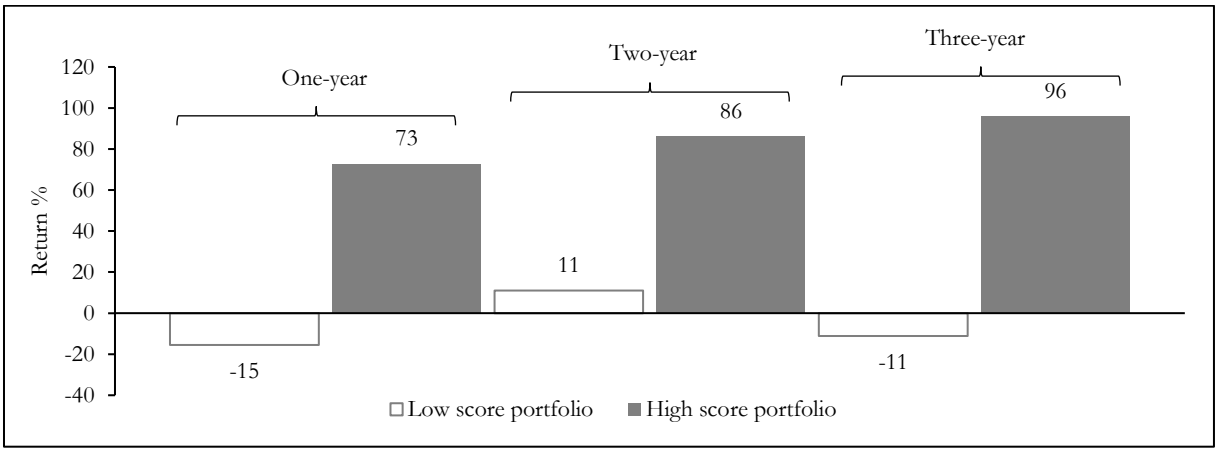
**Total three-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 15.4 | -105.8 | -69.2 | -16.1 | 38.0 | 157.3 | 42.9 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -89.6 | -152.8 | -129.0 | -76.4 | -50.0 | -39.9 | 0.0 | 12 |
| 3 | -48.2 | -135.1 | -104.2 | -66.1 | -5.6 | 24.3 | 22.2 | 69 |
| 4 | -18.7 | -112.2 | -89.6 | -48.0 | -15.4 | 76.0 | 22.2 | 107 |
| 5 | 10.4 | -119.0 | -83.4 | -20.2 | 41.8 | 159.5 | 40.2 | 150 |
| 6 | 33.2 | -89.2 | -59.0 | 4.1 | 48.3 | 189.3 | 51.8 | 163 |
| 7 | 35.0 | -65.7 | -36.4 | 9.8 | 57.6 | 184.9 | 53.0 | 102 |
| 8 | 66.9 | -73.3 | -37.7 | 22.8 | 105.6 | 229.6 | 61.1 | 62 |
| 9 | 59.2 | -19.6 | -8.4 | 10.2 | 43.9 | 137.4 | 53.8 | 18 |
| 10 | 68.9 | -29.0 | 12.2 | 95.4 | 132.4 | 158.9 | 85.7 | 7 |
| Low Spinoff score | -34.6 | -130.5 | -98.3 | -51.9 | -15.4 | 63.0 | 20.7 | 188 |
| High Spinoff score | 65.7 | -73.3 | -19.5 | 20.7 | 105.6 | 197.4 | 62.2 | 87 |
| | | | | | | | | |
| High - All | 50.3 | 32.5 | 49.8 | 36.8 | 67.6 | 40.1 | 19.3 | - |
| P(T<=t one tail) | 0.01** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 100.3 | 57.2 | 78.8 | 72.6 | 121.0 | 134.4 | 41.5 | - |
| P(T<=t one tail) | 0.00*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |

The table presents the three-year sector adjusted total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

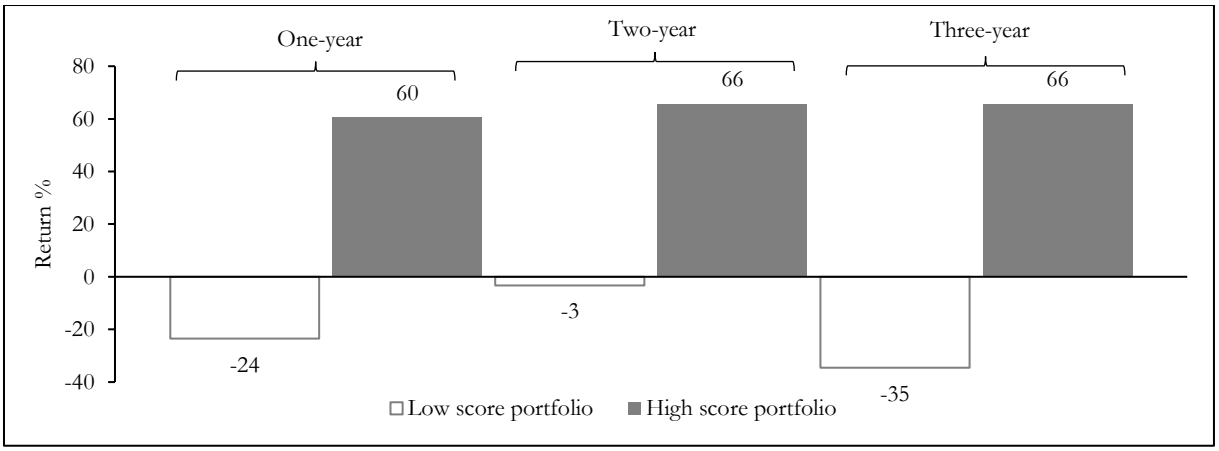
Figure 16 and 17 summarizes the average total shareholder return and the average sector adjusted return by the holding periods one, two and three years for low and high score portfolios. As shown in the figures a high score portfolio outperforms a low score portfolio across all holding periods.

## Figure 16: Mean Total Shareholder Return by Holding Period for Low and High Score Portfolio




The figure displays the one-, two- and three-year total shareholder return by low and high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 17: Mean Sector Adjusted Total Shareholder Return by Holding Period for Low and High Score Portfolio




The figure displays the one-, two- and three-year sector adjusted total shareholder return by low and high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

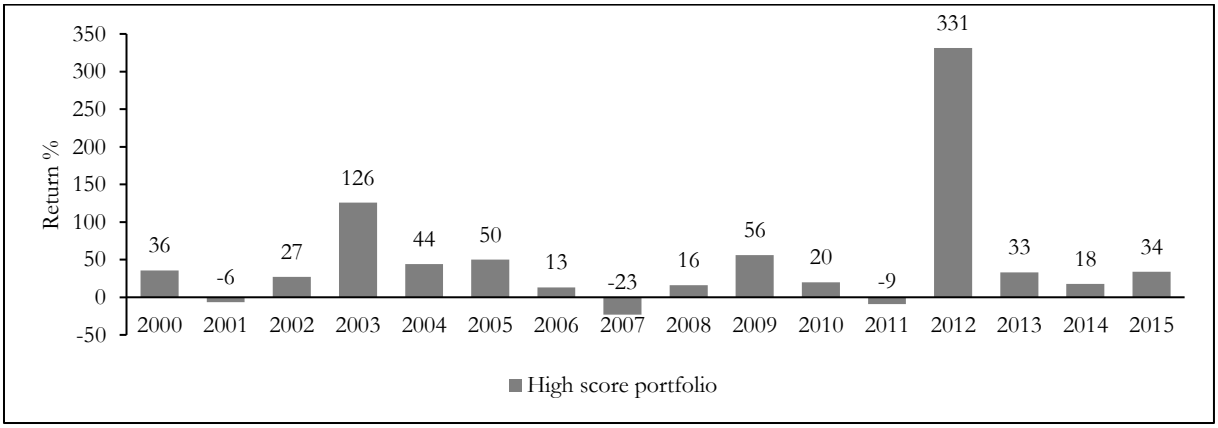
### 5.3.2 Returns Conditioned on The Spinoff Scorecard Over Time

Figure 18 illustrates the total one-year shareholder return for a high score portfolio for The Spinoff Scorecard over time. Due to the small sample size across the individual years, the definition of a high score portfolio is extended to include score 7 in the figure. Hence, a high score portfolio encompasses a portfolio of scores between 7 and 10 (this definition is utilized for figure 18 to 23). As illustrated in figure 18, the high score portfolio has positive returns 13 out of 16 years.

Figure 19 displays the sector adjusted total one-year shareholder return for a high score portfolio for the spinoff scorecard over time. The high score portfolio outperforms their corresponding sector 13 out of 16 years. This is substantially better than the benchmark sector adjusted return as documented in Figure 12 (Total shareholder return and sector benchmark adjusted return by year) which displays that all spinoffs outperform their corresponding sector 7 out of 16 years. In conclusion, figure 18 and 19 show the robustness of the strong performance over time for investing in a high score portfolio.

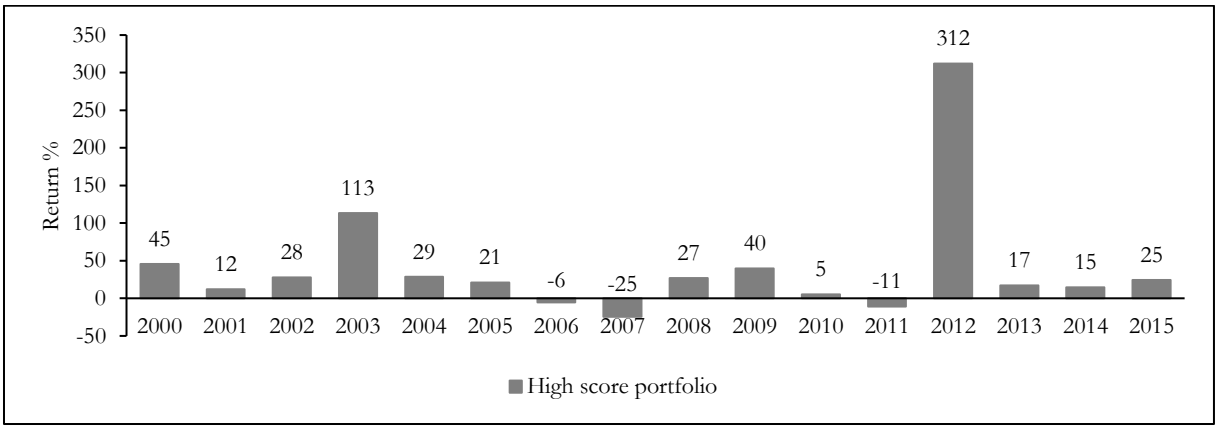
Further figure 20, 21, 22 and 23 shows the total shareholder return and sector adjusted return for the high score portfolios for the holding periods two and three years. The high score portfolios have positive total shareholder return and sector adjusted return between 12 and 14 out of 16 years.

## Figure 18: One-Year Total Shareholder Return by Year for a High Score Portfolio



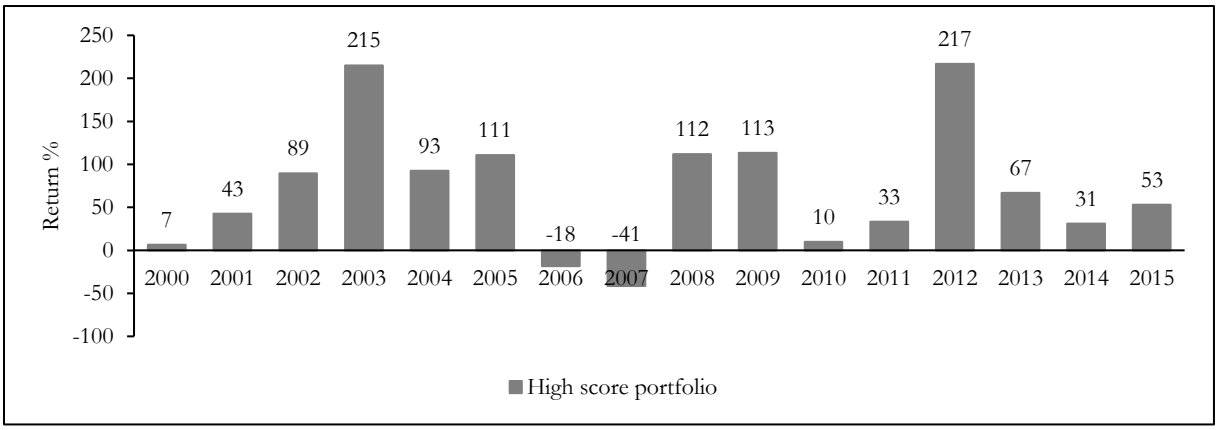

The figure displays the one-year total shareholder return for a high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The high spinoff score portfolio is spinoffs with a composite score of 7-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 19: One-Year Sector Adjusted Total Shareholder Return by Year for a High Score Portfolio



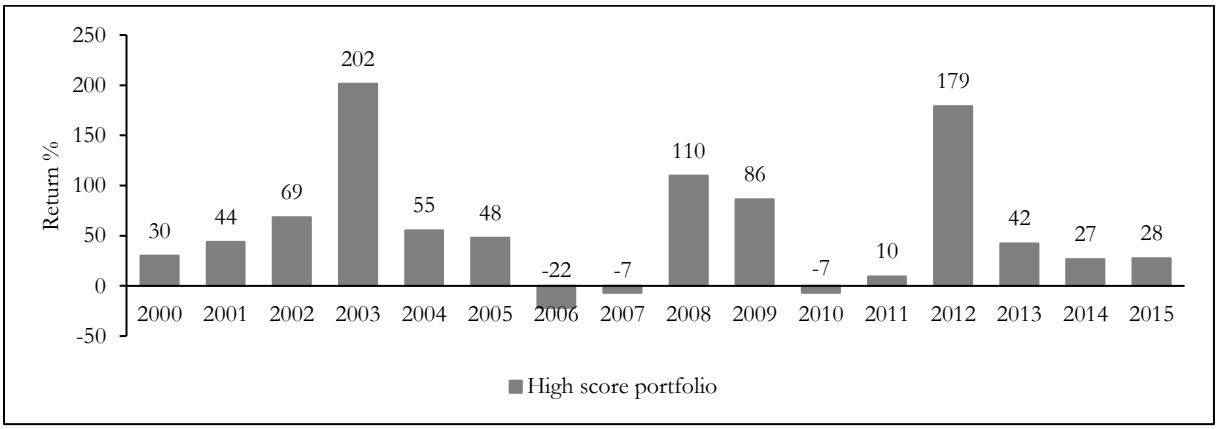

The figure displays the one-year sector adjusted total shareholder return for a high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The high spinoff score portfolio is spinoffs with a composite score of 7-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 20: Two-Year Total Shareholder Return by Year for a High Score Portfolio



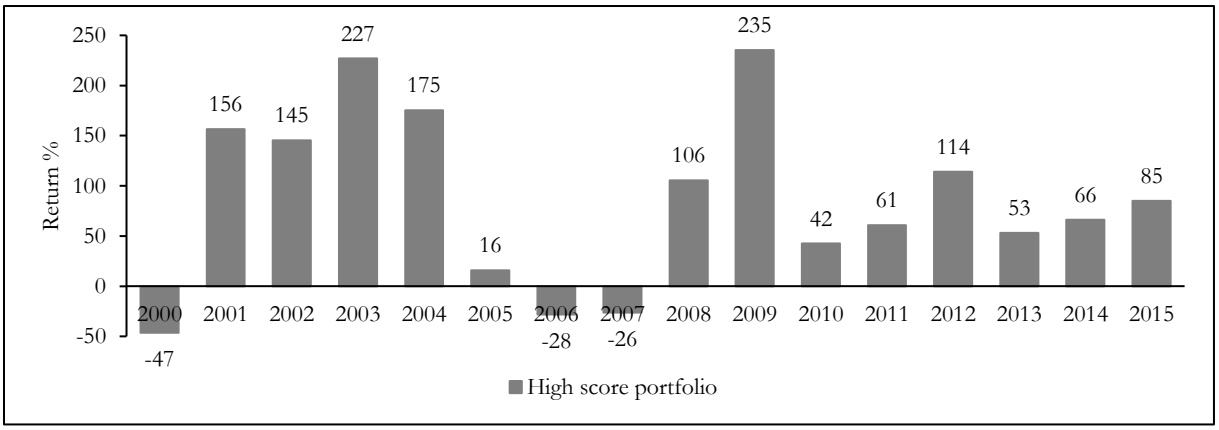

The figure displays the two-year total shareholder return for a high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The high spinoff score portfolio is spinoffs with a composite score of 7-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 21: Two-Year Sector Adjusted Total Shareholder Return by Year for a High Score Portfolio



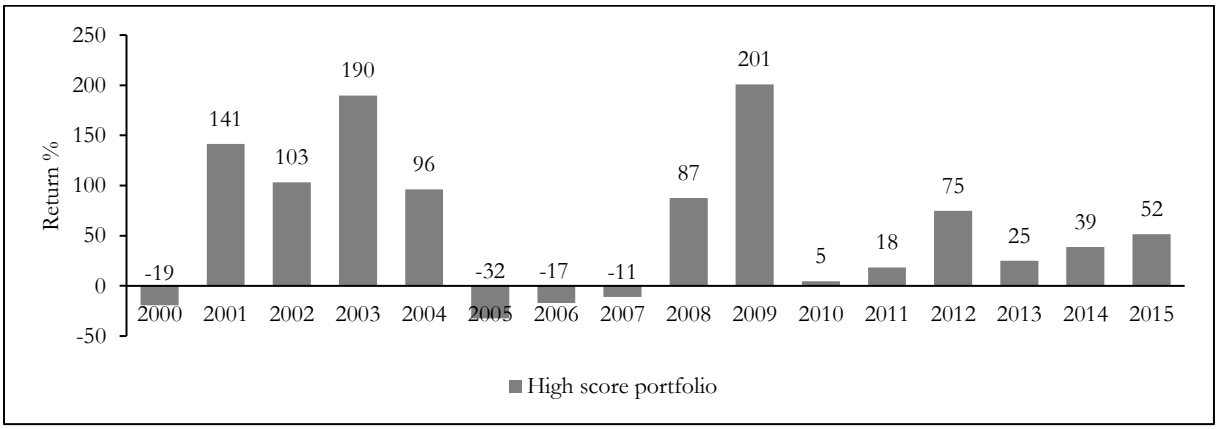

The figure displays the two-year sector adjusted total shareholder return for a high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The high spinoff score portfolio is spinoffs with a composite score of 7-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Figure 22: Three-Year Total Shareholder Return by Year for a High Score Portfolio




The figure displays the three-year total shareholder return for a high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The high spinoff score portfolio is spinoffs with a composite score of 7-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

**Figure 23: Three-Year Sector Adjusted Total Shareholder Return by Year for a High Score Portfolio**




The figure displays the three-year sector adjusted total shareholder return for a high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The high spinoff score portfolio is spinoffs with a composite score of 7-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

# 6. Analysis

## 6.1 Spinoffs – Excess Return Performance

Our results show that our data sample of 690 spinoffs in the United States, Canada and Western Europe for the time-period between 2000 and 2015 generates excess returns. Moreover, our data sample of 690 spinoffs is the largest sample size in comparison to studies we have identified, which test spinoffs' long run excess performance. Hence, our sample size provides additional evidence of spinoffs' excess return performance. Earlier studies have covered a sample size from 96 spinoffs up to 516 spinoffs. These studies document that spinoffs on average earn an excess one-year return of 10.9 %[10] (Custais et al., 1993; Desai and Jain, 1999; McConnell et al. 2001, 2004, 2015; Rüdisüli, 2005; Credit Suisse, 2012; S&P Global, 2015). The evidence covers Europe and the United States from 1965 to 2013.

Our results documents that a passive investment strategy that buys a portfolio of spinoffs have historically yielded a strong return performance of 15.3 % (one-year), 35.4% (two-years) and 40.0

[10] 10.9 % is the average excess one-year return from all studies.

% (three-years) and the corresponding sector adjusted return is 7.3 % (one-year), 19.2 % (two-years) and 15.4 % (three-years). Even though, such a passive strategy seems attractive it entails accepting the weak return performance from a large group of spinoffs. We document that only 44.4 % of spinoffs earn a positive excess one-year sector-adjusted return. Further, our results document that the difference between the 25$^{th}$ return percentile and the 75$^{th}$ percentile is much larger for spinoffs in comparison to their corresponding benchmark sector and benchmark country. These findings are consistent with earlier research. For example, McConnell et al. (2015) document that the strong mean return is dependent on the strong performance of relatively few spinoffs. These findings motivate that an active investor could substantially gain from evaluating spinoffs through a more active investment strategy since less than half (44.4 %) of our sample yields an excess one-year return. See summarizing return results for all spinoffs in table 26.

## Table 26: Summarizing Return Results for All Spinoffs

**Unadjusted and adjusted mean returns**

| Returns % | One-year | Two-year | Three-year |
|---|---|---|---|
| Total shareholder return (TSR) | 15.3 | 35.4 | 40.0 |
| Sector benchmark adjusted TSR | 7.3 | 19.2 | 15.4 |
| Country benchmark adjusted TSR | 7.0 | 18.2 | 12.2 |

The table displays the mean one-, two- and three-year total shareholder return, sector adjusted total shareholder return and country adjusted total shareholder return for all spinoffs. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

Another factor that renders the passive investment strategy unattractive is spinoffs inconsistency to provide an excess return over time. Our results demonstrate that a passive investor must tolerate nine out of sixteen years with a negative sector adjusted one-year return (as documented in figure 12). Hence, an active investor could substantially gain from evaluating spinoffs and discerning the worst performing spinoffs from the best performing spinoffs.

The diverse return performance that spinoffs exhibit may be derived from some of the variables in the scorecard. The descriptive statistics (see table 18) documents that the quality variable (ROCE) have a large standard deviation which implies that the profitability varies a lot across spinoffs. The same pattern is reflected in leverage and valuation. Leverage captures risk profile in

capital structure and valuation captures expectations in profit. Since these variables display a large standard deviation, it is intuitive that the subsequent return performance is diverse.

A puzzling result is that our data sample does not document any apparent size effect. The results demonstrate that medium sized spinoffs perform better (unadjusted and adjusted) than small spinoffs across all holding periods and large firms perform better than small firms do for the holding periods one and three years. This return performance is inconsistent with the size premium (Fama and French, 1993, 1996) which states that smaller firms have an inherently greater risk than larger firms and should, therefore, be compensated with a higher expected return. Hence, our results indicate that there is no size compensation of spinoffs since medium and large spinoffs on average perform better than small spinoffs.

In summary, our data sample of spinoffs documents a strong mean return of 7.3 % (one-year sector adjusted return). Hence, a passive investment strategy that buys all spinoffs appear to be attractive. However, the strong mean return is dependent on a small group of winners. We document that only 44.4% of spinoffs earn a positive excess one-year sector-adjusted return. Further, our results document that the difference between the 25$^{th}$ return percentile and the 75$^{th}$ percentile is much larger for spinoffs in comparison to their corresponding benchmark sector and benchmark country. Also, we document that spinoffs fail to provide an excess return over time consistently. Our results demonstrate that a passive investor must tolerate nine out of sixteen years with a negative sector adjusted one-year return. These results motivate to design an active investment strategy that captures the best performing spinoffs, which we will turn to in the next section.

## 6.2 The Spinoff Scorecard – An Investment Strategy on Spinoffs

The Spinoff Scorecard is an investment strategy based on ten variables that measure spinoffs from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. Our results find that a high score portfolio outperforms a low score portfolio, and a portfolio of all spinoffs, measured as mean return. The mean return difference between a high score portfolio and, a low score portfolio and a portfolio of all spinoffs, are statistically significant. Further, spinoffs with a higher score achieve on average higher mean returns relative to a spinoff with a lower score. In addition, this does not just hold for mean returns. A higher score results in a higher return across all percentiles (10$^{th}$ percentile, 25$^{th}$ percentile, median, 75$^{th}$ percentile and 90$^{th}$ percentile). Further, the percentage spinoffs with a positive return increase with a higher score. Moreover, this outperformance holds for both

unadjusted and sector adjusted returns across all three holding periods one-, two- and three-year. In conclusion, our results indicate that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing The Spinoff Scorecard. For summarizing return results for the high score and low score portfolios see table 27.

## Table 27: Summarizing Return Results for the High Score and Low Score Portfolios

**Unadjusted and adjusted mean returns**

| Returns % | One-year | Two-year | Three-year |
|---|---|---|---|
| *Total shareholder return (TSR)* | | | |
| High score portfolio | 72.9 | 86.2 | 95.8 |
| Low score portfolio | -15.5 | 11.1 | -11.1 |
| Difference (High - Low) | 88.3 | 75.1 | 106.9 |
| Difference (High - All) | 57.6 | 50.8 | 55.8 |
| | | | |
| *Sector benchmark adjusted TSR* | | | |
| High score portfolio | 60.5 | 65.7 | 65.7 |
| Low score portfolio | -23.5 | -3.3 | -34.6 |
| Difference (High - Low) | 84.0 | 69.0 | 100.3 |
| Difference (High - All) | 53.1 | 46.5 | 50.3 |

The figure displays the mean one-, two- and three-year total shareholder return and sector adjusted return by low and high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

Investing in a high score portfolio appears to hold over time. The high score portfolio has outperformed its corresponding sector benchmark 13 out of 16 years, measured as one-year total shareholder return. This is substantially better than the benchmark sector adjusted return for all spinoffs which documents that all spinoffs outperform its corresponding sector 7 out of 16 years. In conclusion, these results support the robustness of The Spinoff Scorecard since it holds over time.

The Spinoff Scorecard has been successful in separating the best performing spinoffs from the worst performing spinoffs. The success of The Spinoff Scorecard may be attributed to that it captures typical characteristics of spinoffs which encompass both quantitively and qualitative

factors. Further, all these characteristics can be captured as scores and classified as either a positive or a negative signal.

The main positive signals stem from spinning off a subsidiary/segment from its parent company tends to create a driving force of positive change in the spinoff which we have classified into incentives, corporate governance, organizational structure and return on capital. First, spinoffs tend to improve and align insider incentives. Several spinoffs tend to have large insider holdings. Further, large insider ownership firms have shown to outperform low insider ownership firms (Charoenwong et al., 2016). Second, spinoffs tend to substantially improve corporate governance by reducing agency costs (Feldman 2016). Third, spinoffs tend to create a purer organizational structure where an unrelated business can be separated from its parent company (Greenblatt, 1999). Also, spinoffs that belong to a conglomerate are commonly valued to a discount due to the difficulty in recognizing the true value of each entity in a complex conglomerate organizational structure (Heppelmann and Hoffleith, 2009). Finally, spinoffs tend to improve its return on capital (Emrick et al., 2017).

The negative signals may be derived from the parent's company intent of the spinoff, which could sometimes be value-destroying. In the theoretical foundation section, we concluded that the most common reasons to pursue a spinoff transaction are increased strategic focus, increased capital efficiency (capital allocation), increased information, divesting unrelated businesses, incentive alignment, undervaluation due to conglomerate discount (see section 2.5). All these reasons have an intention to create shareholder value. However, it may be that the spinoff is pursued in favor of the parent company's value creation which can impede the spinoff's potential for value creation. Greenblatt (1999) mentions that some spinoffs are pursued so that management can dump a low performing business from a high performing business. If a parent company separates its low performing business through a spinoff, it is obvious that this may negatively affect shareholder value. Another aspect that may have a negative impact on the spinoffs subsequent return performance is the capital structure. A spinoff transaction enables the parent company to either shift debt or cash to the spinoff company. Since the parent company has the power to structure the spinoff's debt and cash levels, it is possible that the parent company overload the spinoff with debt. Further, this could lead to a debt overhang problem or a potential bankruptcy issue. In conclusion, the weak performance of some spinoffs may be a consequence of the parent companies dumping their low performing business via a spinoff or overloads the spinoffs with debt which puts the company in a precarious situation.

An additional interesting spinoff characteristic is that they tend to be neglected by the investor community. Spinoffs have on average low analyst coverage and there is a tendency for institutions to initially sell-off the spinoff (Credit Suisse, 2012). Belisario (2017) finds that stocks with low analyst coverage outperform those with high coverage. Credit Suisse (2012) argues that the tendency for institutional selling is a consequence of fund mandates not allowing for holding spinoffs. Hence, this neglection can create an inefficiently mispriced spinoff which creates opportunities for a systematic strategy as The Spinoff Scorecard.

In summary, all spinoff characteristics (insider incentives, corporate governance, organizational structure, return on capital, capital structure and market neglection) enable to capture if spinoffs have several positive signals such as incentivized insiders, improved corporate governance or contrarily if the spinoff have several negative signals such as debt overload and weak return on capital etc. Valuation is the only variable that is not spinoff specific but nevertheless an essential factor for all investments in equities. Therefore, spinoffs with strong positive signals can intuitively be separated from those with negative signals.

The results (table 19) that document each score separately find that all ten score variables with score one (positive signal) have better return performance than its corresponding score variable with score zero (negative signal). This performance holds for all three holding periods, one, two and three years. Hence, the intuition of each score appears to hold since a positive signal outperforms a negative signal.

An interesting result is that The Spinoff Scorecard was able to signal spinoffs that declared bankruptcy. Our results show that 19 spinoffs (2.8 % of all spinoffs) in our data sample declared bankruptcy and the median period from completion date to bankruptcy is 4.9 years (59 months). These 19 spinoffs received a low composite score of median 4. Hence, our scorecard appears to be able to discern unsuccessful spinoffs that declared bankruptcy.

In summary, one reason for the success of The Spinoff Scorecard is that it captures the context and the specific characteristics of spinoffs. These variables can readily be classified as a positive or negative signal. In conclusion, The Spinoff Scorecard appears to provide a potential answer to which variables that determine a successful spinoff and a solution of how to capitalize on this through a concrete investment strategy

## 6.3 Spinoffs – Additional Risk or Anomaly?

Our results document that spinoffs on average exhibits abnormal returns and on average have a Jensen's alpha of 9 % which is significant at the 10 % level. From this result, it appears that spinoffs' return performance cannot be attributed to additional risk. The abnormal returns are not consistent with the notion of the efficient market hypothesis since our data sample performs better than the inherent risk according to CAPM. This indicates that spinoffs return performance is anomalous. However, due to the joint hypothesis problem, we cannot surely attribute spinoffs to efficiency or inefficiency and since the significance level is only 10 %. The essence of the joint hypothesis problem is that we cannot be sure if the CAPM captures all risk factors or if the market is inefficient, at the same time. One way to mitigate this problem would be to perform additional risk-adjustments such as Fama and French (1992) three-factor model, the Carhart four-factor model (Carhart, 1997) or Fama and French (2015) five-factor model. However, the primary purpose of this study is to answer if an investment strategy (The Spinoff Scorecard) can discern the best performing spinoffs from the worst performing spinoffs. Hence, additional risk adjustment would divert us from the main purpose of this study.

The Capital Asset Pricing Model is based on that all risk is captured by market risk in terms of a stock's volatility in relation to the market's volatility. However, several studies propose that risk is more complex than the market risk factor. For example, CAPM is unable to explain the size premium, i.e., small firms perform better than larger firms. The additional risk which encompasses the size premium has been attributed to liquidity risk (Stoll and Walley, 1983) and additional systematic risk factors (Chan and Chen, 1991). Liquidity risk refers to the lower volumes in smaller firms which may impede investors from easily taking a position or reducing a holding. The additional systematic risk factors refer to that small firms are less probable to survive in an economic downturn and are more volatile to changes in the overall economy. In conclusion, smaller firms have an inherently greater risk than larger firms and should, therefore, be compensated with a higher expected return than larger firms.

The return performance we document is not consistent with the notion of the size premium. Our results in table 14, 15 and 16 appear to contradict this size effect since medium and larger firms perform better than smaller firms. This indicates that spinoffs return performance is anomalous.

In addition, the success of The Spinoff Scorecard appears to contradict the notion of market efficiency. The Spinoff Scorecard indicates that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing score variables that are based on spinoff characteristics. Utilizing fundamental variables to create an almost linear relation of the worst performing to the best performing spinoffs, measured as score zero to ten, opposes the notion of

a semi-efficient market. A semi-efficient market implies that investors cannot utilize a strategy based on simple variables to earn excess returns. Hence, it appears that the market does not efficiently evaluate spinoffs.

To summarize spinoffs exhibits abnormal returns measured as Jensen's alpha. Moreover, medium and large sized spinoffs outperform smaller firms. This is inconsistent with the Capital Asset Pricing Model and with the size effect. Furthermore, the success of The Spinoff Scorecard contradicts the notion of a semi-efficient market. In conclusion, it appears that spinoffs' return performance contradicts the notion of risk compensation which suggests that spinoffs returns are anomalous. However, further research needs to be performed before drawing any extensive conclusions concerning abnormal returns.

## 6.4 A Behavioral Finance Analysis of Spinoffs

Our results document that spinoffs are neglected. First, spinoffs have on average low analyst coverage. Second, our results document that spinoffs initially underperform benchmarks the first months which may be attributed to institutional owners selling their shares. This is consistent with previous studies which also finds that Spinoffs tend to drop in value the initial trading days/weeks according to Credit Suisse (2012) and S&P Global (2017).

The neglection in terms of low analyst coverage and institutional selling may lead to inefficient pricing of spinoffs which could create bargain opportunities. Earlier studies have documented that firms with low analyst coverage outperform those with high analyst coverage. Our results indicate the same pattern for spinoffs, firms with low analyst coverage outperform those with high analyst coverage. In addition, our results show that spinoffs that are exposed to institutional selling outperform those that are not. In other words, it appears that spinoffs are neglected by the investment collective. In the next sections (6.4.1-6.4.2) we will turn to the question:

How come that spinoffs are initially neglected from a behavioral finance perspective?

In addition, we will analyze the difference return characteristics across size (in section 6.4.3 by) turning to the question:

How come that large and medium sized spinoffs outperform small spinoffs from a behavioral finance perspective?

### 6.4.1 Biases Related to Analyst Coverage

Earlier studies document that firms with low analyst coverage outperform those with high analyst coverage (Fang and Peress (2009) and Belisario (2017). Our results indicate the same pattern for spinoffs, firms with low analyst coverage outperform those with high analyst coverage. In addition, our results demonstrate that the median analyst coverage is one analyst and the mean analyst coverage is three analysts. Hence, it appears that spinoffs are rather neglected by analysts.

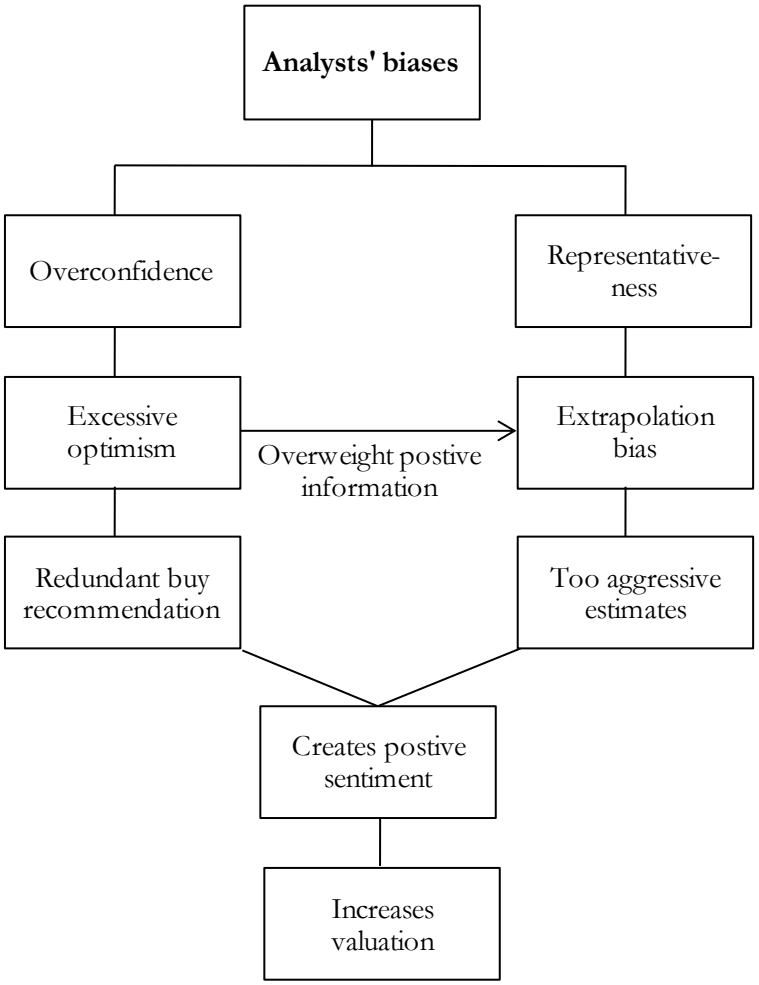
A vast body of evidence documents that analysts have a propensity to exhibit excessive optimism (stems from overconfidence) for the stocks that they are covering. For example, Carleton, Chen and Steiner (1998) research 15,673 analyst recommendations for 1,257 stocks and find that analysts' recommendations are too optimistic and are poor predictors of subsequent return performance. In addition, analysts' optimism is also reflected in the number of buy recommendations they grant. Jegadeesh and Kim (2006) shows that the percentage of buy recommendations of all recommendations, in the United States between 1993 and 2002, amounts to 62.2 % while the percentage of hold and sell recommendations are 34.5 % and 3.3 %.

One reason for this excessive optimism may be that analysts are subjects to the extrapolation bias (stems from representativeness) which implies that they tend to base their estimates on a firm's recent performance too far in the future. A consequence of overconfidence and excessive optimism is that individuals put excessive weight on positive information and underweight negative information. Hence, since earlier studies have concluded that it appears to be that analysts are excessively optimistic, they are likely to also overweight positive information. La Porta (1996) formed portfolios based on analysts' earnings growth forecasts and demonstrates that a portfolio which holds stocks with low growth forecasts outperforms a portfolio that holds stocks with high growth forecasts. This indicates that analysts' earnings estimates tend to create a positive sentiment for the stock that they cover which can lead to an unreasonably high valuation.

Figure 24 below summarizes how biases stemming from overconfidence and representativeness can lead to analysts granting too many buy recommendations and are too aggressive in their estimates. In conclusion, this may lead to creating a positive sentiment and increased valuation for a stock with analyst coverage.

In conclusion, spinoffs are on average not exposed to this excessive optimism and aggressive estimates which may create a positive sentiment for the stock, since they tend to have low coverage. The consequence of this is that parent owners may sell the spinoff due to this absence, which we will further analyze in the next section.

**Figure 24: How Analysts' Biases May Increase a Stock's Valuation**




The figure displays what potential biases analysts may suffer from and how it affects a stock's valuation.

### 6.4.2 Biases Related to Parent Owners

A spinoff implies that parent owners receive shares in a newly created company (the spinoff stock). A parent owner has actively decided that it wants to invest in the parent company. However, a spinoff implies that the parent owner becomes involuntarily an owner of a company which it never intended to invest in. This implies that the parent owners actively must evaluate and decide whether they should hold or sell the spinoff. Moreover, this decision may not be straightforward since there is inherently constrained information for spinoffs. First, there is no historical return data which makes it difficult to evaluate how risky the stock is in terms of standard deviation. Second, there is limited financial and accounting data on the spinoff since it is a new company. Third, as stated

earlier, there is limited information from analysts due to spinoffs tendency to have low/no analyst coverage. The limited information that parent holders have of disposal may induce the biases, familiarity bias and ambiguity bias.

The familiarity bias is the feeling of comfort to familiar things and conversely discomfort to new things, even though the new thing may provide a higher utility/payoff. Since the spinoff implies that a new company is created, it is reasonable to believe that some owners will feel discomfort towards the new company. Further, it is reasonable to believe that it will be difficult for investors to feel entirely familiar with the spinoff due to the limited information. Hence, the familiarity bias may render owners feeling discomfort and sell off their shares.

Another consequence of limited information is ambiguity aversion. A spinoff entails that investors have no historical pricing data, limited financial and accounting data and on average low to no analyst coverage. Active investors are used to having a massive set of information when evaluating a company, which can be utilized to assess risk (calculating beta or standard deviation) and analyze historical financial data. In other words, for an "old" stock an investor can calculate historical risk and therefore feel that they have knowledge of the stock's historical risk. However, this historical risk assessment cannot be made for a spinoff (as of the completion date). This limited information may create the feeling of discomfort (due to ambiguity aversion) towards holding the spinoff which may induce owners to sell.

Another part of limited information that spinoffs tend to entail is low to no analyst coverage. As concluded earlier (section 6.4.1) analysts' excessive optimism and extrapolation bias may create a positive sentiment for a stock which could further result in increased valuation. In the case of spinoffs, this excessive optimism does not exist to the same extent as other stocks. From owners and investors perspective you could argue that it is easier to justify owning a stock with positive estimates from a collective of analysts rather than holding a stock with no estimates at all. Since low to no analyst coverage reduces the information available, it may also induce the familiarity bias and ambiguity aversion.

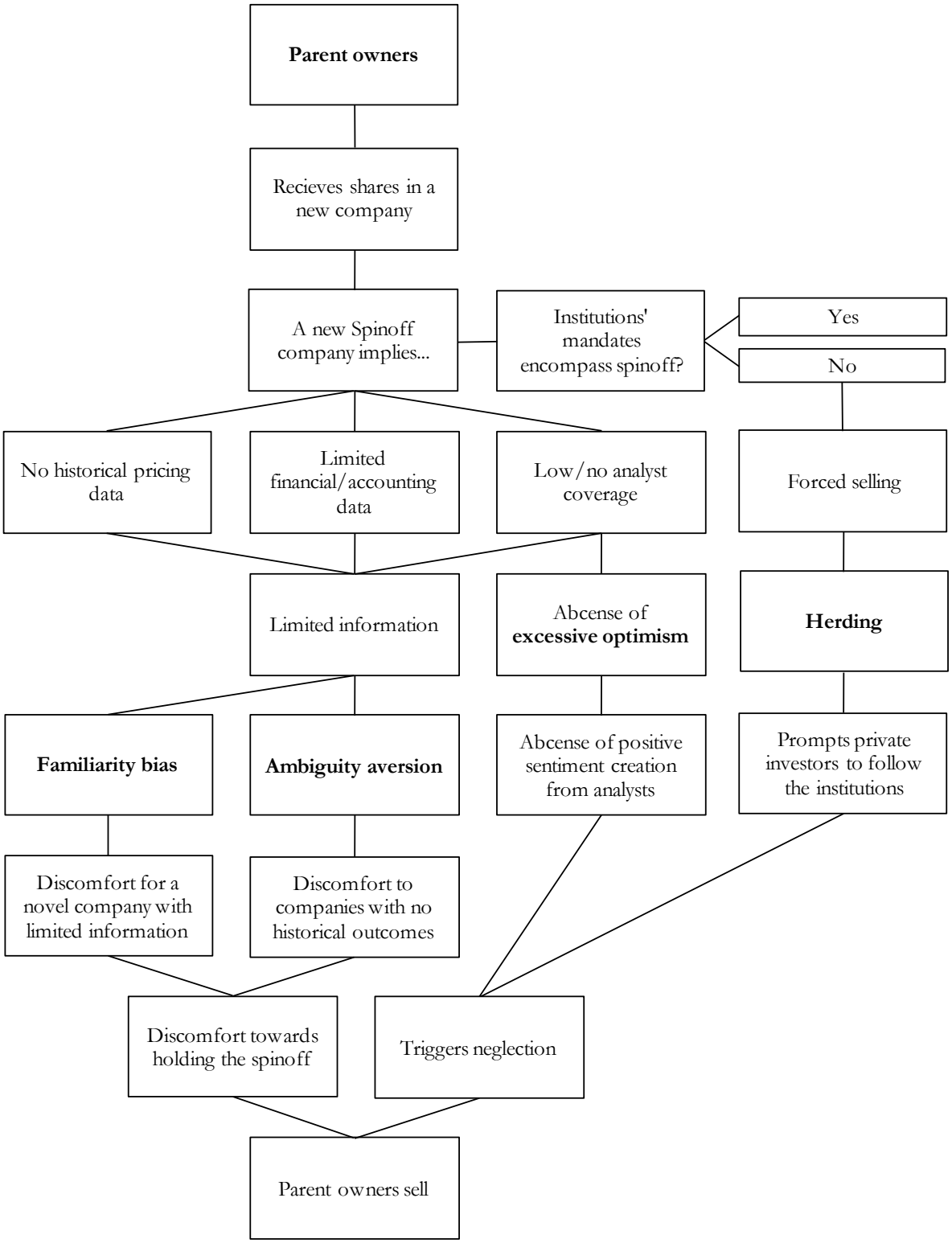
Spinoffs neglection may also partly be attributed to institutional investors and index funds selling off their shares. The reason for this sell-off may not be voluntary. If the spinoff trades on a different index from the parent company, some institutions may be forced to sell off their holding. For example, if the parent company belongs to a large cap index and the spinoff on a small cap index, the institution's fund mandates may not encompass equities on small cap indices and therefore forces them to sell-off the spinoff (Credit Suisse, 2012). Since analyst coverage is greater with institutionally owned equities (O'Brien and Bhushan, 1990), this sell-off may consequently hamper

analyst coverage and therefore amplifying the market neglection of the spinoff. Institutional selling that is caused by forced selling may create an inefficiently mispriced spinoff and creates opportunities for a systematic investment strategy as The Spinoff Scorecard. A behavioral consequence of this sell-off is herding. When private investors see that institutions sell that may cause them to follow the institutions. In conclusion, the consequence of institutional selling may be herding which can create inefficient mispricing.

In conclusion, the spinoff characteristic limited information may induce familiarity bias and ambiguity aversion. These biases may further be amplified by low to no analyst coverage. The consequence for the parent owners is that it may trigger neglecting to evaluate the spinoff and a feeling of discomfort towards holding the spinoff. Also, institutional selling may lead to herding from private investors. As a result, some parent owners may sell the spinoff which may explain that spinoffs on average initially drops in value.

In summary, spinoffs entail limited information, neglection from analysts and institutional selling which may cause owners and investors to act in a biased way in terms of the familiarity bias, ambiguity aversion, herding and absence of excessive optimism from analysts. See figure 25, for an overview of parent owners' biases. Therefore, this may lead to inefficiently priced spinoffs. This may explain why a simple binary scoring system, The Spinoff Scorecard, can separate the best performing spinoffs from the worst since spinoffs appear to be ignored which creates an opportunity for an investment strategy that evaluates spinoffs in a systematic and unbiased manner.

## Figure 25: How Parent Owners' Biases May Prompt Selling Spinoffs




The figure displays what potential biases parent owners may suffer from and how it may result in that owners sell the spinoff.

### 6.4.3 Behavioral Explanations to Spinoff's Size and Return Performance

Our results do not appear to identify any apparent size effect. The results demonstrate that medium sized spinoffs perform better than small spinoffs across all holding periods and large firms perform better than small firms do for the holding periods one and three years (both measured as unadjusted and adjusted returns). Hence, our results indicate that there is no size compensation of spinoffs since medium and large spinoffs on average perform better than small spinoffs. One potential behavioral explanation for the omitted size effect is loss aversion attributed to reputation.

As discussed earlier, management can pursue a spinoff to create value for both the parent company and the spinoff. However, management can pursue the spinoff to create value in the parent company at the expense of the spinoff. For example, Greenblatt (1999) mentions that some spinoffs are pursued so that management can dump a low performing business from a high performing business. If a parent company separates its low performing business through a spinoff, it is obvious that this may negatively affect shareholder value. Another aspect that may have a negative impact on the spinoffs subsequent return performance is the capital structure. The parent company has the power to structure the spinoff's debt and cash levels which enables the parent company to overload the spinoff with debt. Further, this could lead to a debt overhang problem or a potential bankruptcy issue. In conclusion, the weak performance of some spinoffs may be a consequence of the parent companies dumping their low performing business via a spinoff or overloads the spinoffs with debt which puts the company in a precarious situation.

These value destroying spinoffs begs the question which parent firms pursue these kinds of spinoffs? We argue that reputational loss aversion impedes large and medium sized firms relative to small firms to pursue value-destroying spinoffs.

Large/medium sized firms are more exposed to publicity relative to small firms. If a large/medium company pursue value-destroying spinoff it may lead to embarrassing media attention which consequently can hurt the company's reputation which could further make it hard to attract new customers and employees. However, a small firm is not that exposed to media publicity and therefore it is possible for a small firm to pursue a value-destroying spinoff without attention from media. Since reputational loss is bigger for large/medium sized companies, they may exhibit more reputational loss aversion towards employing a value-destroying spinoff, relative to a small firm. In conclusion, reputational loss aversion may explain why it appears to be no size effect in our data set of spinoffs.

# 7. Conclusion

This paper designs and tests an investment strategy for spinoffs which we call The Spinoff Scorecard. The aim of The Spinoff Scorecard is to single out the strongest performing spinoffs. To do this, we utilize a dataset of spinoffs which covers the United States, Canada and Western Europe between 2000 and 2015. The data sample of 690 spinoffs is the largest sample size in comparison to studies we have identified, which test spinoffs' long run excess performance.

Our data sample demonstrates that a passive investment strategy that buys a portfolio of all spinoffs outperforms the market. The one- two- and three-year return is 15.3 %, 35.4 % and 40.0 % and the corresponding sector adjusted return amounts to 7.3%, 19.2% and 15.4%. Even though, such a passive strategy seems attractive it entails accepting the weak return performance from a large group of spinoffs. We document that only 44.4% of spinoffs earn a positive excess one-year sector-adjusted return. Further, our results document that the difference between the 25$^{th}$ return percentile and the 75$^{th}$ percentile is much larger for spinoffs in comparison to their corresponding benchmark sector. These findings motivate that an active investor could substantially gain from evaluating spinoffs through a more active investment strategy since less than half (44.4%) of our sample yields a one-year excess return. Another factor that renders the passive investment strategy unattractive is spinoffs inconsistency to provide an excess return over time. A passive investor must tolerate nine out of sixteen years with a negative sector adjusted one-year return. Hence, an active investor could substantially gain from evaluating spinoffs and discerning the worst performing spinoffs from the best performing spinoffs.

The Spinoff Scorecard is an investment strategy based on ten variables that measure spinoffs from seven perspectives: insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. Our results find that the high score portfolio earns on average a 60.5 % total one-year sector adjusted return and the corresponding figure for a low score portfolio is -23.5 %. In addition, a high score portfolio outperforms a portfolio of all spinoffs with 53.1 %, measured as mean return. The mean return difference between a high score portfolio and, a low score portfolio and a portfolio of all spinoffs, are statistically significant. Further, spinoffs with a higher score achieve on average higher mean returns relative to spinoffs with a lower score. In addition, this does not just hold for mean returns. A higher score results in a higher return across all percentiles (10$^{th}$ percentile, 25$^{th}$ percentile, median, 75$^{th}$ percentile and 90$^{th}$ percentile). Further, the percentage of spinoffs with a positive return increases with a higher score. Moreover, this outperformance holds for both unadjusted and sector adjusted returns across all

three holding periods one-, two- and three-year. In conclusion, the results indicate that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing The Spinoff Scorecard.

Further, investing in a high score portfolio appears to hold over time. The high score portfolio outperforms its corresponding sector benchmark 13 out of 16 years, measured as one-year total shareholder return. This is substantially better than the benchmark sector adjusted return for all spinoffs which documents that a portfolio of all spinoffs outperforms its corresponding sector 7 out of 16 years. In conclusion, these results support the robustness of The Spinoff Scorecard since it holds over time.

The success of The Spinoff Scorecard may be attributed to that it captures the context and the specific characteristics of spinoffs, i.e., insider incentives, corporate governance, organizational structure, market neglection, capital structure, valuation and quality. The scorecard variables can all be derived from an intuition that is supported by earlier research. Valuation is the only variable that is not spinoff specific but nevertheless an essential factor for all investments in equities. These variables can readily be classified as a positive or negative signal. The results documents that all ten score variables with score one (positive signal) have better return performance than its corresponding score variable with score zero (negative signal). This performance holds for all three holding periods, one, two and three years. Hence, the intuition of each score appears to hold since a positive signal outperforms a negative signal for all variables. In conclusion, The Spinoff Scorecard appears to provide a potential answer to which variables that determine a successful spinoff and a solution of how to capitalize on this through a concrete investment strategy.

The documented excess return performance for all spinoffs and the success of The Spinoff Scorecard casts doubt whether spinoffs can be attributed to complete market efficiency. Our results document that spinoffs on average exhibits abnormal returns and on average have a Jensen's alpha of 9 % which is significant at the 10 % level. The abnormal returns are not consistent with the notion of the efficient market hypothesis since our data sample performs better than the inherent risk according to CAPM. This indicates that spinoffs return performance is anomalous. However, due to the joint hypothesis problem and that the significance level is only 10 % we cannot surely attribute spinoffs to efficiency or inefficiency.

In addition, an interesting result is that our data sample does not document any apparent size effect. The results demonstrate that medium and large sized spinoffs outperform small spinoffs across most holding periods. One potential explanatory reason for this is that the parent company can pursue a value-destroying spinoff in combination with reputational loss aversion. The weak

performance of some spinoffs may be a consequence of the parent companies dumping their low performing business via a spinoff or overloads the spinoffs with debt which puts the company in a precarious situation. We argue that these value-destroying spinoffs are more likely to be pursued by small firms due to reputational loss aversion. Large and medium sized firms are more exposed to publicity relative to small firms and if they pursue a value-destroying spinoff, it may lead to embarrassing media attention which consequently can hurt the company's reputation and make it hard to attract new customers and employees. However, a small firm is not that exposed to media publicity and therefore it is possible for a small firm to pursue a value-destroying spinoff without the attention from media. Since reputational loss may be bigger for large/medium sized companies, they may exhibit more reputational loss aversion towards employing a value-destroying spinoff, relative to a small firm. In conclusion, reputational loss aversion may explain why it appears to be no size effect in the data set of spinoffs.

Moreover, the success of The Spinoff Scorecard appears to contradict the notion of a semi-efficient market. The Spinoff Scorecard indicates that it is possible to separate the best performing spinoffs from the worst performing spinoffs by utilizing score variables that are based on spinoff characteristics. Utilizing simple variables to create an almost linear relation of the worst performing to the best performing spinoffs, measured as score zero to ten, opposes the notion of a semi-efficient market. A semi-efficient market implies that investors cannot utilize a strategy based on simple variables to earn excess returns. Hence, it appears that the market does not efficiently evaluate spinoffs.

Behavioral finance may explain why The Spinoff Scorecard can provide such a strong return performance. Two typical characteristics of spinoffs are that they tend to have limited information and be neglected by analysts and institutional investors. We argue that these characteristics may cause owners and investors to act in a biased manner in terms of the familiarity bias, ambiguity aversion, herding and absence of excessive optimism from analysts. Because of these biases, spinoffs may initially become neglected by the investment community which may lead to inefficiently priced spinoffs. This may explain why The Spinoff Scorecard appears to work since it is an investment strategy that evaluates spinoffs in a systematic and unbiased manner.

The major limitation of this paper is statistical reliability. In this study, we only utilize t-statistics for concluding statistical significance. Hence, we cannot be certain that the t-statistics sufficiently provides statistical reliability. This problem arises in almost any significance test for excess returns (Barber and Lyon, 1997). The problem with a t-test is that it may be biased due to the underlying assumptions. To mitigate this problem, it would be necessary to conduct more statistically reliability

tests than t-statistics. Such an additional test could be a Wilcoxon signed-rank test which is a hypothesis test when the data set cannot be presumed to be normally distributed.

A subject for further research is additional risk-adjustments. In this study, we have risk-adjusted returns according to CAPM and demonstrate what appear to be abnormal returns. This indicates that spinoffs return performance is anomalous. However, due to the joint hypothesis problem, we cannot surely attribute spinoffs to efficiency or inefficiency. The essence of the joint hypothesis problem is that we cannot be sure if the CAPM captures all risk factors or if the market is inefficient, at the same time. One way to mitigate this problem would be to perform additional risk-adjustments such as Fama and French (1992) three-factor model, the Carhart four-factor model (Carhart, 1997) or Fama and French (2015) five-factor model. However, the main purpose of this study is to answer if an investment strategy (The Spinoff Scorecard) can discern the best performing spinoffs from the worst performing spinoffs. Hence, additional risk adjustment would divert us from the primary purpose of this study.

First, this study contributes to existing research by utilizing a data sample of 690 spinoffs across three regions which is the largest sample size in comparison to studies that test long run return performance. Second, we confirm that the historically documented excess returns for spinoffs still holds with a new data set. Third, we have designed an investment strategy which we call The Spinoff Scorecard that appears to be able to discern the best performing spinoffs from the worst performing spinoffs. Fourth, The Spinoff Scorecard is based on fundamental characteristics for spinoffs and we can thereby provide a potential answer to why some spinoffs outperform and some underperform. Fifth, we risk-adjust returns according to CAPM which documents abnormal returns. Moreover, this indicates that the return performance from spinoffs is anomalous. Sixth, we provide a behavioral finance analysis on spinoffs' performance and argue that spinoffs tendency for being neglected may explain why a systematic investment strategy appears to succeed. Moreover, we argue that reputational loss aversion may explain why large and medium sized spinoffs outperform small spinoffs. The Spinoff Scorecard and its implied answers to why spinoffs outperform, and the behavioral finance analysis, provide new insights into spinoffs and shed light on perspectives which previous research has scarcely addressed.

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# Appendix

## Appendix A

Each spinoff's return is benchmarked against a country index and a global sector index. The chosen country indices are based on what is generally considered as leading indices, which captures most of a country's market capitalization. Further, the chosen sector indices are based on Standard & Poor's (S&P) global sector indices, which captures most of the companies within a sector classified with S&P's Global Industry Classification Standard (GICS). These sector indices are chosen because of readily comparability between the spinoff's industry classification and sector index. See table 28 and 29 for utilized country indices and sector indices.

### Table 28: Country Benchmark Indices

| Country | Index ticker | Index name |
|---|---|---|
| AUSTRIA | ATX Index | Vienna Stock Exchange |
| BELGIUM | BEL20 Index | BEL 20 Index |
| CANADA | SPTSX Index | S&P/TSX Composite Index |
| CYPRUS | CYSMMAPA Index | Cyprus Stock Exchange |
| DENMARK | KAX Index | OMX Copenhagen PI |
| FINLAND | HEX Index | OMX Helsinki PI |
| FRANCE | CAC Index | CAC 40 Index |
| GERMANY | DAX Index | Deutsche Boerse AG German Stock Index |
| GREECE | ASE Index | Athens Stock Exchange General Index |
| ICELAND | ICEXI Index | OMX Iceland PI |
| IRELAND | ISEQ Index | ISEQ All-Share Index |
| ITALY | FTSEMIB Index | FTSE MIB Index |
| NETHERLANDS | AEX Index | AEX Index |
| NORWAY | OSEAX Index | Oslo Stock Exchange All Share Index |
| PORTUGAL | BVLX Index | PSI All-Share Index |
| SPAIN | IBEX Index | IBEX 35 Index |
| SWEDEN | SAX Index | OMX Stockholm Index |
| SWITZERLAND | SPI Index | Swiss Performance Index |
| UNITED KINGDOM | ASX INDEX | FTSE All-Share Index |
| UNITED STATES | SPX Index | S&P 500 Index |

The table shows country benchmark indices that are utilized when calculating the benchmark adjusted return for the spinoff sample.

## Table 29: Sector Benchmark Indices

**Benchmark indices**

| Sector code | Sector | Index ticker | Index name |
|---|---|---|---|
| 10 | Energy | SGES Index | S&P Global 1200 Energy Sector |
| 15 | Materials | SGM Index | S&P Global 1200 Materials Sector |
| 20 | Industrials | SGN Index | S&P Global 1200 Industrials Sector |
| 25 | Consumer Discretionary | SGD Index | S&P Global 1200 Consumer Discretionary Sector |
| 30 | Consumer Staples | SGCS Index | S&P Global 1200 Consumer Staples Sector |
| 35 | Health Care | SGH Index | S&P Global 1200 Health Care Sector |
| 40 | Financials | SGFS Index | S&P Global 1200 Financials Sector |
| 45 | Information technology | SGI Index | S&P Global 1200 Information Technology Sector |
| 50 | Communication Services | SGT Index | S&P Global 1200 Communication Services Sector |
| 55 | Utilities | SGU Index | S&P Global 1200 Utilities Sector |
| 60 | Real Estate | SGR Index | S&P Global 1200 Real Estate Sector |

The table shows sector benchmark indices that are utilized when calculating the benchmark adjusted return for the spinoff sample.

## Appendix B

Table 30 lists the sector breakdown for the spinoffs and parents by Standard & Poor's Global industry classification standard (GICS) by level 1 and level 2.

## Table 30: Sector Breakdown for Parent Companies and Spinoffs by GICS Level 1 and 2

**Sector breakdown**

| Sector code | Sector | Parent | Spinoff |
|---|---|---|---|
| 10 | Energy | 85 | 68 |
| *1010* | *Energy* | *85* | *68* |
| 15 | Materials | 87 | 106 |
| *1510* | *Materials* | *87* | *106* |
| 20 | Industrials | 93 | 88 |
| *2010* | *Capital Goods* | *52* | *62* |
| *2020* | *Commercial & Professional Services* | *24* | *12* |
| *2030* | *Transportation* | *17* | *14* |
| 25 | Consumer Discretionary | 74 | 91 |
| *2510* | *Automobiles & Components* | *7* | *15* |
| *2520* | *Consumer Durables & Apparel* | *19* | *15* |
| *2530* | *Conumer services* | *27* | *28* |
| *2550* | *Retailing* | *21* | *33* |
| 30 | Consumer Staples | 29 | 24 |
| *3010* | *Food & Staples Retailing* | *5* | *2* |
| *3020* | *Food, Beverage & Tobacco* | *15* | *19* |
| *3030* | *Household & Personal Products* | *9* | *3* |
| 40 | Financials | 109 | 51 |
| *4010* | *Banks* | *19* | *8* |
| *4020* | *Diversified financials* | *86* | *36* |
| *4030* | *Insurance* | *4* | *7* |
| 45 | Information technology | 42 | 59 |
| *4510* | *Software & Services* | *21* | *28* |
| *4520* | *Technology Hardware & Equipment* | *17* | *22* |
| 50 | Communication Services | 72 | 77 |
| *5010* | *Telecommunication services* | *15* | *25* |
| *5020* | *Media & Entertainment* | *57* | *52* |
| 55 | Utilities | 15 | 14 |
| *5510* | *Utilities* | *15* | *14* |
| 60 | Real Estate | 33 | 47 |
| *6010* | *Real Estate* | *33* | *47* |

The table shows the number of parents and spinoffs by sector based on Standard & Poor's Global industry classification standard (GICS). The table includes GICS level 1 and level 2. The sample consists of 690 spinoff observations between 2000 and 2015.

# Appendix C

Table 31, 32 and 33 displays the one-, two- and three-year country benchmark adjusted return for The Spinoff Scorecard.

## Table 31: One-Year Country Adjusted Total Shareholder Return for The Spinoff Scorecard

**Total one-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 7.0 | -70.1 | -41.8 | -7.5 | 26.5 | 73.0 | 43.9 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -49.4 | -110.1 | -101.2 | -75.1 | -16.0 | 48.5 | 20.0 | 12 |
| 3 | -24.9 | -90.5 | -61.4 | -34.9 | -1.4 | 41.7 | 25.4 | 69 |
| 4 | -18.2 | -82.2 | -64.3 | -20.0 | 2.6 | 41.5 | 29.0 | 107 |
| 5 | -0.3 | -73.8 | -53.6 | -11.3 | 21.2 | 63.7 | 37.3 | 150 |
| 6 | 12.6 | -55.4 | -27.9 | -2.4 | 30.9 | 85.5 | 1826.7 | 163 |
| 7 | 12.2 | -43.7 | -22.2 | 6.3 | 40.9 | 63.7 | 52.5 | 102 |
| 8 | 19.3 | -29.3 | -7.1 | 7.7 | 28.4 | 74.1 | 63.9 | 62 |
| 9 | 40.8 | -18.3 | -0.3 | 21.6 | 50.7 | 122.2 | 72.2 | 18 |
| 10 | 494.4 | -4.2 | 19.8 | 45.8 | 48.9 | 1351.5 | 85.7 | 7 |
| Low Spinoff score | -22.5 | -90.0 | -65.3 | -30.0 | 1.7 | 47.7 | 27.1 | 188 |
| High Spinoff score | 62.5 | -28.5 | -3.5 | 12.4 | 35.0 | 82.4 | 67.4 | 87 |
| | | | | | | | | |
| High - All | 55.5 | 41.6 | 38.3 | 19.9 | 8.5 | 9.5 | 23.5 | - |
| P(T<=t one tail) | 0.08* | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 84.9 | 61.5 | 61.8 | 42.5 | 33.3 | 34.7 | 40.3 | - |
| P(T<=t one tail) | 0.02** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |

The table presents the one-year country adjusted total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, is the high spinoff score portfolio are spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Table 32: Two-Year Country Adjusted Total Shareholder Return for The Spinoff Scorecard

**Total two-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 18.2 | -93.9 | -56.0 | -9.1 | 37.1 | 123.7 | 43.6 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -61.2 | -125.9 | -115.0 | -88.1 | -15.8 | 27.0 | 20.0 | 12 |
| 3 | 2.7 | -116.2 | -90.9 | -46.4 | -1.3 | 25.6 | 24.6 | 69 |
| 4 | -0.9 | -96.3 | -78.2 | -25.0 | 5.1 | 58.7 | 29.2 | 107 |
| 5 | -4.6 | -99.8 | -65.7 | -26.2 | 38.8 | 119.2 | 37.4 | 150 |
| 6 | 24.0 | -81.9 | -41.9 | 5.5 | 38.3 | 137.7 | 2571.1 | 163 |
| 7 | 33.2 | -68.1 | -24.9 | 15.4 | 64.9 | 148.8 | 54.8 | 102 |
| 8 | 44.2 | -53.8 | -23.6 | 7.6 | 70.4 | 173.8 | 60.3 | 62 |
| 9 | 91.4 | -52.8 | -16.3 | 9.2 | 73.2 | 319.2 | 56.3 | 18 |
| 10 | 212.3 | -11.9 | 5.0 | 37.1 | 54.4 | 579.4 | 71.4 | 7 |
| Low Spinoff score | -3.2 | -111.7 | -85.1 | -39.0 | 2.0 | 48.3 | 26.8 | 188 |
| High Spinoff score | 68.1 | -52.7 | -18.9 | 11.5 | 71.0 | 178.8 | 60.5 | 87 |
| | | | | | | | | |
| High - All | 49.9 | 41.1 | 37.0 | 20.6 | 33.9 | 55.1 | 16.9 | - |
| P(T<=t one tail) | 0.02** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 71.2 | 58.9 | 66.2 | 50.6 | 68.9 | 130.5 | 33.7 | - |
| P(T<=t one tail) | 0.01*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.65 | - | - | - | - | - | - | - |

The table presents the two-year country adjusted total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, is the high spinoff score portfolio are spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

## Table 33: Three-Year Country Adjusted Total Shareholder Return for The Spinoff Scorecard

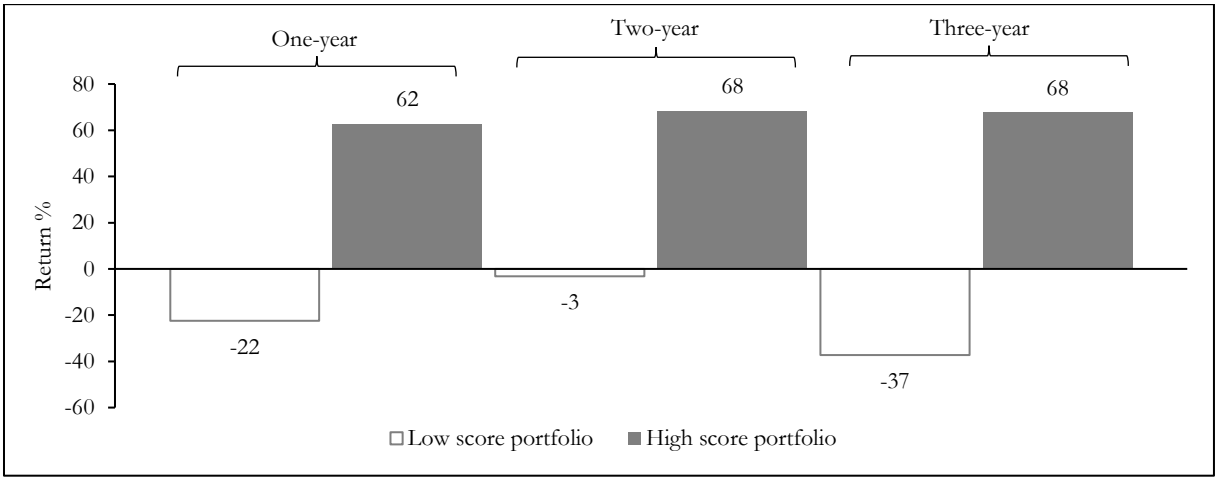
**Total three-year shareholder return**

| Returns % | Mean | 10th Percentile | 25th Percentile | Median | 75th Percentile | 90th Percentile | Percentage Postive | n |
|---|---|---|---|---|---|---|---|---|
| **All firms** | 12.2 | -114.2 | -71.4 | -21.6 | 38.0 | 152.1 | 41.0 | 690 |
| | | | | | | | | |
| **Spinoff score** | | | | | | | | |
| 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0 |
| 2 | -88.3 | -150.3 | -143.6 | -77.3 | -57.1 | -25.2 | 10.0 | 12 |
| 3 | -50.3 | -141.5 | -102.5 | -74.1 | -29.0 | 21.6 | 20.4 | 69 |
| 4 | -22.2 | -125.5 | -92.5 | -44.8 | -5.7 | 68.0 | 23.5 | 107 |
| 5 | 0.5 | -128.1 | -89.5 | -34.2 | 26.8 | 151.6 | 35.4 | 150 |
| 6 | 29.0 | -94.8 | -55.7 | -1.3 | 41.4 | 188.1 | 3455.0 | 163 |
| 7 | 36.7 | -71.9 | -37.0 | 5.1 | 63.6 | 169.8 | 52.4 | 102 |
| 8 | 70.7 | -62.8 | -34.8 | 20.1 | 107.0 | 211.9 | 63.0 | 62 |
| 9 | 64.8 | -33.0 | -27.4 | 4.4 | 71.8 | 154.1 | 53.8 | 18 |
| 10 | 48.9 | -50.3 | -3.8 | 94.0 | 103.0 | 132.1 | 57.1 | 7 |
| Low Spinoff score | -37.3 | -136.5 | -100.0 | -62.8 | -16.5 | 51.2 | 21.4 | 188 |
| High Spinoff score | 67.6 | -62.8 | -29.9 | 20.1 | 107.0 | 202.1 | 60.8 | 87 |
| | | | | | | | | |
| High - All | 55.4 | 51.4 | 41.5 | 41.7 | 68.9 | 50.0 | 19.8 | - |
| P(T<=t one tail) | 0.01*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |
| | | | | | | | | |
| High - Low | 104.8 | 73.7 | 70.1 | 82.9 | 123.4 | 150.9 | 39.4 | - |
| P(T<=t one tail) | 0.01*** | - | - | (0,00) | - | - | - | - |
| T-critical | 1.66 | - | - | - | - | - | - | - |

The table presents the three-year country adjusted total shareholder return for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. A composite score of 10 corresponds to the most positive signal and a composite score of 0 the most negative signal. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, is the high spinoff score portfolio are spinoffs with a composite score of 8-10. High – All corresponds to the difference between the high score portfolio and all spinoffs, and High – Low is the difference between a high and low score portfolio. T-statistics are computed as a one-tailed two-sample test, assuming unequal variance for mean returns. *, ** and *** documents if the mean returns are significantly higher on level 10 %, 5 % and 1 %. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The table includes the percentage of spinoffs with positive returns and the number of spinoffs, n. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.

Figure 26 summarizes the average total shareholder return and the average country adjusted return by the holding periods one, two and three years for low and high score portfolios.

## Figure 26: Mean Country Adjusted Total Shareholder Return by Holding Period for Low and High Score Portfolio




The figure displays the one-, two- and three-year country adjusted total shareholder return by low and high score portfolios for The Spinoff Scorecard. The Spinoff Scorecard is defined and calculated as in table 4. The low spinoff score portfolio is spinoffs with a composite score between 2 and 4, and the high spinoff score portfolio is spinoffs with a composite score of 8-10. Total shareholder return is the growth of shareholder value, assuming dividends are reinvested. The benchmark adjusted return is defined as the total shareholder return for the spinoff subtracted by the total shareholder return for the benchmark. The start date for all return calculations is the completion date of the spinoff. The sample consists of 690 spinoff observations between 2000 and 2015.