Corporate Real Estate Sale and Leaseback - the Effect on Performance and Beta Risk

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**Master Thesis**

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**Abstract**

Corporate owned real estate is one of the world’s largest asset classes. Yet the US market and later on the European market has come towards a trend of refining businesses and using corporate real estate as a financing alternative by performing sale and leaseback transactions. This paper aims to complement and interlink research on event studies focusing on corporate real estate sale and leaseback and studies focusing on measuring risk and performance with variations in corporate real estate holdings. The study is delimited to companies publicly traded on the Swedish stock exchange. A quantitative survey has been conducted in which data from 23 observations has been analyzed. A positive relationship between stock performance and corporate real estate sale and leaseback transactions has been found. It is also noted that companies that intend to use the disengaged capital to focus on core business show an increase in systematic risk. Furthermore an increase in stock performance is found when transaction value to firm value is high. Investors and corporate managers are encouraged to evaluate possibilities for their corporate real estate holdings since the results indicate that the diversification should take place on the investment level rather than on the corporate level.
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1. Introduction

Corporate owned real estate is one of the world’s largest asset classes. Charlton and Laposa (2001) finds that more than 35% of the assets of European companies consists of corporate real estate, about the same amount as seen in the US in the 1980’s. However, the US market, has come towards a trend of refining businesses and using corporate real estate as a financing alternative, a trend, which has started to embrace the European market (CB Richard Ellis, 2008). A report by DTZ (2003) confirms that about 70 % of European companies own their occupied real estate, a figure that in the US market is estimated to about 30 %.

From a company perspective, this is not only regarded as an asset but also as cost. In fact corporate real estate is estimated to be the second largest cost in many companies (Veale, 1989). In addition, companies tend to spend little time evaluating their real estate assets and seldom include these assets in their overall business plans. The fact that corporate management often neglects their real estate assets results in questioning effectiveness in their real estate management skills and therefore the effectiveness in managing one of the largest costs. This has resulted in companies considering selling their real estate holdings to a real estate company and then leasing them back. In many cases this will not only affect their balance sheets but also the responsibility for management and maintenance.

Corporate real estate is in this paper defined as real estate belonging to companies that are not in the real estate industry. Real estate companies manage real estate as investments, which are regarded as their core business and are therefore not included. Corporate real estate is often used for production, offices or storage. Corporate real estate will onwards be referred to as CRE.

Sale and leaseback is defined as a procedure in which an asset is owned and operated by a company, which later, is sold to another operator and then leased back to the original owner. This procedure will onwards be referred to as S&LB.

A CRE S&LB transaction often implies that the property layout already is adjusted to the selling part of the transaction, this minimizes vacancy risks for the buyer. In line with ordinary contracts, S&LB transactions differ substantially depending on company and property specific circumstances. The main differences between traditional contracts are particularly the availability of the property as well as the property layout, already adjusted for the existing tenant. (Grönlund et al., 2008)
The first observed CRE S&LB transactions were carried out on the US market in the mid 1930’s. Later this became a popular phenomenon among banks selling and leasing back their headquarters. (Rutherford, 1990)
2. Background

Extensive research has been done on CRE S&LB transactions and the market reaction on the stock market. Worldwide studies have been completed on different markets for different time periods. The background for CRE S&LB transactions is often linked to events that call for change in the company or their financial structure. One common explanation for these transactions is the trend of outsourcing that has come to be more common during the last decades (Lonsdale and Cox, 2000). Another explanation could be that companies under financial pressure with no access to capital use corporate real estate to finance their businesses. Interconnected with focusing on core business and outsourcing, companies that are not under financial pressure often use capital from a CRE S&LB to expand their business or invest in specific projects. Usually closer related to the core business and therefore regarded as focusing on core business. Another common reason for CRE S&LB transactions is simply to repay loans, a way of changing the financial structure of the company.

However, previous studies show that CRE S&LB announcements overall have a positive market reaction. Explanatory variables show ambiguous results, Grönlund et al. (2008), Slovin et al. (1990) and Cooney et al. (2004) state that companies that intend to use the released capital for business expansion and focus on core business show the most positive market reactions. Grönlund et al. (2008) argues that this is a result of companies usually having higher returns from their core business than from their CRE assets. Brounen and Eichholtz (2005) find in their study including data from 18 industries and 9 countries a significant negative relationship between real estate ownership and systematic risk. They also conclude that returns on the stock market are lowest for firms with large real estate holdings, regardless of industry. Our previous paper (Fattal and Janheim 2010) on CRE S&LB and market reactions addresses the first issue where additional questions linked to this topic arise. We found signs of, along with Deng and Gyourko (1999) and Seiler et al. (2001), a negative relationship between beta-risk and corporate real estate ownership.

Given that markets are rational and effective, returns are not by themselves ground for change in market value. In fact established financial theory usually referred to as modern portfolio theory states that business diversification enhances value by higher returns and risk reduction (Markowitz 1952). However this is from an investor’s perspective and not always in the interest of companies, also contradictory to the outsourcing trend and focus on core business.

When it comes to portfolio theory and risk reduction it could also be discussed if diversification should be done by the investor or by the underlying companies. An investor might have a better
chance of constructing a diversified portfolio if the company, which shares he is willing to invest in, has a strong focus on their core business. (Deng and Gyourko 1999)

In the field of financial economics it is generally accepted that an S&LB transaction can be regarded as a way of raising capital. It is interpreted as a form of external financing and a substitute for debt, each dollar of leasing replaces one dollar of debt capacity. (Slovin et al., 1990). Studies show that companies raising capital through debt issues show a negative, or zero abnormal return on its stock price (Smith, 1986). This is interesting because studies regarding capital acquisitions through S&LB, for instance, Grönlund (1990) and Fattal & Janheim (2010) find a positive abnormal return related to the announcement. A change of the capital structure should also affect the stock risk (Fattal & Janheim, 2008) but studies regarding S&LB seem to be lacking the risk variable and therefore also stock performance measured as risk adjusted return.

The reasoning stated above have come to raise the interest of what we in this paper refer to as the second value affecting variable, risk. For a rational investor risk adjusted return (stock performance) is in focus when evaluating opportunities on the market.
3. Objective and Purpose

3.1 Problem Discussion

Papers on the market reaction in proximity to the announcement of CRE S&LB transactions are dominated by studies conducted on the US market Slovin et al. (1990), Rutherford (1990) and Fischer (2004). However some research has been carried out on the European market, mainly to our knowledge by Grönlund, Louko and Vaihekoski (2008). The paper included data from a number of European countries including Sweden. Our previous paper, (Fattal and Janheim 2010) executed research on the Swedish market including 23 observations of CRE S&LB transactions announced during a twelve-year period. The result show, in line with most papers measuring abnormal returns in CRE S&LB transactions, that announcements result in positive abnormal returns (Fattal and Janheim 2010).

However, little research has been carried out measuring the relationship between stock performance and real estate ownership. Seiler et al. (2001) and Deng and Gyourko (1999) investigated the US market and found a negative relationship between real estate ownership and company beta. Even though our previous paper did not intend to measure the relationship between beta risk and real estate ownership, we found reverse signs between stock beta and real estate ownership when testing for the explanatory variable transaction value to company market value (TV/MV). As mentioned Brounen and Eichholtz (2005) executed a study, measuring how real estate ownership of non real estate companies effect beta-risk and company performance from an industry perspective. This study is executed on firms that regardless of S&LB transactions have various real estate assets. We estimate that explanatory variables could be of significant interest when looking at companies changing their real estate holdings. The main difference between pre and post S&LB announcements compared to cross sectional data analysis will possibly be in the ability to investigate reasons for beta-risk variations and performance measures.

Previous research that includes performance and beta-risk measures are not, apart from US studies, country specific. We intend to geographically delimit our data to Swedish observations and focus on companies that performed S&LB transactions.

Deng and Gyourko (1999) conclude that firms with high levels of real estate holdings and high beta-risk suffer from lower returns. This is interesting, not only because investors expect high-risk investments to provide high returns but also because high real estate holdings expect to lower beta-risk. We hope to shed some light upon this when conducting our study.
Consensus seems to occur among researchers regarding abnormal returns on announcements of S&LB transactions. However, to our knowledge there is no research on S&LB transactions and risk. Nor any research on S&LB transactions and performance measured as risk adjusted returns. We intend to fill the gap in this field and focus on CRE S&LB transactions to be able to distinguish if differences occur with regard to financing alternatives.

3.2 Problem Statement
How do CRE S&LB transactions affect the stock risk and performance of non real estate companies?

3.3 Objectives
The objectives of the paper is to complement and interlink research on event studies focusing on CRE S&LB transactions and studies focusing on measuring risk and performance of companies with variations in real estate holdings. Using a time series method this paper widens the perspective when analyzing CRE ownership.

Moreover, the objective is also to explain variations in risk and performance of companies that change their real estate possessions.

3.4 Importance
First of all, because the field of S&LB and performance measured as risk adjusted return is not well explored in the sense of explaining what determines differences in risk, this paper intends to contribute to research in the area. Also, in the field of financial economics it is commonly known that return by itself is not the only variable of interest for investors who rather look at performance measures including risk.

Earlier studies has been conducted both regarding market reactions of an S&LB transaction and firm performance in relation to CRE-ownership. But to our knowledge no earlier studies measure firm performance and risk before and after a CRE S&LB transactions.

3.5 Limitations
We limit our research to the Swedish CRE S&LB market and use the transactions that have occurred between 1997 and 2009.

Beta is used a risk measure, calculated by using data pre as well as post the announcement date. The pre announcement data will form the basis for beta representing risk before changing CRE holdings. Likewise, data post announcement will form the basis for beta representing risk after
changes in CRE holdings. To increase credibility we have chosen to use three different time periods, measuring return and beta-risk. The shortest analyzed time period is 30 days pre and post announcement date, followed by 100 and 250 days pre and post announcement date.
4. Literature Review and Framework

The theoretical basis for the area is extensive; however, there is a lack of clear theoretical framework concerning S&LB transactions. Therefore this section has been divided into three parts, primarily focusing on earlier studies regarding risk, corporate real estate ownership and sale and leaseback transactions.

4.1 Risk and Portfolio Theory
With the article “Portfolio Selection” published in 1952 by Harry Markowitz the Modern Portfolio Theory was introduced. Since then portfolio theory has become increasingly important.

According to modern portfolio theory (MPT) it is not enough to look at the expected risk and return of one particular share. By investing in several stocks or other securities, an investor can obtain benefits of diversification and hence reduce the portfolio risk. Markowitz (1952) showed how this could be derived mathematically using expected return and risk calculations. Among others Webb, Curcio and Rubens (1985) started to ad real estate to the portfolio and the results showed that real estate is an important part of modern portfolio theory.

Historically, real estate has generated higher returns than the return from bonds but lower than the return from stocks. The low correlation with stocks and bonds make real estate a good investment in a portfolio when it comes to diversification. Ibbotson and Siegel, (1984)

To properly evaluate performance (the risk adjusted return) of portfolios and shares a method that takes both risk and return into account is desirable. The two most commonly used methods for measuring risk adjusted return today are the “Sharpe ratio” and the “Treynor ratio”. Both ratios measure “the reward per unit of risk” (Sharpe 1966), with the difference being that the Treynor ratio uses beta as the measurement of risk and the Sharpe ratio use standard deviation (Treynor 1965).

Connecting the line of thoughts from portfolio theory with CRE we should find that CRE-holdings affect the risk and return profile of the overall firm, in a way that it will decrease a firm’s systematic risk (beta). For example, we should expect low beta firm’s to have high level of CRE ownership and the opposite relationship should hold for high beta firms. Brounen and Eichholtz (2005) examine this and find that real estate ownership and a firm’s beta-risk are related negatively, which further strengthens the line of thought.

Brounen and Eichholtz (2005) studied data from 5109 companies from 20 industries based in 9 countries and several other interesting patterns where found. For instance, they find that CRE ownership varies significantly depending on industry with Heavy industry on the high end and
Financial services on the low end of the range. They also conclude that CRE-ownership appears to be decreasing over time, which is a conclusion that is supported in several other papers and reports.

4.2 Corporate Real Estate Ownership

Only a few studies regarding firm performance related to real estate ownership has been conducted. Linneman (1998) discusses the phenomena and argues that it is harmful for non real estate companies to commit much of their capital in CRE. The author gives several reasons for this; some of those are presented below.

He starts by describing "the old days" when firms often were forced to own their properties since no competitive alternatives existed on the rental market. Real estate companies were often more primarily focused on new developments than on managing existing facilities efficiently. Furthermore the longer life cycle of products and the relatively modest merger and acquisition activity made it more logical for firms to be in possession of their own properties.

The trend towards outsourcing has meant that capital markets have a positive view on firms that are focusing their capital on company core competence and consequently CRE-ownership has started to become a determinant of shareholder value. Incentive systems that reward executives for freeing capital to be used more profitably elsewhere are also increasingly common. As the real estate industry has grown and joined the global capital markets real estate companies can now efficiently raise large amounts of debt and equity, which can be used to acquire large CRE-portfolios.

The author also argues that companies might be stockpiling assets in CRE because senior executives do not know what they would do with the capital they can realize from selling their properties. This deprives shareholders of opportunities to invest in other companies where value-adding investment opportunities might exist. Linneman (1998) goes as far as claiming that there is a positive arbitrage opportunity for a company which is prepared to sell its CRE assets and reinvest in their core business. In theory, this is true because most companies have much higher return expectations from their core business than from CRE assets.

"Every dollar invested in corporate real estate represents the destruction of shareholder value equal to at least the difference between a firm’s weighted average cost of capital and the expected return on real estate." (Linneman 1998, page 8)

Deng and Gyourko (1999) examined whether a large amount of CRE-ownership is associated with lower returns. The paper looked at firm level returns for 717 companies and the results
indicate a negative relationship between firm return and the degree of CRE-ownership. This strengthens their hypothesis that diversified companies are penalized by investors. But they also conclude that the return penalty only seems to exist for riskier companies with beta values over 0.9. In the following discussion the authors conclude that the result indicates that riskier firms with higher than average real estate holdings should realize some of their property to take advantage of the return bonus that should occur.

Deng and Gyourko (1999) emphasizes that investors might not understand how real estate ownership affects the risk profile of the firm, which, if true, would make the studies results less reliable. But the general conclusion is that there is no benefit of being a conglomerate since diversifications is more cheaply achieved at the shareholder level. The recommendation is that firms with a high degree of CRE-ownership should consider realizing those assets.

In the article “Real Asset Ownership and the Risk and Return to Stockholders”, the three authors Seiler, Chatrath and Webb (2001) examine the impact and CRE ownership on the systematic risk and risk-adjusted return of corporations. It is hypothesized that CRE provides diversification benefits and hence should firms with a high level of CRE assets display a lower level of systematic risk than firms with a low levels of CRE. Beta is used to measure systematic risk and a sample of 80 companies is examined during the period 1984 until 1994. In the analysis the authors’ takes four variables into account, size, leverage, industry and the percentage of real assets. The variables were used to determine and take into account the differences that exist between different companies.

Seiler, et al. (2001) found no statistically significant evidence of diversification benefits due to owning CRE, both in terms of systematic risk and risk-adjusted return. However the authors stress the fact that this does not imply that CRE causes disadvantages in terms of risk and risk-adjusted return, further research is needed before any conclusions can be drawn.

4.3 Sale and Leaseback

Several event studies regarding the wealth effects of S&LB transactions has been conducted, some of those are briefly presented below.

Slovin et al. (1990) conducted one of the first major event studies on the effects of an S&LB transaction. The study was based on 53 announcements during a ten-year period on the US market. Results from the study that included both aircrafts and CRE showed a statistically significant average abnormal excess return of 0.85%. From this the authors could conclude that S&LB increases the value of the company. Rutherford (1990) conducted a similar study on the North American market and also notes that there is a statically significant abnormal excess
return on the selling company's share price. The study did also take the purchasing company's stock price into account and here it was found that the purchasing company had a negative, statistically non-significant, abnormal return.

Grönlund et al. (2008) conducted one of the more comprehensive S&LB studies on the European market. An event study methodology was used and the authors found an abnormal excess return on the selling companies stock price. The survey consisted of 76 announcements from 11 different European countries. The authors note that the primary explanation for the increase in value is that the transaction visualized values that previously where hidden.

Furthermore our previous paper (Fattal and Janheim 2010) was mainly an event study investigating the short-term market reaction to announcements of CRE S&LB transactions on companies publicly traded on the Swedish stock exchange. A quantitative research was conducted and the empirical results showed an average abnormal excess return of 1.62 % at the date of the announcement. It is also noted that companies which intend to use the disengaged capital to repay debt showed higher average abnormal excess returns than companies which uses the capital to finance the core business or growth. This was not in line with previous research in this area.

As mentioned above we also found signs of a negative relationship between beta-risk and CRE ownership. The analysis showed that 86 % of the observations with the highest beta values also belonged to the portfolio with the lowest proportion of transaction value to market value. This is an interesting discovery and further research was encouraged.

### 4.4 Explanatory variables
Based on literature as well as the theoretical basis we have distinguished explanatory variables that we find interesting as well as significant for the analysis. We have tried to be clear with our choices and find it important to point out that we believe that market reactions are heavily impacted by circumstances around corporate financial structures and the forces making those changes. We also want to clarify that this paper unlike cross sectional data analysis focuses on changes in capital structure rather than comparing current situations between corporations. The difference besides the methodological disparity is found in the market reaction of the change itself but most importantly the reasons for change.

By dividing data in to portfolios we intend to distinguish what impact the change itself has measured as transactions size in comparison to company market cap, as well as the impact of reasons for change as explanatory variable. This we intend to measure by comparing financing alternatives expressed by the target companies in their S&LB announcements.
Financing alternatives will be divided into three different categories based on reasons expressed in the S&LB announcements:

1. Repay loans/free Capital
2. Financing growth
3. Financing core business

Further, the variable controlling for transactions value in comparison to company market value (TV/MV) will be based on the actual transacted value divided by the company market cap. This could however be a problem in the sense that companies with low performance are forced to conduct S&LB transactions to finance their business or to repay loans. This implies that high quotas will be found at companies that recently have performed poorly and therefore could bias test results.

4.5 Research design
This paper is to our knowledge the only paper that uses CRE S&LB transactions to measure stock risk and performance of non real estate companies. However, the research design in similar papers could be utilized and adapted to fit our requirements. We intend to use the event study layout to calculate risk and performance and compare pre and post announcement data.
5. Methodology

5.1 Sample
The intention of this paper is to investigate the Swedish market of S&LB transactions. Therefore the sample consists of companies that have been listed on the Stockholm (OMX) Stock Exchange during the selected period. The sample period ranges from 1997 to 2009 and all the observations have been listed on the three largest market places, Small Cap, Mid Cap and Large Cap. The index for these market places is used for calculating beta during the different time periods. The sample consisted initially of 28 observations where 5 where excluded due to lack of information and other circumstances that during the announcement period could have affected the share prices.

5.2 Data Gathering
There is no specific database for announcements of this type, why we had to scan various news- and business databases. However, the Swedish database Affärsdata, contains most announcements done by Swedish listed companies and therefore stood for most of our announcements. We are aware of the fact that we bear the risk of missing announcements, especially those that are considered small and therefore not announced. Stock data was later gathered from Data Stream, a database for financial securities. We also gathered historical data from Sweden’s central bank’s (Riksbankens) homepage, on 10 year T-bonds needed for calculations on risk-adjusted returns.

5.3 Beta
Since this study is based on a time varying data analysis, risk measured as standard deviation of returns will vary significantly depending on when the transactions completed. In economical turbulent periods standard deviation presumably increases and vice versa. This is often an effect of fluctuations in the overall market. To eliminate biased results we have chosen beta as a risk measure, beta is defined as systematic risk of an asset that is compared to the market as a whole. The relationship between fluctuations in company returns and market returns are therefore estimated to be unchanged unless company specific factors, as for instance changes in capital structure, are affected. Beta could be calculated using a regression. The formula for beta is:

\[
\beta = \frac{Cov(r_a - r_m)}{Var(r_m)}
\]
\[ \beta = \text{Beta (systematik risk)} \]
\[ r_a = \text{Stock return} \]
\[ r_m = \text{Market return} \]

### 5.4 Performance

Performance is calculated by a risk adjusted return measure, Treynor ratio. Treynor ratio uses stock return minus risk free return as numerator and beta as denominator. Treynor ratio is used as performance measure for the same reason explained under heading beta, also using other performance measures excluding beta would challenge the comparability between the risk and the performance measures. Performance will be measured and compared pre and post the announcement of the S&LB transaction.

\[
\text{Treynor ratio} = \frac{r - rf}{\beta}
\]

\[ r = \text{stock return} \]
\[ rf = \text{Risk free return} \]
\[ \beta = \text{Beta (systematik risk)} \]

We intend to explain changes in risk-adjusted return with the same variables used in the \( \Delta \beta \) calculation.

### 5.5 Paired sample T-test

We have been using a paired sample t-test to statistically test change in beta and performance as well as the significance of the change.

\[
t = \frac{\bar{d}}{\sqrt{s^2/n}}
\]

\[ \bar{d} = \text{Mean difference} \]
\[ s^2 = \text{Sample variance} \]
\[ n = \text{Sample size} \]
\[ t = \text{Students quantile with n-1 degrees of freedom} \]
5.6 Reliability

Reliability of quantitative based research is often related to the number of observations used in the data analysis. Company specific factors will have a larger impact on results when observations are few. MacKinlay, (1997) concerning event studies, states that 30 observations is a sufficient number. Statistically our methodological layout could be compared to the event study layout. We do not reach 30 observations why the results could be questioned regarding quantitative reliability. Especially when conducted in portfolios, the number of observations in each portfolio will consequently decrease.
6. Results

The results from the data analysis will be presented in tables below. We intend to present differences and similarities among periods and variables as well as the significance in the statistical tests.

6.1 Overall results

Table 1; Paired sample t-test, change in beta for all observations

<table>
<thead>
<tr>
<th>Periods</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-250, 250</td>
<td>0.72</td>
<td>0.82</td>
<td>0.11</td>
<td>-1.44</td>
<td>0.16</td>
</tr>
<tr>
<td>-100, 100</td>
<td>0.78</td>
<td>0.89</td>
<td>0.11</td>
<td>-1.32</td>
<td>0.20</td>
</tr>
<tr>
<td>-30, 30</td>
<td>0.85</td>
<td>0.85</td>
<td>0.00</td>
<td>-0.03</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Table 1 presents change in beta between pre and post announcement date. The periods represent days before and after the announcement that beta is calculated. We find the same change in betas between -250 days pre announcement and 250 days post announcement and -100 days pre announcement and 100 days post announcement with a delta beta value of 0.11. The t-test shows no significance on 10 % level for these periods but 16 % on period -250, 250 and 20 % on period -100, 100. However when beta is calculated on 30 days pre and post announcement we find no change in beta and notably lower significance.

Table 2; Paired sample t-test, change in Treynor ratio for all observations

<table>
<thead>
<tr>
<th>Periods</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-250, 250</td>
<td>-0.06</td>
<td>0.12</td>
<td>0.18</td>
<td>-0.67</td>
<td>0.51</td>
</tr>
<tr>
<td>-100, 100</td>
<td>-0.27</td>
<td>0.03</td>
<td>0.30</td>
<td>-2.05</td>
<td>0.05**</td>
</tr>
<tr>
<td>-30, 30</td>
<td>-0.20</td>
<td>0.05</td>
<td>0.24</td>
<td>0.05</td>
<td>0.09*</td>
</tr>
</tbody>
</table>

Table 2 presents change in Treynor ratio pre and post announcement date. We find highest changes in period -100 pre announcement to 100 days post announcement with a delta Treynor ratio of 0.30 and at 5 % significance. Period -30 to 30 shows a positive change of 0.24 with
statistical significance on 10 % level. Period -250 to 250 shows lowest change in Treynor ratio and low statistical significance.

6.2 Portfolio breakdown; Financing alternatives and change in beta

Table 3; Paired sample t-test, change in beta divided in to financing portfolios (-250, 250)

<table>
<thead>
<tr>
<th>Periods (-250, 250)</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay loans/Free capital</td>
<td>0.67</td>
<td>0.72</td>
<td>0.05</td>
<td>-0.31</td>
<td>0.77</td>
</tr>
<tr>
<td>Financing core business</td>
<td>1.01</td>
<td>1.34</td>
<td>0.33</td>
<td>-3.35**</td>
<td>0.03**</td>
</tr>
<tr>
<td>Financing growth</td>
<td>0.48</td>
<td>0.53</td>
<td>0.05</td>
<td>-1.67</td>
<td>0.34</td>
</tr>
<tr>
<td>Not communicated</td>
<td>0.64</td>
<td>0.68</td>
<td>0.04</td>
<td>-0.37</td>
<td>0.73</td>
</tr>
</tbody>
</table>

* Significance level 10 %  ** Significance level 5 %

Table 3 presents change in beta when the observations are divided in to financing alternative portfolios. Betas are calculated 250 days pre and post the announcement date. We find the highest increase in beta (0.33) for companies that announce they will use the capital gained in the S&LB transaction to finance core business, the result is 5 % statistical significant. The other financing alternatives show low change in beta and low statistical significance.

Table 4; Paired sample t-test, change in beta divided in to financing portfolios (-100, 100)

<table>
<thead>
<tr>
<th>Periods (-100, 100)</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay loans/Free capital</td>
<td>0.82</td>
<td>0.76</td>
<td>-0.07</td>
<td>0.41</td>
<td>0.69</td>
</tr>
<tr>
<td>Financing core business</td>
<td>1.01</td>
<td>1.28</td>
<td>0.26</td>
<td>-2.62*</td>
<td>0.06*</td>
</tr>
<tr>
<td>Financing growth</td>
<td>0.47</td>
<td>0.62</td>
<td>0.15</td>
<td>-0.71</td>
<td>0.61</td>
</tr>
<tr>
<td>Not communicated</td>
<td>0.64</td>
<td>0.85</td>
<td>0.21</td>
<td>-1.96*</td>
<td>0.10*</td>
</tr>
</tbody>
</table>

* Significance level 10 %  ** Significance level 5 %

Table 4, in line with table 3 show beta changes when observations are divided in to financing alternative portfolios. Betas are calculated 100 days pre and post the announcement date. The results show in line with table 3 the highest change in beta (0.26) with highest significance (10 %). However we find overall higher changes in the portfolios: Financing growth and Not communicated with a statistical significance on a 10 % level on the latter.
Table 5; Paired sample t-test, change in beta divided in to financing portfolios (-30, 30)

<table>
<thead>
<tr>
<th>Periods (-30, 30)</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay loans/Free capital</td>
<td>0.82</td>
<td>0.70</td>
<td>-0.12</td>
<td>0.73</td>
<td>0.49</td>
</tr>
<tr>
<td>Financing core business</td>
<td>1.09</td>
<td>1.29</td>
<td>0.20</td>
<td>-0.97</td>
<td>0.39</td>
</tr>
<tr>
<td>Financing growth</td>
<td>0.52</td>
<td>0.79</td>
<td>0.26</td>
<td>-2.79</td>
<td>0.22</td>
</tr>
<tr>
<td>Not communicated</td>
<td>0.81</td>
<td>0.76</td>
<td>-0.05</td>
<td>0.24</td>
<td>0.82</td>
</tr>
</tbody>
</table>

* Significance level 10 %  
** Significance level 5 %

Table 5, in line with table 4 and table 3 show beta changes when observations are divided in to financing alternative portfolios. Betas are calculated 30 days pre and post the announcement date. We find highest positive changes in the portfolios: Financing growth (0.26) and Financing core business (0.20) with low statistical significance.

6.3 Portfolio breakdown; Financing alternatives and change in Treynor ratio

Table 6; Paired sample t-test, change in Treynor ratio divided in to financing portfolios (-250, 250)

<table>
<thead>
<tr>
<th>Periods (-250, 250)</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay loans/Free capital</td>
<td>-0.69</td>
<td>0.17</td>
<td>0.86</td>
<td>-1.56</td>
<td>0.16</td>
</tr>
<tr>
<td>Financing core business</td>
<td>0.01</td>
<td>-0.02</td>
<td>-0.03</td>
<td>0.15</td>
<td>0.89</td>
</tr>
<tr>
<td>Financing growth</td>
<td>0.54</td>
<td>0.14</td>
<td>-0.40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not communicated</td>
<td>0.52</td>
<td>0.15</td>
<td>-0.37</td>
<td>0.94</td>
<td>0.39</td>
</tr>
</tbody>
</table>

* Significance level 10 %  
** Significance level 5 %

Table 6, show change in Treynor ratios when observations are divided in to financing alternative portfolios. Treynor ratios are calculated 250 days pre and post the announcement date. We find highest positive change in the portfolio: Repay loans/Free capital with a delta Treynor of 0.86, however not significant on a 10 % level. No statistical test was conducted on the portfolio for financing growth thus only one observation was available.
Table 7: Paired sample t-test, change in Treynor ratio divided in to financing portfolios (-100, 100)

<table>
<thead>
<tr>
<th>Periods -100, 100</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay loans/Free capital</td>
<td>-0.33</td>
<td>-0.08</td>
<td>0.25</td>
<td>-0.91</td>
<td>0.40</td>
</tr>
<tr>
<td>Financing core business</td>
<td>-0.31</td>
<td>0.11</td>
<td>0.42</td>
<td>-1.59</td>
<td>0.19</td>
</tr>
<tr>
<td>Financing growth</td>
<td>0.04</td>
<td>0.18</td>
<td>0.14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not communicated</td>
<td>-0.22</td>
<td>0.09</td>
<td>0.30</td>
<td>-1.15</td>
<td>0.30</td>
</tr>
</tbody>
</table>

* Significance level 10 %
** Significance level 5 %

Table 7, in line with table 6 show change in Treynor ratios when observations are divided in to financing alternative portfolios. Treynor ratios are calculated 100 days pre and post the announcement date. We find highest positive change in the portfolios: Financing core business and where financing is not communicated (0.42) and (0.30). Statistical significance is however low on all portfolios.

Table 8: Paired sample t-test, change in Treynor ratio divided in to financing portfolios (-30, 30)

<table>
<thead>
<tr>
<th>Periods -30, 30</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay loans/Free capital</td>
<td>-0.27</td>
<td>-0.02</td>
<td>0.24</td>
<td>-0.96</td>
<td>0.37</td>
</tr>
<tr>
<td>Financing core business</td>
<td>0.01</td>
<td>0.06</td>
<td>0.05</td>
<td>-0.76</td>
<td>0.49</td>
</tr>
<tr>
<td>Financing growth</td>
<td>-0.08</td>
<td>0.14</td>
<td>0.22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not communicated</td>
<td>-0.28</td>
<td>0.11</td>
<td>0.39</td>
<td>-1.26</td>
<td>0.26</td>
</tr>
</tbody>
</table>

* Significance level 10 %
** Significance level 5 %

Table 8, in line with table 7 and table 6 show change in Treynor ratios when observations are divided in to financing alternative portfolios. Treynor ratios are calculated 30 days pre and post the announcement date. We find highest change in the portfolios: Repay loans/free capital, Financing growth and where financing is not communicated (0.24), (0.22) and (0.39). Statistical significance is however low on all portfolios.
6.4 Portfolio breakdown; TV/MV and change in beta

Table 9; Paired sample t-test, change in beta divided in to TV/MV portfolios (-250,250)

<table>
<thead>
<tr>
<th>Periods -250, 250)</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio 1 (&lt; 5%)</td>
<td>1.07</td>
<td>1.12</td>
<td>0.06</td>
<td>-0.49</td>
<td>0.64</td>
</tr>
<tr>
<td>Portfolio 2 (5.1%-15%)</td>
<td>0.43</td>
<td>0.58</td>
<td>0.15</td>
<td>-0.79</td>
<td>0.47</td>
</tr>
<tr>
<td>Portfolio 3 (&gt; 15.1%)</td>
<td>0.54</td>
<td>0.67</td>
<td>0.14</td>
<td>-1.14</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Table 9 presets change in beta when observations are divided in to TV/MV portfolios. Portfolio 1 consists of observations where transaction value to market value of the company is below 5 %. Portfolio 2 between 5.1 % and 15 % and portfolio 3 above 15 %. Beta values are calculated 250 days pre and post the announcement date. We find highest change in beta in portfolio 2 (0.15) and 3 (0.14), however with low statistical significance.

Table 10; Paired sample t-test, change in beta divided in to TV/MV portfolios (-100, 100)

<table>
<thead>
<tr>
<th>Periods -100, 100)</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio 1 (&lt; 5%)</td>
<td>1.13</td>
<td>1.24</td>
<td>0.10</td>
<td>-1.12</td>
<td>0.30</td>
</tr>
<tr>
<td>Portfolio 2 (5.1%-15%)</td>
<td>0.53</td>
<td>0.56</td>
<td>-0.05</td>
<td>0.20</td>
<td>0.85</td>
</tr>
<tr>
<td>Portfolio 3 (&gt; 15.1%)</td>
<td>0.51</td>
<td>0.73</td>
<td>0.23</td>
<td>-2.61**</td>
<td>0.03**</td>
</tr>
</tbody>
</table>

Table 10, in line with table 9 presets change in beta when observations are divided in to TV/MV portfolios. Betas are calculated 100 days pre and post the announcement date. We find highest change in beta in portfolio 3 (0.23) with statistical significance on a 5 % level.

Table 11; Paired sample t-test, change in beta divided in to TV/MV portfolios (-30, 30)

<table>
<thead>
<tr>
<th>Periods -30, 30)</th>
<th>Pre β</th>
<th>Post β</th>
<th>Delta β</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio 1 (&lt; 5%)</td>
<td>1.22</td>
<td>1.22</td>
<td>0.00</td>
<td>0.03</td>
<td>0.98</td>
</tr>
<tr>
<td>Portfolio 2 (5.1%-15%)</td>
<td>0.50</td>
<td>0.63</td>
<td>0.04</td>
<td>-0.21</td>
<td>0.85</td>
</tr>
<tr>
<td>Portfolio 3 (&gt; 15.1%)</td>
<td>0.63</td>
<td>0.61</td>
<td>-0.02</td>
<td>0.09</td>
<td>0.93</td>
</tr>
</tbody>
</table>

* Significance level 10 %
** Significance level 5 %
Table 11, in line with table 10 and table 9 presets change in beta when observations are divided in to TV/MV portfolios. Betas are calculated 30 days pre and post the announcement date. All portfolios show small changes in beta with low statistical significance.

### 6.5 Portfolio breakdown; TV/MV and change in Treynor ratio

Table 12; Paired sample t-test, change in Treynor ratio divided in to TV/MV portfolios (-250, 250)

<table>
<thead>
<tr>
<th>Periods -250, 250</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio 1 (&lt; 5%)</td>
<td>0.04</td>
<td>0.19</td>
<td>0.15</td>
<td>-0.60</td>
<td>0.56</td>
</tr>
<tr>
<td>Portfolio 2 (5,1%-15%)</td>
<td>0.08</td>
<td>-0.17</td>
<td>-0.25</td>
<td>1.13</td>
<td>0.34</td>
</tr>
<tr>
<td>Portfolio 3 (&gt; 15,1%)</td>
<td>-0.24</td>
<td>0.18</td>
<td>0.42</td>
<td>-0.65</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Table 12, presents change in Treynor ratio when observations are divided in to TV/MV portfolios. Treynor ratios are calculated 250 days pre and post the announcement date. We find highest change in Treynor ratios in portfolio 2 and 3 (-0.25) and (0.42) with overall low statistical significance.

Table 13; Paired sample t-test, change in beta divided in to TV/MV portfolios (-100, 100)

<table>
<thead>
<tr>
<th>Periods -100, 100</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio 1 (&lt; 5%)</td>
<td>0.05</td>
<td>0.12</td>
<td>0.07</td>
<td>-1.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Portfolio 2 (5,1%-15%)</td>
<td>0.01</td>
<td>0.02</td>
<td>0.01</td>
<td>-0.14</td>
<td>0.90</td>
</tr>
<tr>
<td>Portfolio 3 (&gt; 15,1%)</td>
<td>-0.77</td>
<td>-0.06</td>
<td>0.71</td>
<td>-2.06*</td>
<td>0.08*</td>
</tr>
</tbody>
</table>

Table 13, in line with table 12 presets change in Treynor ratios when observations are divided in to TV/MV portfolios. Treynor ratios are calculated 100 days pre and post the announcement date. We find highest change in Treynor ratios in portfolio 3 (0.71) with statistical significance on a 10 % level.
Table 14; Paired sample t-test, change in beta divided in to TV/MV portfolios (-30, 30)

<table>
<thead>
<tr>
<th>Periods -30, 30)</th>
<th>Pre Treynor</th>
<th>Post Treynor</th>
<th>Delta Treynor</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio 1 (&lt; 5%)</td>
<td>0.01</td>
<td>0.02</td>
<td>0.01</td>
<td>-0.06</td>
<td>0.95</td>
</tr>
<tr>
<td>Portfolio 2 (5,1%-15%)</td>
<td>-0.04</td>
<td>0.10</td>
<td>0.14</td>
<td>-0.92</td>
<td>0.43</td>
</tr>
<tr>
<td>Portfolio 3 (&gt; 15,1%)</td>
<td>-0.51</td>
<td>0.06</td>
<td>0.56</td>
<td>-1.72</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Table 14, in line with table 13 and table 12 presets change in Treynor ratios when observations are divided in to TV/MV portfolios. Treynor ratios are calculated 30 days pre and post the announcement date. We find highest changes in Treynor ratio in portfolio 3 (0.56) with statistical significance slightly below 10 %.
7. Analysis

Diagram 1 present change in beta and Treynor ratios for all observations calculated over the three different periods. We find highest change in beta for the two periods with longest calculation period. However, changes in Treynor ratios are found to be highest when calculation periods are 100 respectively 30 days pre and post the announcement. Also these results are statistically significant at a 95 and 90 % level. Most important is that the results suggest that a S&LB transaction in general increases stock beta but also risk adjusted return, measured as Treynor ratio. This is in line with results from Brounen and Eichholtz (2005) and our own expectations of risk increasing with limiting diversification by CRE S&LB. Regarding an increase in Treynor ratios, the interpretation is not as straight forward, modern portfolio theory claims that diversification will increase risk adjusted returns, however this is from an investor’s perspective. As Deng and Gyourko (1999) states, there are no benefits from being a conglomerate since diversification should be done by investors and not by companies.

Having that said, we want to stress the fact that S&LB transactions could be an indicator of companies being in financially distressed situations. Consequently, seeking capital through S&LB could solve temporary shortage of capital and the recovery period will therefore increase Treynor ratios significantly. The results show that pre announcement mean Treynor ratios in all calculations periods show negative figures and since beta are positive this indicates negative mean numerators in the Treynor formula. Looking at post announcement mean Treynor ratios we find positive figures, which indicate that returns also are positive. We intend to investigate this further below by looking at financing alternatives portfolios.

Diagram 1: Change in beta and Treynor ratio

<table>
<thead>
<tr>
<th>Beta and return calculation period (days pre and post announcement date)</th>
<th>Δβ</th>
<th>ΔTreynor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-250, 250)</td>
<td>p=0.16</td>
<td>p=0.51</td>
</tr>
<tr>
<td>(-100, 100)</td>
<td>p=0.20</td>
<td></td>
</tr>
<tr>
<td>(-30, 30)</td>
<td>p=0.98</td>
<td></td>
</tr>
</tbody>
</table>

P=0.05*, P=0.09**
Diagram 2; Change in beta and Treynor ratio by financing alternative portfolios (-250, 250)

Diagram 3; Change in beta and Treynor ratio by financing alternative portfolios (-100, 100)

Diagram 4; Change in beta and Treynor ratio by financing alternative portfolios (-30, 30)
Diagram 2, 3 and 4 presents change in beta and Treynor ratios divided in to financing alternative portfolios. Different calculation periods have been used when calculating beta and return. We find few similarities between portfolios and different calculation periods. However we find, in line with diagram 1, higher positive changes in Treynor ratios for the two shorter calculation periods. This could be interpreted as a result of distressed companies showing great changes in return close to pre and post CRE S&LB.

We find no significant increase in beta for the “Repay Loans/Free capital”-portfolio. In fact this could be a result of the decreasing level of leverage canceling out an increase in beta from lower diversification. In table 6, 7 and 8 we find that the same portfolio showed a negative pre Treynor ratio. Although the level of significance is low this strengthens the argument above considering financial distressed companies.

Looking at the “Financing core business”-portfolio the results indicate a high beta increase in all calculation periods, however only statistically significant in the two longest periods. As mentioned above this indicates that CRE S&LB decreases benefits of diversification and increases the stock risk. Regarding Treynor ratios the results are not as clear with no statistical significance and with low consistency between the different calculation periods.

The results for the “Financing growth”-portfolio are inconsistent and the number of observations is low why we refrain from analyzing the result and drawing conclusions.

Diagram 5; Change in beta and Treynor ratio by TV/MV portfolios (-250, 250)
Diagram 5, 6 and 7 presents change in beta and Treynor ratios divided in to TV/MV portfolios. Different calculation periods have been used when calculating beta and return. We believe that large transaction value to market value will have an increasing effect on beta change, however too large ratios could have negative effect due to companies being highly weighted in real estate making a company carrying out CRE S&LB more diversified.

The diagrams show a clear increase in Treynor ratio for the largest TV/MV portfolio, with higher statistical significance at calculations made closer to the announcement date. Portfolio 3, with large TV/MV ratios shows negative Treynor ratios but evolve to become positive post announcement. One explanation for this could be that companies, which have conducted large CRE S&LB transactions, benefited from the capital injections, which enabled a quick recovery from a financially distressed situation. Portfolio 1 and 2 however, show mostly positive Treynor ratios pre announcement with smaller changes post announcement. In portfolio 3 the mean TV/MV ratio is 35 % which is a considerably lager value than in the other portfolios. This will consequently affect the size of the capital injection and therefore we see a more rapid recovery.
Regarding beta, we find smaller changes but a clear pattern in the three portfolios. Portfolio 1 shows significantly higher betas than portfolio 2 and 3 both pre and post announcement date. This could mean that companies with large real estate holdings also have lower betas to a certain extent. Portfolio 3 for instance does not show significantly lower beta values than portfolio 2. This could be interpreted as a declining diversification effect as a result of too large CRE holdings. When CRE becomes the largest asset class of a company it will, on the margin, not contribute to an increased diversification.
8. Conclusion & Discussion

As presented above, previous research within the field of S&LB draws conclusions about return measures. Regarding CRE studies, conclusions are drawn about risk. CRE S&LB transactions have shown an increase in return to share holders and it has been proven that CRE has a negative relationship to stock systematic risk (beta). The intention of this study was to interlink both concepts using data from pre and post S&LB transactions to answer the study’s problem statement.

Below is the main conclusions drawn from the analysis presented:

• Stock performance increases after CRE S&LB transactions, although no clear conclusions can be drawn about change in risk.
• Companies performing CRE S&LB transactions with the intention to finance core business will experience an increase in stock risk.
• Stock performance increases the most when transaction value to firm value is high.

The conclusions formulated above could be valuable for investors making investment decisions. However, regarding performance, as mentioned in the analysis section, we found greatest increase in performance measured as Treynor ratios, in stocks with initially negative ratios. This implies that investors will not benefit from higher risk adjusted returns after CRE S&LB transactions when transaction value to market value is high compared to stocks with low transaction value to market value. We believe that this type of study is affected by the fact that CRE S&LB transactions by them selves may indicate that companies might be in specific situations that could be considered as abnormal. This will consequently have an effect on the outcome of the study, which should be carried in mind when taking strategic decisions.

Reconnecting to the reliability section, we believe that this kind of study is highly dependent on the number of observations used in the data analysis. External circumstances surrounding the observations can have an impact on the study’s results. Factors that may affect risk and return is for example, the current economic situation, company specific factors and the current state of the property market. Further studies on other markets with more observations would therefore be of interest. We believe that a study with significantly more observations not only could strengthen the results and statistics of this study but also complement it with the possibility to use more variables and enabling portfolios with closer intervals.
Even though no general conclusions could be drawn regarding change in stock risk, an increase in risk was found when companies intended to use the capital to finance core business. This is in line with earlier studies and tells us that CRE ownership contributes to diversification. However in similarity to what Deng and Gyourko (1999) states, that investors do not benefit from investing in conglomerates since diversification is more cheaply achieved at shareholder level we find that stock performance increases when companies focus on core business.

With our conclusions in mind, we encourage investors and corporate managers to evaluate pros and cons of CRE ownership. Further more, since CRE S&LB transactions indicates an increase in risk there might be a need to adjust corporate financial structure to keep financial risk at healthy levels. The same applies for investors whom might need to revise their portfolios.
9. References

Academic References


**Non-Academic references**


**CB Richard Ellis**, 2008, “European Sale and Leasebacks – A viable alternative for raising capital?” Rapport från CB Richard Ellis:
http://emeanet.cbre.com/pls/portal/docs/PAGE/PUBLIC/cbre_marketing/European_sale_and_leasebacks/European%20sale_and_leaseback_final.pdf