



JÖNKÖPING INTERNATIONAL
BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

The Relationship Between Capital Structure And Corporate Performance Under the Recent Financial Crisis

- An Empirical Study on Listed Swedish Companies

Bachelor Thesis in Economics

Authors: Xue Feng 199203012860

Shuai Ma 198810047285

Supervisors: Professor Andreas Stephan

Jönköping May 2013

Contents

1	Introduction	1
1.1	Background	1
1.2	Problem Description and Background	2
1.2.1	Research Questions	3
1.2	Purpose.....	3
1.4	Delimitation	3
2	Theoretical Framework	4
2.1	M&M Theory	4
2.1.1	Modigliani-Miller Proposition with perfect capital markets	4
2.1.2	Modigliani-Miller Proposition with Tax.....	5
2.2	Trade-off Theory	7
2.2.1	Interest Tax Shield (tax Benefit of Debt)	7
2.2.2	Costs of Financial Distress.....	8
2.2.3	Core Conception	9
2.3	Pecking-order Theory	11
2.3.1	Asymmetric Information.....	11
2.3.2	Agency Cost	11
2.3.2	Core Conception	11
3	Earlier Studies on Determinants Of Capital Structure	13
3.1	The relationship between financial distress and firm performance during the Asian financial crisis of 1997-1998.....	13
3.2	Capital structure and firm performance: evidence from selected business companies in Colombo stock exchange Sri Lanka	14
4	Research Method.....	15
4.1	Approach	15
4.1.1	Quantitative Analysis.....	15
4.1.2	Qualitative Analysis	16
4.2	Data Collection	16
4.3	Regression Model	17
4.3.1	Goodness of Fit Statistics	18
4.3.2	VIF (Variance Inflation Factor)	18
4.4	Analysis Of Variance (ANOVA Model).....	19
5.	Data and Variables	20
5.1	Dependent Variable	20
5.2	Independent Variables.....	21
5.2.1	Profitability.....	21
5.2.2	Uniqueness or Growth	21
5.2.3	Cash flow/operating revenue:	22
5.2.4	Net Asset turnover.....	22
5.3	Dummy Variables	22

5.3.1 Model 1	23
5.3.2 Model 2	23
6 Empirical Result and Data Analysis	24
6.1 Descriptive Statistics	24
6.2 Correlation	25
6.3 Regression Analysis	26
6.3.1 Hypothesis Tests.....	26
6.3.4 Interpretations of Dummy Variables.....	28
6.3.2 Goodness of Fit Statistics	30
6.3.3 ANOVA Analysis.....	31
7 Concluding Remarks.....	33
7.1 Answer to Research Questions	33
7.2 Future Research Recommendation.....	35
8 Appendix 1_ Names of Listed 54 Swedish Company	36
9 Appendix 2_Equation	2
9.1 Pearson correlation coefficient	2
9.2 R-Square.....	2
9.3 Adjusted R-Square	2
9.4 Variance Inflation Factor.....	2
9.5 Long-term debt ratio.....	2
9.6 ROA	2
9.7 Gross Margin	2
9.8 Uniqueness	3
9.9 Cash Flow/Operating Revenue Ratio	3
9.10 Assest Turnover.....	3
10 References.....	4

Figures

Figure 1 MM theory without tax-proposition II	5
Figure 2 MM theory with tax-proposition I	6
Figure 3 MM theory with tax-proposition II	6
Figure 4: Static Trade-Off Theory_1	7
Figure 5: The Trade-off Theory_2	10
Figure 6: Pecking Order Theory	12
Figure 7: The tendency of each variable from 2006 to 2011	<i>Error! Bookmark not defined.</i>
Figure 8 Leverage Ratio Tendencies	<i>Error! Bookmark not defined.</i>

Tables

Table 1: Summary Descriptive Statistics	<i>Error! Bookmark not defined.</i>
Table 2: Pearson Correlation Matrix among the Variables	<i>Error! Bookmark not defined.</i>
Table 3: Output for Regression Analysis_ Model 1	<i>Error! Bookmark not defined.</i>
Table 4: Output for Regression Analysis_ Model 2	<i>Error! Bookmark not defined.</i>
Table 5: Collinearity Statistics_ Model 1	<i>Error! Bookmark not defined.</i>
Table 6: Collinearity Statistics_ Model 2	<i>Error! Bookmark not defined.</i>
Table 7: ANOVAb_ Model 1	<i>Error! Bookmark not defined.</i>
Table 7: ANOVAb_ Model 2	<i>Error! Bookmark not defined.</i>

Abstract

Background: In the past four decades, the relationship between capital structure and corporate value has been extensively investigated. Sweden is ranked as one of the European countries that have survived the financial crisis of 2007-2008 best even though the crisis affected the economy in Sweden. Since there are few studies that discuss Swedish companies regarding the relationship between capital structure and corporate performance, this thesis tries to find out what is the evidence regarding Swedish companies is.

Purpose: The objective of this thesis is to describe and analyze the relationship between capital structure and corporation performance in the listed Swedish companies under the financial crisis. Profitability, Uniqueness or Growth, Asset composition, Cash flow/Operating Revenue, and Net Asset Turnover are used to explore the extent to which corporate performance influences the leverage ratio. Furthermore, this study also aims to indicate how the financial crisis has affected the leverage ratio.

Method: This thesis is mainly a quantitative study of the relationship between capital structure and corporate performance in listed Swedish companies under the recent financial crisis. The quantitative study uses a regression model to illustrate this relationship and furthermore applies statistical tests, such as ANOVA-test, to conclude whether corporate performance has an impact on capital structure.

Conclusion: This study finds a significantly negative relationship between capital structure and corporate performance in listed Swedish companies under the recent financial crisis in general. Further, employing dummy variables to model the effects in various years, we find that the leverage ratio increases before the recent financial crisis and turns to decline for three years till the button level of capital structure. Then, it increases to the normal level.

Number of Pages in PDF File: 36

Keywords: Capital Structure, Corporation Performance, Leverage, Corporate Finance, Recent Financial Crisis, Swedish Companies.

JEL Classification: G32

I Introduction

In the following section, the thesis starts with a brief description of the recent Financial Crisis. Then it is followed by a discussion about capital structure, which a large amount of scholars have studied in the past four decades. At the end, the main purpose of the thesis and the limitation are described.

I.1 Background

The collapse of Lehman Brothers in 2008 caused a global meltdown in the financial market. The stock markets of the world fell and large financial institutions fail (Shah, 2013). Banks stopped to lend to each other (McKibbin & Stoeckel, 2009). The amount of debt in firm capital structures increased, the capital and lending markets collapsed (Fosberg, 2004). Many economists point out that the recent financial crisis is the worst crisis since the great depression of 1930s (Business Wire News database, 2009).

Owing to Sweden's highly dependence on the outside world, the international economic downturn had a substantial impact on the economy of Sweden (Öberg, 2009). Financial shocks had a negative impact on real GDP growth, and GDP in Sweden decreased by 4.9 percent during the recent financial crisis. In addition, the Swedish stock market fell by more than 40 percent and the leverage of firms in Sweden declined extremely (Österholm, 2010).

The reason why the authors of the thesis analyse Swedish firms is based on the following reasons: First, Sweden remains highly integrated into the global economy with strong trade and investment activity, thus the dependence of Sweden on the global economy is significant (Ketels, 2012). Secondly, according to Servcorp International Business Confidence survey (2009), it is illustrated that Sweden is ranked as one of the European countries that have survived the financial crisis of 2007-2008 best. The capital structure of Swedish firms is of great interest since Sweden has managed the recent financial crisis successfully (Johanson, 2009). Lastly, there are few researches that discuss the company performance and financial crisis at same time for Swedish corporations. This thesis aims to fill this gap.

I.2 Problem Description and Background

Capital structure decision is the mix of debt and equity that a company uses to finance its business (Damodaran, 2001). The relationship between capital structure and corporate performance has been extensively investigated in the past four decades.

Gleason et al. (2000) indicate that managers make use of different debt ratio, which is also called leverage ratio, as a firm-specific strategy to improve the performance of the company. Under this strategy, the majority of the firms attempt to attain an optimal leverage ratio so that they can both maximize the firm value and minimize the cost of capital and risk. In other words, the optimal leverage ratio promotes the company's competitive advantage in the capital market.

Rajan and Zingales (1994) suggest that the capital structure has diverse national patterns. Several studies have investigated this for some European countries and the US. Moreover, Gleason et al. (2000) reveal that there is a negative relationship between capital structure and corporation performance in European countries, while Roden and Lewellen (1995) illustrate that there is a significant positive relationship between capital structure and corporation performance in the US. Here are obviously contradictory results in different countries and there is lack of similar research done in Sweden.

After going through the theoretical literature, the authors of this thesis found that the relationship between capital structure and corporate performance is a quite interesting topic to investigate and it would be better to target the analysis only in one specific country. Since Sweden has not intensively been explored on this topic before, it would be unique and is a challenge to find out what the conclusion regarding Swedish companies are.

From this view, the thesis intends to study a sample of Swedish companies. Moreover, since the recent financial crisis has influenced the European economics a lot, it may have given a shock to Swedish companies' capital structure as well. This thesis tries to investigate how the recent financial crisis influences the relationship between capital structure and corporate performance, and explores the extent to which corporate performance influences the leverage ratio. Additionally, it measures firm performance using various indicators: *Profitability*, *Uniqueness or Growth*, *Asset composition*, *Cash flow/operating revenue*, and *Net Asset Turnover*, since they might have different effects on capital structure. Based on the data the authors have, it will show what the adjustment of capital structure due to the recent Financial Crisis in listed Swedish companies was.

1.2.1 Research Questions

The thesis tries to answer the following main research question:

- **What is the relationship between capital structure and corporation performance for listed Swedish companies under the recent financial crisis?**

Sub-research question 1: What are the determinants of the corporation performance?

Sub-research question 2: What is the relationship between each determinant and the capital structure?

Sub-research question 3: What is the debt ratio tendency before and after the financial crisis in the Swedish companies?

1.2 Purpose

This research is trying to illustrate a general description of the relationship between capital structure and corporation performance in the listed Swedish companies under the financial crisis, and also indicates how the financial crisis affects the leverage ratio. Some suggestions will be given to further research in the same field. The purpose is to get convincing and meaningful results, which would help the financial manager to make appropriate adjustment on the company's capital structure.

1.4 Delimitation

Firstly, our main limitation is data collection. In the beginning, the authors intended to investigate the top 250 companies in Sweden from the Amadeus website, a database providing comparable financial information for public and private companies across Europe. However, while the authors planned to collect primary data of TOP 250, the majority of Swedish companies' data is not available. Moreover, the authors could not find comparable data from other databases. After deleting companies with the incomplete data, the authors only got a sample of 54 companies.

Secondly, in the regression model, no results are provided according to industry category. Since the leverage ratio is affected by industry pattern, it may distort the results from the regression model.

Thirdly, there are five independent variables in the regression model. It is not fully clear if more meaningful results could be obtained by adding more control variables to the model.

2 Theoretical Framework

In this chapter, major theories concerning capital structure will be described. It starts with a brief introduction of the 'irrelevant' capital structure theory: M&M Theory. This theory is the origin of all modern capital structure theory. Even though the main assumption of this theory is a perfect capital market, which is not applicable to real economic issues, it plays a significant role in the history of the capital structure theory. Then it is followed by the introduction and deep discussion of two other major theories: Trade-off Theory and Pecking-order Theory.

2.1 M&M Theory

2.1.1 Modigliani-Miller Proposition with perfect capital markets

Miller and Modigliani (1958) primarily developed the capital structure theorem in a seminal article published in the American Economic Review. They find that a firm's value is not dependent upon their capital structure in efficient markets, it does not matter what capital structure a firm uses to finance its operations. Therefore, Miller and Modigliani developed two hypotheses under the perfect capital market.

Proposition I

“Market value of any firm is independent of its capital structure” (Miller & Modigliani, 1958). Even though changing the proportions of capital structure in a firm, the total values of its outstanding securities remain the same (Ross et al., 2011). According to the equation $V_U = V_L$, where V_U is the value of an unlevered firm value and V_L is the value of a levered firm, which illustrates that whether a firm has no debt or a company that funds its operations by taking out loans, the two corporation values are identical.

Proposition II

“The cost of equity is positively related to leverage”. It demonstrates that the positive relationship between the proportion of debt in capital structure of a firm and its return on equity to shareholders (Miller & Modigliani, 1958). This is related to the formula $r_{WACC} = \frac{E}{E+D} * r_E + \frac{D}{E+D} * r_D$, Where r_{WACC} is weighted average cost of capital, r_E is cost of equity, r_D is cost of debt, D is market value of firm's debt and E is equity of shareholder (Kootanaee et al, 2012). Corporations are typically financed by a combination of debt and equity. The weighted average cost of capital weights the cost of equity and the cost of debt by the percentage of each used in a firm's capital structure. Increasing leverage makes more risky for

the equity holder so that the cost of equity must increase, thus the leverage is positively related to the required return on equity. Below a graph is shown where the horizontal line represents the debt to equity ratio (D/E) and the vertical line represents the cost of capital. As debt to equity ratio grows, the return to equity rises; Expected return of the unlevered firm's equity is independent of leverage. The value of unlevered firm equals the weighted average cost of capital. Thus the weighted average cost of capital (WACC) remains constant (Stanton & Seasholes, 2005).

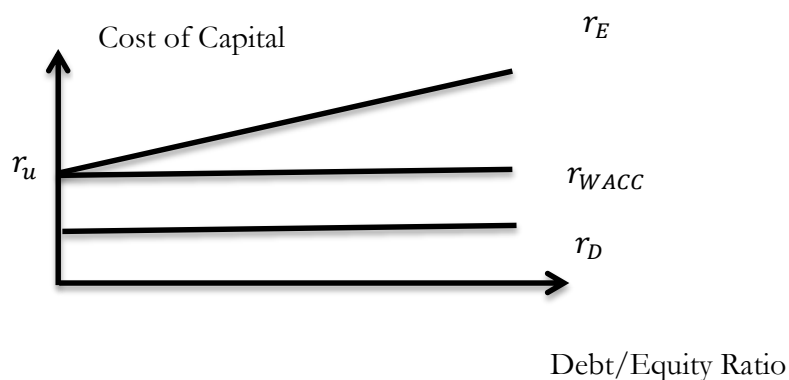


Figure 1 MM theory without tax-proposition II

Source: Berk & DeMarzo (2007), authors' own illustration

2.1.2 Modigliani-Miller Proposition with Tax

However, Miller and Modigliani propositions were based on the restrictive assumption of no tax, bankrupt cost and agency costs (Hillier et al., 2010) and this assumption is inconsistent with the real world since there is no perfect capital market with no tax, transaction cost and other costs. According to Campello (2006), firms generally employ only moderate amounts of debt. After that, Miller and Modigliani (1963) modified their existent propositions and created new hypotheses about tax benefits as determinant of capital structure. According to Miller (1977), the value of firms depends on the relative level of each tax rate.

Proposition I

Due to the present value of interest payments from corporate-tax liabilities, the value of the firm with leverage firm exceeds the value of the unlevered firm. The graph illustrates a straight line with a slope of T_c gives the relationship between the value of firm and total debt. The present value of tax shield is the distance between the two lines. Through the equation $V_L = V_u + T_c * D$, where $T_c * D$ is the present value of the interest tax shield, the value of levered firm is larger than that of unlevered firm when taking tax into consideration. Baumol and

Malkiel (1968) conclude that the use of borrowed funds reduces the cost of capital to the company when the deductibility of the tax saving from debt is taken into account.

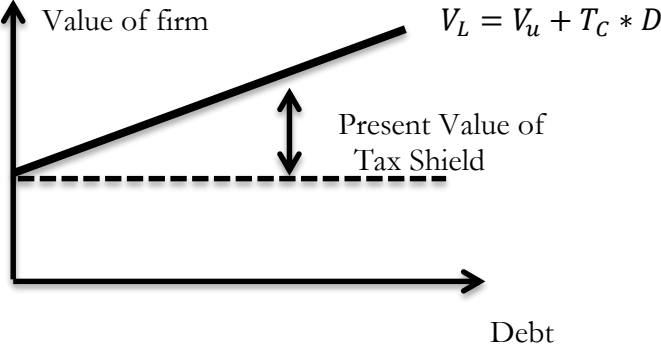


Figure 2 MM theory with tax-proposition I
 Source: Berk & DeMarzo(2007), authors’ own illustration

Proposition II

The weighted average cost of capital (WACC) decreases as a greater proportion of the firm is financed with debt. Since Modigliani and Miller ignore the costs of bankruptcy and financial distress in their propositions; WACC is minimized at being 99,9% debt financed (Hillier et al 2010). Interest tax makes the effective cost of debt financing for the company lower when a firm uses debt financing (Berk &DeMarzo, 2007), the leverage will decline due to an increase of the interest tax shield. Moreover, the tax benefit of leverage can also be expressed in terms of the equation of the weighted average cost of capital: $r_{WACC} = \frac{E}{E+D} * r_E + \frac{D}{E+D} * r_D * (1 - T_c)$, which states that the benefit of tax lowers the average return paid by corporation to the investors and firms are able to maximize their value by employing more debt because of the tax shield benefits associated with debt use. As can be seen from the graph, costs of debt are normally cheaper than equity (Pike & Neale, 2006), leading to a lower weighted average cost of capital .

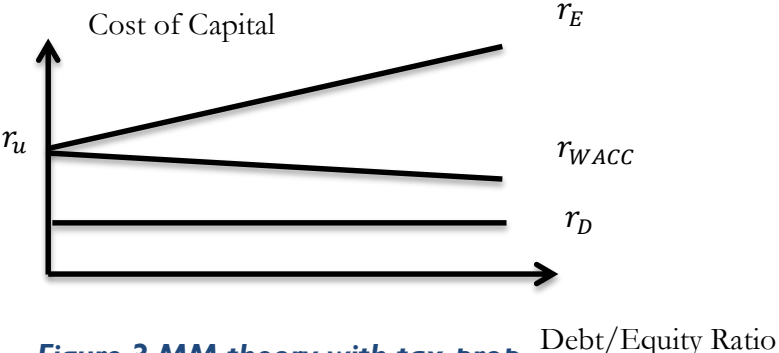


Figure 3 MM theory with tax-prop
 Source: Berk & DeMarzo (2007), authors’ own illustration

If capital structure is irrelevant in a perfect market (M&M Theory), then imperfections, which exist in the real world, must be the cause of its relevance. The theories below try to address some of these imperfections, relaxing assumptions made in the M&M model.

2.2 Trade-off Theory

Kraus and Litzenberger (1973) provide a standard State Trade-off theory that optimal capital structure is based on a trade-off between the tax benefits of debt and the costs of financial distress. Moreover, Kraus and Litzenberger (1973) illustrate that the market value of a levered firm is equal to unlevered market value, plus the corporate tax rate multiplied with the market value of the firm's debt, minus the present value of bankruptcy costs.

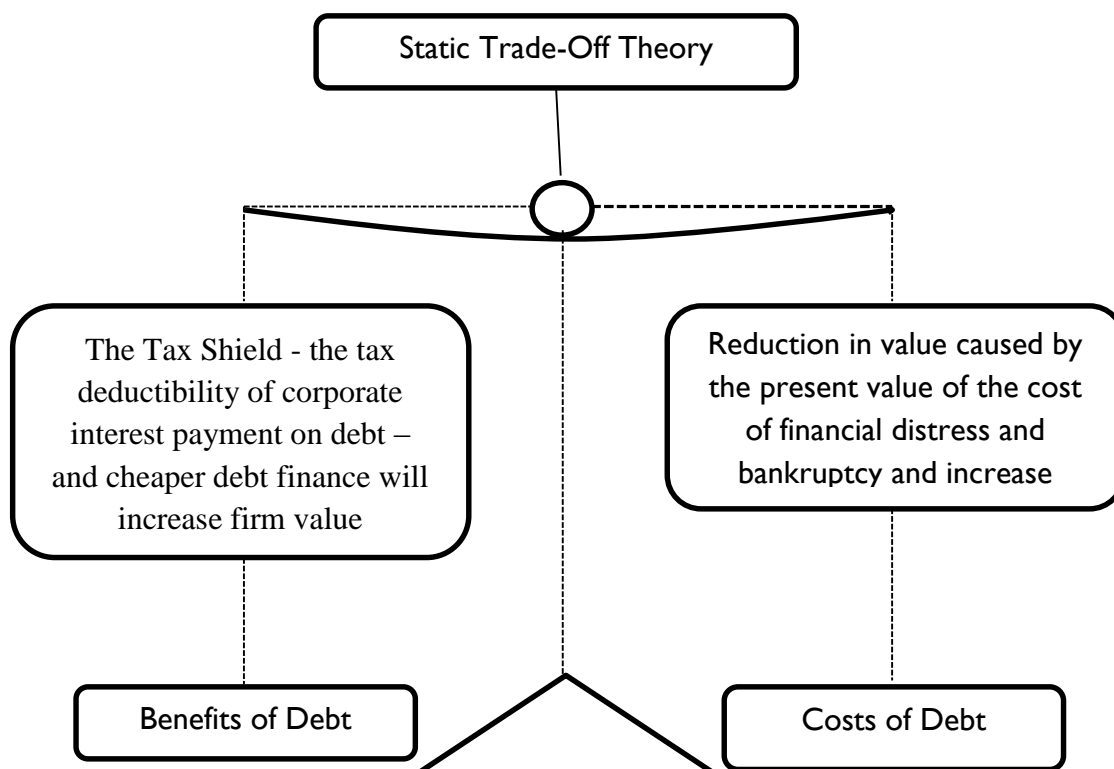


Figure 4: Static Trade-Off Theory_I

Source: Kaplan Financial Knowledge Bank (2013), authors' own illustration

2.2.1 Interest Tax Shield (tax Benefit of Debt)

De Mooij, R. (2011) indicates that debt financing offers the enterprise an opportunity to gain tax benefit from debt. As a result, debt gains more of the firm's operating income (EBIT) to flow to investors. The amount of money that the company saves from the debt is called Interest tax shield.

$$\text{Interest Payment} = \text{return on debt} * \text{amount borrowed} = r_D * D$$

$$PV(\text{Tax Shield}) = \frac{\text{Corporate tax rate} * \text{Interest payment}}{\text{Expected return on debt}} = \frac{T_c * (r_D * D)}{r_D} = T_c * D$$

In an imperfect financial market, the company has responsibility to pay the tax to the government, thus, the situation changes. What should the company do to make the stockholders better off? Here is the solution: Debt Financing. Modigliani-Miller (1963) has thus revised the formula of MM's proposition I by adding the tax shield.

$$\text{Value of firm} = \text{Value if all-equity- financed} + PV(\text{Tax Shield})$$

This formula illustrates that the more debt the firm uses, the more tax benefit it will gain. Is that correct? Is it optimal for a company with 100% debt-financing? The optimal debt policy appears to be sophisticated. In the real world, there is no company that can take such a huge risk to be 100% debt-financed. Why? Firstly, it is not accurate to regard debt as fixed and perpetual. The debt of the company fluctuates over time, as well as profit and company's value. Secondly, a higher debt ratio incurs costs of financial distress, mainly as bankruptcy cost and agency cost.

2.2.2 Costs of Financial Distress

Kraus and Litzenberger (1973) proposed that when the promise to creditor is broken, financial distress appears, which may lead company to bankruptcy. Since financial distress is costly, Kraus and Litzenberger (1973) revised the formula for the value of a company by considering the costs of Financial Distress as follows:

$$\text{Value of firm} = \text{Value if all-equity- financed} + PV(\text{Tax Shield}) - PV(\text{Costs of Financial Distress})$$

Bankruptcy Cost

Bankruptcy costs provide an economic rationale for the existence of optimal capital structure and solve the conflict between Miller's and Modigliani's theorem and observed firm behaviour (Baxter et al, 1967). According to Kraus and Litzenberger (1973), bankruptcy cost could determine a firm's value. Stiglitz (1972) also reports that bankruptcy may have an effect on the firm's behaviour. The interest payments of a firm adjust its cash flow and earnings; the company needs to make required interest payments to serve the debt as the company invests in debt. In the perfect capital market, all assets of the firm turn out to be debt when a company tends to go bankrupt, investors do not lose anything and the value of a firm remains. However, bankruptcy is a long and complicated process in the real world. The costs

associated with financial distress consist of direct and indirect cost. When a firm tends to hold more leverage, bankruptcy becomes more risky to credit holder, the payment to debt holder will decline and debt holder cannot get what they own, which leads to the balance between tax benefit and the equity changes (Baxter, 1967). Warner (1977) notes that distinguishing two kinds of costs are of significance. Direct costs are out of pocket cash expense such as legal and administrative cost; it is usually lower when the total value available to all investors. Megginson & Smart (2008) indicate that the amounts of direct cost are much smaller than that of pre-bankruptcy market value of large firms, so it is too small to discourage use of debt financing.

Financial distress indirect cost incurred in the process which a firm spends resources to avoid the firm go bankrupt. The incremental losses of financial distress and losses associated with the total value of the firm play a significance role in identifying the indirect cost. Losses of customers and of suppliers are examples of indirect bankruptcy costs. The indirect costs associated with financial distress are usually larger than direct bankrupt cost and are hard to measure correctly (Warner, 1977). Moreover, Warner (1977) points out that if the indirect bankruptcy cost is important, it is necessary to seek an optimal capital structure so that more value for the firm created.

2.2.3 Core Conception

Under the assumption of the possibility of bankruptcy, Kraus and Litzenberger (1973) suggest that the company with optimal debt ratio has a maximum market value by the trade-off between tax benefit from debt financing and the cost of financial distress.

Kraus and Litzenberger (1973) indicate that the firm's financing mix determines the states in which the firm will earn its debt obligation and receive the tax savings attributable to debt financing, if the companies' debt obligation exceeds its revenue, the market value cannot be positively affected by the debt obligation.

At moderate debt ratios, the effect of financial distress is immaterial and the tax shield dominates the effect on the value of the firm. But further increases of the debt ratio leads to a decline in the marginal benefit of debt while the marginal cost of the financial distress dominates. The theoretical optimal debt ratio is estimated to reach a level that the present value of the tax saving due to additional borrowing is just offset by increases in the present value of cost of distress.

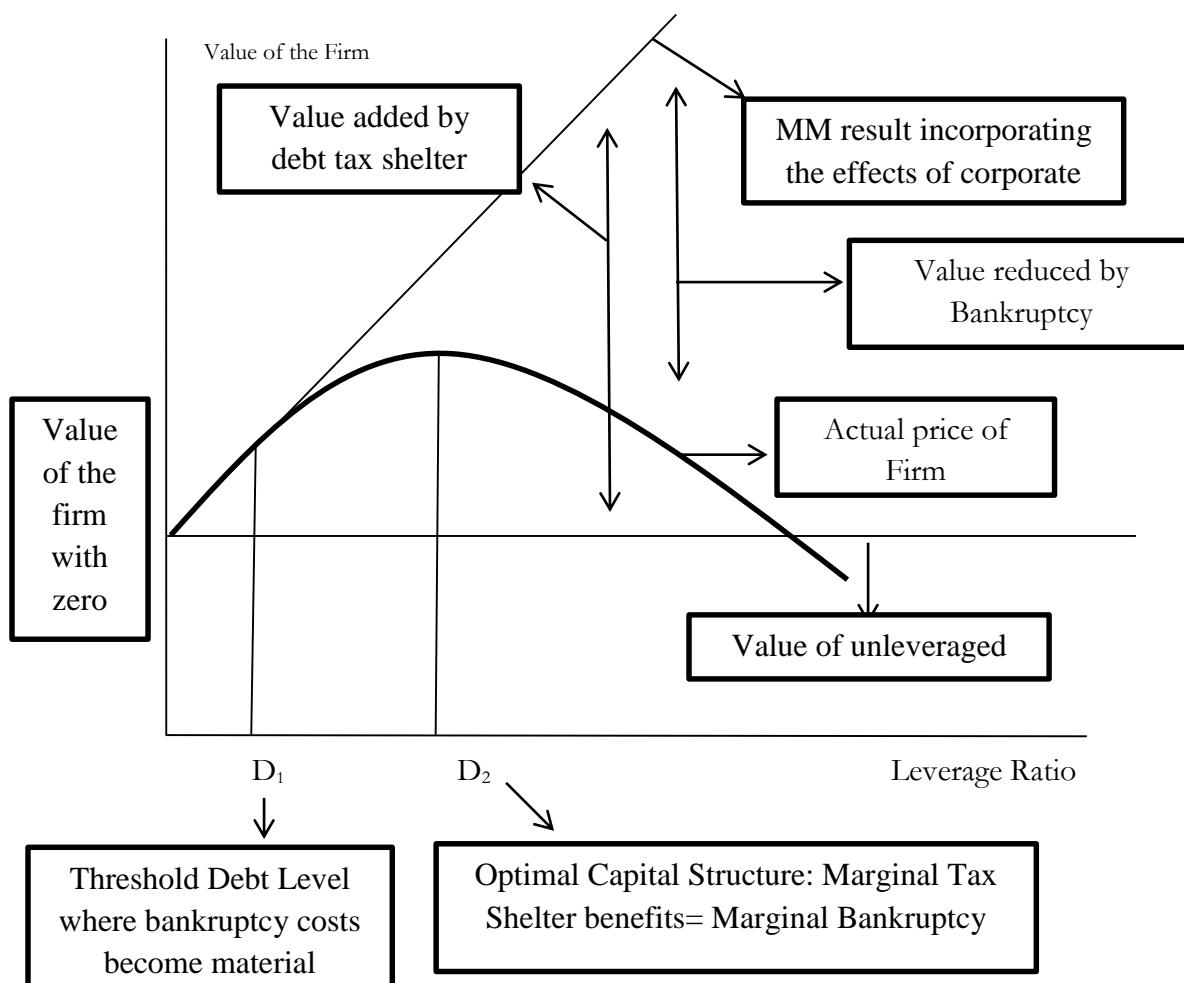


Figure 5: The Trade-off Theory_2

Source: Actuarial Science Studies (2012), authors' own illustration

To illustrate the Trade-off Theory, the leverage ratio is divided into the threshold levels to get the detailed conclusion from the figure above:

- **From 0 to D₁:** The probability of bankruptcy is immaterial while tax shield dominate the value of the firm.
- **From D₁ to D₂:** The probability of bankruptcy becomes increasingly important and it reduces the tax benefits of debt at an increasing rate. However, bankruptcy related costs reduce but do not completely offset the tax benefits of debt, so the stock price still grows as the debt ratio increases.
- **At D₂ Level:** Here is the optimal leverage level, where the marginal value of tax shields on additional debt is just offset by the increase in the present value of possible costs of financial distress.

- **After D₂:** The bankruptcy related costs exceed the tax benefits, so from this point on increasing the debt ratio lowers the value of the firm.

By this theory it is assumed that the managers, stockholders and creditors receive the same information about the company, and the price of the stocks is fairly settled by their true underlying value. However, this situation does not exist in the real world. In fact, the information that investors know is normally less than the managers. Under this condition, the optimal leverage ratio cannot be only decided by the tax shield and cost of financial distress, because the asymmetric information has to be taken into account. In the following an alternative theory to solve this problem is presented: Pecking-order Theory.

2.3 Pecking-order Theory

2.3.1 Asymmetric Information

In real world, Berk DeMarzo (2012) states that company managers have a privilege to know more internal financial information about the company than the outsider investors, such as the profitability and prospect of the firm. Therefore, managers can take advantage of their additional information and mislead the investors to believe in the wrong prospect of firm development so that the investors may not be able to access the true value of the new securities of the company.

Hillier (2010) discusses that investors regard the announcement of a stock issue as a signal of change in stock price: managers issue will new stock when the stock price is over-priced, while managers will use retained earing when the stock price is underpriced. In this way, managers can manipulate investors by issuing a stock even though it is underpriced.

2.3.2 Agency Cost

Jensen and Meckling (1976) emphasize that asymmetric information also heads to a serious problem: different agency costs among the various financing. Due to the asymmetric information between internal managers and external investors, any external financing will generate agency costs, which will reduce the value of the company. In fact, if the company is using internal financing, this will not increase the company's agency costs.

2.3.2 Core Conception

Myers (1984) argues that, based on the asymmetric information, firms have a preferred hierarchy for financing decisions:



Figure 6: Pecking Order Theory

Source: Kaplan Financial Knowledge Bank (2013), authors' own illustration

Firstly, firms prefer internal financing. The manager can totally evade any speculations, since internal financing implies not to issue debt or equity, and the company simply transfers its own money into investment capital, most commonly used are the retained earnings.

Secondly, if the company does not possess sufficient internal capital, the secondary option is external financing, which is to issue debt or equity. However, there are some preferences within this option. The company will primarily issue debt as the safer a security the better, because debt is less risky in comparison to equity.

3 Earlier Studies on Determinants Of Capital Structure

In this chapter, the two empirical studies concerning the capital structure will be displayed and discussed. One is from in Asia, and another one is from Sri Lanka. These two literatures inspired the authors to write a paper about capital structure decisions, and provided the knowledge of how to build the regression model for the analysis.

3.1 The relationship between financial distress and firm performance during the Asian financial crisis of 1997-1998

The study conducted by Tan (2003) investigates the relationship between financial distress and firm performance during the Asian financial crisis of 1997-1998.

The author of this paper uses the crisis as an exogenous shock to reduce the endogeneity issues of the performance – leverage relationship. Owing to most of prior researches have studied the performance–leverage relationship in the U.S. context, the purpose of this paper is using descriptive approach to re-exam the relationship between performance and financial crisis under an international context. Furthermore, this study aims to test whether financial distress cost lowers the firm performance.

The data used in the study consists of 277 firms, which results in 2,216 firms-year observations over 8 years from eight East Asian countries. The collected firms' financial data are retrieved from the Compustat Global database from 1993 to 2002 and have complete financial information for the entire sample period.

In this research paper, return on assets (ROA) and Tobin's q are used as measures for the firm performance as a dependent variable. Leverage is measured using long-time debt ratio (book value of the firm's long-term debt divided by total assets) as independent variable. Furthermore, sales, prior profitability, and prior total asset growth are control variables. Regression analysis approach was used to assess the impact of leverage on firm performance.

The results drawn from this study are as follows: first, regressing the performance measures on leverage and crisis, does not take any control variable into consideration, the crisis coefficient is negative and significant, thus firms have lower performance. Moreover, firms with high leverage perform poorly compare to firms with low leverage during the crisis. Second, adding the size, growth opportunities, and prior profitability variables, high-leveraged firms are still expected to underperform relative low-leveraged firm. Third, the relationship between leverage and corporate performance is negative and is sensitive to the

financial crisis. It suggests that financial crisis extends the negative performance-leverage relationship. Furthermore, Tan (2003) makes a further study on investigate whether the performance –leverage relationship was affected by the countries' rules and norms.

3.2 Capital structure and firm performance: evidence from selected business companies in Colombo stock exchange Sri Lanka

Pratheepkanth (2011) has conducted a study on the relationship between capital structure and firm performance. The author aims to study the evidence from selected business companies of the Colombo stock exchange in Sri Lanka. The objective in this paper is to reveal the impact of capital structure on financial performance of the listed companies traded in Colombo stock exchange.

The data of this study was collected from Business Companies' financial statements during the 2005-2009. All the corporations in Sri Lanka are used which are listed on Colombo Stock Exchange. Three hypotheses are tested in the study: The relationship between capital structure and firm performance are negative or positive and whether the capital structure affects the firm performance significantly.

In this research paper, Pratheepkanth (2011) chooses debt to equity ratio and debt to total asset ratio to measure the capital structure, and four independent variables: Gross profit, Net profit, Return on equity (ROE), Return on investment (ROI), which measure the financial performance.

Correlation analysis and regression analysis approaches are used to evaluate the capital structure- firm performance relationship. The result of this paper states that the capital structure (debt to equity ratio and debt to total asset ratio) have insignificant negative impact on Net profit, ROA, ROI, while Gross profit is negatively related to the capital structure.

Pratheepkanth (2011) finds that there is negative relationship between capital structure and firm performance in Sri Lanka during 2005-2009. Furthermore the author discusses the suggestions for increasing the firm's financial performance. Performance standards will help investors take better investment decisions; it is necessary for companies to communicate timely with investors. In addition, inflation and exchange rate also affect the corporation performance; therefore government should control the inflation and exchange rate.

4 Research Method

In this chapter, the main research method will be displayed and discussed. The authors start with summary of the Quantitative Analysis and Qualitative Analysis and explain why only Quantitative Analysis has been chosen in this thesis. Then, it is followed by the data collection, which includes primary and secondary data sources, and sample selection criteria. In the end, we explain which regression model should be used and describe analyses of testing for multicollinearity in regression models.

4.1 Approach

4.1.1 Quantitative Analysis

Quantitative research provides the systematic empirical investigators an overview of the target situation through statistical, mathematical or computational techniques. (Given,2008). Lafaille and Wildeboer (1995) indicate that the selection of appropriate measurements is the crucial part of the quantitative research, since it illustrates the fundamental relationships between empirical observations and mathematical expression of data.

Given (2008) argues that quantitative research is extensively used in social sciences, such as psychology, economics, sociology, marketing, and information technology. Qualitative methods provide information only on the particular cases studied, and any more general conclusions are only hypotheses. Quantitative methods can be used to verify which of such hypotheses are true.

In this thesis, quantitative methods are used to analyze the relationship between capital structure and corporation performance based on a sample of 54 listed Swedish companies under the recent financial crisis. Firstly, measurements of capital structure and corporation performance have been selected. Secondly, the data is collected from the Amadeus website, a database, which provides financial and business information on a large number of European countries. Thirdly, after primary data was selected to the secondary data that could be used, E-views and SPSS, analytical statistical software packages, have been used to estimate the regression model between the capital structure as dependent and corporation performance as independent variable and to test covariance among the variables. At the end of this part, conclusions are drawn based on the output of the regression models and further suggestions are provided to the researchers who want to do the similar topics in the future.

4.1.2 Qualitative Analysis

Qualitative research gives the investigator a general view of situation and a deeper understanding of social process and context. Beyond that, a qualitative method provides investigator with more space to interpretation and gives them greater opportunity to acquire knowledge (Morgan & Smircich, 1980). Participant observation, in-depth interviews and focus groups are the most common qualitative methods (Morgan & Margaret, 1984).

However, some limitations exist in the qualitative approach, therefore the authors in this paper have not chosen this method: Firstly, qualitative method does not involve measurement or statistics, but the authors use numerical data collection for the analysis. Secondly, this approach usually takes long time to collect data; sometimes it can last for months or even years. Thirdly, qualitative research is only suitable for people who care about it, takes it seriously, and is prepared for commitment (Delamont, 1992). In our case, to interview the selected listed Swedish companies in the process of data gathering is not feasible.

4.2 Data Collection

After looking through the majority of literature about the capital structure, current financial crisis and determinants of corporate performance, the authors gain the general idea and decide about the appropriate independent variable and dependent variables for measuring leverage and corporate performance in this research. Later, authors conducted the quantitative research, based on data from the Amadeus website, a database, which provides financial and business information on a large number of European countries.

Data selection for this study was based on certain criteria: The Region/Country: Sweden, and the size of the firm: top 250. Initially, we got the data of TOP 250 Swedish companies, but plenty of companies' data is missing. After the primary data is selected and re-organized into secondary data, the search resulted in a sample of 54 Swedish companies. The data of the Swedish companies is from 2006 to 2010. In the end, there are 325 observations have been recorded.

After 325 observations are analysed by the SPSS software, which is an abbreviation of Statistical Package for the social sciences and is most widely used for analyzing data in social sciences, the authors obtained various tables for the regression model that contribute to quantitative analysis. The correlations between the independent variables interpret the covariance in this regression model. The coefficient of each variable illustrates the different relationship between dependent variables with each independent variable. The ANOVA table

shows the differences between group means and provides a statistical test of whether or not the mean of several groups are equal. Based on these Tables, the hypothesis tests will be conducted to derive the conclusions of this research paper.

4.3 Regression Model

Regression analysis is a statistical tool to investigate the relationship among variables (Sykes, 1992). The reason for using regression method is identifying a correlation between the studied variables. According to Aczel (1999), the regression analysis approach focuses on study the independent variable and the degree of independent variable influence on explanatory or dependent variable. It also evaluates the statistical significance of the estimated relationship and provides estimations of quantitative effect of variables. When making a multiple regression model, investigator aims to study the relationship between a dependent variable and more than one independent variable. The regression fits the equation according to the formula: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$

In which, X_1, X_2, X_3, X_4, X_5 are independent variables, Y is dependent variable, β_0 is intercept coefficient, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are slope coefficients. ε is the error term, which is drawn independently from a normal distribution with mean zero and constant variance.

The authors try to study all independent variables affect dependent variable in the multiple regression model, the relationship between dependent variable (long-term debt ratio) and independent variables. The two formulated regression models are shown below:

Model 1: Leverage ratio = $\beta_0 + \beta_1 \text{ROA} + \beta_2 \ln(\text{GM}) + \beta_3 (\text{R\&D}) + \beta_4 \ln(\text{CF/OR}) + \beta_5 \text{NAT} + D_{2006} + D_{2007} + D_{2009} + D_{2010} + D_{2011} + \varepsilon$

Model 2: Leverage ratio = $\beta_0 + \beta_1 \text{ROA} + \beta_2 \ln(\text{GM}) + \beta_3 (\text{R\&D}) + \beta_4 \ln(\text{CF/OR}) + \beta_5 \text{NAT} + D_{\text{year}} + \varepsilon$

Where ROA: Return On Asset

GM: Gross Margin

R&D: R&D expenses/operating revenue

CF/OR: Cash flow / operating revenue

NAT: Net asset turn over

D_{year} : Year dummy

Furthermore, two hypotheses are set up to test the correlation among the variables when making a regression analysis (Azcel, 1999). Depending the collected data, this study will test significance of coefficients on the most commonly used significance level: 5%.

4.3.1 Goodness of Fit Statistics

The Pearson correlation coefficient examines the strength of the linear relationship between two variables. The range of the correlation coefficient is from -1 to +1 ($-1 \leq r \leq +1$). A correlation coefficient with value of +1 illustrates that there is a perfectly positive correlation between two variables. A correlation coefficient with value of -1 illustrates that there is a perfectly negative correlation between two variables. A correlation coefficient with value close to zero illustrates that these two variables are unrelated. (Ghauri & Gronhaug, 2010)

R-square

Ghauri and Gronhaug (2010) also indicate that the square of the correlation coefficient implies how many per cent of the variation in dependent variable is accounted for by variation in independent variables.

Adjusted R-square

Theil (1961) introduces adjusted *R*-square which is modified for the number of explanatory variables in a model relative to the amount of collective data. Adjusted *R*-square measures the proportion of the variation in a data set and shows how well independent variables explain and predict a dependent variable. The value of adjusted R^2 will always be less than or equal to that of R^2 .

4.3.2 VIF (Variance Inflation Factor)

In this research, since there are six independent variables, it is essential to test whether multicollinearity exist among the explanatory variables of the regression model.

Marquardt (1970) implies that variance inflation factor (VIF) quantifies the severity of multicollinearity in an ordinary least squares (OLS) regression analysis. This index shows how much the variance of an estimated regression coefficient is increased due to multicollinearity.

Studenmund (2006) indicates that a common critical point is 5 or 10. If the VIF is larger than 5 or 10, then multicollinearity is quite high in the respective regression model. Moreover, the square root of the variance inflation factor implies how much larger the standard error is,

compared with what it would be if variables uncorrelated with the other independent variables in the regression model.

4.4 Analysis Of Variance (ANOVA Model)

Gujarati (2004) explains that Analysis of variance (ANOVA) is a particular form of statistical hypothesis testing, heavily used to analyze the differences between variables means and their associated variation among variables. The observed variance in a particular variable is divided into components attributable to different sources of variation.

Bailey (2008) illustrates that ANOVA uses traditional standardized terminology. The definitional equation of sample variance is $S^2 = \frac{1}{n-1} \Sigma(y_i - \bar{y})^2$. Gujarati (2004) demonstrates that $TSS = ESS + RSS$, which decomposes the total sum of squares (TSS) into two components: explained sum of squares (ESS) and residual sum of squares (RSS).

Lomax (2007) indicates that a F-test has an F-distribution under the null hypothesis. It is most widely used to compare statistical models that have been fitted to a data set. In order to identify whether the model fits the observations from which the data were collected. Exact *F-tests* mainly are used when the models have been fitted to the data using Least Squares.

5. Data and Variables

The objective of this thesis is to empirically investigate what is the relationship between capital structure and corporate performance of 54 listed Swedish firms under the recent financial crisis during the period 2006 - 2010. Therefore, variables have been divided into three groups, which are dependent, independent and dummy variables. Based on the previous empirical literature, authors decided that measurement of capital structure is the dependent variable and the measurements of firm performance are independent variables. Year dummy variables will be included in order to illustrate the trend of the relationship in the certain period.

5.1 Dependent Variable

There is a wide range of suggestions on relationship between capital structure and company performance. In this paper a measure of capital structure will be based on leverage. When studying the annual financial statement in a firm, short-term debt and long-term debt can easily be found. Liabilities can be divided into short-term debt and long-term debt. Short-term debt is referred to as current liabilities and long-term debt as long-term liabilities (Adkins, 2011).

Short-term debt is comprised of any debt owned by a business that is due within 12 months. It is usually made up of short-term bank loans taken out by a corporation (investorwords.com). Accounts payable, accrued payroll and accrued payroll taxes are examples of short-term debt (Adkins, 2011).

Long-term debt is any loan within a maturity of more than 12 months. Different kinds of bonds usually are included in long-term debt; the most common type of long-term debt is a mortgage's principal balance. Furthermore, a company often borrows a long-term loan to make an investment (Berk & DeMarzo, 2007).

Long-term debt creates an interest payment and allows money pay back with interest, which provide more capital for firms to investment. As the authors mentioned above, mortgage is a common type of long-term debt, it is usually used to finance purchase of real estates such as factories, office buildings, or other pieces of real estates. This kind of long-term debt plays a helpful role in purchasing additional capital assets and making the firm more profitable. In other word, the corporation prefers to use long-term debt to purchase additional assets or cover up the firm's operation expense (Csiszar, 2010).

Hence the authors in this paper choose long-term debt ratio as dependent variable. Leverage ratio created by debt is relation to assets and is used to describe several measures of financial leverage of a firm.

5.2 Independent Variables

In previous empirical literatures, a number of researchers addressed the measurements of firm performance. In order to deeply investigate the relationship between capital structure and corporate performance, five explanatory variables have been considered as the determinants of financial performance: Profitability, Uniqueness or Growth, Asset composition, Cash flow/operating revenue and Net Asset turnover.

5.2.1 Profitability

The profitability ratios are commonly used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. Hansen and Wernerfelt (1989) indicate that profitability ratios are crucial to determine the firm performance. The most widely used ratios are Return On Asset (ROA) and Gross Margin.

Return On Asset:

Casteuble (1997) suggests that ROA reflects a firm's financial performance in terms of using assets to create income. It shows the percentage of profit that a corporation earns in relation to its overall resources. A firm with higher ROA indicated the better ability of translating assets into profits. Therefore, it is also called a profitability ratio.

Gross Margin:

Farris, et al (2010) explain that gross margin represents the percent of total sales revenue that the company retains after considering the direct costs associated with producing the goods and services sold by a company. The higher gross margin means more earnings the company retains on each dollar of revenue to service its other costs and obligations.

5.2.2 Uniqueness or Growth

Glaude et al (2009) indicate that Research and Development(R&D) expenditure in European Union (EU) companies promotes the production of technology and creating innovative ideas. In certain sectors, R&D investments are essential for the development of production techniques and the generation of new products. While generally leading to the increased comparative advantage of the sector in which it is accomplished, R&D expenditure provides companies with the competence of gaining new and greater market shares. (Eurostat, 2009)

In fact, Sweden is an innovation leader on its own merits. The country invests heavily in research, encourages critical thinking from an early age and is open to international influences: Ranking No.3 by R&D Expenditure (% of GDP) among the 37 countries. (*OECD Factbook 2011–2012*).

In this thesis, in order to investigate the Swedish corporate performance deeply, “R&D Expenditure” has been regarded as the second key measurement of the corporate performance. Since the other variables are calculated as the percentage, the R&D Expenditure will be calculated as the percentage of operating revenue.

5.2.3 Cash flow/operating revenue:

According to the International Financial Reporting Standards, operating cash flow defined that cash generated by a firm’s operation after taxation and interest paid deducted. Operating cash flow in financial accounting refers to a firm generate amount of cash from the normal business operation, but the long-term investment cost on capital or investment cost on securities are not contained in operating cash flow (Ross et al, 2007). The significance of operation cash flow is that it shows whether a corporation is able to generate sufficient positive cash flow to maintain its operations, or whether it may require external financing. Loth (2009) states that cash flow/operating revenue ratio compares the operation of a firm to its revenue and gives investors an idea of whether a firm is able to turn sales into cash.

5.2.4 Net Asset turnover

Asset turnover measure a company's use of its assets efficiency in generating sale revenue to the company (Zane, Kane & Marcus, 2004). It considers the relationship between revenues and the total assets employed in a business. Asset turnover ratio is a good way for a firm to generate sales through making its assets work hard. It is calculated by dividing net sales revenue by average total assets. Asset turnover is negatively related to the gross margin. Firm with high asset turnover means firm’s profit margins is low, while low asset turnover ratio represents a high profit margin in a company.

5.3 Dummy Variables

Draper and Smith (1998) point out that, in regression analysis, a dummy variable is one that takes the value 0 or 1 to indicate the absence or presence of some categorical effect that may be expected to affect the consequence. A dummy independent variable, which for some observations has a value of 0, will cause that variable's coefficient to have no influence on the dependent variable, while when the dummy takes on a value 1 its coefficient intends to modify the intercept.

Since the objective of this thesis is to investigate how the recent financial crisis affects the relationship between capital structure and corporation performance in 54 listed Swedish companies. The data is collected from 2006 to 2011. The authors run two regression models to compare the difference in the coefficients of each variable between the models.

5.3.1 Model 1

In this model, there are five dummy variables, which indicate the different relationship in the same regression model in different years- Dummy variable 2006, Dummy variable 2007, Dummy variable 2009, Dummy variable 2010, Dummy variable 2011. Here, year 2008 is regarded as a basic year since it is the year when recent financial crisis started. They will be recorded as following:

$D_{2006} = 1$ if the data collected is in 2006
 $D_{2006} = 0$ otherwise (any year other than 2006)

$D_{2007} = 1$ if the data collected is in 2007
 $D_{2007} = 0$ otherwise (any year other than 2007)

$D_{2009} = 1$ if the data collected is in 2009
 $D_{2009} = 0$ otherwise (any year other than 2009)

$D_{2010} = 1$ if the data collected is in 2010
 $D_{2010} = 0$ otherwise (any year other than 2010)

$D_{2011} = 1$ if the data collected is in 2011
 $D_{2011} = 0$ otherwise (any year other than 2011)

This means that 2008 is reference year.

5.3.2 Model 2

In this model, there is only one dummy variable, which indicates the different relationship in the same regression model between the pre-financial crisis and post-financial crisis.

$D_{\text{Year}} = 1$ if the data collected is in 2009, 2010, 2011 (Post-Financial Crisis)

$D_{\text{Year}} = 0$ if the data collected is in 2006, 2007, 2008 (Pre-Financial Crisis)

6 Empirical Result and Data Analysis

6.1 Descriptive Statistics

Table 1 illustrated the summary of the descriptive statistics for the dependent and independent variables for 324 observations. For dependent variable, it shows that Leverage ratio has a largest mean value of 29.31% and a largest standard deviation of 19.55 among the all variables. The maximum in leverage ratio is 81.23% while the minimum is 0.

For the independent variables, the profitability is measured by ROA and ln(Gross Margin). Overall, ROA(Return on Asset) has the second largest mean value of 6.26% and a second largest standard deviation of 6.10. The other four variables have comparably lower mean values as well as standard deviations.

Table 1: Summary Descriptive Statistics

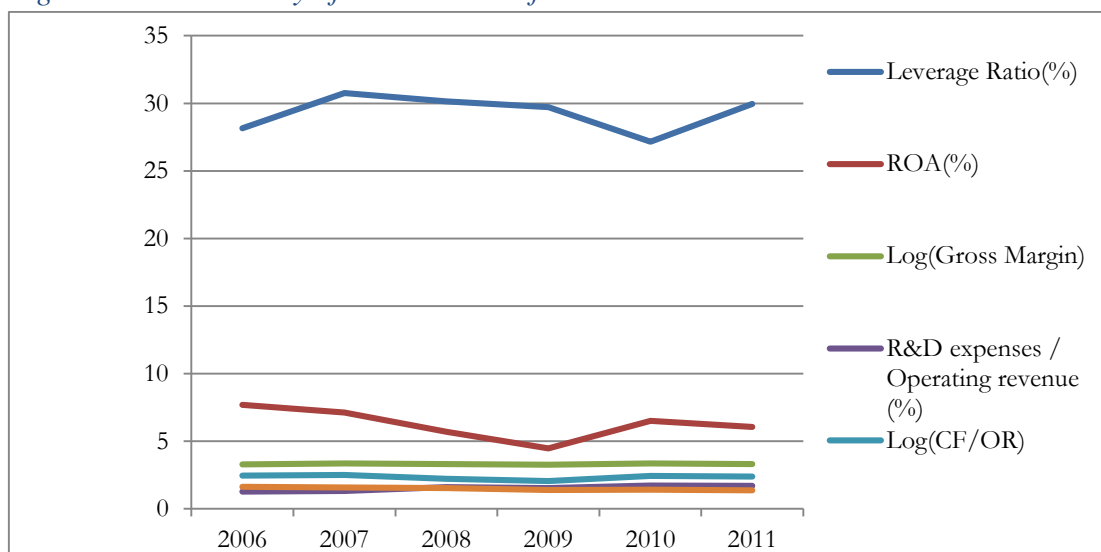
	N	Minimum	Maximum	Mean	Std. Deviation
Leverage Ratio(%)	324	0,0000	81,2278	29,314421	19,5548085
ROA(%)	324	-5,6530	43,4050	6,263321	6,0952849
ln(Gross Margin)	324	1,2793	4,4329	3,314959	0,5567483
R&D Expenses / Operating revenue (%)	324	0,0000	19,1970	1,524895	2,7790471
ln(Cash Flow/Operating Revenue)	324	-2,0174	4,2087	2,345846	0,8482675
Net Assets Turnover	324	0,0890	7,4530	1,493867	1,2193736
Dummy Variable 2006	324	0	1	0,17	0,373
Dummy Variable 2007	324	0	1	0,17	0,373
Dummy Variable 2009	324	0	1	0,17	0,373
Dummy Variable 2010	324	0	1	0,17	0,373
Dummy Variable 2011	324	0	1	0,17	0,373

In order to figure out why the standard deviation of Leverage ratio, ROA are much higher than the average, the authors sort the 324 observations into six groups by different years and get the mean value of each variable in each year. Based on these data, the tendency of each variable from 2006 to 2011 is visibly shown in Table 2 and those two factors are more fluctuated in the certain period.

Before the recent financial crisis, in 2006, the leverage ratio dramatically increased while ROA slightly decreased. During the recent financial crisis shadow, from 2007 to 2009, ROA decreased while the leverage ratio is slightly decreases. From 2009 to 2010, the leverage ratio continued declining while ROA turned to increase to different extents. From 2010 to 2011, the leverage ratio turns to increase while ROA turns to decrease at different paces. In Figure 7,

it is visibly to see the negative relationship between leverage ratio and all the other variables, which will be intensively discussed in the analysis part.

Figure 7: The tendency of each variable from 2006 to 2011



6.2 Correlation

Table 2: Pearson Correlation Matrix among the Variables

		Leverage Ratio (%)	ROA (%)	ln (Gross Margin)	R&D Expenses / Operating Revenue (%)	ln(Cash Flow/ Operating Revenue)	Net assets turnover
Leverage Ratio(%)	Pearson Correlation	1					
ROA(%)	Pearson Correlation	-0,399** (0,000)	1				
ln(Gross Margin)	Pearson Correlation	0,005 (0,931)	0,329* (0,000*)	1			
R&D Expenses / Operating Revenue (%)	Pearson Correlation	-0,190** (0,001)	0,223** (0,000)	0,341** (0,000)	1		
ln(Cash Flow/ Operating Revenue)	Pearson Correlation	0,237* (0,000*)	0,400** (0,000)	0,576** (0,000)	0,136* (0,014)	1	
Net assets turnover	Pearson Correlation	-0,549* (0,000*)	0,190** (0,001)	-0,481* (0,000*)	-0,083 (0,138)	-0,587** (0,000)	1

** . Correlation is significant at 0.01 level (2-tailed).

* . Correlation is significant at 0.05 level (2-tailed).

The authors use Pearson correlation analysis to estimate the relationship among the interval-level variables. When p-value smaller than 0.05, it illustrates that the correlation between two variables is significantly different from 0. From table 3, the result shows that the correlation between leverage ratio and ROA is significant (p-value is $0.000 < 0.05$). Thus, ROA, R&D expenses, Ln (cash flow/ operating revenue), Net asset turnover is significantly related to leverage ratio. (corr=-0.399, p-value=0.000; corr=-0.190, p-value=0.001; corr=0.237, p-value=0.000; corr=-0.549, p-value=0.000).

In addition, the value of the correlation between leverage ratio and ROA, R&D expenses, Net asset turnover are negative and significant. On the other hand, Ln (Gross Margin) is not related to the leverage ratio (corr=0.005, p-value=0.931).

6.3 Regression Analysis

In this section, authors use ordinary least square regression to find out the relationship between capital structure and corporate performance in two different models. Output of regression analysis elaborates the relationship. The objective of this part aims to state important outputs of regression and analyze them in order to answer the research question.

Regression analyses can be divided into three sections in order to give clear and comprehensive answers. In the first section, the hypotheses tests will be done for the six exploratory variables individually. General conclusion about the relationships between each measurements of corporate performance and capital structure are drawn. In the second section, the authors analyze the dummy variables separately in order to investigate the tendency of leverage ratio in the five years. In the third section, the ANOVA test and VIF test are done to estimate the validity of the data. Furthermore, all the results are statistically tested at 0.05 significant levels.

6.3.1 Hypothesis Tests

In each model, five hypothesis tests will be done individually to get the result whether each variable is significantly related to the leverage ratio or not. Since the p-value of each variable in each model is similar, the results of hypothesis tests in model 1 and 2 will be the same. Here, model 1 will be an example to run the hypothesis tests.

Table 3: Output for Regression Analysis_ Model 1

Dependent Variable: Leverage Ratio			
Method: Least Squares			
Included observations: 324			
Variable	Coefficient	Std. Error	Prob.
C	63.33476	7.781750	0.0000
ROA(%)	-0.953887	0.189321	0.0000
In(Gross Margin)	-7.455853	2.014873	0.0003
R&D Expenses/Operating Revenue (%)	-0.813558	0.316611	0.0106
In(Cash Flow/Operating Revenue)	4.696289	1.608787	0.0038
Net Assets Turnover	-7.844617	1.089572	0.0000
DUMMY_VARIABLE_2006	-1.042628	2.841693	0.7139
DUMMY_VARIABLE_2007	1.162556	2.837401	0.6823
DUMMY_VARIABLE_2009	-2.575926	2.823695	0.3623
DUMMY_VARIABLE_2010	-3.815849	2.819533	0.1769
DUMMY_VARIABLE_2011	-2.052282	2.819061	0.4672
R-squared	0.460189	Mean dependent var	29.31442
Adjusted R-squared	0.442943	S.D. dependent var	19.55481
S.E. of regression	14.59497	Akaike info criterion	8.232592
Sum squared resid	66673.15	Schwarz criterion	8.360951
Log likelihood	-1322.680	Hannan-Quinn criter.	8.283826
F-statistic	26.68331	Durbin-Watson stat	1.727946
Prob(F-statistic)	0.000000		

Table 4: Output for Regression Analysis_ Model 2

Dependent Variable: Leverage Ratio			
Method: Least Squares			
Included observations: 324			
Variable	Coefficient	Std. Error	Prob.
C	63.27247	7.593327	0.0000
ROA(%)	-0.960724	0.188098	0.0000
In(Gross Margin)	-7.396280	1.999378	0.0003
R&D Expenses/Operating Revenue (%)	-0.813670	0.314826	0.0102
In(Cash Flow/Operating Revenue)	4.676054	1.572748	0.0032
Net Assets Turnover	-7.844882	1.077300	0.0000
Year Variable	-2.863394	1.636094	0.0811
R-squared	0.458414	Mean dependent var	29.31442
Adjusted R-squared	0.448163	S.D. dependent var	19.55481
S.E. of regression	14.52643	Akaike info criterion	8.211185
Sum squared resid	66892.48	Schwarz criterion	8.292868
Log likelihood	-1323.212	Hannan-Quinn criter.	8.243789
F-statistic	44.71960	Durbin-Watson stat	1.725233
Prob(F-statistic)	0.000000		

ROA is regarded as an example of hypothesis test,

$H_0: \beta_1 = 0$ (there is no significantly different from zero) against $H_1: \beta_1 \neq 0$ (there is significantly different from zero) at 5% significance level, with d.f. (Degree of freedom) 312(=323-11)

The p-value is $0.0000 < \text{significant level} = 0.05$. Therefore, H_0 is rejected, which interprets there is significant relationship between ROA and Leverage Ratio. In Table 3, it is shown that the coefficient of ROA is -0.953887, which interprets ROA is negative significantly correlated to the Leverage Ratio: when ROA increases by one unit, Leverage ratio will decrease by 0.95 units.

The rest of the hypothesis tests are done in the same way. In the Table 3 and 4, it is shown that the P-value of $\ln(\text{Gross Margin})$, $\text{R\&D expenses/Operating Revenue}$, $\ln(\text{Cash Flow/Operating Revenue})$ and Net asset turnover are less than the significant level (= 0.05). These results of hypothesis tests interpret that ROA, $\ln(\text{Gross Margin})$, $\text{R\&D expenses/Operating Revenue}$ and Net asset turnover have significant relationships with leverage ratio. Moreover, in Table 3 and 4, it states that the coefficients of ROA, $\ln(\text{Gross Margin})$, $\text{R\&D expenses/Operating Revenue}$ and Net asset turnover are with minus sign and only the coefficient of $\ln(\text{Cash Flow/Operating Revenue})$ is with plus sign. These signs state that the ROA, $\ln(\text{Gross Margin})$, $\text{R\&D expenses/Operating Revenue}$ and Net asset turnover are negative significantly correlated to the Leverage Ratio while $\ln(\text{Cash Flow/Operating Revenue})$ is positive significantly correlated to the Leverage Ratio.

Overall, the relationship between capital structure and corporation performance in the listed Swedish companies under the financial crisis is statistical significant and negative.

6.3.4 Interpretations of Dummy Variables

Model 1

The initial regression model in this thesis is estimated as follows

$$\text{Leverage ratio} = \beta_0 + \beta_1 \text{ROA} + \beta_2 \ln(\text{Gross Margin}) + \beta_3 (\text{R\&D expenses/ Operating Revenue}) + \beta_4 \ln(\text{Cash Flow/ Operating Revenue}) + \beta_5 \text{Net Asset Turnover} + \beta_6 D_{2006} + \beta_7 D_{2007} + \beta_8 D_{2009} + \beta_9 D_{2010} + \beta_{10} D_{2011} + \varepsilon$$

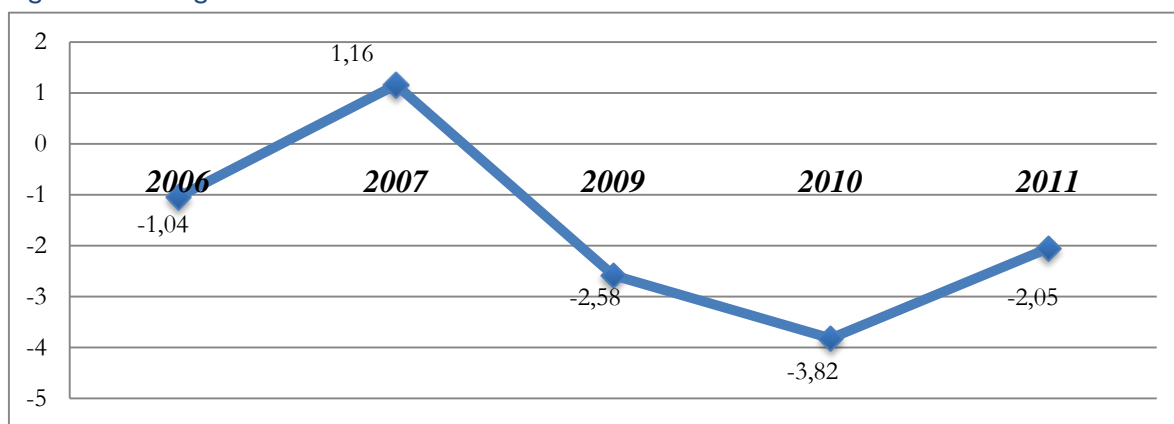
After the regression model has been done, the formula for the predicted variable can be written as following:

$$\text{Leverage ratio} = 63.33476 - 0.953887 \text{ROA} - 7.455853 \ln(\text{Gross Margin}) - 0.813558 (\text{R\&D expenses/ Operating Revenue}) + 4.696289 \ln(\text{Cash Flow/ Operating Revenue}) - 7.844617 \text{Net}$$

Asset Turnover - 1.042628 $D_{2006} + 1.162556 D_{2007} - 2.575926 D_{2009} - 3.815849 D_{2010} - 2.052282 D_{2011}$

After the hypotheses tests have been done for the five exploratory variables individually, the general conclusion about the relationships between each measurements of corporate performance and capital structure has been drawn. The other objective of this thesis is to find how the recent financial crisis affects the relationship between capital structure and corporate performance in listed Swedish companies. In order to illustrate this relationship more deeply, the dummy variables should be taken into consideration individually.

Figure 8 Leverage Ratio Tendencies



In the *Figure 8*, it is shown that the leverage ratio dramatically goes up from 2006 to 2007, which is from - 1.04 to + 1.16. Then it decreases sharply from 2007 to 2009, which is from + 1.16 to -2.58. Continuously, it slightly goes down from 2009 to 2010, which is from -2.58 to -3.82. However, the tendency turns to go up after 2010. There is a dramatically increase from 2010 to 2011, which is from -3.82 to -2.05. Since the peak of the leverage is in 2007 among these six years and the recent financial crisis started in 2008. Empirically, this table illustrated that the recent global Financial Crisis leads the leverage ratio increase among 54 listed Swedish companies at the beginning, and further stimulates the leverage ratio decline to the lower level after the financial crisis starts in 2008, but in the end, it goes up to the normal leverage ratio, which is nearly the same level as 2006, before the current financial crisis.

Model 2

The initial regression model in this thesis is drawn as following:

$$\text{Leverage ratio} = \beta_0 + \beta_1 \text{ROA} + \beta_2 \ln(\text{Gross Margin}) + \beta_3 (\text{R\&D expenses} / \text{Operating Revenue}) + \beta_4 \ln(\text{Cash Flow} / \text{Operating Revenue}) + \beta_5 \text{Net Asset Turnover} + \beta_6 D_{\text{Year}} + \varepsilon$$

After the regression model has been estimated, the formula can be written as following:

Leverage ratio = 63.27247 - 0.960724 ROA - 7.396280 ln (Gross Margin) - 0.813670 (R&D expenses/ Operating Revenue) + 4.676054 ln (Cash Flow/ Operating Revenue) - 7.844882Net Asset Turnover - 2.863394 D_{Year}

Regardless of other exploratory variables, the dummy variables invisibly affect the intercept of this regression model. In the other word, the leverage ratio is fluctuated by year factors.

Pre-Financial Crisis:

Leverage ratio = 63.27247 - 0.960724 ROA - 7.396280 ln (Gross Margin) - 0.813670 (R&D expenses/ Operating Revenue) + 4.676054 ln (Cash Flow/ Operating Revenue) - 7.844882Net Asset Turnover

Post-Financial Crisis:

Leverage ratio = 63.27247 - 0.960724 ROA - 7.396280 ln (Gross Margin) - 0.813670 (R&D expenses/ Operating Revenue) + 4.676054 ln (Cash Flow/ Operating Revenue) - 7.844882Net Asset Turnover - **2.863394**

Based on these two regression equations, they are shown that the leverage ratio in Pre-Financial Crisis (2006, 2007, 2008) is higher than that in Post-Financial Crisis (2009, 2010, 2011). Since p-value of this year dummy is 0.08, which is higher than 0.05 significant level, it is not significant.

6.3.2 Goodness of Fit Statistics

6.3.2.1 Adjusted R-Square

Adjusted R square is useful only if R square is calculated based on a sample, not the entire population (Cameron & Windmeir, 1996). In addition, adjusted R square is related to the numbers of variables and observations and the adjusted R^2 would be better index to measure the goodness of fit statistics in the regression model with more than one independent variables. There is more than one independent variable in this case, therefore the authors choose adjusted R^2 instead of R^2 . The values of Adjusted R-square in two Models are 0.442943 and 0.448163, which means 44 per cent of the total variance in leverage ratio has been explained. In other words, the correlation could be defined as comparably weak but explains a significant part of the variance in the analysis.

6.3.2.2 Variance Inflation factor (VIF)

Variance inflation factor (VIF) quantifies the severity of multicollinearity and interprets how much the variance of an estimated regression coefficient is increased due to multicollinearity.

Model 1

From Table 5, VIF index of all independent variables is lower than 5. Therefore, there is not significant multicollinearity in this regression model in general.

Table 5: Collinearity Statistics _Model 1

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	ROA(%)	0,265	2,019
	In (Gross Margin)	0,527	1,908
	R&D expenses / Operating revenue (%)	0,844	1,174
	In(CASH FLOW / OPERATING REVENUE)	0,338	2,824
	Net assets turnover	0,346	2,677

Model 2

From Table 6, VIF index of all independent variables is lower than 5. Therefore, in a conclusion, there is not significant multicollinearity in this regression model as well.

Table 6: Collinearity Statistics _Model 2

Model		Collinearity Statistics	
		Tolerance	VIF
2	(Constant)		
	ROA(%)	0,497	2,012
	In (Gross Margin)	0,527	1,897
	R&D expenses / Operating revenue (%)	0,853	1,172
	In (CASH FLOW / OPERATING REVENUE)	0,367	2,724
	Net assets turnover	0,379	2,641

6.3.3 ANOVA Analysis

Model 1

Table 7: ANOVA^b _Model 1

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62008,539	11	5637,140	28,596	0,000^a
	Residual	61503,604	312	197,127		
	Total	123512,143	323			

a. Predictors: (Constant), Dummy Variable 2011, In (Gross Margin), Dummy Variable 2008, ROE (%), Dummy Variable 2010, R&D expenses / Operating revenue (%), Dummy Variable 2006, Net assets turnover, Dummy Variable 2007, In (CASH FLOW / OPERATING REVENUE), ROA(%)

b. Dependent Variable: Leverage Ratio (%)

The ANOVA table in Model 1 shows that the profitability of F-test is 0.000, which smaller than 0.05, the null hypothesis is rejected. Therefore it illustrates that at least one of the coefficient of independent variables is not equal to zero.

Model 2

Table 8: ANOVA^b _ Model 2

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56619,659	6	9436,610	44,720	0,000^a
	Residual	66892,484	317	211,017		
	Total	123512,143	323			

a. Predictors: (Constant), After-Year Variable, ln(Gross Margin), ROA(%), R&D expenses / Operating revenue (%), Net assets turnover, ln (CF/OR)

b. Dependent Variable: Leverage Ratio(%)

In Model 2, the ANOVA table shows that the p-value of F-test (0.000) smaller than 0.05, so the null hypothesis is rejected, which means at least one of the coefficient of independent variables is not equal to zero.

7 Concluding Remarks

Based on the theoretical framework and empirical findings from the data and the regression analysis, the research questions and sub-questions could be solved. In the end, recommendations will also be suggested to researchers that desire to further study in this area.

7.1 Answer to Research Questions

- **What is the relationship between capital structure and corporation performance in listed 54 Swedish companies under the recent financial crisis?**

In the previous literature review, there are a large amount of researches that draw an empirical conclusion of the relationship between capital structure and corporate performance. Based on this empirical findings and analysis, there is a negative significantly relationship between capital structure and corporate performance for 54 Swedish listed companies in general. However, the authors find a couple of different relationships when analyzing our findings in detail. In this regression model 1, there is one dependent variable as the measurement of capital structure, five exploratory independent variables as measurements of corporate performance and five dummy variables as time factors. In model 2, five exploratory independent variables as measurements of corporate performance, one dependent variable as the measurement of capital structure, there is only one dummy variable in regression model.

- *Sub-research question 1: What are the determinants of the corporation performance?*

In this study, five independent variables based measurement of financial performance are used, which are profitability, Uniqueness or Growth, Asset composition, Cash flow/operating revenue and Net Asset turnover to determine the firm performance.

The profitability ratios play a significant role in the determinants of firm performance (Hansen & Wernerfelt, 1989). Return On Asset (ROA) and Gross Margin are the most widely used profitability ratios. ROA represents the ability of a firm to translate assets into profits, it shows the percentage of profit that earning of a firm relate to its overall resources. Growth margin calculated as the revenue minus the cost of good sold, then divided by revenue, which indicates earnings the company retains on each dollar of revenue to service its other costs and obligations. R & D expenses are crucial to the development of production techniques and the generation of new products. It has been regarded as the second key measurement of the

corporate performance in this paper. Moreover, cash flow/operating revenue ratio gives investors an idea of whether a firm is able to turn sales into cash and Net Asset turnover asset turnover ratio is imagining the business try to make its assets work hard to generate sales. Both of them also have been considered as the determinants of financial performance.

- *Sub-research question 2: What is the relationship between each determinant of corporation performance and capital structure?*

In the two models, the coefficient and P-value of each variable is similar. Therefore, the results indicated that the relationship between each determinant of corporation performance and capital structure does not significant effect between each other. And we can make the general conclusion as following:

After hypothesis testing of each exploratory independent variable, it is shown that all five independent variables have significantly relationships with capital structure – ROA, Gross Margin, R&D Expenses and Net Assets Turnover have significantly negative relationships with capital structure while only Cash Flow/Operating Revenue have a significantly positive relationship with capital structure.

In general, the relationship between capital structure and corporation performance in listed 54 Swedish companies under the recent financial crisis is significantly negative.

- *Sub-research question 3: What is the debt ratio tendency before and after the financial crisis among 54 listed Swedish companies?*

Since the results of two regression models reveals that the relationship between capital structure and corporation performance in listed 54 Swedish companies under the recent financial crisis is generally similar. The difference is measured by the coefficients of dummy variables, which indicate the difference in intercepts. In Model 1 (Figure 7), it could be concluded that the debt ratio increases dramatically before the recent financial crisis (from 2006 to 2007) and then sharply declines afterwards (from 2007 to 2010), but in the end (in 2011) is back to the previous level of leverage ratio as before the financial crisis. In Model 2 (Table 5), the coefficient of the Year Dummy Variable is -2.863394, which indicates the leverage ratio in pre-financial crisis (from 2006 to 2008) is generally higher than that in post-financial crisis (from 2009 to 2011). This conclusion also coincides with Figure 7, which shows that leverage ratio from 2006 to 2008 is above zero while leverage ratio from 2009 to 2011 is below zero.

Empirically, an increase in leverage ratio can lead companies get more benefit from debt, however when the level reaches to peak or certain level, it may cause the recent financial crisis to some extents since companies cannot pay off the larger amount of debt and they have to apply for the bankruptcy. Here, managers of Swedish companies have chosen higher leverage ratios from 2006 to 2007, which is the peak in leverage ratio over the observation period. At this point, the recent financial crisis has potentially started. During the recent financial crisis, the managers of Swedish companies adjusted to this global financial crisis in the coming year. Therefore, the leverage ratio of general Swedish companies declined from 2008 to 2010. When the leverage ratio reaches the bottom level in 2010, it turned to go up to the previous leverage ratio in year 2011, when the same leverage ratio can be seen as before the financial crisis started.

To conclude, in general, there is a significantly negative relationship between capital structure and corporation performance in listed 54 Swedish companies under the recent financial crisis. Based on the trade-off theory, if debt ratio is higher than the optimal capital structure, firm of value will decline when leverage ratio increase. Therefore, the leverage ratio is higher than the optimal leverage ratio during the financial crisis. The general higher leverage ratio leads the relationship to negative.

7.2 Future Research Recommendation

After the reflection on the whole research, the authors of this thesis find there are several weaknesses of our analysis in the different sectors. And it would be helpful for future researchers to avoid these weaknesses in this certain field.

- The data of this research is 54 companies, which is selected from the TOP 250 largest Swedish companies. Smith and Stulz (1985) stated that capital structure has pronounced industry patterns, and these are the identical around the world. It could be better for the future researchers to lower this weakness by sorting the overall data into different industries. Then different regression models would be run by the certain industries.
- Different independent variables such as Return on investment (ROI), EBIT/ Sales ratio may also be included in the further research to test whether the different result occurs. In addition, a further selection could for instance add more dependent variables such as short-term debt ratio and long-term ratio so that more models are created to analyze the capital structure-firm performance relationship.

8 Appendix I_ Names of Listed 54 Swedish Company

ABB NORDEN HOLDING AB	NORDSTJERNAN AKTIEBOLAG
AKTIEBOLAGET ELECTROLUX	NÅIDEN AB
AKTIEBOLAGET SKF	PEAB AB
AKTIEBOLAGET VOLVO	POSTEN MEDDELANDE AB
ALBERT BONNIER AB	POSTNORD AB
ALFA LAVAL AB	RATOS AB
ASSA ABLOY AB	SAAB AKTIEBOLAG
ATLAS COPCO AKTIEBOLAG	SAMHALL AKTIEBOLAG
ATTENDO AB (PUBL)	SANDVIK AKTIEBOLAG
AUTOLIV AKTIEBOLAG	SAPA AB
AXEL JOHNSON AKTIEBOLAG	SAS AB
AXEL JOHNSON HOLDING AKTIEBOLAG	SCANIA AKTIEBOLAG
BONNIER AB	SCANIA CV AKTIEBOLAG
BRANÄS GRUPPEN AB	SECURITAS AB
ERICSSON AB	SKANSKA AB
ESCO MARGINALEN AB	SONY MOBILE COMMUNICATIONS AB
GETINGE AB	STAXERED INVEST AB
GRÖNKLITTSGRUPPEN AB (PUBL)	STENA AKTIEBOLAG
H & M HENNES & MAURITZ AB	SVENSKA CELLULOSA AKTIEBOLAGET SCA
HEXAGON AKTIEBOLAG	TELEFONAKTIEBOLAGET L M ERICSSON
HUSQVARNA AKTIEBOLAG	TELIASONERA AKTIEBOLAG
ICA AB	TOYOTA INDUSTRIES EUROPE AB
INVESTOR AKTIEBOLAG	TRELLEBORG AB
JSM GRUPPEN AB	VATTENFALL AKTIEBOLAG
KALMAR KOMMUNBOLAG AB	VOLVO PERSONVAGNAR AKTIEBOLAG
LANDSTINGSHUSET I STOCKHOLM AKTIEBOL	YGEIA TOPHOLDING AB
LOOMIS AB	
NCC AKTIEBOLAG	

9 Appendix 2_Equation

9.1 Pearson correlation coefficient

The equation for Pearson correlation coefficient is:

$$r_{xy} = \frac{\Sigma(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{(x_i - \bar{x})^2(y_i - \bar{y})^2}}$$

where \bar{x} , \bar{y} represents the sample means of two variables, respectively.

9.2 R-Square

It is also called the coefficient of determination, where

$$R^2 = \frac{\text{Explained variation}}{\text{Total variation}}$$

9.3 Adjusted R-Square

The adjusted R^2 is defined as:

$$\bar{R}^2 = 1 - \frac{(1-R^2)(n-1)}{n-k-1}$$

where k is the total number of variables in the regression model (without counting the constant term), and n is the number of observations.

9.4 Variance Inflation Factor

The equation for VIF is:

$$VIF = \frac{1}{1 - R_i^2}$$

where R_i^2 is the coefficient of determination.

9.5 Long-term debt ratio

$$\text{Long - term debt ratio (\%)} = \frac{\text{Long - term debt}}{\text{Total assets}}$$

9.6 ROA

$$ROA (\%) = \frac{\text{Net Income}}{\text{Total Assets}}$$

9.7 Gross Margin

$$\text{Gross Margin (\%)} = \frac{\text{Revenue} - \text{Cost of goods sold}}{\text{Revenue}}$$

9.8 Uniqueness

$$\text{Uniqueness}(\%) = \frac{\text{R\&D expenditure}}{\text{operating revenue}}$$

9.9 Cash Flow/Operating Revenue Ratio

$$\frac{\text{OCF}}{\text{Revenue}} \text{ Ratio} = \frac{\text{Operating Cash Flow}}{\text{Revenue}}$$

9.10 Asset Turnover

$$\text{Asset turnover } (\%) = \frac{\text{Net Sales Revenue}}{\text{Average Total Assets}}$$

10 References

- Actuarial Science Studies (2012). Actuarialsciencestudies.blogspot.se. Retrieved 2012-06-05, from <http://actuarialsciencestudies.blogspot.se/2012/03/trade-off-theory.html>
- Adkins, W. D. (2011). The determination of long-term credit standing with financial ratios. *Journal of Accounting Research*, 44-62.
- Akbar, A. J., Javadian, H., & Kootanaee, H. J., (2012). A comparison of performance measures for finding the best measure of business entity performance. *Journal of Finance and Investment Analysis*, 1(4), 27-35.
- Altman, E. I. (1984). A further empirical investigation of the bankruptcy cost question. *Journal of Finance*, 39, 1067–1089.
- Artis, M. J., & Zhang, W. (1997). International business cycles and the ERM: Is there a European business cycle. *International Journal of Finance and Economics*, 2(1), 1–16.
- Bailey, R. A. (2008). *Design of Comparative Experiments*. London: Cambridge University Press.
- Berk, J., & DeMarzo, P. (2007). *Corporate Finance*. Boston: Addison Wesley.
- Baumol, W. J., & Malkiel, B. G. (1968). Earnings retention, new capital and the growth of the firm. *The Review of Economics and Statistics*, 52(4), 345-355.
- Baxter, N. (1967). Leverage, risk of ruin and the cost of capital. *Journal of Finance*, 22, 395–403.
- Bistrova, J., Lace, N., & Peleckienė, V. (2011). The influence of capital structure on Baltic corporate performance. *Journal of Business Economics and Management*, 12(4), 655-669.
- Bradley, M., Jarrell, G., & Kim, E. H. (1984). On the existence of an optimal capital structure: theory and evidence. *The Journal of Finance*, 39, 857-878.
- Campello, M. (2006). Debt Financing: Does it boost or hurt firm performance in product markets? *Journal of Financial Economics*, 82(1), 135-172.
- Casteuble, T. (1997). What today's association executives earn. *Association Management*, 49(4), 53-61.
- Chemmanur, T., & Fulghieri, P. (1994). Reputation, renegotiation, and the choice between bank loans and publicly traded debt. *Review of Financial Studies*, 7(3), 475-506.
- Ketels, C. (2012). *Sweden's Position In the Global Economy*. Sweden: Entreprenörskapsforum.
- Csiszar, J. (2010, March 29). What is financial leverage and how is it provided by long-term debt? Retrieved 2013-05-16 from http://www.answerbag.com/q_view/1978789

- Dalene, K., & Stangl, D. K. (2012). Encyclopaedia of statistics in behavioural science. *Journal of the American Statistical Association*, 103(482), 881-882.
- Delamont, S. (1992). Teachers' pedagogical systems and grammar teaching: A qualitative study. *TESOL Quarterly*, 32(1), 9-38.
- Damodaran, A. (2001). *Corporate Finance: Theory and Practice*. New York: Wiley.
- Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-97.
- De Mooij, R. (2011). Tax biases to debt finance: Assessing the problem. *Fiscal Studies*, 33(4), 489-512.
- DeAngelo, H., & Masulis, R. W. (1980). Optimal capital structure under corporate and personal taxation. *The Journal of Financial Economics*, 8, 3-29.
- Delamont, S. (1992). *Fieldwork in Educational Settings: Methods, Pitfalls and Perspectives*. London: Falmer.
- Draper, N. R., & Smith, H. (1998). *Applied Regression Analysis*. New York: Wiley.
- Dziuda, W., & Mondria, J. (2012). Asymmetric information, portfolio managers, and home bias. *Journal of Economic Literature*, 51(1), 63-115.
- Farris, P. W., Bendle, N. T., Pfeifer, P. E., & Reibstein, D. J. (2010). *Marketing metrics: The definitive guide to measuring marketing performance*. New Jersey: Pearson Education
- Ferris, S., Jayaraman, N., & Makhija, A. (1997). Direct costs of bankruptcy: evidence from filings of liquidations and reorganizations by small firm. *Advances In Financial Economics*, 3, 159-186.
- Fosberg, R. H. (2011). Capital structure and the financial crisis. *Journal of Finance Accountancy*, 1-11.
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review*, 53(3), 433-443.
- Kwansa, F. A., & Cho, M. H. (1995). Bankruptcy cost and capital structure: the significance of indirect cost. *International Journal of Hospitality Management*, 14(3), 339-350.
- Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67, 217-248.
- Fruhan, W. E., Jr, W. C., & Kester, S. P. (1992). *Teacher's Manual for Case Problems in Finance*. IL: Irwin.
- Glaude, M. et al (2009). *Science, Technology and Innovation in Europe*, Eurostat Pocketbooks, 15-30

- Ghauri, P., Gronhaug, K., & Kristinslund, I. (2010). *Research Methods in Business Studies*, Edinburgh: FT.
- Ghosh, A., Cai, F., & Fosberg, R. H. (2007). Capital structure and firm performance. United States: ANS.
- Given, L. M. (2008). *The SAGE encyclopedia of qualitative research methods*. Los Angeles, Calif.: Sage Publications.
- Gleason, K. C., Mathur, L. K., & Mathur, I. (2000). The interrelationship between cultures, capital structure, and performance: Evidence from European retailers. *Journals of Business Research*, 50,185-91.
- Gujarati, D. N.(2004). *Basic Econometrics*, New York: The McGraw–Hill Companies.
- Hamada, R. S. (1969). Portfolio analysis, market equilibrium and corporation finance. *The Journal of Finance*, 24(1), 13-31.
- Hansen, B. E. (1996). ECONOMETRICS: the likelihood ratio test under nonstandard conditions: testing the Markov switching model of GNP. *Journal of Applied econometrics*, 11(2), 195-198.
- Hansen, S. G., & Wernerfelt, B. (1989). Determinants of firm performance: The relative importance of economic and organizational factors. *Strategic Management Journal*, 10(5), 399-411.
- Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, 46(1), 297-355.
- Hatfield, G. B., Louis, T. W., & Davidson, W. N. (Fall 1994). The determination of optimal capital structure: The effect of firm and industry debt ratios on market value. *Journal of Financial And Strategic Decisions*, 7(3).
- Haugen, R. A., & Senbet, L. W. (1978). The insignificance of bankruptcy costs to the theory of optimal capital structure. *Journal of Finance*, 33(2), 383-393.
- Hillier, D. J., Ross, S. A., Westerfield, R. W., Jaffe, J. J., & Jordan, B. D. (2010). *Corporate Finance*. Maidenhead: McGraw Hill Higher Education.
- Hoshi, T., Kashyap, A., & Scharfstein, D. (1990). The role of banks in reducing the costs of financial distress in Japan. *The Journal of Financial Economics*, 27(1), 67-88.
- Hutchinson, R. W. (1995). The capital structure and investment decisions of the small owner-managed firm: Some explanatory issues. *Small Business Economics*, 7, 231.
- Investor.com.(2005). Long-term debt. Retrieved 2013-03-24 from http://www.investorwords.com/2888/long_term_debt.html
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

- Johanson, M. (2009, October 01). The Swedish authorities take a stand IFLR.com. Retrieved 2013-05-16, from <http://www.iflr.com/Article/2324193/Sweden-The-Swedish-authorities-takes-a-stand.html>
- K. F. K. Bank (2013). kfkknowledgebank.com. Retrieved 2013-06-02, from <http://kfkknowledgebank.kaplan.co.uk/KFKB/Wiki%20Pages/Theories%20of%20Gearing.aspx>
- Kalemli, S. O., Sorensen, B., & Yesiltas, S. (2011). Leverage across firms, banks, and countries. *Journal of International Economics*, 88(2), 284-298.
- Ketels, C. (Eds.). (2009). *Clusters, Cluster Policy, and Swedish Competitiveness in the Global Economy*. Västerås: The Globalisation Council.
- Kraus, A., & Litzenberger, R. H. (1973). A state-Preference model of optimal financial leverage. *Journal of Finance*, 28(4), 911-922.
- Krishnamurthy, A. (2010). How debt markets have malfunctioned in the crisis. *Journal of Economic Perspectives*, 24(1), 3-28.
- Lafaille, R., & Wildeboer, H. (1995). *Validity and reliability of observation and data, collection in biographical research*. Belgium: The International Institute for Advanced Health Studies.
- Lomax, R. G. (2007). *Statistical Concepts: A Second Course*. Mahwah, NJ: Lawrence Erlbaum.
- Loth, R. (2009). Cash flow indicator ratios. Retrieved 2013-05-16 from <http://www.investopedia.com/university/ratios/cash-flow-indicator/ratio1.asp>
- Marquardt, D.W. (1970). Generalized inverses, ridge regression, biased linear estimation, and nonlinear estimation, *Technometrics*, 12(3), 591, 605–607.
- Martin, F., & Green, J. (1983). Why do companies pay dividends? *The American Economic Review*, 73(1), 17-30.
- McKibbin, W. J., & Stoeckel, A. (2009). The Global Financial Crisis: Causes and Consequences. *Asian Economic Papers*, 9(1), 54-86.
- Meggison, W. L., & Smart, S. B. (2008). *Introduction to Corporate Finance*. USA: LEAP publishing service.Inc..
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297.
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review*, 53, 443-53.
- Money-zine.com. (2004). Leverage Ratio. Retrieved 2013-03-24 from <http://www.money-zine.com/definitions/investing-dictionary/leverage-ratio/>
- Moore, D. S., & McCabe, G. P. (2003). *Introduction to the practice of statistics*. New York: W.H. Freeman & Co.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (Spring 2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2).

Morgan, D. L., & Margaret, T. (1984). Focus groups: A new tool for qualitative research. *Qualitative Sociology*, 7(3), 253-270.

Morgan, G., & Smircich, L. (1980). The Case for Qualitative Research. *The Academy of Management Review*, 5(4), 491-500.

Miller, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.

Myers, S. C. (1984). Capital structure puzzle. *The Journal of Economic Perspectives*, 15(2), 81-102.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 12, 187-221.

Pratheepkanth, P. (2011). Capital structure and financial performance: evidence from selected business companies in Colombo stock exchange Sri Lanka. *Journal of Arts, Science & Commerce*.

Phillips, P. A. & Sipahioglu, M. A. (2004). Performance implications of capital structure as evidence from quoted UK organizations with hotel interests. *The Service Industries Journal*, 24(5), 31-51.

Pike, R., & Neale, B. (2006). *Corporate Finance and Investment: Decisions and Strategies*. Spain: Graficas Estella.

Punch, K. (1998). *Introduction to Social Research: Quantitative and Qualitative Approaches*, London: Sage Publications.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, 50(5), 1421-1460.

Reuters.com. (2009, February 27). Three Top Economists Agree 2009 Worst Financial Crisis Since Great Depression; Risks increase if Right Steps are Not Taken. Retrieved 2013-05-16 from <http://www.reuters.com/article/2009/02/27/idUS193520+27-Feb-2009+BW20090227>

Riskbank.se. (2009, January 20). Öberg: Sweden and Financial Crisis. Retrieved 2013-05-16 from <http://www.riksbank.se/en/Press-and-published/Speeches/2009/Oberg-Sweden-and-the-financial-crisis/oberg>

Ross, S. A., Westerfield, R. W., Jaffe, J. F., & Jordan, B. D. (2011). *Corporate Finance: Core Principles and Applications*. Maidenhead: McGraw Hill Higher Education.

ScandAsia.com(2009 June 10). Malaysia, Singapore, Vietnam and Sweden: Best at beating global crisis. Retrieved 2013-05-16 from <http://scandasia.com/5504-malaysia-singapore-vietnam-and-sweden-best-at-beating-global-crisis/>

Schellhorn, M. (2001). A comparison of alternative methods to model endogeneity in count models: An application to the demand for health care and health insurance choice. *SEDAP Research Program*.

Serrasqueiro, Z., & Nunes, P. N. (September, 2010). Are trade-off and pecking order theories mutually exclusive in explaining capital structure decisions. *African Journal of Business Management*, 4(11), 2216-2230.

Shah, A. (2010, September 30). *Global Financial Crisis*. Retrieved 2013-03-24 from <http://www.globalissues.org/article/768/global-financial-crisis#>.

Smith, C. W., René, M., & Stulz, R. Z. (1985). The determinants of firms' hedging policies. *Journal of Financial and Quantitative Analysis*, 20(4), 391-405.

Stanton, R., & Seasholes, M. S. (2005, November 5). *The assumptions and math behind WACC and APV calculations*. Retrieved 2013-05-16 from <http://ssrn.com/abstract=837384>

Stewart, C., Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firm have information that investors do not have. *Journal and Finance and Economics*, 13(2), 187-221.

Stiglitz, J. E. (1974). On the Irrelevance of Corporate Financial Policy. *The American Economic Review*, 64(6), 851-866.

Stiglitz, J. E. (1972). Some Aspects of the Pure Theory of Corporate Finance: Bankruptcies and Take-overs. *The Bell Journal of Economics and Management Science*, 3(2),458-482.

Studenmund, A. H. (2006). Using econometrics: A practical guide, 5th Edition, Pearson International Edition, 258–259.

Tan, T. K. (2003). Financial distress and firm performance :Evidence from the Asian Financial Crisis. *Journal of Finance and Accountancy*.

Tezel, A., & McManus, G. M. (2003). Disaggregating the return on equity: An expanded leverage approach. *Journal of Applied Finance*, 13(1), 66–71.

Uhlig, H. ,& Fiore, F. D. (Eds.). (2012). *Corporate debt structure and the financial crisis*. St. Louis: EDIRC.

Wade, R. (2008). The first –word debt crisis of 2007-2010 in global perspective. *Challenge* ,51(4),23-54.

Warner, J. B. (1977). Bankruptcy costs: some evidence. *The Journal of Finance*,32(2),337-347.

Whittington, G. (2005). The adoption of international accounting standards in the European Union. *European Accounting Review* , 14(1), 127-153.

WebFinance, Inc. (2013, May 1). *Short-term debt, long-term debt*. Retrieved from <http://www.investorwords.com/>

Österholm, P. (2010). The effect on the Swedish real economy of the financial crisis. *Financial Economics*,20(4),265-274.