Capital Structure and Financial Performance in Car Manufacturing Sector: The Case of Germany and Japan

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Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirement for the Degree of

Master of Science
in
Banking and Finance

Eastern Mediterranean University
February, 2015
Gazimagusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

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ABSTRACT

This Thesis aims to investigate the capital structure of automobile manufacturing industries in two developed countries of Germany and Japan during different crises between 2007 and 2013. Capital (or Financial) Ratio Analysis is conducted to investigate the impact of capital and leverage ratios of Debt to Equity, Total Debt to Total Assets, and Current Ratio on their capital structure strategies during the 2007 to 2013, to observe the effects of different world crisis on them.

The results indicate that car manufacturing companies are considered to be capital intensive industries and use a large number of debts to finance their operations. Capital structure is varying from country to another country because of economic conditions. In both Germany and Japan, car manufacturing corporations showed that in times of insufficient capital they relied on banks. However, nowadays in European car manufacturing countries, there is no shortage of capital in the capital market and they continued to finance themselves relatively even though facing economic and natural crises.

Keywords: Capital structure, equity, debt, ratio analysis, Germany, Japon. Automobile sector

ÖZ

Bu tez ampirik olarak Almanya ve Japonya otomobil sektörlerinin sermaye yapısını 2007 ile 2013 yılları arası kriz dönemlerindeki finansal değerlerine göre ölçer. Sermaye oranları analizi kullanılarak borç varlık oranına göre sermaye ve kaldıraç oranları tahmin edilmiştir.

Ampirik bulgular ilgili otomobil imalat sektöründeki firmalar sermaye yoğunluğuna göre çalışmakta ve büyük miktarda borç kullanmaktadırlar. Sermaye yapısı ülkeden ülkeye ekonomik durumlar itibarıyle değişmektedir. Hem Almanya hemde Japonya'daki otomobil firmaları sermaye yetersizliklerini banklardan alınan borçlarla gidermektedirler. Fakat bugünlerde Avrupa'daki otomobil firmaları göreceli olarak daha az sermaye zorluğu çekmektedir.

Anahtar kelimeler: Sermaye yapısı, özvarlık, değerler, oran analizi, Almanya, Japonya, otomobil sektörü.

DEDICATION

I dedicate my dissertation work to my family and many friends. A special feeling of gratitude to my loving parents, Sharare Yaghini and Jalal Pedram whose words of encouragement and pushes for tenacity ring in my ears.

I dedicate this work and give special thanks to the best persons, for being there for me throughout the entire master program. Both of you have been my best cheerleaders.

ACKNOWLEDGEMENT

I would like to express my unlimited thanks to God Almighty for his love and blessings. He gave me in an effort to writing this thesis work. To my Parents and loved ones for their support, promotion and contribution to the success of this thesis work. My deepest Gratitude and appreciation goes to my thesis supervisor; Prof. Dr. Sami Fethi who with efforts supervise every bit and stage of my work even at the expense of his leisure time. I wish to express my profound gratitude to my Lecturers and all the members of Faculty of Banking and Finance at Eastern Mediterranean University and also I would like to thank all my friends for their friendship and hospitality.

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INTRODUCTION

1.1 Philosophy of the Study

The capital market has reached to a high growth in developing countries. It has become the main source for corporations to increase their required capital. Companies have two sources of financing: Internal financing and external financing. The internal financing is when managers and owners of the company start to finance their operation themselves with their own funds whereas external finance considered by using two sources of equity and debt for financing. The mixture of using both debt and equity financing is called capital structure.

Financial managers of corporations investigate the best combination of using both debt and equity to primarily maximize the shareholder's revenue and value. The case had been issue for sometimes as Modigliani and Miller showed the irrelevancy of capital structure in 1958. The statement was that the real value of a corporation is indicated by the real assets value and not by the amount of equities and debts. The proposed a model for capital structure and in the following years other theories based on this model were born to investigate the capital structure in different situations and forms such as Pecking order theory and Trade-off Theory.

The automobile manufacturing corporations are considered to be high capital intensive and their capital structure is known to run mostly on acquiring capital from

capital markets. For investors there is no easy and fast way to handle the company's debt situation. As a starting point, capital ratios especially debt ratio offers a good method for investigating a corporation's fundamental and economic health. They signal valuable debt problems especially in economic crisis of 2008-2010. Many financial firms faced with being overleveraged with debt and their value of assets fell and debt ratio became too high to be considered sustainable. Knowing these situations in advance investors can save a lot of their money.

1.2 Aim and Scope of the Study

This study aims to investigate and understand the capital structure and ratio trends of automobile manufacturing industries in two developed countries of Germany and Japan during different crises between 2007 and 2013. The capital ratios are vital methods and tools for a company's balance sheet durability. The strength of balance sheet become more important as company faces different financial problems and it shows the investors the ability of company's financial position to survive tough periods such as crisis periods. The debt leveraged companies have tend to encounter difficult tasks of paying their interest obligations and financial markets will punish larger firms in crisis periods to take back many of their lost revenues.

1.3 Methodology of the Study

The study sample group is consisting of 6 different major car manufactures in two different developed countries in Japan and Germany representing the Asia and Europe. They selected based on availability of correct and suitable data which being enough to get a better understanding of their capital structure. The three capital and leverage ratios of Debt to Equity, Total Debt to Total Assets, and Current Ratio is used to investigate their stand on their capital structure strategies during the 2007 to 2013, understanding the effects of different world crisis on them.

1.4 Outline of the Study

The study is consists of five chapters. In the first chapter, a summary of study's philosophy along with aims and scope of the study is presented. The second chapter is the literature review of the study and consists of describing different financial sources and capital structure theories. In the third chapter a review of automobile manufacturing company financing is presented along with capital ratios and components of capital structure in addition to advantages and disadvantages of using and interpreting the capital structure ratios. In the fourth chapter, summaries of all corporations profiles along with data and analysis of capital ratios is presented. In the final chapter, Findings and results were interpreted and a conclusion is given for the study. Within the same chapter, managerial implications and limitations for future studies are given.

Chapter 2

LITERATURE REVIEW

2.1 Internal Financing

The first source of funding of corporation's projects and operations is the internal financing. Internal financing is consisting of using own earnings and not using equity or debts which are considered to be the external source of finance outside the corporation. New investments will be funded by their own earned profits and not distributing those funds to shareholders or investors of them firm. It is exactly in contrast to external financing which is providing money from outside of the firm for investments. The advantage is that it is cheaper in comparison to external financing as costs for transactions of funds are non-existence and there is no tax payment related to dividends.

There are different sources for internal financing. The most used and important ones are:

- Retained Earnings – they are an easy source of internal financing to use because they are liquid assets and by not paying the shareholders they can be reinvested into the company's future projects.
- Current Assets - Current assets consist of cash or assets that can easily be converted into cash.
- Fixed Assets - Fixed assets are those assets that are not easily converted to liquid cash. Typically, these assets include equipment, property and

warehouses. Because these assets take time to convert to cash, they cannot be relied on for short-term financing.

Corporation managers use internal financing so as to avoid the cost of issuing debt and equity instruments. Moreover, shareholders of the company are satisfied not to receive the dividends and instead to let the company use the cash to invest in the projects with positive NPV, as these projects generate a higher price and greater future dividends for their shareholders. Shareholders are also usually satisfied with internal financing because it makes their shares more valuable and it causes capital gain and in reality, in all around the world, taxes on capital gain are less than dividends. Shareholders will be more satisfied if the earnings will be used in future investments rather to being paid as dividends (Carpenter, 2002).

2.2 External Financing

External financing is described as obtaining the funds outside of the business firm (Richardson, 2003). This source of funding is in contrast to internal financing which was using funds from inside sources. The external financing is divided into two debt issuing financing and equity financing.

2.2.1 Debt Financing

The process of debt financing is to borrow funds from the market for financing the firm with having a promise to repay the interests and principals. For new corporations, they start to use the debt to finance their organizations and follow up operations. All of organization's balance sheets include a debt sections. Debt is also called leverage which is the popular choice for debt's source is the bank. Debts can also issue by private corporations and even family members and friends.

Debt financing has several advantages and disadvantages.

Advantages of debt financing:

- Maintain the ownership of the company: after borrowing from lenders, the owner obligated to pay a certain amount of agreed payments. After the end of obligation, owners can choose to however run their corporation without outside interference.
- Tax deductions: in most of business loans, the tax deduction is classified as business expenses. Therefore, it can be deducted from company's business income taxes. Sometime government can be considered as a "partner" and with the tax out of business equation; it can be beneficial to business of corporation.
- Lower interest rates: if managers analysis the impact of these tax deductions on bank rates, they can understand that they can take advantage on loans they can deduct.
- Payment's predictability is high: it is easy to predict the loan payments.

Disadvantages of debt financing:

- Repayment of owner's obligations: there is always the danger of failing the business. If it happens the managers still have to make the payments. If they are forced into bankruptcy the lenders will claim any repayment before the investors.
- High rates: after the tax deduction's calculations, managers are still faced with high interest rates.

- Credit rating impacts: borrowing loans will be noted on manager's credit rating and with more borrowing, the higher interest rates they must pay.
- Difficulty in obtain when the project is risky: when the success is uncertain and the project is risky, it is difficult to borrow loans for it.
- Demand loans: if the loan type is "demand" loan, the lender can call it at any time.
- Dealing with restrictions: lenders of the loans will often put many restrictions on payment.

There are several alternatives to debt financing such as equity financing which involves selling company's shares to investors or by manager's own money. Mezzanine financing which lenders offers the unsecured debt and tradeoff is in a high interest rate. Hybrid financing is a combination of debt and equity which Modigliani-Miller theory explains it and in future chapters this study will investigate it (Campello, 2006).

There two major types of debt: unsecured debt and secured debt. Secured debts are considered to have collateral and tied to corporation's assets. If company fell behind their payment, lenders can take the assets and will be sold. If the price doesn't cover all of debt, lenders can purse the managers for difference. Examples of secured loans are auto loans and mortgage loans. Security of mortgage is the borrower's home which will lenders will claim your property if it fails (Lewis, et al., 2003).

Unsecured debts are the debts which lenders don't put any collateral for the debt. If managers fall behind the payments they will use other actions to receive their payments. These actions are hiring debt collectors and using court to garnish the

company's wages or put a lien on some assets to force the managers to pay. As mentioned before that using external equity, the government can be considered as one of the shareholders and the income is the tax. By increasing the amount of tax the fewer dividends will be paid to shareholders who the interests of debt are paid from pretax income of the corporation and considered to be tax deductible (Walter S. Good, 2003).

There are also many sources of debt financing to finance the start-up business such as using private sources such as friends and relatives which can be in a form of debt capital with a low interest rate. Banks and other commercial lenders are major popular sources of financing. They need a solid business plan in addition to plenty of collateral and positive credit records. When the business gets underway and statements of profits and losses comes up the company can acquire additional funds from banks. Commercial finance companies are also considered but when all other commercial sources are unavailable. They are not the best place for financing because their costs are much higher. Government programs are originally designed to help financing the new companies and small businesses. Their help comes in as assurance of repayment on the loan. Bonds also used to finance a specific activity of the company. The bonds are different from other instruments as companies are issuing them and they will specify the interest rate on maturity date.

There are three permanent and important parameters in debt financing; principal which is the total amount of borrowed principal. Interest rate, which determines the price to be paid for borrowed funds and the maturity of the loan (Good S.W, 2003).

For calculating the total firm's value, the combination of company's debts and equity is calculated which is the value of debts plus the value of equity. For acquiring profits companies are advised to use tax-shield which is calculated by company's tax rate (TcD) multiple by interest payments which consists of total debt multiple by interest rate ($r_D * D$) and divided by return on debt (r_D).

$$TcD\ (tax - shield) = \frac{Tc(r_D * D)}{r_D}$$

Debt policy in corporations is one of key factors which determine the corporation's ability to overcome financial issues and problems (Citak, Levet, et al., 2012). The leverage term in corporate debt policy is defined as use of funds and assets to generate the required amount to cover variable and fixed costs. The concept of debt ratio or leverage has been provided by Weston and Copeland (1997) which is the ratio of total debt to total assets. This ratio shows the amount of assets which is backed by debt in percentage. The higher this ratio, the higher the risk in company's equity and investors demand a higher rate of return. Sometimes creditors avoid getting a high ratio and company is obliged to maintain the leverage below a certain limits.

Leverage ratio is considered one of the solvency ratios which determine the ability of company to pay the obligation to lenders if the liquidation occurs. Another ratio is Debt to Equity Ratio or DER, which is total debt to total equity. The higher the ratio the shareholders will provide lower funds to the company as this ratio determines the provision funds of shareholders against the lender of debt. In the long-term, the lower the ratio, the higher probability of company's ability to pay its long-term liabilities.

Both of Debt to Equity Ratio (DER) and leverage are tools of performance measurements in analyzing the financial statements. Their difference between them is their objective analysis. The leverage shows the level of company's risk to pay the future obligations while DER is the information used by shareholders to determine their company's investments amount from the shareholder's equity.

2.2.2 Equity Financing

Equity is when cash and funds are paid into the business. Managers of the company can issue shares to raise the funds. These shares are directly issued in proportional to the investment amount so the shareholder which invested more money, controls the most of company ranges from 25 to 75 percent. Investors put funds and cash in hope of getting the future profits and growing the value of the stocks. They can earn dividends or selling it. The maximum number of share which can be issued by company is called authorized share capital.

There are advantages and disadvantages to equity financing as it was with the debt financing, advantages are permanent capital which in turn grows the net worth of the company plus financial strength and borrowing capacity. It also enhances the credibility of the company. There are no needs of scheduled payment and no personal liabilities. It is accountable and company can use the expertise of the investors. The disadvantages are Dilutes ownership and it is more expensive in comparison to debt when it is successful. Also there is no means of reversing the transactions. There is also difficulty in finding the investors (Benjamin G. and Margulis J. 2005).

There are many sources of equity financing such as personal saving, which it is owner's money from savings or personal resources and this is the first place to look

for funds. Life insurance policies are a standard factor of insurance policies which enable the owners of the companies to borrow funds against the cash value of the lender's policy. Friends and relatives can also invest in the business as they are treated formally as investors. In the following sections, factors which affect the choices of capital by Servaes and Tufano (2006) is shown.

- Stability of Sales: When firms want to select an equity or debt to gain funds they consider sales stability. They usually have stable sales and more debts compared to industrial firms.
- Structure of Companies Assets: This factor influences the selection of capital structure. Two types are assets structure are general assets and special assets. General purpose assets are highly leverage in contrary to special assets and are used in collateral.
- Company's Profitability: The important variable in selecting the equity or debt. Several studies showed that profitable firms with high return on investments tend to avoid debts because they use internal funds.
- Company's Control: When management has 50% voting control they can chose to use debts when they cannot issue stocks.
- Company's Taxes: High tax firms ten to use higher debts to lower having more taxes.
- Company's Growth Rate: Firms with external financing have been seen with high growth rates.
- Company's Operating Structure: Firms are in better conditions when having the less leverage and therefore they have less business risk.

- Company's Attitudes of Management: Management attitudes are either aggressive or conservative. Firms with conservative strategies have less debt and uses internal funds. But aggressive managers use debt more than equity to reach high profits for their firms.
- Company's Internal Condition: Healthy firms in regard of their success are tending to use less equity because their earnings will not reflect in their stock price. Also they prefer to use debt more.
- Company's Financial Flexibility: Strong firms tend to enhance their capital by either equity or debt. Weak firms mostly use debt.
- Market Conditions: Selecting finance methods depend on short-term and long-term changes in market. Many low firms decide to use short-term debts and ignore the target capital structure. Long-term debts used more in better rated firms.
- Stock Prices of the Company: Stock price is crucial in choosing the firm's financing method. Large stock price firms tend to issue equity more and less debt.

After the said paragraphs, the equity financing's benefits cannot be ignored because of its ability to providing capital for the business and enhancing company's net worth, credibility, borrowing and strength capacity in the future. Also let not forget the investor's wealth of advice and experience which will ensure the success of the organization (Benjamin G. & Margulis J., 2005). "Investor will be looking for an investment as well as a partner or they would be lenders" (Jefferson S, 2001).

For a company to go public, they will require the help of underwriter investment banks. They assist can come in buying the company's shares and sell those to the investors and providing financial advice. There are benefits for the banks as they will get underwriting fees and the ability to buy shares with lower price in comparison to the offering price. Also administrative and registration of new securities will cost the companies some money. Therefore, issuing new stocks will be more expensive for the companies. Many steps involves going public is presented in the following diagram (Figure 2.2).

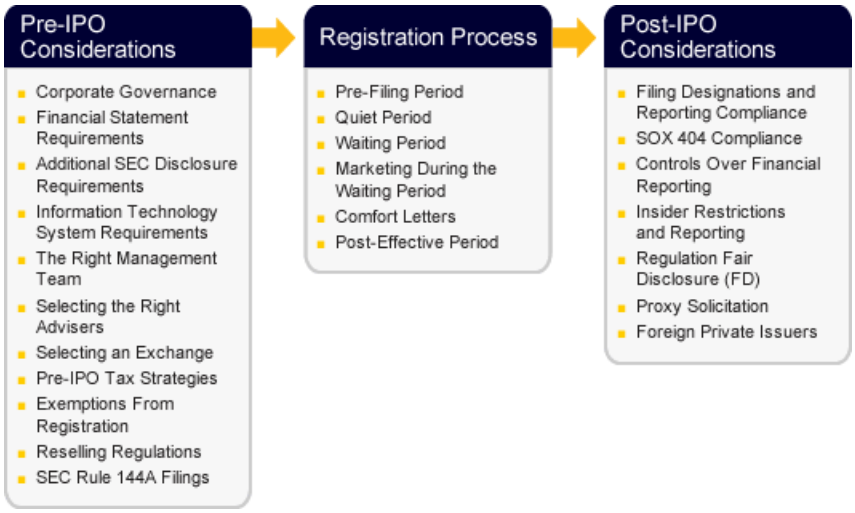

Figure 2.2: Steps of Going Public (http://www.crowehorwath.com)

2.3 Theories of Capital Structure

After the publication of "irrelevance theory of capital structure" by Modigliani and Miller (1958), the theory of capital structure has become a focused study to financial researchers. Throughout the years three other major theories of capital structure emerged from the assuming of this working theory. First trade off theory, then pecking order theory by Myers and Majluf (1984) started to diverge from the M&M theorem. In 2002, Barker and Wurgler suggested the theory of market timing which

assumed that the capital structure is the sum of all past attempts to time the equity market. All these theories will be explained in following paragraphs.

2.3.1 Miller and Modigiliani (M&M) Theory

The modern sense of business finance's theory starts with the capital structure irrelevance proposition of Modigliani and Miller (1958). Before this theory there was no theory of capital structure which was generally accepted. They started by the assumption of the firm has a set of predefined and expected cash flows. When the corporation starts to select a debt or equity to finance its operations and assets, it will divide the cash flows among its investors. Both investors and firm are assumed to have the same access tom markets, which then allows for homemade leverage. The investors are free to issue any leverage which is even not offered and as a result the leverage of the company has no impact on firm's market value.

As stated previously the decision of firm to borrow fund does not affect the cost of capital or expected return on assets and Weighted Average Cost of Capital (WACC). The expected return on assets is the weighted average of return on investor's holding which he/she holds of company's equity and debt. The formula can be shown:

$$r_A = \left(\frac{D}{D+E} \times r_D\right) + \left(\frac{E}{D+E} \times r_E\right) \qquad r_E = r_A + (r_A - r_D) \times \frac{D}{E}$$

2.3.2 Trade-off Theory

The trade-off term theory has been used to describe a group of related theories. In all of related theories, an individual who is responsible for decision making calculates the various benefits and costs of different leverage plans.

The first manifestation of the trade-off theory emerged from the debate over M&M theory. When the tax is added to the first irrelevance, this will benefit the debt which

served to guard earnings from taxes. However the original firm's objective is linear and there is no offset setting for cost of debt which implied the total debt financing. Different definition aspect of the trade-off theory by Myer shows that the firm's goal is not directly observable. Second the real tax evaluation and effects is more complex than what the theory implies (Graham, 2003). Then the bankruptcy costs must be considered to be dead weight rather than a transfer claimant. The nature of the cost is very crucial to understand (Haugen and Senbet, 1978).

Pecking order model explains much more of the time-series variance in actual debt ratios than a target adjustment model based on the static tradeoff theory. Moreover, we show that the pecking order hypothesis can be rejected if actual financing follows the target-adjustment specification. On the other hand, this specification of the static tradeoff hypothesis will appear to work when financing follows the pecking order.

This false positive results from time patterns of capital expenditures and operating income, which create mean-reverting debt ratios even under the pecking order. Thus we have power to reject the pecking order but not the static tradeoff specification. We conclude that the pecking order is a much better first-cut explanation of the debt-equity choice, at least for the mature, public firms in our sample. I question the evidence for a well-defined optimal debt ratio as predicted by the tradeoff theory (See Figure 2.3).

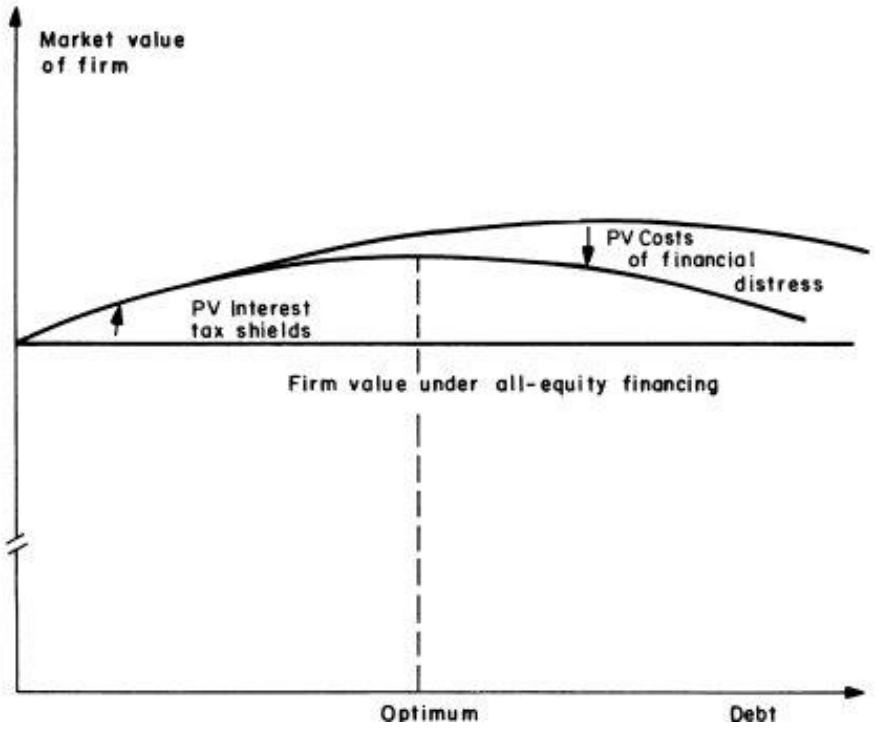

Figure 2.3: Trade off Theory of Capital Structure
Reference (Source: Graham, 2003)

In the next table (Table 2.1) the stockholders return on investments are described by their level of earnings. 'Total' means the total earning of the firm. The equity and debt will lose their claims and nothing is paid if earnings are negative X. the debt will take over if even the earnings are positive but the amount is not enough to cover the payment and will result in default Y.

Table 2.1: Return to Stockholders in Different States

Total	State	Debt	Equity	Tax	Loss
X	$X < 0$	0	0	0	0
X	$0 < X < B$	$X(1-k)$	0	0	kX
X	$B < X < B + \phi/\tau_c$	B	$X - B$	0	0
X	$X > B + \phi/\tau_c$	B	$X - B - \tau_c(X - B) + \phi$	$\tau_c(X - B) - \phi$	0

2.3.3 Pecking Order Theory

Described by Meyers (1984), this theory influenced by earlier concepts of retained earnings such as Donaldson (1961) definition of firm's equity Myers defend that retained earnings are much viable solutions to debt and also debt is a better solution than equity. Myers and Majluf (1984) devised a model called adverse selection model.

A firm will use pecking order when it prefers internal financing and when selecting external financing it will use debt rather than equity. However, firms use internal financing all the time and for other reasons rather than pecking order theory. Pecking order models can be derived based on adverse selection considerations, agency considerations, or other factors. There seems to be a couple of common feature that underlies pecking order theories.

The first feature is the linearity of the firm's objective function. This helps because it means that costs tend to drive the results to corner solutions. The second common feature of pecking order models is the relative simplicity of the model. The pecking order hierarchy is a relatively simple structure. A model that is complex is unlikely to have such a simple solution. When many things are factored in, a more complex range of things tend to happen. Thus, it seems that the pecking order is generally more likely to emerge from an illustrative model than it is from a unifying model (Myers and Majluf, 1984).

The pecking order is explained by the firm's transaction costs which are closely associated with external financing. The reason for choosing external debt financing is that the transaction costs for debt financing are much lower (Baskin, 1989).

Managers rely on internal financing to avoid subjugating the market's discipline (Myers, 1984). They are also not fond of accepting new shareholders and will try to finance their own firm by internal financing as much as possible (Holmes and Kent, 1991). If the firm's retained earnings do not suffice, management will choose the financing source without control restrictions. Therefore management will opt for short-term debt because no collateral is required and no covenants are imposed, followed by long-term debt and finally equity issues.

A firm wants to raise funds for an investment project. The cost of investment is c. Two types of firm is involved, for type g firm the project cash flow is θg and type b is θb. the managers know that the firm is not publicly available, they also maximize the wealth of first shareholders. The internal funds are I, I>c. If firm g decides to use internal funding for their investment project the profit for shareholders is:

$$\theta g+1-c$$

If firm g decides to use equity finding the value of their shares will be greater than firm b and will be mispriced. As internal funds always preferred rather than equity, the low firms will use both equity and internal funding but high-end firms will always prefer to use internal funding. Announcements of debt issues generate weak market reaction on average (Eckbo (1986) and Antweiler and Frank (2006)).

2.3.4 Marketing Timing Theory

The marketing timing theory or windows of opportunity theory, defines that when cost of using equity is low the firms prefers external financing and in contrary prefer debt if the cost is high (Baker and Wurgler, 2002). The market timing theory explains that firm managers sometimes see their securities have been incorrectly valued by the market. Conditional on having financing needs, firms issue equity

when they perceive the relative cost of equity as low, and issue debt when they perceive the relative cost of equity as high. How do they judge the relative cost of equity? On the one hand, they may know themselves or their industries better. On the other hand, they may follow certain psychological patterns. For example, reference points, as suggested by prospect theory, may play a role.

In the pecking order theory assumes semi-strong form market efficiency, while the market timing theory does not rely on this assumption. If markets are not semi-strong form efficient, then external equity is not necessarily more expensive than external debt, and a firm might want to take advantage of a temporary overvaluation of debt or equity by raising external capital before the overvaluation disappears. Therefore, while the pecking order theory predicts equity issues to be rare, the market timing theory does not make such a prediction. In fact, the standard pecking order is just a special case under the market timing theory (Baker and Wurgler, 2002).

The static tradeoff theory and the pecking order theory implicitly assume semi-strong form market efficiency. What if capital markets are inefficient? If firms seek to minimize their

Cost of capital, market inefficiencies have important implications for corporate financing (Stein (1996)). A large literature on long-run stock performance suggests market inefficiency at the firm level (Loughran and Ritter (1995), Spiess and Affleck-Graves (1995), Ikenberry, Lakonishok, and Vermaelen (1995), Loughran and Vijh (1997), Billett, Flannery and Garfinkel (2001), and Hertzel, Lemmon, Linck and Rees (2002)).Several studies also suggest market inefficiency at the industry level and the market level. Loughran, Ritter, and Rydqvist (1994) document IPO

clustering for 15 countries, and find that IPO volume is positively correlated with the inflation-adjusted level of the stock market in 14 of them.

Baker and Wurgler (2000) discovered that the share of equity in securities issuances predicts stock-market returns. Lowry (2003) found out that the volume of IPOs is partly determined by proxies for investors. In practice, corporate executives seem to actively engage in market timing in their financing decisions. Two-thirds of corporate executives agree that "the amount by which our stock is undervalued or overvalued was an important or very important consideration" in equity issue decisions in surveys by Graham and Harvey (2001).

Following Baker and Wurgler (2002), EFWAMB (external finance weighted average market-to-book ratio) is a measure of market timing. Kayhan and Titman (2007) suggest that the value of EFWAMB maybe disaggregated into two components (yearly timing, YT, and long-term timing, LT) as follows:

$$EFWAMB_{t-1} = \sum_{s=0}^{t-1} \frac{e_s + d_s}{\sum_{r=0}^{t-1} e_r + d_r} \times (M/B)_s = \frac{\mathrm{cov}(FD, M/B)}{\overline{FD}} + \overline{(M/B)}$$

$$= \frac{YT + LT}{\overline{FD}} \qquad (1)$$

$$\text{LT(Long - term timing)}_{t-1} = \sum_{s=0}^{t-1} (M/B)_s / t) * (\sum_{s=0}^{t-1} FD_s / t) = \overline{M/B} * \overline{FD} \qquad (2)$$

$$\text{YT(Yearly Timing)}_{t-1} = (\sum_{s=0}^{t-1} FD_s * (M/B)_s) / t - \overline{M/B} * \overline{FD} = \hat{\mathrm{cov}}(FD, M/B) \qquad (3)$$

Similar to Baker and Wurgler (2002), $\overline{\mathrm{FD}} = (\overline{\mathrm{e} + \mathrm{d}})$ represents the sum of average external financing over the period 0 to t − 1. "e" represents net equity issue "d" represents net debt issue. (FD, M/B) is the covariance between external financing

and market valuation. M and B represent market value and book value of equity respectively. If market timing hypothesis is valid, YT and LT are expected to be negatively related to leverage indicating that firms prefer to issue equity when stock prices are overvalued.

2.4 Previous Studies

In Brighi and Torluccio's (2007) study of European tourism firms corporations, the financial ratios were investigated and it was gathered that financial ratios are were found to be different than other industry firms corporations. After analyzing the financial data on those companies--, the tourism firms had low fixed assets for due to their small size firms. Debts and credit did not play any important role overall and equity ratios were same for all firms. Small corporations were to believe had a struggle with faced several financial constraints and they needed a higher level of cash.

Wachilonga (2013) study of hotel's capital structure in Kenya had let to finding relationships between the size of the firms and the preference of capital structure. The survey which used for it showed that firms preferred the internal financing during the first stage of starting the corporation along with pecking order theory. Also the pecking order theory was finalized as the best method of financing in the second stage. Also future investments must be independent from the size of the firm.

In Zeitun and Tian (2007) study of effects of capital structure on corporate finance they used a series of panel data sample of 167 Jordanian non-manufacturing companies during 1989 to 2003. Their study finally leads to the discovery of negative impacts of firm's capital structures on firm's measures of performance.

Also they found out that short-term debt to total asset ratio has a significant positive impact on performances of the firms.

In other studies such as Flannary (2006) for determining the Indonesian tourism firm's capital structure the retained earnings, bank credits, and trade credits were identified as main sources of financing. In Graham and Harvey (2001) study, they found out that the credit ratings and flexibility is always taken into the consideration by financial managers of tourism firms when they want to issue bonds. Also prices increases and dilution effects are also considered when a common stock issue happens.

US firms were considered that trade-off theories and pecking order theories were valid for them. The financial flexibility, tax advantage and credit rating were determined as variables that impacted polices of 16 European countries by Bancel and Mitto (2004). Financial managers were established a pre-determined debt ratio for tourism firms in UK, France, Netherland, and Germany by Brounen (2005) and they discovered that trade-off theory is best for them.

Frielinghaus (2005) stated that more debts are preferred by tourism firms in their early stages when they look for internal sources in South African companies. The most important factors in Swedish companies were determined by Grundstromer and Gustafssom (2007) to be long-term capacity, financial flexibility and credit rating. Upneja and Dalbor (2001) discovered that US lodging and tourism companies had positive relationship with debt ratio and growth opportunities, share of fixed assets, and firm quality. Debt ratio and non-debt costs are negatively related to each other.

In Nurt and Archer (2001) study they found out lodging industry in UK had higher ratios in comparison to retail industry. Also trade-off showed more consistency than pecking order theory in UK lodging companies. Elgonemy (2002) found out the disadvantages and advantages of debt alternatives and debt financing in tourism and lodging companies. In futher studies of UK tourism and lodging companies, Phillips and Sipahioglua (2004) stated that the capital structure and financial performance are independence of each other and they prefer external sources and capital return was on low levels. The US lodging companies showed that they growth opportunities and fixed-assets are related to long-term debt level in Tang and Jang (2007) study. Ogulu and Emeni (2012) study of determinants of corporate capital structure in Nigeria's tourism firms showed the age and size of firms are significant in capital structure of those companies and the absence of less restricting policies for firms to access the market for financing.

Chapter 3

CAR MANUFACTURING SECTOR: THE CASE OF GERMANY AND JAPAN

3.1 Financing of Automobile Manufacturing Industry

The sample group for this study is consists of 6 different automobile manufacturing through 2 different and separate markets. These corporations were selected from Deutsche Bourse stock exchange and Tokyo stock exchange (TPX) markets. In 2013, the global economy has reached a stable growth rate of 2%. Car markets as whole are expected to grow by 4% growth rate in 2014 with a total of 75 million manufactured units. The expected downward trend is continuing in Europe following the drastic decreases (World Motor Vehicle Production: World Ranking of Manufacturers Year 2014). All financial profiles of thesis's samples have been presented in the Chapter 4.

The primary objective of automobile manufacturing firms like any financial and non-financial firms is to maximize the wealth of shareholders by selecting and using a mix of internal and external sources of finance. As stated in literature review, appropriate sources are such as issuing ordinary shares, retained earnings, and debt. Debt is provided by banks, or financial institution such as insurance and leasing firms. Debt financing can avail the tax shield by operating by using their profits but in return it will increase the risk of bankruptcy (Akinyomi & Olagunju, 2013).

There are two different costs related to bankruptcy, indirect costs and direct costs. Indirect costs can be resulted from the changes in firm's policy regarding the long-term investments such as staff reduction size or reducing the development and employee's training budgets. Other reason i.e. high costs of advertisements and low quality production items will result in low sales and thus low revenues for firms. The liquidation cost is lesser for a large corporation such as automobile industry firm but it's higher for small firms. These threats will diminish the potential profits of leverage in car manufacturing industry as investors and lenders consider these risk very high dangers and credit ratings and borrowing will be affected (Velnampy & Niresh, 2012).

Issuance of cost of equity and common stock in equity financing is much more higher than cost of debt financing because of floatation costs and shareholders demand for higher dividends pay. Underinvestment problems will be caused by asymmetric information and it's a serious issue for smaller firms. Larger firms such as car industries have less asymmetric information compared to other smaller firms which makes them issue equity for financing their firms.

In the literature review, the determinants of capital structure are explained along with the current theories. The components of capital structure are explained in the literature review but for the sake of remembrance they are briefly stated in the figure 3.1.

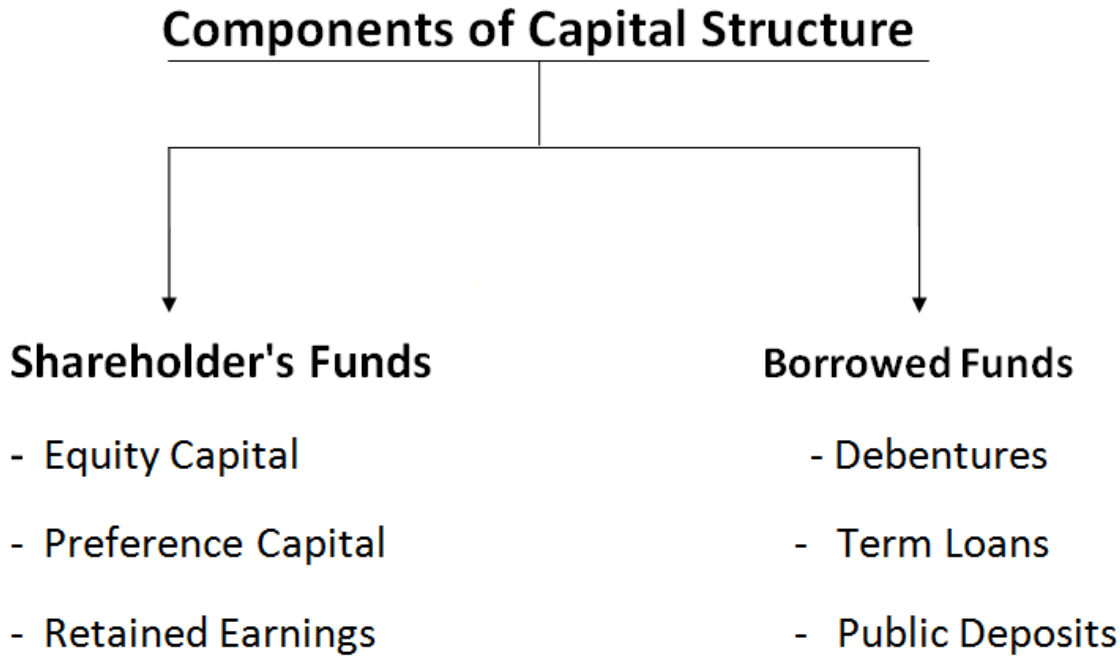

Figure 3.1: Components of Capital Structure (Source: John J. Hampton Page No.104)

In this section the factors which playing major roles in car manufacturing corporations are explained as follows:

Trading on Equity: Trading on equity means that taking advantages of equity share capital and funds borrowed on reasonable basis for financing the firm by firm's owners. Also additional profits earned by equity shareholders are considered as trading on equity. The system is based on lower rate of dividends and lower rate of interest on borrowed capital are both lower compared to company's general earning rates, the company can go for a mix of preference shares, equity shares and debentures due to shareholders are at advantage and expectations of shareholders are high.

Degree of Control: The directors are elected representatives of shareholders in a company. These shareholders have high voting rights compared to debenture holders and preference shareholders. Preference shareholders have less voting rights and

debenture holders have absolutely no voting rights. The capital structure is consisting of loans and debenture holders rather than equity holders when managements want to retain their voting rights.

Flexibility of financial plan: In corporations, capital structure is consisting of both plan relaxation and contractions. As the time requires, the loans and debenture can be refunded. However at any point the equity capital cannot be refunded thus in order to resume the capital structure procedures the company should consider loans and issue of debenture shares.

Choices of investors: the policy of corporations is generally to include different types of investors for securities. All kinds of investors can have enough choices from a capital structure to invest in firm's operations. Debenture shares are generally raised by normal investors while bold investors usually go for loans and equity shares.

Condition of capital market: the share's market price has got a crucial impact on the corporation's profile. The firm's capital structure is consisting of loans and debentures during depression period. However, during inflation period, the capital is consisting of equity shares and share capital.

Financing period: when corporation decides to raise the funds for a short time, the managers go for loans from financial institution and banks. For long period they go for debentures and issue of shares.

Financing cost: when the securities are raised, corporation will look to the cost factor. Debentures are proved to be cheaper financial sources compared to equity shares when the shareholders demand more profits.

Sales stability: when the corporation has a fast growing market with high sales, it is in the position to use fixed commitments. Regardless of profit, the debentures must be paid. Thus when the sales are high enough in turn the profits are higher therefore the coverage ratio is high for meeting the payments for debentures interest and preference shares dividends. In cases which company has unstable sales, the equity capital proves to be more reliable and preferred in such cases (Masnoon & Anwar, 2012)

Size of the corporation: smaller corporation's capital structures are generally financing themselves by loans and retained profits. Larger corporations such as automotive corporations have established profits and stability plus they have wider capitalization and can easily acquire different loans, debentures as well as borrowings.

The Weighted Average Cost of Capital (WACC) ratio is used for the ability of a company to pay the average payments on its securities to finance its assets. Also known as cost of capital, is not determined by management but rather by the minimum return of company which can earn on its existing assets to pay the dividends and satisfy all owners, investors, and creditors. According to M&M's theory, the WACC initially falls because of debt's tax advantage. After the optimal debt-equity ratio the WACC begins to rise because of financial costs (Figure 3.2).

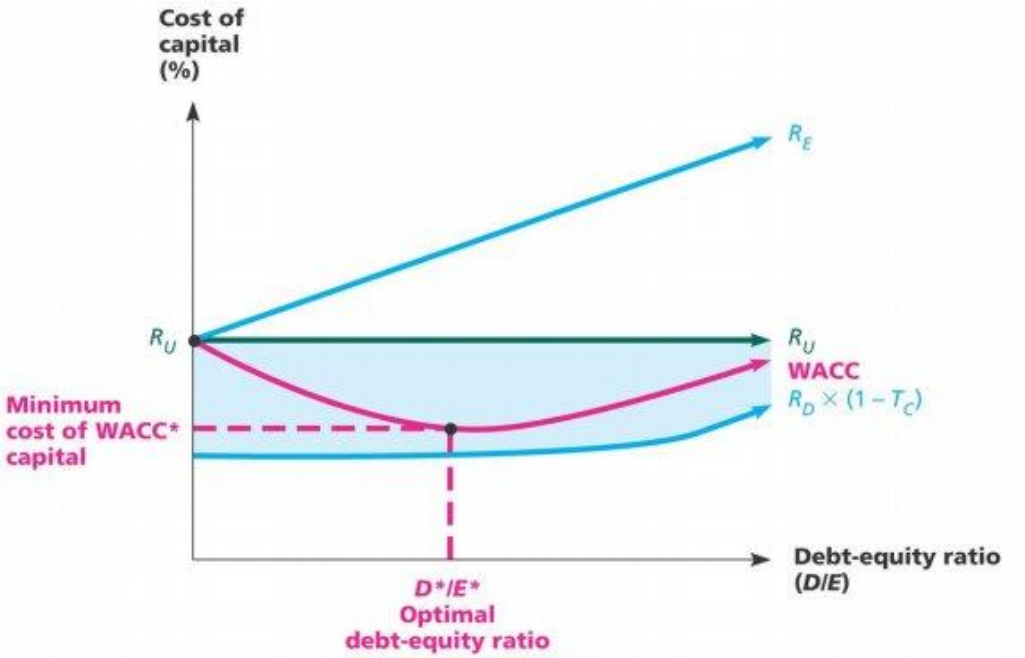

Figure 3.2: Optimal Capital Structure; Source: Shah and Khan (2007)

There were different studies on capital structure of car manufacturing industries which will be discussed in the following section.

Masnoon& Anwar (2012), Shah& Khan (2007), Rafique (2011), conducted their respective research on determinants of capital structure of KSE car manufacture listed companies. The results of their studies were similar. For all automobile manufacturing industries profitability had negative relationship with leverage, meaning that profitable corporation used less equity and debts.

Eriotis (2007), conducted similar research motorcycle manufacturing companies listed on Athens stock exchange and found out that growth is negatively related to debt ratio, interest coverage ratio and quick ratio which stated that the differences are related to the sizes of the organization.

Ashraf and Rasool (2013) study on car manufacturing firms in Pakistan discovered that non-financial firms such as automobile sectors are using pecking order theory for their long-term financing operations which included the 3 significant size, growth and tangibility of those organizations. The automobile firms are mostly using internal financing and use of leverage can be done by considering these three factors.

3.2 Theoretical Framework

The current existing theories in literature explain the decision making behavior of the firm in Capital Structure decisions and each one focus on a different side of financing choices of firms. Miller and Modigliani (1958), as stated in literature review section, claimed that the value of the firm is separate of its own capital structure. Although it provides a beginning that helps understand the capital structure and its determinants. However, the trade-off theory of refers to mix of equity and debt by balancing the benefits of tax saving and the costs of bankruptcy.

Stewart C. Myers (1984) created the Pecking Order Theory which explains that the firms prefer to use internal sources of financing to external equity financing. In case of internal financing not meeting the requirements of the firm, they can use external equity financing, which first they will apply for a loan, then for debts. The theoretical framework of this research is based on “Capital Ratio Analysis”. The car manufacturing firms are mostly use internal financing and a mix of debt and equity as their firm’s profits are higher than smaller corporations. These ratios are explained in the following section.

3.3 Capital Ratio Analysis

3.3.1 Total Debt to Common Equity Ratio

When a corporation have a high debt to equity ratio it generally means that it has been overall aggressive in funding the growth using debts. The results are shown in their volatile earnings because of additional interest expenses.

An excessive use of debt for financing a large number of operations with high debt to equity, the potential of generating more revenue without using external financing is obvious. However the reasons for using a lot of debt and external financing can be different as it can be used to increase the revenue to spread more earning between the shareholders. Although the amount of costs can be dangerous and become too much to handle the interest on debt which will eventually leads to company becoming bankrupt. It should be noted that the debt to equity ratio for each industry is different and especially for automobile manufacturing corporations are above 2.0 while smaller company are below 0.5.

$$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholders Equity}}$$

3.3.2 Total Debt-to-Capitalization Ratio

This ratio indicates the measure of total amount of debt in a corporation's capital structure. It is also known as "gauge of a corporation's financial leverage". Leverage can be profitable and dangerous for an organization. A high ratio can increase the return on equity for shareholder due to tax deductibility of interest payments, however a high proportion of debt lower the corporation's flexibility and increase its insolvency risk. For most companies a low debt to capitalization ratio is more preferable as they can maintain the debt burden on the manageable and easy levels.

Intensive capital structure users like automobile industry sector are typically highly leveraged however they are exposed and in danger of world's economic fluctuations.

$$\text{Total Debt to Capitalization Ratio} = \frac{(\text{Short-term debt+Long-term debt})}{\text{total debt+shareholders equity}}$$

3.3.3 Total Debt to Total Assets

It is a leverage ratio which indicated the relative total debt to total assets of a company. This ratio is used to compare different leverages between different companies. Higher ratio shows a higher leverage and thus, financial risk. This ratio includes all short-term and long-term debt as well as all intangible and tangible assets of a company. Sometimes the debt to equity ratio is used instead of total debt to total assets ratio which use nearly the same inputs but indicates different view.

$$\text{Total Debt to Total Assets} = \frac{\text{Short-term debt+Long-term debt}}{\text{Total Assets}}$$

3.3.4 Current Ratio

It is a liquidity ratio that indicates a company's ability to pay its short-term debts, payables, and obligations by using its short-term assets such as inventory, cash, and receivables. If the ratio is high it shows that the company is capable of handling its obligation. A ratio under 1 suggests that company will not be able to pay the obligation at the required time. However it may not necessarily show that the company will go bankrupt as there are many other ways to financing.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liablilities}}$$

Ratio Analysis is the principal technique used to measure the profitability of a business enterprise. The growth development and the present position of a business in terms of profit can be analyzed through the calculation of various ratios. The term accounting ratio is used to describe significant relationship which exist between figures shown in financial statement Profit and Loss Account and Balance Sheet. In financial analysis a ratio is used as an index or yardstick for evaluation of the

financial position and performance of a firm. The technique involves four steps determining the accounting ratio to be used computation of the ratio comparison of ratio with the standard set and interpretation. The interpretation of ratio required careful and detailed study and sound judgment on the part of the analyst. There are significant and limitation to ratio analysis which will be stated in the following section.

3.4 Significance of Ratio Analysis

Ratio analysis is an important tool of financial analysis. The significance of the ratio analysis depends on the purpose of which it is made by the analyst. The important points of significance are as under:

- Simplifies Accounting Figures
- Measure Liquidity Position
- Measure Long-term Solvency
- Measure Operational Efficiency
- Inter – firm comparison is Possible
- Trend Analysis may be Easier
- Managerial Uses

Limitation of Ratio Analysis:

- Ratio analysis suffers from a number of drawbacks:
- Difficulty in comparison due to
- Different procedures and practice followed by different firms,
- Different accounting periods
- Every firm differs in age, size, etc.
- Price level changes between two periods

- Difference in accounting method
- Several ratio to draw conclusions
- Ratio analysis conveys observations
- Ratio may be misleading

Chapter 4

METHODOLOGY AND DATA ANALYSIS

4.1 Data and Methodology

The car manufacturing corporations listed in Borse Frankfurt (Frankfurt Stock Exchange) and Tokyo Stock exchange are the subject of this research. The data gathered from stock ground database program. The sample size is consist of 4 automobile manufacturing corporations listed in Frankfurt Stock Exchange and 4 other automobile manufacturing corporations listed in Tokyo Stock Exchange.

The Frankfurt Stock Exchange is by far the world's 10^{th} biggest market capitalization stock exchange which is located in Frankfurt Germany. It is operated and owned by Deutsche Borse which it is also in possession of European Future Exchange (EUREX). There are more than 250 international trading corporations and more than 4500 traders in this institution. The Frankfurt exchange is using DAX, CDAX, DivDAX, SDAX, VDAX, TecDAX, EuroStoxx, MDAX, LDAX, and DAXplus indices.

The Tokyo Stock Exchange (TSE) is Japan's stock exchange located in Tokyo. It is considered to be the 3^{rd} world's largest market capitalization exchange. Before January 1 2013, there were 2,292 listed corporations with total 4.5 trillion US$ in market capitalization.

As stated in theoretical framework of the study, 4 major capital measuring ratios are considered for the sample of the study; Total Debt to Total Equity, Total Debt to Capitalization, Total Debt to Total Assets, and Current Ratio. These capital ratios indicate the level of company's ability to manage its short-term and long-term obligations. The range of data is from 2007 to 2013 which were closest data available for all companies. The data extracted from data base system was implemented in Microsoft Excel and EVIEWS version 7 to show the ratios in charts and tables.

4.2 Profiles of the Companies

4.2.1 Bayerische Motoren Werke (BMW)

The company is founded in 1917, first as Bayerische Flugzeugwerke AG (BFW). Then in 1918 it became Bayersiche Motoren Werke Aktiengesellschaft (BMW AG) which it is known to this day. It is one of the ten biggest car manufactures in the world and owns three strongest and famous brands of Rolls Royce, MINI, and BMW in the world's car industry.

In the following charts and tables, capital ratios and profitability ratios are presented from 2007 to 2009. Later in the chapter all ratios will be compared in both countries capital market.

Table 4.1: Distribution of Capital and Profitability Ratios of BMW 2007 to 2009

Ratios / Years	Total Debt/Total Equity	Total Debt/Total Assets	Current Ratio	Return on Equity	Return on Assets
2007	1.99	0.49	0.97	15.3	3.97
2008	2.93	0.59	0.99	1.54	0.5
2009	3.05	0.6	1.08	1.02	0.39
2010	2.65	0.57	1.07	14.98	3.25
2011	2.45	0.54	1.04	19.16	4.37
2012	2.23	0.52	1.04	17.78	4.16
2013	1.95	0.5	1.04	16.11	4.21

4.2.2 Volkswagen AG

The company established in 1937 in Wolfsburg, Germany. After the Volkswagen Group holding company began its work in 1975, it became the largest automobile manufacture in both Germany and Europe. As the report of December 31 2013, the company had outstanding preferred shares of 170,148,171 and ordinary shares of 295,089,818. Volkswagen issued 10,471,204 new preferred shares in June 2014 which brings preferred shares to total of 180,641,478.

Subscribed capital distribution as the December 31 2013 report, Porsche automobile holding SE has 32.2% of capital with current voting rights of 50.73%, Foreign Institutional Investors hold, 24.3%, Qatar holding LLC hold 15.6% with current

voting rights of 17%, State of Lower Saxony hold 12.7% with current voting rights of 20%, Private shareholders and other shareholders 12.5%, and German institutional investors 2.7%.

Table 4.2: Distribution of Capital and Profitability Ratios of Volkswagen 2007 to 2009

Ratios / Years	Total Debt/Total Equity	Total Debt/Total Assets	Current Ratio	Return on Equity	Return on Assets
2007	1.82	0.4	1.22	14.02	3.46
2008	1.98	0.42	1.18	14.21	3.56
2009	2.20	0.44	1.12	2.73	1.06
2010	1.68	0.39	1.12	16.82	4.32
2011	1.63	0.37	1.05	29.77	7.4
2012	1.52	0.39	1.07	32.16	8.35
2013	1.31	0.35	1.03	11.11	3.31

4.2.3 AUDI

Audi is founded in Chemnitz, Germany in June 1932. Its current headquarters is in Ingolstadt. Since 1966, it is owned 99.5% subsidiary of Volkswagen and the remaining shares are free-floating. Along with Mercedes-Benz and BMW, is a German Big 3 luxury automakers member. The agreement between companies ensures that the external shareholders receive the same amount as Volkswagen

ordinary share would pay for the fiscal year. Table 4.3 shows the capital ratios and profitability ratios of AUDI for years 2007 to 2009.

Table 4.3: Distribution of Capital and Profitability Ratios of Audi 2007 to 2009

Ratios / Years	Total Debt/Total Equity	Total Debt/Total Assets	Current Ratio	Return on Equity	Return on Assets
2007	0.64	0.24	1.59	21.24	8.67
2008	0.68	0.26	1.7	23.84	9.6
2009	0.57	0.22	1.78	12.88	5.31
2010	0.74	0.28	1.69	24.17	9.61
2011	0.94	0.33	1.6	36.76	13.86
2012	0.89	0.33	1.45	31.18	11.81
2013	0.77	0.32	1.54	23.93	9.76

4.2.4 Mazda

Matsuda Kabushii-gaisha or Mazda Motor Corporation was founded in 1920 in Hiroshima, Japan as Toyo Cork Kogyo corporation, Ltd. The company first started as manufacturer of machine tools then in 1931 moved to manufacture vehicles. Throughout the Second World War produced weaponry for the royal army of Japan. The corporation changed its name to Mazda in 1984 however the vehicles were already bore the name of Mazda. During company's financial crisis in 1960, Mazda started its partnership with Ford Motor Company. Started from 1979 to 2010, Ford

acquired 7% stake in the company and then 33.3% in 1996. From 2008 to 2010, Ford divested its stake in the corporation which now it owns 2.1% of Mazda's total stuck in 2014.

Table 4.4: Distribution of Capital and Profitability Ratios of Mazda 2007 to 2013

Ratios / Years	Total Debt/Total Equity	Total Debt/Total Assets	Current Ratio	Return on Equity	Return on Assets
2007	1	0.25	0.99	16.92	4.68
2008	0.91	0.26	1.06	17.9	5.48
2009	1.82	0.43	1.18	-14.8	-3.12
2010	1.42	0.38	1.33	-1.41	0.42
2011	1.61	0.39	1.28	-12.81	-2.68
2012	1.65	0.4	1.59	-23.98	-5.28
2013	1.44	0.36	1.35	7.11	2.41

4.2.5 Mitsubishi

The Mitsubishi Group of Companies was founded in 1870 in Tokyo, Japan. The company first established as a shipping company in 1870. Later in 1873 the name has changed to Mitsubishi Shokai. In 1881, the company has moved to coal mining to produce fuel to their steamship fleet. In Second World War the company built several models of fighter aircrafts and bombers for the Royal Navy and Royal Air force of Japan. In post war era of 1950s and 1960s, the Mitsubishi participated in

modernization of industry and energy materials and automotive construction. Nowadays the Mitsubishi Group is consist of 40 companies and is considered to be a National Multinational Enterprises and it operates with its three sister companies of Mitsubishi Corporation, Mitsubishi Bank and Mitsubishi Heavy Industries.

Table 4.5: Distribution of Capital and Profitability Ratios of Mitsubishi Automotive Corp. 2007 to 2013

Ratios / Years	Total Debt/Total Equity	Total Debt/Total Assets	Current Ratio	Return on Equity	Return on Assets
2007	1.02	0.33	1.12	-0.22	0.05
2008	1.19	0.36	1.06	1.07	0.6
2009	2.74	0.52	0.99	-39.92	-9.46
2010	2.7	0.49	1	-9.85	-1.09
2011	2.45	0.48	1.01	11.05	2.58
2012	2.86	0.5	1.03	8.68	2.13
2013	2.25	0.48	0.96	16.55	3.69

4.2.6 Toyota

Toyota Motor Corporation is an automotive company and was founded in 1937 in Aichi, Japan. Toyota is twelfth largest company by the revenue in the world and consists of around 333,498 employees. Toyota first started as a division of its founder company Toyoda automatic loom works. It is publicly traded since 1949 in

Japan and 1999 worldwide as 7203 index in TYO, TYT in LSE and TM in NYSE. In 2012 the company reported to be the largest car manufacture in world. The company's net revenue reported in 2013 was 22.0 trillion Yen and operating income of 1.32 trillion Yen and net income of 962.1 billion Yen.

Table 4.6: Distribution of Capital and Profitability Ratios of Toyota Automotive Corp. 2007 to 2013

Ratios / Years	Total Debt/Total Equity	Total Debt/Total Assets	Current Ratio	Return on Equity	Return on Assets
2007	1.02	0.37	1	14.68	5.48
2008	1.02	0.37	1.01	14.49	5.39
2009	1.25	0.43	1.07	-3.98	-1.27
2010	1.2	0.41	1.22	2.05	0.79
2011	1.2	0.41	1.1	3.95	1.41
2012	1.13	0.39	1.05	2.72	0.97
2013	1.16	0.39	1.07	8.48	2.96

4.3 Ratio Analysis

In this section, the capital ratios are analyzed and the results are presented by charts. Trend analysis is carried out for comparing the two countries in their automotive industries. In order to investigate and analyzing the data for two countries, the overall median value is considered.

4.3.1 Debt to Equity Ratio

The debt to equity ratio is used to identify the leverage status of a company to understand the risk for the investors and it can also be used to evaluate a company's stock. The true definition is that of a financial leverage of a company which is measured by calculating the total liabilities to stockholder's equity. It indicates the overall usage of debt and equity by the company which use in order to finance its assets.

In the figure 4.1 the debt to equity ratio of all six companies are shown; three companies in Japan group and three companies in Germany group.

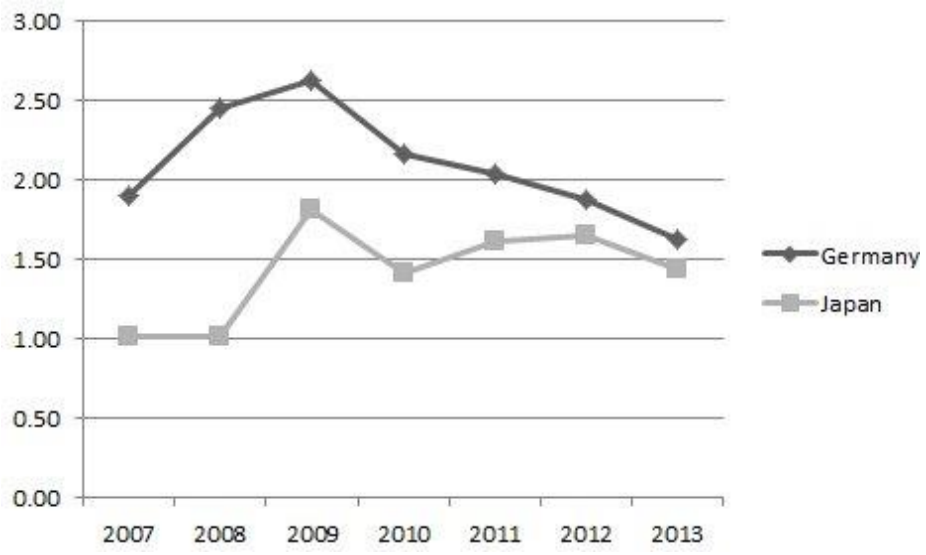

Figure 4.1: Debt to Equity Ratio of Germany and Japan Automobile Manufacturing Industries from 2007 to 2013

The Germany's debt to equity ratio was at 1.9 in 2007, however it should be noted that capital intensive companies such as automobile manufacturing companies tend to have a high debt to equity ratio because they initially use a lot of mix of debt to equity to finance their projects and product lines. Then it rises up to 2.46 which show that they used a lot of debt because in the 2008 the economic crisis reached the

Germany and they cut out most of their employees and sales dropped fast to 15 percent. Banks cut off many of their funding and called their obligations to be paid for their most important investments and many suppliers were at the risk of bankruptcy and already many of them were gone bankrupt at that moment and they stopped their production lines.

The German companies enjoyed large growth rates in their sales in 2005, 2006 and 2007 and offered financial and leasing packages to their customers. In 2008 and 2009 the lending divisions had to pay high interest rates to gain funds in the capital markets and borrowing were even a problem at that time and low-interest car loans where non-existence. In 2009 the amount reaches to 2.62 which the ongoing crisis is still affecting the industry. In 2010, however the amount starts to decline as companies start to request the government in Berlin to issue government loans and the guarantees were taken out by the financing divisions.

The crisis soon loses its effect as they were mostly individual companies. In the following years it declines to 2.04 in 2011 and went below 2 in 2012 and reaches 1.63 in 2013. The trend shows that companies started to use more equity and less debt after the crisis thus the overall leverage risk became lower in the recent years which the lower debt to equity ratio is a good indication for shareholders.

The Japan was also influenced by global financial downturn. While it primarily felt in American automobile industry the crisis also affected Asia and Europe. The Japan had 1.02 in 2007 and 2008 which showed a low ratio but in 2009 the crisis finally affect the industry as the price of gas went very high and Japanese car manufactures suffered double-digit declines in sales especially Toyota affected more.

The sales were dropped 33.9 percent and many even exited the Formula One race system and sold their teams. In 2010 the ratio dropped to 1.42 but in 2011 again there is a rise in the trend as the Tsunami crisis hit the Japan. The suppliers were hit hard as two third of total of them couldn't recover in the following years and suffered a 6% downside to their operations and base prices for their stocks. However there is a small rise in 2012 and again decreases to 1.44 in 2013.

4.3.2 Total Debts to Total Assets

This leverage ratio show the percentage of a company's total assets which financed by debt, creditors, and liabilities. The ratio is measured by dividing total liabilities of a corporation by its total assets. A higher ratio percentage show more risk and leverage. In the figure 4.2, the total debts to total assets of Germany and Japan automobile manufacturing groups are shown.

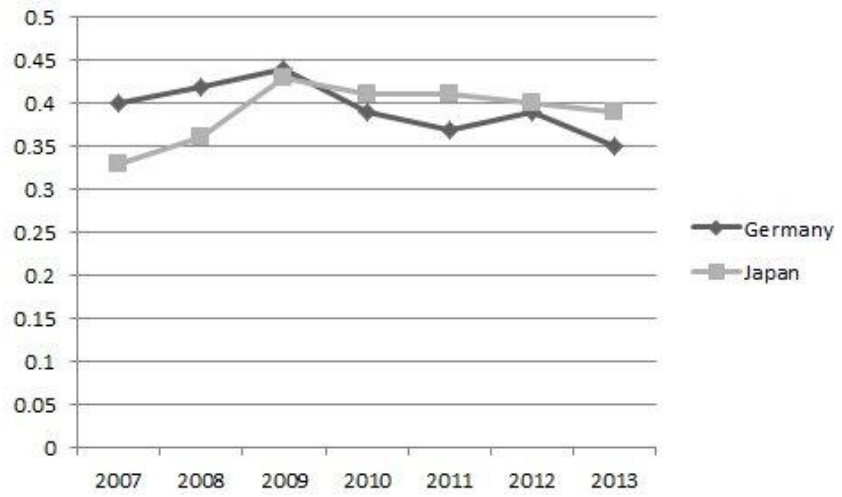

Figure 4.2: Total Debt to Total Assets Ratio of Germany and Japan Automobile Manufacturing Industries from 2007 to 2013

Germany's total debt to total assets ratio was at 40% in the 2007 and slightly rises to 42% in 2008 and during the economic crisis again had another small increase to 44%. It primarily shows that around 40% of companies assets were financed by debts or creditors and therefore near 60% were financed by the owners of the companies.

In the following years the percentage amount of debts decreases and in 2010 reached 39% and in 2011 again decreases to 37%. Finally in 2013 after a slight decrease the trend ends in 35%. The ratios showed that German manufacturing companies were in control of their leverage risk and therefore they have a higher degree of flexibility for their investors.

On the other hand, Japan started at 33% in 2007 and a slight rise in 2008 however in 2009 a moderate to higher rate of 44% is reached. This high increase was because of crisis reaching the Asia continent the cut in sales and higher prices for production material the Japanese automobile corporation had to increase their stand and finance their assets by debts and liabilities in those years. In 2010 the trend began to decrease which reached 41% and stayed the same in the 2011. During the earthquake and tsunami crisis, government of Japan began to help the already shaken economy especially the automobile companies. The trend nearly decreases by one percent throughout the following years until it reaches 39% in 2013.

4.3.3 Current Ratio

The Current Ratio also known as cash asset ratio, liquidity ratio, and cash ratio is used to measure the ability of a company to pay its short-term obligations.

The ratio is used to measure the ability of the company to pay back its liabilities such as payables and debts with its assets such as receivables, cash, and inventory. If the company has high current ratio it shows that the company has higher ability to pay its obligations. If the ratio is under 1 it suggest that the company cannot pay off its obligations and therefore it is not in good financial health and not a good sign for the company. In the following figure 4.3, the current ratio for Germany and Japanese automobile companies is shown.

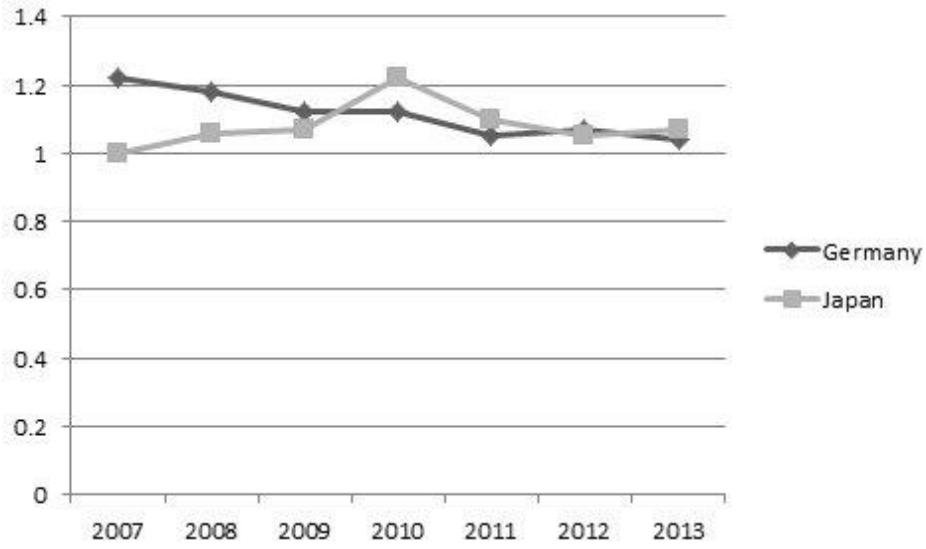

Figure 4.3: Current Ratio of Germany and Japan Automobile Manufacturing Industries from 2007 to 2013

The German automobile manufacturing corporation's current ratio started at 1.22 in 2007 and starts its decrease trend in 2008 which was at 1.18. During the crisis the ability to pay their obligation starts to lower but stays near the desirable amount and not in imminent danger of bankruptcy. In 2009 and 2010 the ratio show the same trend of 1.12 and in 2011 again drop to 1.05 and in 2012 reach 1.07 and with another decrease to 1.04 in 2013. In the recent years the corporations showed that they operate their assets and liabilities too close to the standard boundary of 1.

The Japanese corporations on the other hand were in the imminent danger and showed to be around 1 in 2007. However, with a slight increase during the crisis period they reach to 1.06 in 2008 and 1.07 in 2009. Still not completely out of danger during those years and evidently they fair poor in comparison to their German counterparts. Moreover in 2010 the trend increases in 1.22 but in the following year of tsunami and earthquake the ratio decreases to 1.1 in 2011 and again to 1.05 in 2012. The trend ends with a very slight increase to 1.07 in 2013.

Chapter 5

CONCLUSSION, DISCUSSION AND MANAGERIAL IMPLICATIONS

5.1 Findings and Discussion

After the analysis of capital ratios of both countries it can be understood that the economic crisis of 2008 had its toll in both economies. In Europe car sales drastically decreased and the consideration of financial support were given to automobile industries especially in Germany. The rescue package for those corporations was given by all EU member states. German corporations showed to use more debts in the crisis period until the crisis effects were decreased their use of debt is also decrease and they used more equity to finance their projects and productions. The German firms also introduced a lot of new car concepts and models after 2010 to make up for not being able to give the low payments car purchasing contracts to their customers.

The same can be said for their assets as during the crisis era, as more assets were financed by debt and liabilities. The many plants were closed and the employment was cut due to the crisis and their ability to pay their obligations on debts. After the crisis effects wear off they continued a similar trend to the past however not exactly threatening and more than half of their total assets were still financed by their owners. The current ratio for German corporation showed while their ability to meet their short-term obligations is still considered to be good the current assets is not

twice as their current liabilities and it is considered to persist in a borderline condition.

Japanese corporations faced two different crises in a short period. Unlike their German counterparts the debt to equity ratio showed that while the companies are considered to be high capital-intensive they used relatively less debt. However same as the German corporations they had an increase of debt usage in the crisis era of 2008-2010. The trend again went high as the catastrophic events of tsunami hits Japan and government were rushed to help the automobile manufacturing industries as they priorities. Most of their assets were already financed by their owners rather than debt and liabilities. But again during two crises they used more debts especially in 2011 tsunami crisis to replace their lost properties and assets. The current ratio is stayed at the borderline situation. However they fared better at this ratio in comparison to the start of the period.

After reviewing the research's results the pecking order theory preferred by the corporation to be used as a base-capital structure decision. The reason was mostly as being a large capital focused based, they were financed by internal financing rather than external financing.

5.2 Conclusion

The main focus of this research was to analyze the capital structure status of a group of selected car manufacture in Germany and Japan. The time period selected to investigate how those companies did during the economic crises. As mentioned in literature review, companies have two choices to finance their operations, external financing and internal financing. External financing divide in two categories of

equity financing and debt financing. Using both types of financing results in capital structure. Investigating these corporations it can be understood that car manufacturing companies are considered to be capital intensive industries and use a large number of debts to finance their operations. Capital structure is varying from country to another country because of economic conditions. In developed countries of Europe however there is no shortage of capital in the capital market and they continued to finance themselves accordingly while even facing economic and natural crises. In both Germany and Japan, car manufacturing corporations showed that in times of insufficient capital they relied on banks. The governments were also moved to support them.

The crisis of automotive industry of 2008-2010 was a part of global financial disaster. While it primarily affected the American automotive industry, it also impacted the Asian and European automobile manufactures. The main factor was the substantial increase in fuel prices and the automotive industry was weakened. The increase was also linked to energy crisis of 2003-2008 which the sport utility vehicles (SUVs) and trucks with high usage of fuel were faced reduction is interests and sales. Many corporations were focused their primary car production on those series and not being fuel efficient the sales reduced.

Asian and European car companies were used creative strategies in marketing and projects and even with crisis affecting those markets, the consumers in North America started to purchase the cheaper, smaller, and more fuel efficient import models from Europe and Japan.

5.3 Managerial Implications and Limitations

The economic condition of recent years, automobile manufacturing companies showed that they adapted to the crisis environment but it must be noted that financed a lot of their operations with debts and their ability to pay back their debts and obligation were on borderline standard. They are advised to look for more optimal approach to use the capital market and strategies. While pursuing innovative and new strategies regarding their new decisions, their supply chain management must be reviewed as the reports showed that automobile industries were suffered because they faced problems in acquiring raw materials for their productions. The car manufacturing corporations were supported fully by the government and compared to American manufacturing corporations they fared much better.

The data were gathered from a group of total 6 manufacturing companies in Germany and Japan. The idea was to select the most important and more active automotive corporations; however the sample data can get bigger and involve more corporations. It is also advised to select more ratios and include other countries as well.

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