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1. Introduction

A main subject of today's corporate finance research is the inquiry of what decides the capital structure of concerns, and whether an optimal level of debt exists. For over 50 years, scientists have developed approaches to explain financing decisions. The proof of irrelevance in Modigliani and Miller financing structures the establishment of modern capital structure research.

In their model, Modigliani and Miller envision companies and investors (individuals) acting in a perfect capital market without finance-related taxes and insolvency costs. Under these conditions, it might be formally indicated that capital structure does not impact the market value of firms. If market value differences between distinctively funded enterprises occur in the same risk groups, they are again counterbalanced by arbitrage systems.¹ Furthermore, the average capital costs of a company arise as a constant, and also independently from capital structure. Given these conditions, the study of the determinants of capital structure would be pointless, as these would have no affect on real sizes. In the literature, the contribution of Modigliani and Miller will be seen in the fact that it can be derived from their study or notes, when the capital structure would be of big importance. Following the Modigliani and Miller hypothesis about the irrelevance of financing, the influence of potential determinants of capital structure was a matter of heated discussion and controversy in a number of scholarly papers. For example, trade-off theory argues that optimal debt emerges after weighing tax favourability and bankruptcy costs, while according to the preference order of the pecking-order theory, there exists no optimal level of leverage. The empirical results regarding individual determinants differ in terms of significance and sign direction. Nevertheless, few generalized findings hold traditional too the widespread consensus in the scientific literature.

The present paper is organized in seven chapters and will begin with an overview of the capital structure literature from both theoretical and empirical perspectives, which will involve critically discussing sources as well as presenting key aspects in the theory of capital structure. This chapter will also include a referenced summary of the main points relating to the determinants of capital structure. In the second chapter, theoretical research on capital structure will be addressed, opening with the Modigliani and Miller theorem and its arguments. After that, it will be presented to the choice of capital structure four of the most important theories - trade-off theory, pecking-order theory, agency theory and market timing theory. The fundamental contributions of the respective theories will also be discussed. The third chapter describes major methodological issues relating to pay out policy and capital structure. This will pay particular regard to the role of dividends policy in capital structure decisions. The fourth chapter presents the most important determinants of capital structure broken down into two categories: company-specific and institutional framework. The fifth chapter focuses on whether a relationship between the life cycle of a company and its capital structure exists. The first part of this chapter describes

¹ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“

the structure of the main phases of a company's life cycle while the second part explains the relevant theory associated with this ("capital structure life stage theory"). The sixth chapter provides a summary and review of existing empirical studies. In this chapter, a definition of leverage is given, which considers it as a type of debt ratio. The seventh and final chapter features a summary and the main conclusions of this paper.

2. Theories on the choice of capital structure

The theories of capital structure attempt to explain the mix of financing instruments, which are used by companies to finance their activities. The primary focus is on the relationship between debt and equity. Stewart C. Myers, one of the leading researchers in this field, has come to the conclusion that there is no universal theory of capital structure.² Rather, there are a number of valuable theories, like trade-off theory, which states that companies seek an external capital, in which the savings and the cost of additional financing debt simply compensate. However, Myers' Pecking Order theory does not propose optimal target capital structure, but states that the financing choice depends on the generated cash flows and investment needs.³ Accordingly, companies pursue a clear hierarchy in financing their projects. Firstly, it is important to use internally generated funds before additional debt is employed. The last alternative that should be used is external equity. Finally, the agency theory says that despite the risk of insolvency, a high level of company debt increases its value, if the free cash flows exceed the profitable investment opportunities.

In light of current circumstances, it is likewise to be noted that as of now the affirmation was illustrated after which the settlement of the capital structure does not affect the value of an enterprise. Modigliani and Miller indicate that in a world without taxes, transaction and data costs, the arrangement of the capital structure does not influence the firm's value.⁴ Both authors also assume an ideal of perfect and frictionless markets, which are not to be found in reality, as Myers argues.⁵ As a general rule, subsidizing assumes a huge part, since taxes, as well as information and agency costs, are pervasive, and the various theories of capital structure emphasize this in distinctive ways. The trade-off theory concentrates on taxes, while the pecking order theory and the agency theory focus on information costs and agency costs, respectively.

2.1 Modigliani-Miller Theorem

The composition of the capital structure of a company plays an important role in the theory and practice of modern corporate finance.⁶ Insiders as well as outsiders

² Myers, Stewart C. 2001 „Capital structure“

³ Myers, Stewart C. 1984 „The capital structure puzzle“

⁴ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“

⁵ Myers, Stewart C. 2001 „Capital structure“ (p.81)

⁶ Watson, D., Head, A. 2010 „Corporate finance principles and practice“

(commercial banks, investment banks, rating agencies, venture capitalists, equity holders, etc.) devote a lot of attention to its design.⁷

In their seminal 1958 essay, "The Cost of Capital, Corporation Finance and the Theory of Investment", the economists Franco Modigliani and Merton H. Miller sought to break new ground in this area. The focus was on the statement "The market value of any firm is independent of its capital structure".⁸

Assets:	
Circulating and fixed assets;	Value of debt (D)
Growth opportunity	Value of equity (E)
Value of firm (V)	

Figure 1: Market value balance sheet⁹

Further essays published by Modigliani and Miller in "The American Economic Review" in 1958 and 1961 examined the traditional theory of optimal capital structure. Under certain restrictive model assumptions, Modigliani and Miller showed that the market value of a company, regardless of its capital structure, as well as the cost of equity, could be represented as a linear function of leverage.¹⁰

Modigliani and Miller assume in their model that investors have the choice to purchase debt securities (the provision of debt) or equity securities (provision of own capital). This imagines a perfect capital market with symmetric information, homogeneous expectations and rational behaviour of market participants, in which private investors and companies may invest or lend capital sums at a single interest rate. In addition, Modigliani and Miller assume in their model an absence of taxes and any default risk of debt securities. The last thing they proposed for their model was no risk of insolvency, so that businesses can borrow additional debt regardless of their financial situation.¹¹ Through the introduction of "performance related risk classes", Modigliani and Miller based their model on an arbitrage-free market, in which, for perfect substitutes, in different markets, no price differences can arise.¹²

The starting point of the model is therefore a world without taxes with perfect competition in a frictionless capital market. Stakeholders in the perfect capital market are businesses and individuals. For both groups, additional assumptions are made. Companies generate unsafe operating profits before interest, ad infinitum, the amount of which remains unaffected by financing decisions. The average profit forecast is a consensus of current and potential investors. In addition, investors are able to classify companies into homogeneous groups depending on their operational risk. The model also restricts the investment universe to stocks and bonds, and

⁷ Tirole, J. 2010 „The theory of corporate finance“

⁸ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“ (p.2)

⁹ Myers, S. C., 2002 „Financing of Corporations“

¹⁰ Watson, D., Head, A. 2010 „Corporate finance principles and practice“

¹¹ Watson, D., Head, A. 2010 „Corporate finance principles and practice“

¹² Perridon, L., Steiner, M., 2007 „Finanzwirtschaft der Unternehmung“

assumes a uniform and constant bond interest rate at which businesses and consumers can borrow.¹³

Under these assumptions of the model, proof of the irrelevance of capital structure is theoretically possible. Since the earnings capacity of a company is unaffected by assumption of the selected capital structure, rational investors are indifferent about whether profits are generated in the form of dividends or interest incurred. As a result, the market value of self-financed and mixed-finance companies of the same risk class and the same earning power should not be different. If differences in valuation should occur, then an arbitrage mechanism would provide for an immediate price correction. Investors sell the securities of the higher-rated company and buy the securities of the lower-rated company, as long as the market values correspond to each other again.¹⁴

In summary, the Modigliani-Miller model argues the following capital structure-related theorems:

1. The market value of a company is independent of the chosen capital structure.
2. The average costs of capital are constant and therefore also independent of the capital structure.
3. The expected return on a levered firm's equity is a linear function of firm's debt to equity ratio.

The consequences of the model are far-reaching. The construct of a value-maximizing optimal capital structure will slip by decoupling the capital structure and corporate value. In this case, an issue of the model will be the determinants of capital structure.

However, application of these conclusions to reality is ruled out due to the restrictive model assumptions. The practical relevance of the model is therefore not in the proof of capital structure irrelevance, but in the description of the conditions that would actually justify irrelevance. The final sentences of their article (1958) show that from the beginning Modigliani and Miller wanted their work to be understood in this way.

*"These and other drastic simplifications have been necessary in order to come to grips with the problem at all. Having served their purpose they can now be relaxed in the direction of greater realism and relevance, a task in which we hope others interested in this area will wish to share."*¹⁵

2.2 Trade-off theory

According to the trade-off theory, the capital structure of a company falls off due to the consideration of the advantages and disadvantages of alternative financing plans.¹⁶ The starting point of the trade-off theory is a company financed from the beginning exclusively by equity. Through successive increases in the debt

¹³ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“

¹⁴ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“

¹⁵ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“ pg. 296

¹⁶ Frank, Murray Z. and Goyal, Vidhan K., 2008 “Profits and Capital Structure”

component, the relative advantages and disadvantages of debt financing are built in, and weighed against each other. In this way, the company tries to achieve an optimal level of debt. In the static version of this theory, the tax deductibility of interest payments is the decisive advantage of debt financing. The big disadvantages of debt are the so-called late payment costs. Two approaches can be distinguished in the context of this theory: the static and the dynamic one.

In their work (1963), Modigliani and Miller state the bases for the classic trade-off theory, by considering the tax advantage of debt financing. The tax advantage is that interest on the debt capital - in contrast to distributions to equity employer - reduces the tax base of a company.¹⁷ A strict implementation of this theory would have to follow the principle that financing would be done exclusively by borrowing. Such behaviour is, however, not practiced in reality, therefore, the authors conclude that other factors must exert an influence on financing decisions.¹⁸

The determinant, which is seen in the literature as reconciliation to the tax benefit, represents the insolvency risk of the debt.¹⁹ Kraus and Litzenberger (1973) make a gathering of these two components and create a model in which the optimal value-maximizing capital structure is obvious from the balance of tax benefit and insolvency costs.²⁰ As indicated by the traditional trade off theory, an obligation degree is chosen in which the marginal tax benefits on enterprise level relate to the marginal cost of distress risk.

Actually, the detected financing structures cannot be clarified by this reason. This prompts to disapproval of the established trade-off theory and calls for the need to view different variables related to the decision of capital structure. Miller (1977) contends that the consideration of charges in the private plane is essential, and considers, for the first time in his model, the private benefit expenses on dividends and interest.²¹ DeAngelo and Masulis (1980) look over and above the impact of non-debt-tax shield (NDTS) on the use of the tax profit. In this way, it may happen that because of high losses or devaluation, the tax benefits of debt financing cannot be acknowledged, either to some extent or at all.²²

Notwithstanding amplifications of the model by elucidating the tax benefit, the static trade-off theory does not satisfactorily explain empirical observations.²³ As portrayed in Frank and Goyal (2000), two perspectives are neglected in the static model of the theory. These are from one viewpoint gathered capital win, which is a real wellspring of inside financing. Then again the displaying avoids the deviations from the ideal debt degree and conformity to the target leverage.

¹⁷ Schneider, Hilmar, 2010

¹⁸ Modigliani, F., Miller, M.H. 1963

¹⁹ Robichek, Alexander A. and Myers, Stewart C. "Problems in the Theory of Optimal Capital Structure" Vol. 1, (1966)

²⁰ Schneider, Hilmar, 2010

²¹ Schneider, Hilmar 2010

²² DeAngelo, Harry and Masulis, Ronald W., Optimal Capital Structure Under Corporate and Personal Taxation (1980)

²³ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

Dynamic approaches, which do not assume the existence of only one period, take account of these aspects.

Dynamic models endeavour to give a superior clarification of the capital structures detectable in actuality and to discover the purposes behind the fragmented usage of the tax profits of debt capital.²⁴ This research direction anticipated that due to exogenous shocks, transaction costs and expectations about the future, the capital structure, at a given date, could vary from the optimal capital structure for a one period contemplation. Therefore, there will be adaptation processes to be considered. The optimal financing behaviour depends on the expectations of what will be optimal in the next period.²⁵

As early as 1975, Lew and Pekelman developed a new dynamic model of the trade-off theory.²⁶ The starting point of this model is the recognition that the costs of adjustment are to be weighed at an optimal level of debt against the costs of not adapting.²⁷ The actual foundation of this theory is the model of Fischer et al. (1989)²⁸. The authors refer to transaction costs as an important determinant in the choice of capital structure. They make a stochastic modelling of the enterprise value and assume that this follows a geometric process.²⁹ As a result Fischer et al. (1989) show that on the basis of transaction cost, adjustments of capital structure are made only after a delay. The authors find evidence supporting the existence of intervals for leverage, in which there occurs no adjustment of capital structure.

Empirical studies in the area of capital structure develop the dynamic approach and make further investigations about the speed of adjustment of companies to their target capital structure. An attempt is made to prove the existence of dynamic, partial adjustment processes to the emergence of optimal leverage from the trade-off theory.³⁰

The dynamic modelling is also associated with more scope for interpretation, so that almost all changes in the capital structure can arise as a theory-compliant.³¹ However, this complicates the proof of the validity of the theory. Thanks to the multi-period observation, the trade-off theory secures more flexibility and power policy regarding financing behaviours in reality. Frank and Goyal give an overview of recent contributions in this research direction and denote the dynamic trade-off theory as promising.

Against this background, the equation of the Modigliani and Miller Proposition I can be represented as follows:

²⁴ Schneider, Hilmar, 2010

²⁵ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

²⁶ Schneider, Hilmar 2010

²⁷ Lev, B. and Pekelman, D., 1975: A multiperiod Adjustment Model for the Firm's Capital Structure

²⁸ Chen, Long and Zhao, Xinlei Shelly, 2005 "Profitability, Mean Reversion of Leverage Ratios, and Capital Structure Choices"

²⁹ Schneider, Hilmar 2010

³⁰ Schneider, Hilmar 2010

³¹ Schneider, Hilmar 2010

$$V = D + E + PV(\text{Tax saving}) - PV(\text{Costs of late payment}) \quad (1)$$

V = Value of company

D = Debt

E = Equity

PV = Present value of all future tax savings

PV = Present value of late payment costs

According to the equation (1) a company adopts the debt ratio that maximizes the company's value. This is the case when the savings and the cost of an additional unit of debt are identical. The following figure presents these facts graphically:

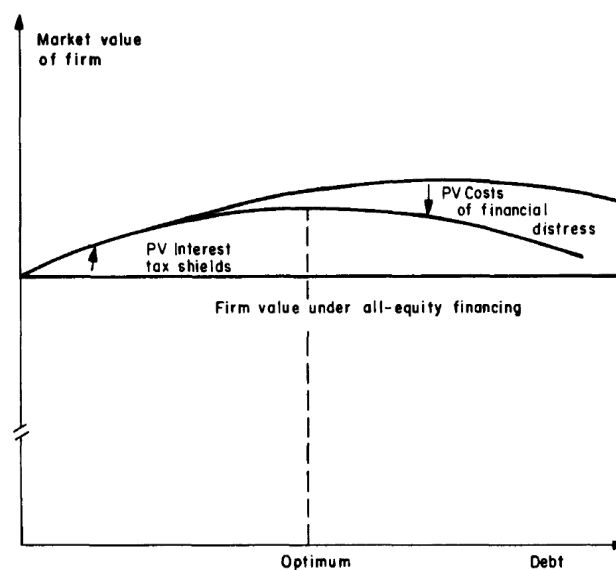


Figure 2: Trade-off Theory³²

Before turning to the empirical evidence of this theory, the tax benefits and the late payment costs will be explained in more detail in order to clearly illustrate the implications of the trade-off theory for the financing decisions of a company.

2.3 Pecking order theory

Another strand of research that attempts, like the trade-off theory, to give a holistic explanation of the capital structure, is the pecking order theory. This theory is based on a preference ordering of financing ways. No optimal capital structure is assumed. Companies generally prefer internal financing. If internal resources are not available, then debt is admitted. Equity has the lowest preference in funding decisions. The work of Myers applies as a basis of the pecking order theory, which in turn was influenced by Donaldson.³³ The preferential arrangement of financing forms is mostly motivated by the existence of asymmetrically distributed information and adverse

³² Myers, S. C., 1984 „The capital structure puzzle“

³³ Frank, Murray Z. and Goyal, Vidhan K., 2008 “Profits and Capital Structure”

selection. However, Frank and Goyal note that this can also be attributed to agency conflicts and other similar situations.³⁴

The basic idea of models, which admit adverse selection is the better information management of owner managers with respect to the company's value and the investment opportunities of their company.³⁵ Outsider investors can only form expectations about it and make estimates. The first prominent work in this research direction is from Myers in 1984. In his work, he narrowed the trade-off theory, and pointed out the novel approach to the explanation of capital structure decisions, presented as pecking order theory. Myers explained that companies are anxious to exploit the first funding opportunities that are associated with the lowest uncertainty, and this thus explains the preference order of funding.³⁶

The model-theoretical foundation of this deliberation is an important focus in the work of Myers and Majluf. The authors consider purely equity-financed companies and investigate the effect of a capital increase for purposes of implementation of investment.³⁷ They assume a perfect capital market and an information advantage on the part of management of the company. An important assumption in the model is to maximize the assets of the existing shareholders. Furthermore, only outside investors can participate in new capital missions. The result of this model is an underinvestment problem. Projects with positive net present value may be omitted if this would have to be financed through equity.³⁸ All this could be avoided if enough internal resources were available. Risk-free debt can also solve the underinvestment problem, whereas the inclusion of risky debt only mitigates the problem to some extent. The formula of the financing pecking order is derived from these principles. In a discussion of Myers and Majluf's work in 1984, Frank and Goyal indicate the intuitive interpretation of the role of risky debt. The authors argue that a formal modelling of this funding opportunity would not lead to the same preference order, and that in this case combinations of debt and equity could also be preferred. Adopting one-sided information asymmetry is a further point of criticism. As Frank and Goyal (2008) note, the consideration of bilateral asymmetry can also lead to different results concerning the pecking order.³⁹

Cadsby et al (1990) developed another model of pecking order theory. The authors only consider the issuance of equity as a financing option of investment, and come to similar results as previous researchers. If equity consumption is too expensive, then it will not lead to profitable projects. Here again, internal financial resources would resolve the underinvestment problem, due to adverse selection.⁴⁰ Recent research in the field of the pecking order due to asymmetric information distribution includes articles by Eckbo and Norli (2004) and of Halov and Heider (2005). Eckbo and Norli expand the classical model by allowing a shareholding of existing shareholders to

³⁴ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

³⁵ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

³⁶ Schneider, Hilmar 2010

³⁷ Schneider, Hilmar 2010

³⁸ Schneider, Hilmar 2010

³⁹ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

⁴⁰ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

new emissions. Halov and Heider (2005) consider two types of adverse selection, which are attributed to informational asymmetries regarding firm value and risk. Asymmetrically distributed information, which is connected with the value of the company, leads to the main thrust of the pecking order theory. On the other hand, if uncertainty exists regarding the business risk, the companies prefer the equity issue of raising debt.

The work of Viswanath (1993) provides an interesting contribution to the pecking order approach as an explanation of the choice of capital structure. The author developed a dynamic model in which he anticipates in later periods the expectations of the company's management regarding investment projects. The result is the willingness of management, preferable in the present-risky capital of internal financing, in order to preserve financial scope for future profitable investment projects.⁴¹

As I already mentioned at the beginning of this chapter, agency conflicts provide an alternative approach to the justification of the preference order of funding. The preference for internal financing can be justified here by the fact that external financial, basically, requires information disclosure and prerequisite of monitoring and control by outside investors.⁴² Among other things, Jensen and Mackling (1976) describe agency theoretical considerations that could explain a preferential arrangement of the external financing options.

Agency costs and moral hazard problems can occur in equity as well as in debt admission. Potential disadvantages of equity financing can be a result of underinvestment problems. Joyous risk investment behavior of equity investors, however, leads to an increase of debt costs and accordingly to a higher preference for equity.

With the findings of the pecking order theory, differences in the capital structure of comparable companies can be better explained.⁴³ A disadvantage of this theory as an explanation for the selective approach of capital structure results from empirical findings on financing behavior. Frank and Goyal noted that equity emissions are not consistent with the predictions of the theory; companies do emit more, even if other funds are still available. Also debt admissions are not always in connection with financing needs.⁴⁴ Pecking order behavior is observed mainly from large companies, while smaller companies with more pronounced information asymmetries, do not comply with the preference order.⁴⁵ Despite these facts, the pecking order theory receives general recognition in the literature.⁴⁶ Better explanation power could be achieved if complex structures of adverse selection or limited debt capacities are considered.⁴⁷

⁴¹ Schneider, Hilmar 2010

⁴² Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

⁴³ Schneider, Hilmar 2010

⁴⁴ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

⁴⁵ Frank, Murray Z. and Goyal, Vidhan K., 2008 "Profits and Capital Structure"

⁴⁶ Schneider, Hilmar 2010

⁴⁷ Lemmon, M. L. / Zender, J. F. (2004): Debt Capacity and Tests of Capital Structure Theories" and Halov, N. Heider, F. (2005): Capital structure, risk and asymmetric information.

2.4 Agency theory

In addition to the new insights on tax benefits and bankruptcy costs, the implications of agency theory led in particular to a shift away from the traditional trade-off model.⁴⁸ The alignment of this research strand with capital structure theory was a success for Jensen and Mackling in 1976. They define an agency relationship as a contract on the basis of which one or more persons (the so-called principals) entrust another person (the so-called agents) with the performance of tasks, while the principal(s) transfer their decision-making authority to the agent.⁴⁹ The core of agency theory consists of both parties adopting opportunistic behaviour. Jensen and Mackling link in their work for the first time agency considerations with capital structure policy decisions and thus create the bases of a second theory for the choice of capital structure.⁵⁰ The authors describe a principal-agent-problem which leads to conflicts of interest between the two parties. The authority of agents allows opportunistic behavior. They maximize their own use and do not act in the interests of the principals.⁵¹

On the other hand, principals anticipate this behavior, which leads to a decrease in the value of the company. So principal-agent relationships go hand in hand with so-called agency costs. Capital structure decisions can affect these relationships and reduce agency costs.⁵² Jensen and Mackling consider two types of agency relationships. The first one is between managers (as agents) and the second between shareholders' equity encoders (as principals). From this example the cost of self-financing and debt financing can be derived. In the literature various principal-agent problems are described, as to how agency costs of equity and debt cause and influence the capital structure decision. As Jensen and Mackling explain, excessive consumption represents a non-pecuniary advantage by the company management, but a typical agency problem is the equity financing. In their model, the in-demanding acceptance of such benefits results, if the owner-manager carries only a proportion of the cost of them, but is entitled to use the whole.⁵³

The authors argue that certain mechanisms can reduce interest divergence between management and shareholders. One possibility for this is control activities (monitoring). Also, incentive mechanisms and voluntary commitment of the managing director can mitigate the problem (bonding). According to Jensen and Mackling, the agency cost of equity resulting from monitoring and bonding costs, as

⁴⁸ Brennan, Michael J., 1995 „Corporate finance over the past 25 years“

⁴⁹ Jensen, Michael C., Mackling, William H., 1976 “Theory of the firm: Managerial behaviour, agency costs and Ownership Structure”

⁵⁰ Jensen, Michael C., Mackling, William H., 1976 “Theory of the firm: Managerial behaviour, agency cost and Ownership Structure”

⁵¹ Jensen, Michael C., Mackling, William H., 1976 “Theory of the firm: Managerial behaviour, agency costs and Ownership Structure”

⁵² Schneider, Hilmar 2010

⁵³ Schneider, Hilmar 2010

well as from residual loss, sit side by side.⁵⁴ The finance-authors say that a solution for these agency problems can be the foreign capital admission.

Jensen points to the tendency of corporate management to keep free internal resources in the company and not to distribute them, in order to secure greater space for maneuver and not have to resort to external financing.⁵⁵ This example creates an overinvestment problem that also leads to the cost of equity. If financing is done by borrowing reception, a part of the free funds for interest payments will be used. This investment can be prevented in non-profitable projects.⁵⁶ Stulz (1990) developed this idea further and noted that the so-called overinvesting problem can turn into an underinvesting problem when external capital providers anticipate the behavior of the management.⁵⁷ In such cases, the realization of projects with positive net present value can be prevented if internal funds are actually needed. In the model of Stulz (1990), the optimal capital structure is determined from a trade-off between the costs of underinvestment and overinvestment. Another problem of equity financing is pointed out by Harris and Raviv (1990). Managers who want to defend their position and control their workplace would tend towards corporate governance, even in cases when liquidation for the shareholders would be beneficial.⁵⁸ Debt financing is associated with greater information disclosure and in this case would restrict the scope of action of the company's management. The studies mentioned above suggest leveraged finance as a method to reduce the agency problems. The effect of debt ratio increase will not proceed in the same direction with all the other problems.⁵⁹ As some authors note, higher level of leverage can go hand in hand with agency costs of debt capital. An illustration of this effect is the so-called asset substitution. This is indicated by Jensen and Meckling (1976) and Fama and Miller (1972), among others. Due to their limited liability, equity employers tend to enforce riskier investment policies, as this is in the interest of creditors. Shareholders benefit from a high potential profit from the high-risk projects at the expense of foreign capital, which carries the entire risk. Myers explains another agency problem of debt and shows that higher debt can lead to underinvestment. If the expected profit of a project would mainly maximize the assets of the creditors, then equity investors can refrain from advantageous investments.⁶⁰

As already explained, the agency costs of self-financing can be reduced through the use of higher leverage. Conversely, agency cost of debt increases with the rise of the debt ratio, and is reduced by emissions.⁶¹ These findings are fundamental to the

⁵⁴ Jensen, Michael C., Mackling, William H., 1976 "Theory of the firm: Managerial behaviour, agency cost and Ownership Structure"

⁵⁵ Jensen, Michael C., 1986 „Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers"

⁵⁶ Jensen, Michael C., 1986 „Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers"

⁵⁷ Schneider, Hilmar 2010

⁵⁸ Harris, Milton and Raviv, Artur, 1990 „Capital Structure and the Informational Role of Debt"

⁵⁹ Stulz Rene M., 1988 „Managerial control of voting rights: Financing policies and the market for corporate control"

⁶⁰ Schneider, Hilmar 2010

⁶¹ Schneider, Hilmar 2010

agency theory for the choice of capital structure. The leverage level that leads to the minimization of the sum of two agency cost elements brings out the optimal capital structure, from the perspective of the agency theory.⁶² The operationalization of agency determinants of capital structure, however, has proved problematic, making it difficult to review the arguments of this theory.

2.5 Market-timing theory

The market-timing theory provides an alternative explanation of financing decisions. If external funds are needed, the managers assess the profitability of equity and debt consumption in dependence of the current conditions in the market and then decide which financing is more favorable.⁶³ As Frank and Goyal note, unfavorable conditions can discourage the management from capital consumption.⁶⁴ As with the pecking order theory, there results from the market-timing theory no optimal debt ratio and there is no adjustment to a target capital structure.

Although the idea of market-timing behavior has been around for some time, the development of the market-timing theory of capital structure is often linked to the work of Baker and Wurgler (2002).⁶⁵ The authors express the view that timing on the utilization of failed reviews stock markets determines the capital structure of companies: "(...) a simple and realistic explanation is that capital structure is a cumulative outcome of attempts to time the equity market (...)"⁶⁶ Companies would therefore perform the most time score equity emissions, if there are reviews on their shares. Baker and Wurgler (2002) argue that these activities have a significant and long-term impact on capital structures. To check this assertion, the authors develop a regression model in which market-timing behavior is approximated by the ratio of the market and book value of assets of company.⁶⁷ Company-specific control variables such as size and profitability are also included. The results indicate a significant effect of market-timing determinants. It can be shown that higher market-book value ratios are more associated with a company's individual capital emissions.⁶⁸ Share on evaluations in earlier periods lead especially to a lower leverage in the present. In these results, Baker and Wurgler (2002) see proof of the long-term impact of exchange rate fluctuations and corresponding measures of market-timing on capital structure. Noteworthy at this point is, however, that the methodology applied by Baker and Wurgler (2002) – Ordinary Least Squares Regression (OLS) - does not represent a very sophisticated estimating procedure.

⁶² Jensen, Michael C., Mackling, William H., 1976 "Theory of the firm: Managerial behaviour, agency costs and Ownership Structure"

⁶³ Frank, Murray Z. & Goyal, Vidhan K., 2009 "Capital Structure Decisions: Which Factors are Reliably Important?"

⁶⁴ Frank, Murray Z. & Goyal, Vidhan K., 2009 "Capital Structure Decisions: Which Factors are Reliably Important?"

⁶⁵ Myers, S., 1984 "The Search for Optimal Capital Structure"

⁶⁶ Baker, Malcolm and Wurgler, Jeffrey, 2002 "Market Timing and Capital Structure"

⁶⁷ Baker, Malcolm and Wurgler, Jeffrey, 2002 "Market Timing and Capital Structure"

⁶⁸ Baker, Malcolm and Wurgler, Jeffrey, 2002 "Market Timing and Capital Structure"

The market-timing theory forms the first empirically-motivated and empirically-based capital structure theory. Further evidence of the findings of Baker and Wurgler (2002) were submitted by Graham and Harvey (2001). The actions undertaken in their study manager surveys, show that in almost 70% of cases market-timing considerations are of high importance in share issues.⁶⁹

3. Dividend policy in the capital structure

As part of the evaluation of companies and the analysis of value-optimal capital structures, the strategy of the dividend component is an important factor, which this section is devoted to. The importance of dividend policy in connection with the financing policy for the value of the company can be exemplified with reference to the future expectations of management, which are reflected in financing and investment decisions and thus also determine the use of the generated profits. On the one hand, shareholders and potential investors could interpret the forfeiture of profits, and consequently a low dividend payout, as a sign of satisfaction and confidence from the board, and thus increase the value of the share price and also the market value of the company. On the other hand, the announcement of a higher dividend could be seen as less positive for the future prospects of the board and negatively reflected in the company's share price. Due to the significant impact of dividend policy on the value of the company, individual aspects such as conflicts of interest, signal effects and the influence of legal requirements for closer examination of their impact on corporate value are considered in isolation.⁷⁰

3.1. The impact of dividend policy on the balance sheet

Before a specific dividend policy is followed, it must be first determined whether the impact of the decision is associated with the company's aim. The total value of a company is made up of the value of debt and the value of equity. The ratio of equity to the total value is referred to as shareholder value (SHV).⁷¹ The shareholder value is calculated as the present value of all future cash surplus after debt payments (cash flows CF). As the discount rate must be used, the cost of equity (C_E) would be:

$$SHV = \sum_{t=1}^n \frac{CF_t}{(1 + k_{ek})^t}$$

Working from the equation, there are three basic ways to increase the shareholder value:

⁶⁹ Graham, John R., and Campbell Harvey, 2001 "The Theory and Practice of Corporate Finance: Evidence from the Field"

⁷⁰ Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁷¹ Rappaport, A., 1998 "Creating Shareholder Value"

- lowering the cost of capital
- increasing the cash flows
- bringing the cash flows temporally forward

The reduction of the cost of capital can be done by lowering the cost of each capital component, or by a more cost-effective capital structure.⁷² In both cases, an influence on dividend policy is possible. Compared to a capital increase, retention of profits leads to lower capital costs, due to lower transaction costs.

The dividend policy can be an important tool for controlling the level of debt ratio. The distribution of current, and in previous periods, retained earnings is one of the few ways to reduce, in a friendly manner, the equity shareholder.⁷³

A direct effect of dividend policy on the cash flows of the company does not exist. Indirectly, however, the dividend policy on the cost of capital can have an influence on the profitability of investment alternatives and thus on the future cash flows.

Only in exceptional cases does the shareholder value correspond, from a business perspective, to the market value of the shares and to the asset value that the individual shareholder attaches to the stock. The differences may result from different expectations of the cash flows value, due to information asymmetries, and from the individual taxation of dividend income and capital gains.

For an investor, the value of a share arises from the expected future payments of the share (after tax), which should be discounted at the required rate of return.⁷⁴

Can the value of the shares, for an investor with a given shareholder value, be increased only by the dividend policy? This should be possible for two reasons. On the one hand, there may be situations in which a temporal shift of dividend payments causes tax benefits for the shareholder. The basis for this can be both legislative changes and also changes in the individual's life situation. Secondly, it is not ruled out that the dividend policy includes additional information that will lead the investor to a better estimate of future payments arising from the share. The attitude of the investor towards the management may be crucial for the evaluation of information dividend payments. If the investor believes that the management acts his best interests, then he will assume that a reinvestment is used only for investments whose returns will exceed the cost of capital. The displacement of the payment to the shareholder will ultimately have a positive impact on its assets. If the investor distrusts the management and fears an inefficient use of the withheld funds, then this investor expects a financial loss due to the displacement of payment.⁷⁵ Unique is the effect of the dividend policy, if it is assumed that the company carries out a substantial dividend increase only if it is secure that the increased dividend will be permanently maintained. Such a change will give the signal from an increase in the cash flows generated by the company in the future.

⁷² Bessler, Wolfgang and Thies, Stefan 2000 „Kapitalstruktur, Kapitalkosten und Informationseffekte“

⁷³ Bessler, Wolfgang and Thies, Stefan 2000 „Kapitalstruktur, Kapitalkosten und Informationseffekte“

⁷⁴ Stützel, Wolfgang, 1976 “Wert und Preis”

⁷⁵ Bessler, Wolfgang and Thies, Stefan 2000 „Kapitalstruktur, Kapitalkosten und Informationseffekte“

Accordingly, these two aspects (tax and information asymmetries) are the focus of this discussion. The aim is to examine in particular whether the companies are based on shareholder value, or whether they also include the fiscal conditions of all or at least some shareholders in their dividend decision. In the field of information asymmetries it should be particularly examined to what extent dividend decisions are recognized as carrier information by market participants.

Another possibility for investors to change information asymmetries may lie in the analysis of balance sheets. Accounting ratios have an influence on the valuation of the company by investors and analysts, and thus also affect the price of the shares.

The most widely publicized figures obtained from balance sheets are the earnings per share (EPS, earnings per share), the return on investment (ROI, return on investment) and on equity (ROE, return on equity).

Decisive to the value of the shares, however, are the cash flows and the time of payment, but not periodized book values such as profit. In particular, the many alternative valuations in accounting open up the possibility of very different earnings reports, and thus give only little information about the value or performance of the company. If in practice, despite serious warnings in the literature, these measures continue to be used and thus are significant for pricing, then, in this case at least, the impact of dividend policy should be taken into account.⁷⁶ Every profit use, with the exception of the exact full payment of the annual profit, changes the book value of the company capital of the corporation.

Each attitude of parts of the yearly surplus into the retained earnings increases own capital funds, without increasing the capital stock and thus the number of the issued shares.

But on this own capital, the company must also achieve an adequate return on investment. At an appropriate level, it should contribute to the increase in profits of the next period.

Because of the changed own capital funds basis, a period comparison of the annual surpluses gives no direct explanation about the relative success of the last period. The same is true for measuring EPS, earnings per share. An increase does not necessarily mean increased profitability, but can be based only on the greater use of capital through accumulation.⁷⁷ Therefore only the own equity would be appropriate as a measure of profitability (net income to total equity).

There also occur problems when comparing the dividend policy over time. For example, what does a policy of constant dividends mean? It is usually understood as including the same level of cash dividend per share.

⁷⁶ Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁷⁷ Rappaport, A., 1998 "Creating Shareholder Value"

3.2. Dividend payments and share buybacks

The distribution of generated profits can be made in the form of dividends to shareholders, or through the return of shares.⁷⁸ Consequently, distribution policy includes the two aspects, dividend policy and share buy-back policy. Both instruments show determinative influences after presentation of the theoretical practical point of view based on distribution policy. To what extent the dividend policy actually affects the value of the company is a matter of controversy in the literature. According to Brealey, Myers, Allen (2006), three groups have emerged in this discussion: firstly, the "conservatives" who see a higher value of the company in an increased dividend, and on the other hand the "radicals" who claim that higher dividends lead to a loss of enterprise value. The followers of Modigliani and Miller fall somewhere between these two groups. Modigliani and Miller set out in their original work from 1961 the theory that the dividend policy is irrelevant - neglecting taxes, transaction costs and other market imperfections.⁷⁹

Modigliani and Miller argue as follows: a company with a given financing and investment policy plans to pay out a dividend issue without changing its financing and investment policy. The dividend thus has to be financed by additional money, and this can be realized only through a new issue of shares. According to the simulation assets, revenues, and investment projects stay constant, and thus a constant market value takes place only as a value shift from the old to the new shareholders. The value of the dividend being issued corresponds exactly to the loss value of the old shareholders, and so compensates this. The second method of dividend policy - the repurchase of shares - in the perfect capital market does not affect the value of the company, because the value of shares of all other shareholders who have not sold increases by exactly the amount that would have accrued to them through a dividend payment.⁸⁰

This argument is considered to be theoretically correct, but it lacks a certain relation to reality, inasmuch as capital markets are not perfect and the dividend policy is determined by different influences which are explained below.

3.2.1 Conflicts of representation and interest

In this context, the main points in the literature are a managerial agency conflict and on the other side a debt agency conflict. Here, the former refers to the conflict between corporate management and shareholders that is based, in particular, on the power of management in withholding of profit and high internal financing. This power involves the risk that management is not acting in the interest of equity employer and therefore commits "capital blunders". The latter conflict is also based on the information asymmetry between management and investors, which is problematic because of the narrow scope of action of the lenders. High dividends come contrary to

⁷⁸ Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁷⁹ Modigliani, F., Miller, M.H. 1961 „Dividend Policy, Growth, and the Valuation of Shares"

⁸⁰ Modigliani, F., Miller, M.H. 1963 „Corporate income taxes and the cost of capital: A correction."

the investors due to the resulting control of the financial markets, because the reduction of disposable funds requires increased external financing.⁸¹

3.2.2 Signaling effect of dividends

Dividend policies have certain signal effects which can trigger the management towards shareholders. Disregarding the various forms of dividend, from the investors view they have made the following effects: in most cases, the announcement of a higher dividend than in the previous period results in an increase in the share price, as investors assume that the management can justify such a decision in anticipation of rising future performance.⁸² Investors and analysts react primarily to changes in the dividend payout, and less on the absolute level.⁸³

Unlike dividends, share buy-back is usually denominated as a one-time event by companies⁸⁴, for example not responding to shareholders through dividends to long-term commitments, in the form of continuously high payouts. For this reason, the information and its impact on investors is different: a company operates share repurchases, if it lacks profitable alternative investments or it aims to raise its level of debt ratio.⁸⁵ Another common cause for return of shares is an undervaluation of the security. The management demonstrates confidence by offering share buybacks with markup, and therefore intends to show that the market price is lower than the actual value.⁸⁶ The signal effect of dividend policy decisions should therefore be neglected as much as subsequent legislative determinants.

3.2.3 Taxation and legal framework

The impact of taxation on the dividend policy is mainly due to different international tax systems and their application regarding double taxation regarding profit tax at the corporate level and income taxes payable on a shareholder level. Income taxes should be applied everywhere, but the personal taxation of dividends as income is handled very differently.⁸⁷ In Germany, it took until 2001 to implement the imputation procedure (profit taxes can be completely or partially subtracted from the dividend income), and from 2001, the half-income procedure (dividend income are, with some exceptions, in half of the control background). From 2009, in the wake of the latest corporate tax reform, multiple taxation should be counteracted with a final withholding tax. Low taxation with respect to dividends tends to have a positive impact on the level of distribution of corporations.⁸⁸ In principle it can be stated that the existing national

⁸¹ Volkart, R., 2006 "Corporate Finance – Grundlagen von Finanzierung und Investition"

⁸² Ofer, Aharon R., and Siegel, Daniel R., 1987 „Corporate Financial Policy, Information, and Market Expectations: An Empirical Investigation of Dividends“

⁸³ Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁸⁴ Volkart, R., 2006 "Corporate Finance – Grundlagen von Finanzierung und Investition"

⁸⁵ Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁸⁶ Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁸⁷ Volkart, R., 2006 "Corporate Finance – Grundlagen von Finanzierung und Investition"

⁸⁸ Volkart, R., 2006 "Corporate Finance – Grundlagen von Finanzierung und Investition"

legal framework not only contributes to market imperfections because of different taxes, but also corporate dividend locks or targeted special rules in individual cases also affect the dividend policy and the value of the company.⁸⁹

3.2.4 Other aspects relating to distributions

Especially in smaller companies and in ones not represented in the capital markets, profit distribution is very strongly linked to the limited funding resources with respect to equity and debt capital and thus closely linked to investment and growth policies. Furthermore, the risk to make unprofitable investment alternatives (bad investments) instead of profit distributions also plays an important role. Bad investments are a general problem of human behavior and often a greater risk of companies with high cash reserves. Also included are companies who make high payments and therefore have large cash reserves, to potential takeover candidates by private equity companies.⁹⁰

The number of value-relevant aspects which interact with dividend policies is large. At this point, only the essential points need be explained to draw the following conclusions.

Taking up the irrelevance thesis of Modigliani and Miller one comes to the conclusion that the issues listed above have value-relevant influences and thus may not be disregarded. The dividend policy therefore has a very high relevance in relation to the company valuation.⁹¹ The initial question of whether a distribution policy should be separated from the premises of finance and investment cannot be affirmed because of the close integration of all European influences outlined above.

Furthermore, the question of whether a specific value proposition can be connected with a specific distribution policy is not answered. A value-optimizing distribution variant for companies to, for example, get high pay dividends, is not the case in reality. Basically, it can be stated that there are investors who have low and those who prefer high dividends. This one is then in the "Modigliani Miller world", in which the distribution policy for the value of the company is irrelevant.⁹²

Given the large number and complexity of influencing factors, it seems difficult to find an optimal solution. However, according to Volkart, it usually seems that a constant dividend policy is more advantageous than an orientation on the cash flow or earnings development.⁹³

Now the question arises to what extent the distribution of profits should be considered in the assessment practice. The discussion about this was long and hard. According to the latest standards of the Institute of Public Auditors in Germany (IDW), if the cash flow forecast underpins a two-part planning, there should be held in the first phase a

⁸⁹ Gorny, Christian and Rosenbaum, Dirk, 2004 "Die methodische Berücksichtigung von Ertragsteuern in der Unternehmensbewertung - Aktuelle Probleme und Lösungsvorschläge"

⁹⁰ Volkart, R., 2006 "Corporate Finance – Grundlagen von Finanzierung und Investition"

⁹¹ Volkart, R., 2006 "Corporate Finance – Grundlagen von Finanzierung und Investition"

⁹² Brealey, R., Myers, S., and Allen, F., 2006 "Principles of Corporate Finance"

⁹³ Hommel, M., Pauly, D. and Nagelschmitt, S., 2007 „IDW ES 1 – Neuerungen beim objektivierten Unternehmenswert“

sharing of the financial surpluses in accumulations and distributions when determining the objective company value at the discretion of the evaluator, and in the second phase (continuation phase) full distribution or a distribution quote will be accepted.⁹⁴ The current state of the dividend policy and the payout ratio is entered into in detail in the 4th and the 6th chapter on the upcoming corporate tax reform 2008/2009, taking into account the current climate and the new tax environment.

4. Determinants of capital structure

“What factors influence the capital structure” is one of the most-debated questions in corporate finance literature. This chapter provides an overview of the different capital structure theories and their importance for the investigation.

Malthus the capital structure theories can provide approaches, how and under what assumptions a stock?

4.1 Company specific variables

Among the company specific variables included are those that are as a proxy for the risk of a company from the perspective of investors. For this, the company age, size of the company, the industry in which the company operates and legal form of the company are counted. Generally, the enterprise specific variables show typical signs. Larger companies finance a higher proportion of their financial needs through debt. Labor costs are an essential and returning cost block, and company founders are more likely to finance them with the help of external investors.

In his theoretical model, Titman (1984) shows that the capital structure of a company depends on the uniqueness of its products.⁹⁵ Specifically to the wise enterprises, which are strongly specified and offer unique products or services, on account of the stronger connection with customers, suppliers and employees, exhibit higher costs in case of a bankruptcy. Such companies therefore try to reduce these costs by a lower level of debt. A negative correlation between the uniqueness of an organization and its debt-equity ratio is thus assumed. To measure the uniqueness of an enterprise can be a difficult undertaking. As companies with unique products usually use a higher proportion of their budget on research and development, according to Titman and Wessels (1988), the research and development expenses as a percentage of sales can be used as an indicator of uniqueness.⁹⁶

4.1.1 Growth

Considering the determinant of growth, founded empirical research is mainly agency-theoretical. The start point is the assumption that agency conflicts between owners and external creditors in terms of growing companies are particularly pronounced. On the one hand, high-growth companies identify an inherent asset substitution

⁹⁴ IDW (2007): Auswirkungen der Unternehmenssteuerreform 2008 auf die Ermittlung von objektivierte Unternehmenswert“

⁹⁵ Titman 1984

⁹⁶ Titman, Sheridan, and Wessels, Robert, 1988 „The determinants of capital structure choice“

problem.⁹⁷ It is very difficult for the creditors to assess, at the time of lending, if the growth strategy leads to success and how the company's business model will change during the term of the loan. On the other hand, foreign investors have to expect, just in terms of expanding businesses, the occurrence of underinvestment problems. In particular, if the expansion fails, projects with positive net present value may no longer be funded because the success of the project would benefit mainly "the Old Believers".⁹⁸ As a result, a negative relationship between growth and leverage is usually expected.⁹⁹

In addition, in the literature other arguments for a negative causal relationship can be found. So, it affects adversely, that the value of growth options is not suitable as collateral.¹⁰⁰ Companies with promising growth opportunities should also avoid high levels of debt in order to preserve freedom of action for the realization of future investment projects.¹⁰¹ High-growth firms could eventually also have higher insolvency costs, since large parts of their current enterprise value largely depend on future expectations.¹⁰²

If high growth prospects, however, will be construed as an indicator of future higher profitability, for an alternative view there could also result a positive relationship between growth and debt ratio.¹⁰³ This argument, however, has not found its way into the wealth of literature discussion.

While a negative influence of the determinant growth, in regard to the total and long-term debt, is almost invariably assumed, then an opposite result in relation with short-term debt could occur. Since current liabilities are associated more with lower agency costs than long-term liabilities, in the opinion of many authors high-growth companies should have an incentive to specifically choose short loan or loan terms.¹⁰⁴

This incentive should apply in particular for medium-sized companies, as information asymmetries and thus the agency costs in the SME context are much more significant.¹⁰⁵ With reference to the "Financial Growth Cycle theory" (Berger/ Udell, 1998), the SME literature even has its own explanatory approach for the cooperation of debt ratios and growth. Small, younger enterprises are expressed opaquely according to this theory, and frequently only own capital funds are at their disposal

⁹⁷ Fama, Eugene F., and French, Kenneth R., 2002 „Testing Trade-Off and Pecking Order Predictions About Dividends and Debt”

⁹⁸ Allayannis, George and Mozumdar, Abon, 2004 „The impact of negative cash flow and influential observations on investment cash flow sensitivity estimates”

⁹⁹ Frank, Murray Z. & Goyal, Vidhan K., 2003. "Testing the pecking order theory of capital structure"

¹⁰⁰ Chen J. J., 2004 „Determinants of capital structure of Chinese-listed companies“

¹⁰¹ Larry Lang, Eli Ofek, and René M. Stulz, 1996 „Leverage, investment, and firm growth“

¹⁰² Rajan, Raghuram G. and Zingales, Luigi, 1995 „What Do We Know about Capital Structure? Some Evidence from International Data”

¹⁰³ Chen, Long and Zhao, Xinlei Shelly, 2005 “Profitability, Mean Reversion of Leverage Ratios, and Capital Structure

¹⁰⁴ Titman, Sheridan, and Wessels, Robert, 1988 „The determinants of capital structure choice“

¹⁰⁵ Hall, Graham C., et al. 2004 „Determinants of the Capital Structures of European SMEs”

as a financing source. During the growth process, the information asymmetries decrease continuously and the company gradually acquires access to other forms of financing. The use of short-term liabilities also precedes the usage of long-term liabilities according to this theory.¹⁰⁶

4.1.2 Tangible Assets

The determinant of tangible assets approximates the unobservable fuse value of balance sheet assets and essentially follows from the agency theory. According to the agency theory, the agency costs of external debt, by position of collateral, can be significantly low; and in particular the assets substitution problem can be significantly alleviated.¹⁰⁷ High tangible assets can also give hope for high liquidation proceeds in the event of insolvency, which is why the agency theory argues, also for this reason, that there is a positive relationship between the amount of tangible assets and debt.¹⁰⁸

In a roundabout way, agency theory can be used to justify a negative correlation between debt and fixed assets. Unless there is an excessive use of non-monetary benefits through the management, shareholders, in the opinion of individual writers, could opt, even in the case of low collateral, for a high level of debt in order to reduce the agency costs of equity financing.¹⁰⁹ However, this project can only succeed if debt investors, despite a lack of collateral, are willing to grant loans.

Indirectly, the determinant of tangible assets can be also linked with the pecking-order theory. Grade collateralised loans have usually very low risk premiums, which doesn't give rise to underinvestment problems, or only to a small extent. According to the Pecking-Order Theory, companies with high tangible assets should fall relatively easily to higher debt.¹¹⁰ From Pecking-order theory there also follows a positive relationship between leverage and tangible assets. In this context, a minority opinion is represented by Harris and Raviv (1991). Harris and Raviv confirm the increasing incidence of underinvestment problems, in the absence of collateral. In their opinion, this leads to a higher level of debt for companies with lower tangible assets.¹¹¹

In addition to these arguments, other reasons for the investigation of this determinant can be occasionally found in the literature. Summing up the amount of tangible assets, for example, as an approximation of the capital intensity of a company, can be set again a negative relationship between tangible assets and debt ratio. High capital intensity implies a high proportion of fixed costs, which poses significant risks in these times of economic downturn. For this reason, capital intensive firms could

¹⁰⁶ Berger Udell 1998 „The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle“

¹⁰⁷ Bevan, A. A. and Danbolt, J., 2002 „Capital Structure and Its Determinants“

¹⁰⁸ Frydenberg, Stein, 2011 „Theory of Capital Structure – a Review“

¹⁰⁹ Titman, Sheridan, and Wessels, Robert, 1988 „The determinants of capital structure choice“

¹¹⁰ Frydenberg, Stein, 2011 „Theory of Capital Structure – a Review“

¹¹¹ Frank, Murray Z. & Goyal, Vidhan K., 2003. "Testing the pecking order theory of capital structure"

choose a low level of debt in order to better weather difficult economic phases.¹¹² If one lays out this argument in a slightly modified way, a positive connection will result again. High tangible assets may indicate the maturity of an industry. Companies in mature industries may have a lower operational risk, which would allow them a higher level of debt.¹¹³

Despite some contrary arguments, in the literature of determinants, there prevails a broad consensus concerning the positive relationship between tangible assets and debt ratio. The literature, consequently, offers a statistically significant, positive coefficient value of this determinant. In the SME context, tangible assets may lose some of its explanatory power. This is due to the conceivable and quite usual safety position from the personal assets of the shareholders. The mere knowledge of the tangible assets at the enterprise level could underestimate the actual extent of existing high-value collateral.¹¹⁴ Tangible assets could also have an influence on the maturity structure of debt. After the "golden balance rule", long-term and short-term assets should be financed equally rapidly.¹¹⁵ As a result, companies with few tangible assets could have a greater use of short-term liabilities.

4.1.3 Profitability

From the perspective of theoretical research, profitability is the most important determinant of capital structure. The profitability of a company determines its internal financing capacity and thus directly affects the capital structure.¹¹⁶ At the same time, profitability is a fundamental part of the most important capital structure theories and one of the few determinants, if not the only determinant, that allows a direct test between the trade-off and pecking-order theory within the framework of cross-sectional studies.¹¹⁷

In the classic trade-off theory, profitability carries much importance, because the earnings before interest and taxes directly determine the amount of usable tax benefit. With the increase of profitability, *ceteris paribus*, the tax burden of company increases, which is why the use of the tax benefits of debt financing, is more interesting. According to classical trade-off theory, profitability and leverage should therefore correlate unambiguously positively.¹¹⁸

Also from the agency theory follows a positive relationship. In a highly profitable company, the management has high internal financing opportunities and large freedom of action. In order to counteract excessive consumption in the workplace, as

¹¹² Ferry, M.G., and Jones, W.H., 1979 „Determinants of financial structure: A new methodological approach“

¹¹³ Chen, Y.H., and Hammes, K., 2004 „Capital structure theories and empirical results -A panel data analysis“

¹¹⁴ Hall, Graham C., et al. 2004 „Determinants of the Capital Structures of European SMEs“

¹¹⁵ Ozkan , A., 2002 „The determinants of corporate debt maturity: evidence from UK firms“

¹¹⁶ Chen, Long and Zhao, Xinlei Shelly, 2005 “Profitability, Mean Reversion of Leverage Ratios, and Capital Structure“

¹¹⁷ Hovakimian et al. 2004 „Determinants of target capital structure: The case of dual debt and equity issues“

¹¹⁸ Frank, Murray Z. & Goyal, Vidhan K., 2003. "Testing the pecking order theory of capital structure"

well as over investment problems, the increased use of foreign capital will be provided as a disciplining tool for external shareholders.¹¹⁹

The determinant of profitability is also of high relevance for debt ratio based signaling models. According to this model class, profitable companies can use their superior quality, through the conscious raising of the debt, to signal external investors. This signal is plausible because enterprises of worse quality and therefore also of lower profitability, cannot show the higher interest and redemption charge.¹²⁰ Consequently, this class of model assumes a positive relationship between profitability and leverage.

Of paramount importance is the determinant of profitability within the pecking-order theory. The more profitably a company conducts its business, the higher the internal financing volume and the lower the external financing needs. Under these conditions, the pecking-order theory predicts a lower level of debt, as companies first cover its investment needs from its own resources, and only after that draws borrowing into consideration.¹²¹

Some authors also point out that the determinant of profitability possibly approximates the determinant of growth.¹²² The high current profitability is understood, in this case, as an indicator of future investment opportunities. This objection is very important, because based on this argument, a negative relationship between profitability and debt ratio, in line with the trade-off theory, can be brought forwards. A negative coefficient value of the profitability variable could then no longer be unequivocally interpreted as confirmation of the Pecking Order.¹²³

The SME literature usually assumes a negative relationship between profitability and leverage, since a high relevance of the pecking-order theory is assumed with respect to medium-sized companies.¹²⁴ Corporate business studies point to the possibility of a positive and negative result in general.¹²⁵ Because present empirical results rather suggest a negative effect direction, authors tend to attach a higher probability to this result. Regarding the effect of the profitability on the level of long-term and short-term debt, there is usually no differentiation.

4.1.4 Company size

The determinant of firm size takes a special position in capital structure research. On one hand, the determinant of firm size cannot effectively control all size-related differences. If they could, the separate investigation of large and medium-sized

¹¹⁹ Frydenberg, Stein, 2011 „Theory of Capital Structure – a Review“

¹²⁰ Frank, Murray Z. & Goyal, Vidhan K., 2003. "Testing the pecking order theory of capital structure"

¹²¹ Bevan, A. A. and Danbolt, J., 2002 „Capital Structure and Its Determinants“

¹²² Chen, Long and Zhao, Xinlei Shelly, 2005 “Profitability, Mean Reversion of Leverage Ratios, and Capital Structure“

¹²³ Frank, Murray Z. & Goyal, Vidhan K., 2003. "Testing the pecking order theory of capital structure"

¹²⁴ Berger Udell 1998 „The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle“

¹²⁵ Hovakimian, Armen et al., 2004 „Determinants of target capital structure: The case of dual debt and equity issues“

companies would not be required. On the other hand, there is no immediate explanation for the importance of this determinant in capital structure theory.¹²⁶ The possible influence of company size on financing decisions can, however, support a number of ways indirectly from the capital structure theory. For this purpose, the empirical literature provides essentially three basic arguments.

According to various studies, the size of the company is often interpreted as a general indicator of the degree of information asymmetry between corporate insiders and outsiders. The larger a company is, the lower the information asymmetry is expected. Responsible for this are, for example, the better reporting system and the capital market presence of larger companies.¹²⁷

Closely associated with the information asymmetry argument is the assumption of a better reputation of larger companies in the capital market. This makes it easier for larger companies to get access to debt financing.¹²⁸ Larger companies likewise have rather a rating¹²⁹, where payments tend to have lower interest rates¹³⁰ and benefited from lower relative transaction costs of capital measures,¹³¹ which facilitate additional debt.

The most frequently cited argument in the literature is the inverse relationship between company size and risk. Large companies are better diversified¹³², often too big to fail¹³³ and characterized by lower direct bankruptcy costs and lower risk of insolvency.¹³⁴

SME studies justify, in principle, the inclusion of the determinant of firm size with the same arguments. However, this refers mainly to the argument about the differences between larger, smaller and medium-sized companies.¹³⁵ At the same time, the assumed size-related differences, but also the legal structure, serve a separate study of medium-sized companies. From the results on the determinant of company size, there is no statement about the necessity of making separate SME studies.

In the literature, in light of the above arguments, a positive relationship between leverage and firm size is expected. In terms of short-term debt, a negative relationship could also arise. Due to the greater information asymmetry, poorer capital market access, and higher average risk, smaller companies have to resort increasingly, under certain circumstances, to short-term liabilities.¹³⁶

¹²⁶ Halove Heider 2004

¹²⁷ Allayannis, George and Mozumdar, Abon, 2004 „The impact of negative cash flow and influential observations on Investment cash flow sensitivity estimates”

¹²⁸ Frank, Murray Z. & Goyal, Vidhan K., 2003. "Testing the pecking order theory of capital structure"

¹²⁹ Bevan, A. A. and Danbolt, J., 2002 „Capital Structure and Its Determinants”

¹³⁰ Ferry Jones 1979

¹³¹ Titman, Sheridan, and Wessels, Robert, 1988 „The determinants of capital structure choice“

¹³² Chen, Y.H., and Hammes, K., 2004 „Capital structure theories and empirical results -A panel data analysis”

¹³³ Bevan, A. A. and Danbolt, J., 2002 „Capital Structure and Its Determinants”

¹³⁴ Allayannis, George and Mozumdar, Abon, 2004 „The impact of negative cash flow and influential observations on Investment cash flow sensitivity estimates”

¹³⁵ Hall, Graham C., et al. 2004 „Determinants of the Capital Structures of European SMEs”

¹³⁶ Titman, Sheridan, and Wessels, Robert, 1988 „The determinants of capital structure choice“

4.2 Institutional framework

In a general way, the Modigliani and Miller theorem and the capital structure literature are based on the suggestion that there are different optimal capital structure and capital adequacy ratios, depending on market frictions, and also depending on the institutional framework in which businesses operate. After earlier international comparative analyses, as well as studies that focus on one country (mostly the United States), about differences in company characteristics focused as explanatory variables, there have also been recent work on the capital structure since the mid-nineties, that worked out the essential influence of institutional factors on corporate financing.¹³⁷ These include the control system, the recognition and measurement requirements in accounting, insolvency law, financial market structure, the ownership structure of the corporate sector of a country, and many more, which cannot be incorporated here and discussed in detail.

4.2.1 External corporate governance mechanism

In addition to the internal, and thus customizable, mechanisms of corporate governance, companies function in a complex environment which influences decision making processes and agency cost. In addition to the legal framework, which, for example, protects the shareholders against management options grants that behave fraudulently and self-serving, are in particular the relevant markets on which the company moves as a supplier or demander. Their highest possible efficiency is with positive influences on agency-cost and also linked to corporate value. Since international legal systems have strong differences, the effect of the respective liability under the description of the corporate governance systems in Germany and the USA will be discussed.

Dissatisfied to the shareholders, as the central administration, the exit strategy of the share sale is open with existence of an efficient market for own capital funds with sufficient secondary market liquidity.¹³⁸ This means that the respective rights of control are transferred to the new shareholders. If in dispersed shareholding, a variety of shareholders, or in concentrated shareholding, a controlling shareholder makes this decision to sell, a significant price decline is to be expected. This low corporate rating increases the probability of being classified by an external bidder as a worthwhile target company of a hostile takeover, and thus for the management of the risk of being replaced.¹³⁹ This market-based correction of faulty management is viewed as an essential ingredient of every corporate governance system.

¹³⁷ Rajan, Raghuram G. and Zingales, Luigi, 1995 „What Do We Know about Capital Structure? Some Evidence from International Data”

¹³⁸ Bassen, A., 2002 „Institutionelle Investoren und Corporate Governance–Analyse der Einflussnahme unter besonderer Berücksichtigung börsennotierter Wachstumsunternehmen“

¹³⁹ Burkart, M. and Panunzi, F., 2006 „Agency conflicts, ownership concentration, and legal shareholder protection“

In this case, the new owner can achieve an increase in value, by replacing, ex post, the opportunistic management.¹⁴⁰ During a bidding competition, an efficient allocation of resources is also ensured.¹⁴¹

Ex ante, knowledge about possible impending hostile takeovers, whose probability increases with falling share prices, can discipline management and also offer incentives to avoid opportunistic behavior and increase the company's value.¹⁴²

4.2.2 Taxation

The determinant of taxes is the oldest theoretically derived model of capital structure determinants. Its importance stems from the (classical) trade-off theory. Within the trade-off theory, the determinant taxation is by far the most important variable, which explains the use of leverage. Due to its preeminent position value, the trade-off theoretical reasoning rises and falls with the tax variable. If an influence of the tax variable is empirically confirmed at the height of the debt-equity ratio, it would also be a decisive proof of the relevance of the trade-off theory. If this influence cannot be proved empirically, then doubt about the validity of trade-off theoretical hypotheses would arise.

However, the determinant of taxes largely defies empirical verification, because the exact quantification of the tax benefit requires high data requirements. Decisive for incremental funding decisions are not directly observable statutory or effective tax rates, but the marginal tax rate at the corporate level.¹⁴³ Sometimes, the latter varies as a result of non debt tax shield, which is also the marginal tax benefit of debt financing at a variable size.¹⁴⁴ Consequently, all tax-relevant issues, including the NDTs, should be found in a common tax variable precipitation.

Building on Shevlin (1990), Graham suggests (1996, 2000) for this purpose a simulation technique for the marginal tax rate. According to the author, data requirements and computational effort are extremely high, and detailed information on all tax-related factors must be estimated over several years.¹⁴⁵ If the marginal tax rate cannot be meaningfully predicted, Graham (1996) offers as meaningful alternatives a tracheotomy tax variable of the statutory maximum tax rate, as well as a dummy variable, which corresponds to the value of the legal maximum tax rate with positive assessment basis.¹⁴⁶ The quantification of the tax benefit is further complicated due to the necessary adjustment of income tax effects on a private level.¹⁴⁷ If interest and dividend income will be differently taxed at the private level,

¹⁴⁰ Manne, H., 1965 „Mergers and the market for corporate control”

¹⁴¹ Jensen, M.C. and Ruback, R.S., 1983 „The market for corporate control: The scientific evidence”

¹⁴² Grossmann, S.J. and Hart, O.D., 1980 „Takeover bids, the free-rider problem, and the theory of the corporation“

¹⁴³ Graham, J.R., 1996 „Proxies for the corporate marginal tax rate”

¹⁴⁴ Graham, J.R., 2003 „Taxes and corporate finance: A review“

¹⁴⁵ Graham, J.R., 1996 „Proxies for the corporate marginal tax rate”

¹⁴⁶ Graham, J.R., 1996 „Proxies for the corporate marginal tax rate”

¹⁴⁷ Graham, J.R., 1996 „Proxies for the corporate marginal tax rate”

as Miller (1977) has shown, it can compensate, in part, for the tax benefit from the deductibility of interest on corporate level.

Another obstacle for the empirical investigation of the determinant taxes, are varying national tax systems.¹⁴⁸ On the one hand, this fact influences the amount of the realizable tax benefits. On the other hand, under certain circumstances, the operationalization of the tax variable must be adapted to the changed conditions. Cross-national studies, which have as an object the determinant of tax would have to correctly deal with the fiscal framework, and if necessary, use country-specific operationalization.

The SME literature approaches the helm argument in an unchanged manner, although some individual authors draw attention to the potentially lower tax advantages of medium-sized companies due to a tendency of lower profitability and lower marginal tax rate.¹⁴⁹ These objections do not lead to the fact that the causal connection between tax advantage and debt, postulated by the trade-off theory, would be modified.¹⁵⁰ With regard to the maturity structure of the debt at least, the empirical research of determinants does not expect any significant effects. The influence of the tax variable on the short-term debt will be tested by only three studies, and no one of these studies formulates specific hypotheses regarding the short-term debt.¹⁵¹ A different hypothesis formulation, depending on the level of debt category, would also be contrary to the capital structure theory. For the use of the tax benefits of debt financing, it is completely irrelevant whether the periodic interest payments relate to short-or long-term liabilities.

4.2.3. Debt Ratio

For decades, the possible moderator property of the leverage measure dominated the scientific discussion. On the one hand, the debate relates to the possible impact on earnings, as a result of measurement of the level of debt over the book/market value. On the other hand, this also has to do with the impact of the separate study of short-term, long-term and total debt. The study of the moderator property of the leverage measure is of considerable importance in the research of determinants. Around 40% of the evaluated primary studies vary the debt ratio according to the market or book value terms and / or leverage category.

The discussion about the suitability of book or market value based leverage ratios has its origins in capital structure theory. Basically, the theoretical literature argues about the market values of equity and debt.¹⁵² Consequently, determinants studies

¹⁴⁸ De Jong, Abe, Rezaul Kabir, and Thuy Thu Nguyen, 2008 "Capital structure around the world: The roles of firm and country specific determinants."

¹⁴⁹ Sogorb-Mira, F., 2005 „How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel”

¹⁵⁰ Jordan, Judith, Julian Lowe, and Peter Taylor, 1998 "Strategy and financial policy in UK small firms."

¹⁵¹ Sogorb-Mira, F., 2005 „How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel“

¹⁵² Flannery, Mark J., and Kasturi P. Rangan, 2004 "FDIC Center for Financial Research."

should be based on market-value-based debt levels.¹⁵³ In survey studies, there is evidence that managers are oriented predominantly on book value-based leverage ratios. Furthermore, debt market values can be determined only with great effort, which is why the empirical research often highlights only data reasons for book values. In principle, the use of book values would be no problem, as long as the book and market values, in absolute terms, differ only slightly and the calculated leverage ratios remained largely constant in relative terms.¹⁵⁴

How significant the differences in results from the use of book or market value-based metrics really are is largely unknown across the studies. Book value-based studies provide small differences, and often rely on the study of Bowman (1980).¹⁵⁵ Bowman concludes for a sample of 92 listed companies that the results over book and market value based debt ratios, in the context of empirical research on the systematic risk, vary only slightly from each other. But Bowman also points out that this result may not be transferable to other research disciplines and samplings.¹⁵⁶

While the earnings effect of a book or market value-based definition of the leverage ratio is not considered in great detail in the literature, capital structure research was expected to show significant differences in results depending on the investigated debt ratio category.¹⁵⁷ The capital structure theory is particularly true in this regard, with respect to short-term debt different predictions about the direction of the effects of individual determinants. Accordingly, variation in results should be detectable depending on the level of debt category in the meta-analytic evaluation.

5. Capital structure and the life cycle of a company

Every company, like a living being, goes through a life cycle of its birth, or founding, until its death. This cycle can be divided into different phases, and the differences between these stages of life are due to different external conditions as well as due to various internal company conditions. These external and internal influencing factors, among others, change the financing needs of a company continuously.

For a company and its management, it begs the question of how to finance its activities taking into account the already mentioned conditions. This can be performed through external capital and equity, and both types of financing have their advantages and disadvantages. In the past, much research has tried to explain the question, or answer the question of the composition of capital structure. Modigliani and Miller (1958) show in their pioneering work that, in a world without taxes, transaction and information costs, the composition of the capital structure does not

¹⁵³ Beattie, Vivien, Bill McInnes, and Stella Fearnley, 2004 "Through the eyes of management: Narrative reportin across three sectors."

¹⁵⁴ Allen, David Edmund, and H. Mizuno, 1989 "The determinants of corporate capital structure: Japanese evidence."

¹⁵⁵ Titman, Sheridan, and Wessels, Robert, 1988 „The determinants of capital structure choice“

¹⁵⁶ Bowman, Robert G, 1980 "The importance of a market-value measurement of debt in assessing leverage.”

¹⁵⁷ Ozkan , A., 2002 „The determinants of corporate debt maturity: evidence from UK firms“

affect the company's value.¹⁵⁸ Among the steps taken by Modigliani and Miller's assumptions, it is therefore irrelevant whether equity or debt is used to finance a company. In reality, taxes, information and transaction costs however have the effect that the company value depends very much on the financing of the company. This realization triggered a flood of research in the field of capital structure, which has relativized the assumptions made by Modigliani and Miller. This eventually led to five central sub-theories of capital structure, which are defined in the first part of the paper. One of these theories postulated that the capital structure of a company is influenced by its lifecycle. Bender and Ward (1993), for example, focus their attention on the conflict between the business risk and financial risk, and show that the business risk over the life cycle of a company decreases in respect to time, resulting in an increase of the financial risk result.¹⁵⁹ Damodaran (2001) adopts a similar point of view in his work and concludes that expanding and rapidly growing companies finance their activities with equity, while mature companies replace their capital by debt.¹⁶⁰

However, the two lines of research of capital structure and the life cycle theory were considered almost exclusively in isolation in the past. It seems to be the case that with the exception of the researchers Frielinghaus, Mostert and Firer (2005), no one has empirically examined the financing needs of a company, looking at the various stages of its life cycle and making changes where necessary.

However, research has also examined other aspects related to the life cycle of a company. For example, Dickinson (2006) investigated the relationship between the profitability of a company and its life cycle.¹⁶¹ It shows that differences in the life cycle phases of individual companies statistically influence or explain the profitability and growth. Diamond (1991) suggests, based on the arguments of the Pecking Order Theory of Myers (1984), that for companies in the early life cycle phases in which the company's liquidity is still uncertain, the banks are taking a strong monitoring role, which entails a higher debt financing with them.¹⁶² If profitability improves over time, then it is easier for the company to increase equity. For this reason, it is easier for the company to raise its own capital. According to the argumentation of Diamond, the debt ratio increases during the birth and growth phase of an enterprise is tendentious, in order to decrease constantly afterwards in the maturing and stagnation phase.

¹⁵⁸ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“

¹⁵⁹ Bender, R., Ward, K., 1993 „Corporate financial strategy“

¹⁶⁰ Damodaran, A., 2001 „Corporate finance: Theory and practice“

¹⁶¹ Dickinson, V., 2006 „Future profitability and the role of firm life cycle“

¹⁶² Diamond, D. W., 1991 „Monitoring and reputation: The choice between bank loans and directly placed debt“

5.1. The construct of companies' life cycle

During the last decades a wealth of literature arose, which deals with various aspects of the life cycle. It was always the basic premise that products or companies are similar to living organisms, from their birth or formation through a number of different phases until death or dissolution. To lead a company through these phases represents a difficult challenge for the management, which is why in science a number of models were designed with the intention to provide tools to support corporate governance.

The next subsection provides an overview of the life cycle models created in the past, discussing exclusively those which relate to the enterprise level. The models presented below have on the one hand a number of similarities, but on closer analysis, also some differences. These differences can be attributed to two methodological problems. Firstly, it has usually to do with models of conceptual nature without an empirical basis. Secondly, the measures used for the description of each life cycle phase often exhibit a low degree of accuracy. According to Hanks (1990), however, the life-cycle construct without exact sizes remains an unclear and general form, which is difficult to use in reality.¹⁶³

One of the first models which deals with the life cycle construct, was developed by Davis in 1951. About ten years later Chandler (1962) presented, in his study "Strategy and Structure", a four-stage model which should reflect the evolution of a company. In the following years, an almost non-manageable number of models emerged. Nevertheless, for the interested reader, the work of Hanks (1990) and Quinn and Cameron (1983) offer a good assortment of these original models.¹⁶⁴

In contrast, Hanks, Watson, Jansen, and Chandler (1993) present in their work an overview of recent models. They explain in their comparison the following questions: "What constitutes a life cycle phase?", "How many life cycle stages by running a company?" and "What are the characteristics of these phases?". The knowledge gained from these questions is presented briefly below.

Initially, in examining the first question, the authors find no clear answer: there must be instead, they suggest, a multi-dimensional phenomenon in the construct of the life cycles. Table 1 illustrates an example of how different authors describe the life cycle stages by means of several sizes. Hanks et al. conclude that the used descriptive dimensions either have a connection to the organizational context or to the organizational structure. In summary, it can be shown that the levels of various life cycle models, because of different patterns and forms, are different to these dimensions. According to Hanks et al. (1993), a life cycle phase can be defined as "... a unique configuration of variables related to organization context and structure...".

¹⁶³ Hanks, S. H., 1990, "An empirical examination of the organizational life cycle in high technology firms"

¹⁶⁴ Quinn, R. E., Cameron, K., 1983. „Organizational life cycles and shifting criteria of effectiveness: Some preliminary evidence“

Properties of life cycle	Contextual dimensions	Structural dimensions
Adizes (1989, p. 13): "...Organizations have lifecycle just as living organisms do; they go through the normal struggles and difficulties accompanying each stage of the organizational lifecycle and are faced with the transitional problems of moving to the next phase of development. Organizations learn to deal with these problems..."	Age Size of company Normal and transition issues	Corporate structure Formalization Leadership characteristics Complexity Diversity
Churchill und Lewis (1983, p.31): "The framework ... delineates five stages of development. Each stage is characterized by an index of size, diversity, and complexity and described by five management factors: managerial style, organisational structure, and extent of formal systems, major strategic goals, and the owner's involvement in the business".	Age Size of company Growth rate Strategies Strategic objectives	Management style Organizational structure Extent of formal systems
Flamholtz (1986, p. 18): "The framework of organizational development ... includes six organizational development areas or tasks that are critical in determining whether an organizational will be successful at any particular stage of growth".	Age Size of company Growth rate Critical development tasks	Organization Planning formalization Control Budgeting
Miller und Friesen (1984, p. 1161): "A review of recent literature on the corporate life cycle disclosed five common stages; birth, growth, maturity, revival, and decline. Theorists predicted that each stage would manifest integral complementarities among variables of environment ("situation"), strategy and structure and decision making methods; that organizational growth and increasing environment complexity would cause each stage to exhibit certain significant differences from all other stages along the four classes of variables..."	Age Number of employees Sales growth Relative size of enterprise level of concentration of ownership Environmental dynamics Power of shareholders	Monitoring of performance Internal communication Differentiation Availability of resources

Table 1: Comparison of various life cycle characteristics¹⁶⁵

In examining the second question, Hanks et al. (1993) found that the various models differ markedly partly with respect to the name and the number of life cycles. Table 2 illustrates some examples: While Smith, Mitchell and Summer (1985) propose a three-stage model, Quinn and Cameron (1983) present a four-step model. Miller and

¹⁶⁵ Hanks, S. H., Watson, C. J., Jansen, E., Chandler, G. N., 1993 „Tightening the life cycle construct: A taxonomic study of growth stage in configurations in high-technology organisations. Entrepreneurship: Theory and Practice“

Friesen (1984), however, have designed a five-stage model. Finally, Adizes (1989) has presented a ten-phase model.

Models	Birth	Growth	Maturity	Diversification	Decline
Adzes, 1989	1.Courtship 2.Infancy	3. Go-Go 4.Adolescence	5. Prime 6. Stable		7. Aristocracy 8.Early Bureaucracy 9.Bureaucracy 10. Death
Churchill und Lewis, 1983.	1.Existence 2.Survival 3.Sucess-Disengagement	3.Success Growth 4. Take-Off	5. Resource Maturity		
Miller und Friesen, 1984.	1. Birth	2. Growth	3. Maturity	4. Revival	5. Decline
Quinn und Cameron, 1983.	1.Enterpreneurial	2.Collectivity	3.Formalization	4.Elaboration of Structure	
Smith, Mitchell und Summer, 1985.	1.Inception	2.High Growth	3.Maturity		

Table 2: Names and numbers of stages of the life cycle models (comparison)¹⁶⁶

In reality, what numbers of stages are best displayed in a model could not be fully clarified until today. According to Hanks et al. (1993, p.11) it also remains unanswered whether every company goes through the same number of stages of development and whether certain contingencies exist which are able to influence the number of life cycles. However, some empiric investigations point to the fact that either a four or five-phase model illustrates the reality most precisely.¹⁶⁷

Hanks et al. (1993) examine in addition by which characteristics the individual phases of an enterprise life cycle should be identified. They summarize their realizations from the investigation of ten models as follows:

¹⁶⁶ Hanks, S. H., Watson, C. J., Jansen, E., Chandler, G. N., 1993 „Tightening the life cycle construct: A taxonomic study of growth stage in configurations in high-technology organisations. *Entrepreneurship: Theory and Practice*“

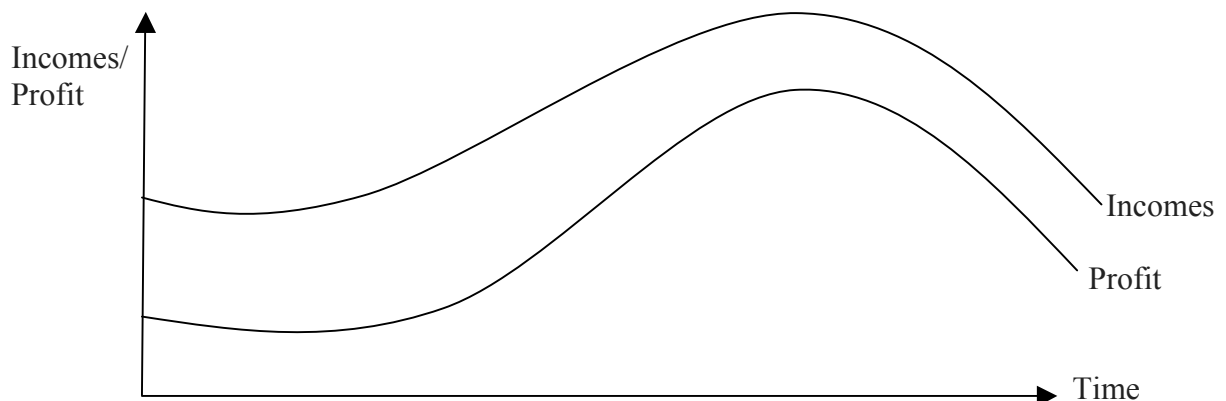
¹⁶⁷ Lester, D. L., Parnell, J. A., Carraher, S., 2003, „Organizational life cycle: A five-stage empirical scale“

Dimension	Birth phases	Growth phases	Maturity phases	Diversification phases	Decline phases
Age	Younger	-	-	Older	Each age
Size	Small		Large	Largest	Decreased
Growth rate	Inconsistent	Fast, Positive	Slow	Fast, positive	Decreased
Company Structure	Undifferentiated, simply	Functional	Functional	Divisional	Mostly functional
Formalization degree	Very informal, personally, flexible	Development of a formal system	Formally, bureaucratic, planning and control systems	Formally, bureaucratic	Excessively bureaucratic
Degree of centralization	High centralization of the founder	Constrained delegation	Moderate centralization	Decentralized	Moderate centralization
Business Tasks	Obtain the resources	Production and distribution volume get increased, Capacity expansion	Be more profitably, Expenditure and cost control	Diversification, Extend the "scope"	Revitalization, Revision of mission and strategy

Table 3: Characteristics of the life cycle stages¹⁶⁸

5.2. Capital Structure Life Stage Theory

Some researchers have investigated the topic of the composition of the capital structure from the point of the life cycle theory view. Demodaran (2001) argues that due to the maturity and growth processes, which happen to a company, cash flow and company-specific risk constantly change. Cash flows are larger relative to the value of the company, while the corporate risk adapts to the average risk of all companies. According to Demodaran, these changes are reflected even in the financing decisions of a company. The following figure shows, the financing expected before this background in the process of the life cycle of a company.



¹⁶⁸ Hanks, S. H., Watson, C. J., Jansen, E., Chandler, G. N., 1993 „Tightening the life cycle construct: A taxonomic study of growth stage in configurations in high-technology organisations. Entrepreneurship: Theory and Practice“

External financing needs	High, but limited by infrastructure	High, relative to enterprise value	Moderate, relative to enterprise value	Decreased as a percentage of the enterprise value	Deep, since projects go out
Internal financing	Negative or deep	Negative or deep	Deep, relative to the financing needs	High, relative to the financing needs	Larger than the demand
External financing	Owner's equity Bank loan	Venture capital Share capital	Share capital Warrants, convertibles	Debt	Re-payment of debt Share repurchases
Life cycle phases	First Phase "Start-up"	Second phase "Rapid expansion"	Third phase "High growth"	Fourth phase "Mature growth"	Fifth phase "Decline"

Figure 3: Life cycle analysis of financial behaviour¹⁶⁹

However, Demodaran distinguishes five life cycle phases, and states that every enterprise does not go through these phases in the same way and at the same speed. Hovakim, Opler and Titman (2001) support this statement and further postulate that enterprises finance their assets by means of external capital, while the company capital should be used for the financing of growth possibilities. Consequently, the debt ratio increases with increasing maturity of a company.

Empirically, these statements have been tested but still relatively rare. In most cases, the results, which prove or disprove these statements, can be found in the investigation of other aspects. The only authors that have dealt directly with this question, empirically, are Frielinghaus, Mostert and Firer (2005). However, the authors were able to prove, empirically, using their samples of companies from South Africa, the financing behaviour due to the capital structure of the life stage theory.

6. Review of existing empirical studies

Existing studies contend convincingly that watchful estimation of key variables of premium (e.g., marginal tax rates and expected bankruptcy costs) is vital for locating the impact of grindings on capital structure decisions. What is less clear, and a remaining test for future exploration, is the manner by which far these alterations, without anyone else's input, take us in determining the capital structure riddle (of tending to weaknesses in conventional models, including leaving the majority of capital structure variety unexplained). Despite the fact that these conformities have enhanced the measurable demonstrating of capital structure, each is just a fractional settle and still leaves much capital structure variety unexplained. In spite of the fact that it would be an overwhelming errand, no paper endeavours to consolidate these remedies in one bound together examination. Regardless of the possibility that all

¹⁶⁹ Demodaran 2001

the changes were made all the while, it is hazy whether the finished result would clarify considerable capital structure variety. The basic variables that used to measure capital structure seem to have nonlinear relations with the ward variables, and there are few observational tests that expressly represent these nonlinearities. Lately, numerous individual "fixes" have been made (e.g., generally measured substitutes, supply considers, stakeholder impacts, and so forth, however it is still not clear what everything signifies.

6.1 Methodological aspects

In empirical studies, the methodology used has a great influence on the results obtained. In this context, the definition of leverage indicators is a controversial topic in capital structure studies. From the data set used, and also from the selected modelling, there may arise econometric problems. These problems should be taken into account, so as to obtain undistorted results. The following part explains these methodological aspects of empirical research.

In any empirical study of the capital structure, the question arises of whether the determination of the market values of debt or equity should be taken as a basis. Since the market value of debt is difficult to determine in the majority of cases, often is turned off for the acquisition of foreign capital on its book value. In addition, several studies indicate that the market value of debt does not strongly differ from the book value.¹⁷⁰

Whether the market or book value of equity is the better measure of the determination on the leverage ratio, could not be fully clarified through reference to previous research. Fama and French (2002) argue, for example, that most forecasts in connection with the theories of capital structure are valid as long as their sizes are based on book values.¹⁷¹ Taggart (1997), however, is of the opinion that the market value is relevant, because its increase is an indication that a company can absorb more debt in the future.¹⁷² Because of the differing opinions in most research papers, in the empirical studies the calculations are carried out with both book and market values of equity.

The market value of equity capital corresponds to the outstanding shares multiplied by the corresponding share price (so-called market capitalization) while the equity in an accounting sense, in addition to the share capital and a possible scholarship participation capital, includes various reserves and a possible profit or loss, brought forward from the previous financial year.

The measurement of capital structure should occur through the debt/equity ratio. For this indicator, there is no clear definition that can be found in the literature, but the following two definitions are used in most studies:¹⁷³

¹⁷⁰ Bowman, J., 1980, „The importance of a market-value measurement of debt in assessing lever- age“

¹⁷¹ Fama, E. F., French, K. R., 2002 „Testing trade-off and pecking order predictions about dividends and debt“

¹⁷² Taggart, R. A., 1997 “A model of corporate financing decisions”

¹⁷³ Chiacchia, R., 2003 „Streben Schweizer Unternehmen eine Zielkapitalstruktur an?“

$$DEB = DBV / (DBV + EBV) \quad (2)$$

$$DEM = DBV / (DBV + EMV) \quad (3)$$

DEB = Debt-to-equity ratio based on Book Value

DEM = Debt-to-equity ratio based on Market Value

DBV = Book Value of the Debt

EBV = Book Value of the Equity

EMV = Market Value of the Equity (Market Capitalization)

Following Rajan and Zingales (1995), for companies that operate in the field of banking, insurance and other financial services, as well as all investment companies, it is better to be excluded from the empirical debt ratio investigation. The authors attribute this to the fact that such companies, in contrast to industrial and service companies, are subject to specific regulatory activity, with the result that the debt ratio is strongly influenced by exogenous factors.¹⁷⁴

6.2. Definition of debt ratio

For the analysis of the factors influencing the level of debt, it is important to define them first. In the empirical literature, many different definitions of leverage are used. Most studies consider this as a type of debt ratio. The key point here concerns the calculation to market and book values of capital. Book value ratios are generally regarded as backward looking, while market values include future expectations. Previous studies mainly focus on book value leverage. Myers argues that managers are oriented on financing decisions according to their book values.¹⁷⁵

Already available assets are more relevant in view of indebtedness than future growth possibilities, which are reflected in the market value. From a managerial view, book value-based leverage measures also have the advantage that they are not affected by the fluctuations on financial markets. In their survey study Graham and Harvey (2001) arrive at the conclusion that the majority of managers in the stock market exchange do not make any adjustments to the capital structure of their company.¹⁷⁶ In middle class related studies, primarily are looked book values, because about book values calculated debt ratios are more readily available.

In the recent literature the market value leverage has been examined more regularly. Welch argues that the book value of equity is just a number to balance the balance sheet and not a relevant measure for financial decisions (Welch, 2004). A further disadvantage of the book value according to this author is that can also accept

¹⁷⁴ Rajan, Raghuram G. and Zingales, Luigi, 1995 „What Do We Know about Capital Structure? Some Evidence from International Data”

¹⁷⁵ Myers, Stewart C., and Nicholas S. Majluf, 1984 "Corporate financing and investment decisions when firms have information that investors do not have."

¹⁷⁶ Graham, John R., and Campbell Harvey, 2001 "The Theory and Practice of Corporate Finance: Evidence from the Field"

negative values. Many companies do not have a market-traded debt, making it difficult to determine the fair value of liabilities. Therefore, during the calculation of market value based debt ratio, most studies avoid the book value of debt, and put it in relation to the sum of the market value of equity.

A differentiation in the level of debt ratio definition can also be carried out in respect to the maturity. It is possible to perform separate tests for the long-term, short-term and total debt. Also, different types of assets and liabilities may be taken into account in the definition of leverage. For the robustness check of the results of empirical studies several leverage indicators are often considered. At this point, Frank and Goyal arrive at interesting results. When using book values to calculate the leverage ratio, some of the investigated determinants will lose their significance in the regression, which can be considered as forward-looking. The authors interpret this as a clue for the assumption that the influence of capital structure determinants in the book and market value ratios is different, depending on whether the determinants of historical or future aspects explain the leverage. (Frank and Goyal, 2009)

Welch notes an interesting problem in the use of leverage ratios in empirical studies. He argues that leverage ratios which are calculated only on the basis of financial debt as a debt component, couldn't be a suitable measure of leverage. Here, the author states that this ratio, the financial-debt-to-asset ratio, is one of the most viewed in the literature gearing dimensions. The ratio of equity to total assets (equity-to-asset ratio) is relevant for the investigation of leverage. However, debt is not sufficient to represent the requested counter concept of it. Even more, the non-financial liabilities should be considered, since these form the total assets together with financial debt and equity. The financial-debt-to-asset ratio decreases not only with increasing equity, but also with increasing level of non-financial liabilities. They are therefore classified as equity. In the earlier version of this work, Welch shows that the non-financial debts have even higher correlation to the "right" leverage, and explain a large part of its variation. In particular, the author claims that the financial-debt-to-asset ratio justified, depending on the model specification, only 10% to 50% from the variation of the equity-to-asset ratio. Welch sees the solution to these dilemmas in the use of other leverage ratios in empirical studies that examine the level of debt. Examples for this are the ratio of financial liabilities to the capital and the ratio of total liabilities to total assets. In addition to the debt ratio, the interest coverage ratio shows an alternative of leverage indicator. This measure captures the risk that equity investors can't pursue their payment obligations to creditors. The consideration of the interest coverage ratio would be of interest if the relationship between leverage and the transfer of corporate control to the lender, in the event of financial distress, would stand in the foreground. However, as Frank and Goal note, the value of the interest coverage ratio can be easily influenced by the accounting profit. Welch argues further, that sometimes companies give none or even negative interest payments. For these reasons, the interest coverage ratio is considered unsuitable measure of leverage.

The basis of financial liabilities that are calculated as the debt component cannot be a suitable measure of leverage. Here, most authors state that this ratio - the financial

debt to asset ratio - represents one of the most viewed in the literature gearing dimensions. For the investigation of leverage, the equity to total assets ratio is relevant. Financial debts are however not sufficient in order to show the counter concept of it. Non-financial commitments should rather be taken into consideration, since these forms the total assets, together with the financial debts and own capital funds.¹⁷⁷ The financial debt to asset ratio decreases not only with increasing equity, but also when increasing the level of non-financial liabilities. They are therefore classified as equity.¹⁷⁸ In the earlier version of his work, Welch (2006) showed that the non-financial debt has a higher correlation with the "right" leverage, and it explains a large part of its variation. In particular, the author claims that the financial debt to asset ratio justifies, depending on the model specification, only 10% to 50% of the variation of the equity to asset ratio. Welch (2010) sees the solution of this problem in the use of other outside capital ratios in empirical studies, which examine the debt ratio. Examples of this are the ratio of financial liabilities to the capital and the ratio of total assets.¹⁷⁹

In addition to the debt ratio, the interest coverage ratio represents an alternative leverage ratio. This measure captures the risk that equity investors cannot pursue their payment obligations to creditors.¹⁸⁰ The consideration of the interest coverage would be of interest, if the relationship between leverage and the transition of corporate control would be on the debt in case of financial distress in the foreground.¹⁸¹ As Frank and Goyal (2009) note, the value of the interest coverage ratio can be easily influenced by the accounting profit. Welch (2006) argues further that companies sometimes specify none or even negative interest payments. For these reasons, the interest coverage ratio is considered an unsuitable measure of leverage.

6.3. Measurements over time

More and more frequently in the context of empirical research, panel data are used to investigate the determinants of capital structure. Panel data sets are composed of combined time series and cross-sectional data, and provide a variety of observations of a cross section of companies over several years. The use of panel data increases the degree of freedom, reduces the multicollinearity amongst the explanatory variables, and thus allows a more efficient estimate of the parameters.¹⁸² Many empirical studies, however, do not fit their model specification to the panel structure

¹⁷⁷ Bris, Arturo, Ivo Welch, and Ning Zhu, 2006 "The Costs of Bankruptcy,"

¹⁷⁸ Welch, Ivo, 2011 „Two Common Problems in Capital Structure Research: The Financial-Debt-To-Asset Ratio and Issuing Activity Versus Leverage Changes”

¹⁷⁹ Welch, Ivo, 2011 „Two Common Problems in Capital Structure Research: The Financial-Debt-To-Asset Ratio and Issuing Activity Versus Leverage Changes”

¹⁸⁰ Rajan, Raghuram G. and Zingales, Luigi, 1995 „What Do We Know about Capital Structure? Some Evidence from International Data”

¹⁸¹ Rajan, Raghuram G. and Zingales, Luigi, 1995 „What Do We Know about Capital Structure? Some Evidence from International Data”

¹⁸² Antoniou, Antonios, Yilmaz Guney, and Krishna Paudyal, 2008 "The determinants of capital structure: capital market oriented versus bank-oriented institutions."

of the data.¹⁸³ In these, the information content of the data is not fully used and the results obtained can be distorted.

Petersen (2009) explained this econometric problem. He compares empirical studies in leading financial journals with regard to the methods used in account of the structure of panel data. 42% of the examined works neglect this problem entirely, by not adjusting the standard errors of the regression on possible correlations of the error terms.¹⁸⁴ In the cases in which an adjustment is performed, it is most common to refer the method of Fama and Macbeth (1973). Fama and Macbeth originally formulated this approach, in order to study the implications of the CAPM. In a two-step procedure, a separate OLS regression is first performed for each observation. Then, there are formed, for all years, the averages of the determined coefficients.¹⁸⁵ According to the Fama - Macbeth Method, these average values represent the estimator with the smallest variance.

Elsas and Florysiak (2008) indicate a common misconception regarding this approach. Contrary to common assumptions, the Fama-Macbeth Method does not correct all major correlation effects in conjunction with panel data. In principle, in financial studies, there can be observed two types of error term correlations in regression with panel data.¹⁸⁶ In the first type, the so-called cross correlation, correlation effects occur between observations of different companies, in the same year.

7. Conclusions

There is no universally accepted theory, which postulates an optimal debt-equity ratio for all companies. The flood of research on the capital structure was triggered by the theorem of irrelevance of Modigliani and Miller (1958).

Modigliani and Miller (1958) show in their work that in a world without taxes, transaction costs and other market imperfections, the capital structure does not affect company value.¹⁸⁷ The cost of capital is independent of the ratio between equity and debt, as long as the assets of the company and its growth opportunities remain the same.

This seems counter-intuitive at first glance, since the required rate of return of foreign investors is lower than that of equity investors. A substitution of equity by debt would therefore have a positive impact on the company's value. However, with the issuance of debt increases the risk of the equity investors, so they must be compensated with a higher return. The debt-equity ratio thus acts as a lever, which

¹⁸³ Elsas, Ralf, and David Florysiak, 2008 "Empirical capital structure research: New ideas, recent evidence, and methodological issues."

¹⁸⁴ Petersen, Mitchell A. "Estimating standard errors in finance panel data sets: Comparing approaches." Review of financial studies 22.1 (2009): 435-480

¹⁸⁵ Schneider, Hilmar 2010

¹⁸⁶ Elsas, Ralf, and David Florysiak, 2008 "Empirical capital structure research: New ideas, recent evidence, and methodological issues."

¹⁸⁷ Modigliani, F., Miller, M.H. 1958 „The cost of capital, corporation finance and the theory of investment“

each further increased the remaining equity and overall consistently keeps the cost of capital of the company.

Most of the research related to capital structure is concerned with the agency cost, trade off or pecking order theory. In addition there are other theories that were far less tested. Many compelling examples can be found in the empirical researches that support these three main theories. The influence factors controlling these approaches - information and agency costs, taxes and late payment costs - appear in different financing tactics of companies. Nevertheless, none of the theories provide a definitive explanation for the observed financing strategies. They must rather be regarded as conditional theories that make it possible to explain certain behaviours under specific conditions.

The so-called capital structure life stage theory postulates that a company with increasing maturity should exhibit a higher proportion of foreign capital. However, this theory is still relatively unknown and appears usually mostly in connection with other aspects of research. Also could previously be found no definitive empirical result that supports this theory in full.

A great part of the exploration since the fundamental work of Modigliani and Miller (1958) has concentrated on testing the ramifications of two customary perspectives of capital structure: the static trade-off display in which firms structure a leverage target that ideally adjusts different expenses (e.g., financial distress costs, stockholder-bondholder agency conflicts) and profits (e.g., tax savings, mitigated manager-shareholder agency costs) of debt and the pecking request of Myers and Majluf (1984) in which firms take-after a financing progression, intended to minimize unfavourable choice expenses of security issuance. Empirically, these hypotheses have encountered both triumphs and difficulties. Each one perspective succeeds in clarifying various wide examples in watched capital structures, for example, the relationship between leverage and different firm qualities and the total utilization of diverse sources of capital. Then again, none, of these perspectives has succeeded in clarifying a significant part of the watched heterogeneity in capital structures, debt, or security issuance choices.

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Appendix

A Abstract English

The objective of this work is to give an overview of the capital structure literature, both from a theoretical as well as from an empirical perspective, and to consider the results presented critical. Firstly, it is treated the theoretical capital structure research. Five of the most important theories are introduced, starting with Modigliani and Miller, trade-off theory, pecking order theory, agency costs, and market timing theory. After that, there are explained different issues concerning the relation between pay out policy and capital structure choice. At the other part of the paper, there are listed the main determinant of capital structure, split up in two categories, company specific and institutional ones. At the fifth chapter it is presented the possibilities a company has to finance itself during the entirety lifecycle. At the end, there is a review of the existing empirical studies and different researches concerning capital structure.

B Abstract Deutsch

Das Ziel dieser Arbeit ist es einen Überblick über die Unternehmenskapitalstruktur, sowohl aus theoretischer als auch aus empirischer Sicht, zu geben. Der erste Teil behandelt die theoretische Kapitalstrukturforschung. Fünf der wichtigsten Theorien werden beschrieben, beginnend mit Modigliani und Miller, Trade-off Theorie, Pecking-Order Theorie, Agentur-Kosten und Market Timing Theorie. Anschließend erläutere ich die Beziehung zwischen Dividendenpolitik und der Wahl der Kapitalstruktur.

Zweitens werden die unternehmensspezifischen und institutionellen Determinanten der Kapitalstruktur beschrieben.

Anschließend werden die Möglichkeiten, wie sich eine Gesellschaft während des Gesamtheitslebenszyklus finanzieren kann, präsentiert.

Abschließend werden die vorhandenen empirischen Studien und anderen Forschungen über Kapitalstruktur analysiert.



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COMPUTER SKILLS AND COMPETENCES

- Special knowledge of MS Office
- Bloomberg, Morningstar, DataStream
- Lotus Notes