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An Analysis of the Impact of Capital Structure on Corporate Performance in the United States and United Kingdom.

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Kuvailulehti

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Abstract

One of the most fundamental decisions which an organization must make is how to finance its operations. A corporation's directors and managers spend a considerable number of hours estimating the effects of its capital structure, since it has an impact on its accounting performance and stock market performance. The aim is to explore the capital structure determinants and their effects on corporate performance to offer insights for answering the abovementioned problem. To address financial performance both accounting performance measures and stock market measures were used. To measure the capital structure, four different approaches were used. Debt-to-book value of company and debt-to-market value of company takes into consideration the total debt of the company, whereas the long-term debt-to-book value of company and long-term debt-to-market value of company excludes the short-term obligations.

Sample consists of 100 top performing companies from both the U.S market and UK market. The market data of 200 companies was collected from Yahoo Finance concerning the S&P 500 companies, and Investing.com concerning the FTSE All-Share companies. Companies' accounting data was extracted from their annual reports. Further analysis includes descriptive statistics, the Pearson correlation coefficient, and ordinary least square (OLS) regression statistics. The analysis was conducted by using SPSS software. The descriptive statistic gave a holistic view on the dataset, while correlation coefficient revealed the level of association between the variables. Finally, the regression analysis resulted in findings on the impact of capital structure on financial performance measures. The methodology was designed to support validity and reliability of the study.

The results revealed a different level of impact in represented markets. The U.S companies were able to manage more efficiently their assets and increase their market valuation, whereas the UK companies were more efficient on managing both equity and debt. The findings can be concluded by stating that the increasing leverage increased the asset management and market valuation of the companies but resulted in declining return on equity and increasing the required rate of return.

Keywords/tags (subjects)

Capital structure, debt-to-equity ratio, equity, debt, ROA, ROE, P/B, Wacc, Capm, Tobin's Q, Beta, financial performance, corporate financing.

Miscellaneous (Confidential information)

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Kuvailulehti

Kautto Penttinen, Aatto

Analyysi pääomarakenteen vaikutuksesta yritysten suorituskykyyn Yhdysvalloissa ja Isossa-Britanniassa

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Tiivistelmä

Yksi perustavanlaatuisimmista päätöksistä, joka organisaation on tehtävä, on toimintansa rahoittaminen. Yhtiön johtajat käyttävät huomattavan tuntimäärän arvioidakseen sen pääomarakenteen vaikutuksia, koska sillä on vaikutusta sen kirjanpidon ja osakemarkkinoiden kehitykseen. Tavoitteena on selvittää pääomarakenteeseen vaikuttavia tekijöitä ja niiden vaikutuksia yrityksen tulokseen tarjotakseen näkemyksiä yllä mainitun ongelman ratkaisemiseksi. Taloudellisen kehityksen käsittelemiseksi hyödynnetään sekä kirjanpidon tunnuslukuja että osakemarkkinamittareita. Pääomarakenteen mittaamiseen käytettiin neljää erilaista lähestymistapaa. Yrityksen velan kirjanpitoarvo ja yrityksen velan markkina-arvo huomioi yrityksen kokonaisvelan, kun taas yrityksen pitkäaikaisen velan kirjanpitoarvo ja pitkäaikaisen velan markkina-arvo ei sisällä lyhytaikaisia velvoitteita.

Näyte koostuu sadasta parhaiten menestyneestä yrityksestä sekä Yhdysvaltojen, että Ison-Britannian markkinoilta. Yahoo Financesta kerättiin yrityksen markkinatiedot sadasta S&P 500 -yhtiöistä ja Investing.com:sta sadasta FTSE All-Share -yhtiöistä. Yritysten kirjanpitotiedot on otettu niiden vuosikertomuksista. Analyysi sisältää kuvailevat tilastot, Pearsonin korrelaatiokertoimen ja tavallisen pienimmän neliösumman (OLS) regressiotilastot. Analyysi suoritettiin SPSS-ohjelmistolla. Kuvaava tilasto antoi kokonaisvaltaisen kuvan aineistosta, kun taas korrelaatiokerroin paljasti muuttujien välisen assosiaatiotason. Lopuksi regressioanalyysi johti päätelmiin pääomarakenteen vaikutuksesta taloudellisen suorituskyvyn mittareihin. Metodologia suunniteltiin tukemaan tutkimuksen validiteettia ja luotettavuutta.

Tulokset paljastavat erilaisen vaikutuksen edustetuilla markkinoilla. Yhdysvaltalaiset yritykset voivat hallita omaisuuttaan tehokkaammin ja nostaa markkina-arvoaan, kun taas brittiläiset yhtiöt hallitsevat tehokkaammin sekä pääomaa, että velkaa. Tulokset voidaan päätellä toteamalla, että lisääntyvä vipuvaikutus lisää yritysten omaisuudenhoitoa ja markkina-arvoa, mutta johtaa oman pääoman tuoton laskuun ja tuottovaateen nousuun.

Avainsanat (asiasanat)

Pääomarakenne, velkasuhde, pääoma, velka, ROA, ROE, P/B, Wacc, Capm, Tobin's Q, Beta, tulos, yritysrahoitus

Muut tiedot (salassa pidettävät liitteet)

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1 Introduction

Corporations' capital structure and financial performance are the two most fundamental aspects of any organization's financial strategy. The question of the balance between debt and equity and the company's ability to generate profits and value for its creditors and shareholders has been in the epicenter of the debate for centuries (Choi & Meek, 2008), as the capital structure can have a significant impact on the company's financial performance.

The decisions on capital structure can have a long-lasting impact on the company since it affects the company's risk profile, hence, its ability to access financing in the future. Therefore, the importance of capital structure and financial performance has inspired many researchers to explore the various factors affecting the capital structure, such as different tax policies, economic conditions, and industry characteristics. Moreover, attention has turned to the relationship between capital structure and financial performance, including measures such as return on equity and assets, profitability, and the market value of the company.

1.1 Research background, questions, and motivation

The fundamental work of Modigliani and Miller (1958) set the steppingstones for other researchers to explore the '*Holy Grail*' of capital structure, the optimal balance of debt and equity. Along the way, the complexity of the topic became clear, and despite decades of effort, the capital structure and its relationship to financial performance remains unsolved. Many theories have emerged from the research, but none of them is universal since the companies are different in nature. Therefore, the author asked two research questions to continue the exploration, how does capital structure impact corporate financial performance, and what are the determinants affecting corporate capital structure? These questions are at the heart of the topic, and nevertheless of the abundance of research done, there is room for add on the topic. The author notes that the previous studies conducted have been issuing the topic in general basis compared to the current study, which time horizon takes place during Covid-19 pandemic. The economic conditions were extremely difficult during Covid-19, and this allows the author to monitor companies in a unique setting.

The research objective of the study evolved to study the correlation between the determinants and to explore the dependencies which company's capital structure might have. The author chose to investigate companies of two economic giants in Anglo-Saxon markets, the United States and United Kingdom. The author justifies the choice by the similar regulation and legislation within these countries and the possibility to draw conclusions around other Anglo-Saxon markets. By studying respective companies' capital structure and financial performance, the author hopes to find valuable insights of the dynamics and determinants between them, which can contribute towards future research.

The author adapts a positivism approach by conducting fully quantitative and explanatory research with longitudinal time horizon. For sampling the companies, the author decided to use top 100 performing in each market to gather insight which are applicable for entire population. To determine the top performing companies, the author used the indexes of Standard & Poor's 500 (S&P 500) for the U.S companies and the Financial Times Stock Exchange All-Share (FTSE All-Share) for the UK companies. These indexes were also used to benchmark the company's stock performance. The companies' financial data is collected from the companies' annual reports to avoid any misinformation, and the ratios used in analysis are calculated according to this data.

After collecting the daily market prices, returns, and financial information, the author implemented multiple statistical techniques to determine the dynamics between variables. The descriptive statistics, Pearson's Correlation and ordinary least squares regression analysis is conducted by IBM Statistical Package for the Social Sciences (SPSS).

The result of the analysis indicates that the increasing leverage increases the return on assets, but also the risk of the company. Moreover, the companies' return on equity decreases significantly while the measure of price-to-book value of company increases significantly. The results are reinforcing some theories, highlighting the complexity of the topic, and showcasing the dangers of increasing leverage during difficult economic conditions.

1.2 Structure of the thesis

The thesis starts by introducing literature and the background of capital structure and financial performance. The literature review explains firstly the concept of capital structure, discussing

debt, equity, capital structures theoretical background, empirical evidence, and the determinants. Second, the literature review continues to the financial performance of the company, discussing separately accounting performance and stock market performance. This part also introduces some key factors influencing the dynamics between accounting performance and stock market performance. The literature review concludes with discussion of the effects of the economic conditions, especially the Covid-19 and quantitative easing measures taken by the central banks to ease the companies' operations during the crisis.

The research methodology chapter introduces the research plan in detail, the variables used, and the analysis of the results. The discussion part explains the results, whereas the conclusion part draws the conclusion by answering the research questions and either accepting or rejecting the hypotheses.

2 Literature review

When a company is established and planning to grow, develop new products and services, enter new markets, and run daily activities, it requires financing. One of the most fundamental questions that the company must ask is how to finance the abovementioned operations, and commonly the company has two options, either equity or debt. The choice is complex since both have their strengths and weaknesses and this brings us to the discussion of capital structure, where a company must decide the weight of financing that it uses.

The return for investors is separately treated since investors include debt holders and equity holders and both have different *utility functions* as well as regulatory status. To be able to meet the obligations of each type of investor, that is debt holder and equity holder, the company must be able to produce profits with the effective utilization of its assets and other investing activities. To monitor how well the company is succeeding in its abovementioned objectives, it must track its financial performance. The company can use a variety of measures to assess how well it is managing its operating, financing, and investing activities. The stock market performance of the company is also a reflection of its performance measure in the light of investors' reactions, perceptions, macroeconomic dynamics, and business environment determinants.

The dynamics between capital structure and firm financial performance are complicated as several macroeconomic dynamics and business environment determinants can play their role and therefore create several constraints to fulfill. Black swan events have disturbed companies in the past, and they will continue to do so in the future (Dungey et al., 2008). The company's capital structure is changing constantly, and the root question is what determines the changes and how they are affecting financial performance. This is a puzzle that many researchers have been trying to solve over the years, in search of perfect capital structure.

The literature review is structured into three sections: the first chapter discusses the capital structure of a company, its importance, and the outcomes of the decisions that are made. The second chapter discusses company performance, how to measure it, what determinant does it include, and the dynamics between the capital structure and performance. The third additional chapter discusses the impact of economic conditions. The purpose of the literature view is to create a meaningful link between capital structure and financial performance, using the existing literature as a framework.

2.1 Capital Structure

As the company's managers engages the discourse whether to issue shares or approach financial institution for a loan, they must analyse the benefits and disadvantages of both instruments. At the first glance, capital structure seems to be a simple topic with two variables, equity and debt, but after reviewing the topic closer, one can note that the subject is vast and complicated. In result, managers will spend a considerable number of hours analysing and searching for the optimal weight of debt and equity. The academics have not reached a consensus on the debate of optimal capital structure since it is affected with many factors, dependent from company itself and the industry it is operating in. Nevertheless, it is commonly accepted that the capital structure is an important factor affecting in company performance and value. (Brusov & Filatova, 2023)

2.1.1 Equity

The first way to finance the company's operations is equity. In equity financing the company is financed with publicly or privately issued shares, granting the investors an ownership of the company. Commonly investor gains a vote per purchased share, which he can use in annual meeting,

voting in important issues presented by the board of directors. The investors are expecting a return for their investment, and they are legally entitled for the generated profits. The profits are not automatically transferred to the owners through dividend, as some of the profits are kept in treasury as retained earnings to finance the future investments and activities. The suggestions for dividends are made by board of directors, and the shareholders validates the decision by voting.

Financing with equity is an attracting option especially for newly established companies which can face difficulties in issuing loan due to expected negative earnings and considerable amount of intangible assets (Gompers & Lerner, 2010). On the other hand, Robb and Robinson (2010) find a surprising results while studying nearly 5000 company's early years, and their capital structure. They noted that it is a common misunderstanding that the newly established companies would be relying mainly on equity financing from family, friends, and angel investors. In their conclusions, roughly 80 – 90% of startup companies were structuring their financing equally with debt and equity. This finding is reinforced by the study of Coleman et al. (2016). They are studying the U.S startup companies' financial decisions and especially the sources of the financing. They noted similar results with Robb and Robinson (2010) with specification on the nature of the debt. The U.S startup companies are utilizing business loans over personal loans to run the operations of the newly established company.

Companies can also issue preferred stock. These shares can include preferential dividends, special voting rights, and sometimes seniority in liquidation situation. Preferred stocks are more common in companies which are well matured in their lifecycle, such as banks and other financial institutions (Berk & DeMarzo, 2017).

In equity financing, the investor bares the risk of a company bankruptcy, but he can participate in the decision-making process. As it was mentioned, equity financing can be convenient for small companies which have not access to loans, but when the company expands, financing with purely equity becomes problematic. Equity financing is riskier than debt as it dissolves the ownership, subjects the company to agency issues and it does not carry any tax benefits for the company. Moreover, the shareholders are reluctant to finance all activities since it increases their risk of losing their investment. Indeed, Bennedsen et al. (2000) marks in their research of control dilution

and distribution of ownership, that traditionally companies' ownership is very concentrated to avoid possible agency issues.

2.1.2 Debt

Financing can also be from external sources in a form of loan. In this case, the company lends from financial institutions, governments, or other companies. In return for the financing, the company agrees on a set of terms such as financial costs and interest rate for the loan. The lender does not gain ownership in the company and therefore the nature of debt financing is different. While the lender does not have a voice within the company, it is entitled to collect the due receivables first in case of bankruptcy. Borrowed capital is considered as a risk in the eyes of shareholders, and it increases the possibility of defaulting. Moreover, the high leverage increases the financial costs and can result in situation where company struggles to generate enough profits to fulfil its obligations. Kotey (1999) argues that if company's assets are not matched properly with interest and principal payments, it will lead into solvency issues. She continues noting that even though the debt can be used to raise the value of the company, it may not be worth for the risk in the eyes of owner-managers. Nevertheless, the debt carries benefits, such as the tax deductions which can be made due to interest payments. Bernanke and Cambell (1988) reminds us from another benefit concerning debt financing, as it can act as an incentive to managers, binding their performance to the risk of the debt.

Equity and debt are the building blocks of capital structure. The balance between these blocks remains debatable and the next chapter reviews some of the most fundamental theories about the matter.

2.1.3 Capital structure theories

The capital structure is well studied topic, but as the optimal structure depends on multiple factors, it is hard to reach a consensus on perfect balance of debt and equity. One of the most fundamental studies on modern corporate finance was done by Franco Modigliani and Merton Miller (from this point on MM) in 1958. They illustrated the differences between levered and unlevered companies and proved in theory that capital structure has no impact on their value and performance. Modigliani and Miller (1958) argue that the value and performance can be determined by

estimating the company's future cash flows and therefore it does not matter on how many pieces the pie is cut, the result is still the same, making it irrelevant whether the company is financed by debt, equity, or any combination of them. MM theorem sparked wide discussion among academics, criticizing the theorem for relying on many unrealistic assumptions such as the absence of taxes, agency problems, debt costs, and market imperfections (Myers, 2001). Later MM develop their theory so that it considered the taxes and cost of debt, leading the theorem to match the reality.

Since the taxes are present in the real world, and the interest payments are tax deductible, the discussion turns to the concept of interest tax shield. Kraus and Litzenberger (1973) suggested that the companies that pay more taxes are also more levered to benefit from tax deductible interest payments. This makes debt financing cheaper than equity financing, and according to MM, theoretically every company should aim to fully levered capital structure. It is rare to encounter a company which is fully financed by debt, and academics were quick to turn their eyes to the additional costs of debt, namely the cost of default. Myers (2001) suggested that the companies are balancing with the margin of tax deductions and the financial distress costs. He argues that the companies are increasing their debt until a point where the gained tax deductions are exceeding the possible costs of a case of bankruptcy. The trade-off theory suggest that the companies set a target leverage ratio and gradually move towards it. As the factors affecting the trade-off theory (tax rate, target gearing ratio, etc) are hard to measure and not easily visible, Frank and Goyal (2003) divided the trade-off theory into two parts, static trade-off, and adjustment behaviour. They suggest that the company is following static trade-off if it has determined a leverage level for a period and for adjustment behaviour the company has set a general target gearing ratio which it will pursue. Dudley (2007) argues that the static trade-off model does not consider transaction costs when issuing or repurchasing the company shares. Consequently, he turns the discussion towards the model of dynamic trade-off. In this model, companies are setting a range in which they let the leverage to vary. This model has attracted its supporters, but problem lies in the fact that the results of empirical studies can be interpreted to support other capital structure theories.

As the discussion continued, competing theories emerged. Myers and Majiuf (1984) noted on their research that the companies prefer to use their retained earnings before debt or equity due to lower associated information cost. Additionally, the board of directors can send specific signals

through the financing decisions they make. The shareholders are making their own conclusions about the financing decisions, and they might sell or buy more shares, depending on the decisions of the directors. Myers and Majluf (1984) developed pecking order theory, which states that the directors have a certain order on how they choose the financing. First, they utilize the retained earnings since it does not send any signal for the shareholders to buy or sell the shares of the company. If the company is issuing more debt, the shareholder can interpret this as a signal where the company is not profitable enough, raising the risk of defaulting. On the other hand, shareholders are aware of the tax relief that interest payments incorporate. The company is expected to issue new shares only when the share price is high, so that the amount of issued shares would remain as low as possible. If the share price is low, the company would issue more debt instead of shares, for the given reasons. The message which the directors might send through issuing more shares, is that the company's shares might be overvalued, this could result in shareholders selling the company shares. Consequently, if the company is issuing more debt, shareholders might consider the shares to be undervalued, which would result in shareholders buying more shares. Pecking Order was tested by Frank and Goyal (2008) in American publicly traded companys during 1971 – 1998, and they noticed that the it was the most visible among big companies, altought it did not apply perfectly. They noted that the lack of retained earnings did not result in borrowing more, but it resulted more to increased equity, which is quite opposite what the theory states. The evidence is strong for the pecking order theory, however, it seems to be mainly applicable for larger companys. Therefore pecking order explains only partialy capital structure and to build a better picture other theories has emerged.

Moreover, theory of pecking order is closely tied with the concept of debt capacity. Myers and Majiuf (1984) explains that companies are utilizing external financing only when company's debt capacity is full, in other words, the moment when the cost of debt is exceeding the debt benefits, or the company cannot issue new debt to expand their growth. Vanacker and Manigart (2010) find in their research that more profitable companies are using internal financing over other financing options, but as the risk of the company grows along with low cash flows and investments in intangible assets, they rely on external financing as their debt capacity is reached. Consequently, they argue that issuing new equity is an important financing tool for high-growth companies, which are seeking to upscale their operations and to increase their debt capacity.

More recently it has been proposed by academics that the companys uses market timing to issue equity.The idea is to time the share issuance to bull market when the cost of capital is low. When the market turns bearish and the cost of capital is high, company repurchases the shares. Baker and Wurgler (2002) studied American companies during 1968 – 1998 and they concluded that the current capital structure of the companys is connected to cumulated results of historical market prices. This shows that the companys had been issuing and repurchasing the shares according to market timing theory. They are focusing on market-to-book ratio as the companies with high ratio tend to grow fast and they borrow as much as they have equity. The results shows that less levered companys tend to raise their equity when their market valuation is high, and more levered companys raised equity when their market valuation is low. They compared the findings with abovementioned capital structure theories and argue that market timing theory is the most natural explanation for their findings. They argue that the capital structure is evolving as the company is attempting to time the equity market (Baker & Wurgler, 2002).

The theories on the capital structure continues to evolve as the academics are trying to solve the imperfections of the previous studies. Many of theabovementioned studies are reinforced with empirical studies and the next chapter is reviewing some of them.

2.1.4 Empirical evidence

The theoretical backbone of the topic is solid, and there are abundance of empirical studies reinforcing them. The studies selected to this thesis are well structured, covering multiple decades of data, and carefully conducted as conclusions through scientific processes. These studies give a wide perspective from last decades filtered through the theoretical frameworks.

Serrasqueiro and Caetano (2015) are studying the capital structure of Portuguese SME companys to determine whether they are following the theories of trade-off or pecking order. They find that the capital structure is dependent on the company size and maturity. Young companys are strugling to obtain debt financing so they utilize more equity and they should be subjected to financial aids from the government. More mature and profitable companys are using the retained earnings to finance the operations, and the biggest companys are issuing more debt. These findings are supporting both the trade-off and pecking order theories and they can be valid at the

same time. Contiguensiously, neither of the theories are mutually exlusive and the capital structure depends highly from the company specific details.

Similar results is found among Spanish SME's by López-Gracia and Sogorb-Mira (2008). They conducted a panel data research of 3569 companys in years 1995 – 2004. They reinforced Serrasqueiro's and Caetano's (2015) findings about the important determinants as the size and age of the company is found to be highly significant for Spanish SME's while determining their capital structure. They concluded that the trade-off theory is followed closely by the small and young companys, while the bigger and mature companys follow pecking order theory. Interestically, they noted that the companys that are following trade-off theory, are more trusted, but to gain the trust, they are subjected to high transaction costs due to the selected financing decisions.

Al Manaseer et al. (2011) are investigating the pecking order and static trade-off theories among the British companys. They randomly selected 132 companys and analysed their financial data in 1999 – 2004. They find strong evidence on companies adjusting their capital structure according to the pecking order theory. They were not able to find similar proof for the trade-off theory where the British companys would be moving towards a target debt ratio. In their findings, the British companys are financed mainly by debt over equity.

Agyei et al. (2020) are compering the theories in 187 Ghanaian companys. They noted similar results, reinforcing the validity of pecking order theory. They pointed out the importance of the determinants having impact on the capital structure. They mention company age, profitability, liquidity, growth and size to be the most significant factors among Ghanaian companys while determining the capital structure.

Dang et al. (2008) employed an empirical research of British companys to see how fast the companys adjust their capital structure towards the targeted leverage level. Not only they find that British companies are fast adjusting the capital structure, but they noted that the dynamic trade-off theory holds strongly in the UK. In the end they conclude that as interesting as the findings are concerning the trade-off theory, the results do not take into concideration other competing frameworks, such as pecking order and market timing theories. Consequently, the results are reinforcing the trade-off theory, but do not exclude the other theories.

Mahajan and Tartaroglu (2008) are studying the market timing theory in G7 countries companys. They concompanyed the market timing theory assumption of leverage to be inversely related to market-to-book ratio, but they were not able to concompany any long-term effects on leverage. They concluded that the companys were fast to fully rebalance their capital structure after equity issuance. The exception in their study was Japan, which was following more closely market timing theory, but Japan's economic situation is notably different from other G7 countires, all the companys seems to decrease debt and size. The Japanese situation demands more research. In conclusion, they noted, contriversaly, that the companys were eventually following more closely dynamic trade-off model by adjusting their leverage towards the target level gradually.

It can be concluded that the empirical studies are supporting all of the theories. Authors attention is especially drawn on the studies conducted in the UK, as two independed studies found support for competing models (Al Manaseer et al., 2011; Dang et al., 2008). It seems that as the capital structure depends on multiple determinants, one could be attracted to choose determinants which supports the wanted findings. This is not an accusation against any researcher, it merely prooves the complexity of the subject. To avoid any bias determinant, the next chapter discusses which determinants are used in existing studies. The author bares in mind the subject of capital structure and financial performance to find the correct determinants to study the dynamics between them.

2.1.5 Capital structure determinants

The complexity of the topic is clear as the abovementioned empirical studies shows. Capital structure is explicit fusion of debt and equity, and is it highly important to know the factors affecting the managers financial decisions concerning the company (Kumar et al., 2017). The academics have proven the theories with empirical studies, but the problem is that the same results could often be intepreted to reinforce competing theories. Bigger issue is determinant themselves as their nature are very dynamic and they are dependend on multiple factors such as the company's industry, micro- and macroeconomic charasteristics. Not to forget the human nature and the role of managers and their personal goals and incentives. Therefore, the determinants are depending on the purpose of usage.

One key determinant is the debt capacity of the company. Abovementioned theories suggests that the debt financing could theoretically reach 100%, but rarely one can encounter a company which has the capability to borrow in such extend. The debt capacity represents the company's ability to issue debt and it is significantly affecting the selected capital structure and investment opportunities. As it was mentioned by Vanacker and Manigart (2010), the asset tangibility, cash flows, size and maturity of the company has a significant impact on the debt capacity of the company.

Song (2005) proposes that the tangibility, non-debt tax shield, profitability, company size, expected growth, uniqueness, and income variability are the determinants which are mostly used in previous studies. Moreover, Hundal et al. (2018) is using similar determinants in their study. They concluded that firm size is important since the larger companies are more likely to borrow more. Huang and Song (2006) adds on the discussion that bigger companies might even have a bargaining power over its creditors.

Profitability of the companies as a determinant is more debatable since the theories of capital structure are not reaching consensus whether profitability correlates significantly with the capital structure. Hermuningsih (2013) notes while studying the profitability in the context of capital structure, that companies with higher rate of return, tend to borrow less since they have enough retained profits to cover their investments and daily operations. In contrast to this finding, the trade-off theory implies that a company with higher leverage would also have higher returns (Kraus & Litzenberger, 1973). On the other hand, the Hermuningsih's finding can be supported by the pecking order theory, which clearly states that the operations would be covered with retained earnings before debt and equity. This statement is also supported by Vanacker's and Manigart's (2010) research.

The tangibility of assets can be said to have a significant relationship towards leverage. (Serghiescu & Văidean, 2014). Rampini and Viswanathan (2013) highlights that if a company owns tangible assets, the creditors can consider them as a collateral for the loans, enabling the possibility of debt issuance. Hundal et al. (2018) points out the possibility of negative association between tangible assets and leverage. They argue that increasing debt can impose more pressure on the directing managers to generate better cashflows by not undertaking risky investments. This could be interpreted as a tool to reduce agency issues through corporate governance mechanisms. The asset

tangibility is an important determinant from the debt capacity point of view. If the company is investing highly on intangible assets, it can lead into a situation where the debt capacity is reached and therefore company might encounter difficulties issuing new debt (Vanacker & Manigart, 2010).

Bevan and Danbolt (2002) argue that growth opportunities have a negative correlation with the leverage of the company. This is due to agency theory developed by Jensen and Meckling (1976) and the fact that the growth opportunities are not creating any immediate value, thus a company with good growth opportunity will not risk it with large amount of contractual liabilities. On the other hand, Hundal et al. (2018) reminds us that according to pecking order theory, the company's managers are displaying rational behaviour, dictated by the assumed hierarchy of financing, and therefore debt exerts no pressure on them.

The effects of corporate taxes and tax shields are discussed by Modigliani and Miller (1958), Kraus and Litzenberger (1973), and Myers (2001) along with many other researchers, as the tax-deductible interest costs are attracting for the companies in a form of tax shields. Nevertheless, there is an ongoing discussion whether the tax shields encourage the managers to borrow. Kemsley and Nissim (2002) remarks the previous studies proving three major findings on the dynamics of taxes and level of debt. First, the debt-to-equity ratio has been used to inspect whether the companies are utilizing non-debt tax shields over the debt tax shield. According to them, the previous studies have not been able to find significant tax effects of non-debt tax shield. On the other hand, Hundal et al. (2018) remarks that the presence of non-debt tax shield can substitute debt tax shield. They are suggesting the possibility of potential non-debt tax shield providing motivation for the managers to decrease the leverage. However, the non-debt tax shield is proven to correlate significantly with tangibility (Huang & Song, 2006), and thus, one could argue that by taking non-debt tax shield into consideration, an important factor of intangibility is being forgotten. Kemsley and Nissim (2002) reminds that according to the previous studies and trade-off theory, the higher marginal tax rates are encouraging the companies to issue more debt. They continue the discussion by noting that it has been proven that the companies can benefit from the debt-tax-shields hugely by having tax benefits equal to 10% of the total company value. They conclude by noting that the tax benefits have a positive impact to the share prices. But the same dilemma lingers around the tax shield as in the capital structure in general. It is a complicated subject with multiple determinants,

and it is hard to find a consensus whether the tax shield has significant role on governing the capital structure.

2.1.6 Cost of capital

All the discussion around the theories revolves around the fact that financing always has a cost. Therefore, reasoning behind adjusting the capital structure is to decrease the cost of capital, both the equity and debt. Companies are looking to finance their activities as cheap as possible, balancing with the risks incorporated with the decisions. To evaluate the cost of both equity and debt financing, two concepts must be introduced: capital asset pricing model (CAPM) and weighted average cost of capital (WACC).

To progress to CAPM and WACC formulation, one key metric must be introduced. Beta (β) is an important factor while calculating the CAPM. Beta measures the company's stock price volatility compared to the index that it is benchmarked against. In statistical words, it measures the average returns of a single company compared to the market, through regression of data points in a slope. (Berk & DeMarzo, 2017)

2.1.7 CAPM and WACC

Capital Asset Pricing Model was developed by Sharpe (1964) and Lintner (1965), continuing the model of portfolio choice by Harry Markowitz (1959), to measure the systematic risk in relation to expected return. Sharpe and Lintner made their CAPM easy to use for the investors by adding the standardized risk-free rate into equation. This model is widely used, and it gives indication on the expected return that investors are demanding for the risk that they take on their investment. It can be said that it is the hurdle rate for the company for attracting new investors, in other words, if CAPM is too high, investors would prefer lower risk investments. CAPM can be used to express the cost of equity, required rate of return by the investors.

Even though CAPM is widely used and accepted, it has been criticized many times by researchers, such as Fama and French (2004), for not fitting in empirical reality and for not considering the investor behaviour. However, CAPM is still proven to work well and remains to be one of the key

analyses in asset pricing and more recent methods, such as APT, have not reached the same popularity (Levy, 2010).

As WACC is a well-known concept, it will be discussed briefly. WACC is a measure which tells companies how much their financing costs, combining all sources of their financing and calculating the average of them. It is an important variable which companies try to lower in hope of making the company more profitable and increase the value of the company. (Fernández, 2011).

According to Modigliani's and Miller's second proposition from 1963, companies should be able to lower their WACC by increasing the debt, thanks to the interest-tax-shield, and this should increase the company's value and performance (Ahmeti & Prenaj, 2015), but due to investor behaviour it can raise the required rate of return, which in turn rises the risk of the company (Berk & DeMarzo, 2017). Moreover, when Hundal et al. (2018) were researching the effects of financial crisis to capital structure dynamics of Nordic countries, they find that the cost of equity was increasing due to higher expected return during the crisis. This can lead into a situation where companies try to adjust their capital structure by increasing leverage in hope of lowering the WACC, but in return the risk of the company increases, affecting the cost of equity. Eventually the increased cost of equity will affect the WACC, making the changes irrelevant.

2.2 Company Financial Performance

The financial performance is a crucial factor for the companies. Not only it describes the financial health of the company for the given moment, but it also sends important information to other stakeholders. Investors are following the financial performance to determine if the company is worth investing for and without a good performance and strong track record of it, company can encounter difficulties in attracting new investors. The financial performance affects also into the company's capability of issuing loan. Banks and other financial institutions are carefully reviewing the company's performance to assess its risks and ability to fulfil the debt obligations. If the company lacks the financial performance, or its past years have been difficult, it could be possible that the company does not get the financing it seeks for. Financial performance also affects the company's reputation. If the company is known for bad financing, it can have difficulties in competing and finding partnerships, and eventually the company might fail due to bad financial management. (Jindrichovska, 2013)

As the importance of financial performance, and management, is clear, companies require a well-functioning process to follow it. Generally, the financial performance can be divided into two parts, accounting, and stock performance. Both has their own determinants and next sections will discuss what are they and why they are important. (Otley, 2004)

2.3 Accounting performance

Accounting has a long history and bookkeeping traces back to Italian city-states in 14th and 15th centuries. The motivation for systematic bookkeeping was the growing international trade and eventually the desire to find more incomes to subject under taxation. The need for bookkeeping, accounting, has increased during the centuries when the world was evolving to be more global. Nowadays accounting is regulated by many rules, and it is aimed to be as transparent as possible. (Choi & Meek, 2008). In modern times, the financial statements are regulated by the International Financial Reporting Standards Foundation, and they have clear structure for the required documents. According to The International Financial Reporting Standards Foundation (2023), companies must declare their financial statements at least once per year, and the following documents are required to be included: a statement of its financial position as at the end of the period, a statement of company's profit, loss, and other comprehensive income for the period, a statement of changes in company's equity for the period, a statement of company's cash flows for the period, notes explaining the company's accounting policies, and a comparative financial position statement of preceding period. Companies are expected to follow of the steps while reporting the financial statements.

To evaluate the company's accounting performance, it is essential to pay attention to abovementioned documents. One must keep in mind that these statements are always presented based on the previous year's financial results, henceforth, financial statements are historic in nature. Thus, it is a glimpse from the past and a snapshot from the present for the future planning. By analysing the previous year's financial statements, one can observe and underline certain trends and patterns which can support to form policy and actions for the future. Nonetheless, business environment and macroeconomic determinants can help to improve and improvise such future policies and actions. Some estimations can be made from the future by studying the development of the statements during the years, but they are always educated guesses, not reliable predictions. In

fact, Eccles (1991) noted in his manifest that analysing the financial statements might become obsolete in future due multiple issues in accounting.

The nature of accounting might create a situation where a company publishes false accounting data which does not reflect reality. Eccles (1991) raised a concern that due to quarterly financial reporting; managers have a strong incentive to publish false figures to strengthen the company's short-term performance in investors eyes. He claims that the financial data is easily manipulated, and analysts should be concentrating on companies cashflow to determine the real financial health of the company. The incentive can be to avoid situation in where shareholders want to get their investments back or the company tries to illustrate better financial health at specific moment. Fraser and Ormiston (2013) notes in their book a scary phenomenon where many companies, even large and well-established, have gone bankruptcies while presenting good performance in net earnings, regardless the fact that they have not been able to generate cash from the operations. One of the most prominent cases is Lehman Brothers and their turmoil, which results are well-known globally. It generated steadily increasing incomes while they struggled with high leverage and cashflow issues. They were avoiding the issues by highlighting the revenues, but the real situation was visible in the financial statements, more precisely in cash flow statements. After Lehman Brothers, Enron and WorldCOM followed the trail with similar issues.

Financial statements are representing different areas in company's operations, and they are important documents to review while assessing company's performance. The next chapter will discuss about their nature.

2.3.1 Financial statements

Accounting performance has a long tradition in determining the company's financial state. It provides companies financial results on specific time, and the data is easily accessible in form of financial statements. The goal of these statements is to give reliable and accurate picture of the financial health of the company. To assess the accounting performance, several key metrics has been developed for the use of managers and other stakeholders (Osadchy et al., 2018). The most important metrics revolve around three factors. First, the cashflow management is important since it communicates about the company's cashflows ability to meet its financial obligations. Second, the profitability metrics describes the company's capability to produce more resources

than using them in daily operations. Over time, the use of resources (payments for suppliers, employees, and other stakeholders) balances with the acquired resources (selling goods and services), but the short-term profitability can vary. Indeed, one of the major reasons for failing start-up businesses is not the long-term profitability, but the issues in short-term profitability. The difference between the first two factors is time, which highlights the third factor. The time between making and receiving payments can vary, and this is when company requires financing. Third factor is the company's assets and costs of financing, which focuses on the balance sheet rather than income or cashflow statement (Otley, 2004).

The financial statements are crucial in the eyes of the company and other stakeholders. They provide important information of the financial performance and position of the company. Publicly traded companies are required to produce at least three important statements. The next part will introduce briefly the three most important statements for analysing the company's financial position and health:

Income statement: Also known as "Profits and Loss" statement. This statement categories company's revenues, expenses, and profits (or losses) in clear manor. It provides the data for deeper analysis on how the company generates revenues and how it manages the expenses.

Balance Sheet: Balance sheet separates the assets and the liabilities of the company. It is a document stating what company owns and what company owes, as well as the equity of the shareholders of the company. The data which balance sheet provides, helps to assess the company's financial strength and capability to meet its financial obligations. Moreover, it communicates the company's liquidity and solvency to stakeholders, giving information on how well the company can cover short-, and long-term obligations. Investors and other stakeholders can use balance sheet to determine the company's position and to compare it against the competitors and industry. In other words, balance sheet helps stakeholders to make well informed decisions regarding their investments or loans. By comparing balance sheet from different times, it is possible to estimate the company's growth and position regarding the overall market. As the balance sheet includes company's' assets and liabilities, it is the most important document for this thesis.

Cashflow statement: Cashflow statement is an important document for the stakeholders as it reveals the movement of cash in and out of the company. It is a crucial statement while analysing the company's ability to generate cash with its operations and it indicates liquidity by showing whether the cashflow is positive or not.

This research is concentrating mainly on the income statement and balance sheet, as the most important data concerning capital structure and performance can be extracted from these documents.

2.3.2 Financial ratios

The data retrieved from financial statements can be used into further analysis. Otley (2004) notes that traditionally the examination of the statement's centres upon two activities, acquisition of financial resources and usage of the assets which are acquired with the resources. He concluded that by taking into consideration the two activities, the most informative ratios to be calculated are the current ratio, quick ratio, inventory turnover, debt-to-sales ratio, and creditors to purchases ratio. All these ratios are concentrated on cashflow management and are important indicators when estimating the company's short- and long-term performance. If a need be, the ratios can be extended to cover the liquidity and leverage of the company.

Choi and Meek (2008) are dividing the financial ratios in four categories, liquidity, efficiency, profitability, and coverage ratios. As this research is about the dynamics between capital structure and performance, it will be concentrating on the financial ratios about profitability and leverage. These ratios can reveal the dynamics between debt, equity, and financial performance. Efficiency ratios are clearly important as they take in consideration for example inventory turnover, but since they are outside of the topic of the thesis, they will be excluded for future research.

This thesis is studying the company's capital structure and financial performance and therefore, it is important to determine which ratios are to be used in the analysis. Delen et al. (2013) are implementing a decision tree approach to determine the most important ratios concerning the company performance. They used return on equity and return on assets as dependent variables, and they concluded that earnings Before Tax-to-Equity Ratio, the Net Profit Margin are the most signi-

ficant ratios concerning the company performance. These profitability ratios are indicating the company's ability to manage its costs and expenses, hence performing more efficiently. Debt and leverage ratios are noted to be crucial to the companies since debt is essential part of the financing along with equity.

2.4 Stock performance

The company's stock performance refers to the changes in the value of its shares. These changes are extremely sensitive to multiple factors such as economic conditions, investor sentimental, company's financial performance, and the future insights of entire industry where the company is operating. The nature of stock performance differs significantly from accounting performance, since it is subjected to the investor's perception on company's future, thus, the changes in value of the shares are not always rational. For example, if the company publishes a press statement announcing a new lucrative contract, the investors see this as an indicator for brighter future, consequently pushing up the price of company's shares. Vice versa, if the company loses an important client, the investors see this as a setback, decreasing the price of the share, due to the movements in the stock market. (Baker & Wurgler, 2002)

As it was discussed in capital structure theories chapter, the managers can send specific signals to the investors by issuing more shares, dividend policy, and by adjusting the capital structure. The investors are paying close attention to the accounting performance of the company while determining if the company's' shares are a good investment or not. Stock performance is not an intrinsic value, but it is dependent on the actual financial performance of the company among other factors. Therefore, to analyse company's stock performance, it is important to understand both internal and external factors affecting the company. (Baker & Wurgler, 2002)

To measure the stock performance multiple metrics can be used. Market-to-Book ratio seems to be a natural starting point in the discussion, as it compares the market value and the book value of the company, and it is tightly connected with the capital structure theories. Additionally, it is proven to relate to capital structure and the stock performance (Chen & Zhao, 2004).

The next chapter will discuss about the dynamics between accounting performance and stock performance. Both are equally important for publicly traded companies, and many few key metrics requires to be measured simultaneously.

2.5 Financial- and stock performance dynamics

The book value and market value of the company are in symbiosis. Both are affecting each other, and they cannot be separated without losing valuable information on company performance, valuation, and capital structure. However, it is possible that the company's shares are more valuable than the actual book value. Jensen (2005) reminds us about the gruesome outcomes which are possible if a company's equity is too overvalued. It can lead into failure of the company and in legal actions against managers. Nevertheless, most of the managers do not recognise the dangers of overvaluation but perceive the valuation to increase the stock market performance. He notes that the presence of agency costs was recorded already decades ago by him and Bill Meckling but still the problem of asymmetric information persists. He argues that a solution for extravagant valuations is to make a clear distinction between growth and value. This means that the managers (and investors) should pay increasingly attention to the actual financial performance to also determine the stock performance. This underlines the nature of both, being dependent on each other in a healthy situation.

To track the general performance of the company, stakeholders can use several metrics. By combining the data from accounting and stock market, it is possible to determine the cost of capital and expected return, which can be used to assess the company's value and performance in a robust manner.

While discussing the dynamics between accounting and stock performance, it is necessary to consider Tobin's Q ratio. It was introduced by James Tobin (1969) to express the market value and intrinsic value of the company. To simplify the ratio, it can be said that it expresses the company's ability to replace its assets, thus, equilibrium exist in the point in which the market value equals the replacement costs. If the ratio is more than 1, it can be interpreted that the company is overvalued, since the market value exceeds the replacement costs of the assets. (Hundal et al., 2020). Consequently, it is a valuable ratio taking into consideration both accounting and market performance and can be called a hybrid tool measuring the overall performance.

2.6 Economic factors

While studying the literature the author came to realize that the company's capital structure and therefore financial performance, is highly dependent on economic factors. The literature is underlined by uncertainty, and multiple determinants are affected by the events around the globe. The selected topic for the thesis is inspired by the economic disturbance caused by the COVID-19. Thus, it is highly necessary to discuss the effects of economic crisis and the quantitative easing (QE) measures which took in place.

The economic conditions can change fast. The most recent reminder about this was in 2019 when a novel virus spread around the globe. Most of the countries reacted accordingly and implied different actions to stop the spread of COVID-19. This created a disruption to the economic environment, affecting not only the stock markets, but the supply chains too. Quickly after the restrictions were applied, stock markets reacted by plummeting heavily around the world, and the financial performance of the companies was affected (Wasim et al., 2021). Governments and central banks recognized the situation, and they implemented QE measures to help the companies with their daily operations. A considerable amount of capital was issued along with government bonds with low interest rates for companies' aid (Labonte, 2020). Investors were quick to note that the companies were supported by central banks and governments, and they started to invest in and rebalancing their portfolios, especially with technological companies. Consequently, the stock markets were reviving, signaling the investors of a control of the situation (Hurley et al., 2021).

QE as a macroeconomic tool divides economics and researchers into two groups stating either that it is a sustainable method to finance the economies or warning about gruesome future where company's success is an illusion created by investors faith on cheap external financing. It has been used in the past but as in 2001 Japan started a QE program to revive its long-lasting regression, Spiegel (2006) remarks that the program was closed after five years. He points out that the effects are not simple and there are indications of unwanted results, such as money concentration to small banks and companies cash reserves instead of the markets. Bowman et al. (2011) confirms in their research that indeed the QE measures taken by Japan were insuffisient to revive the economy. They also agree that the smaller banks and companies were holding on to the cash reserves to make their own operations seem more profitable and the created liquidity was not transferred to the markets in desired manner.

QE is an unconventional monetary policy tool, used to control the regressive economies by the central banks. Normally the interest rates are lowered closer to zero (or even below) to revive the economies, but Blinder (2010) reminds us that that is not always enough. He found that lowering the interest rates can lead into a liquidity trap. The long-term effects of QE in stock markets and company level are under research but some studies have been conducted after the previous crises. Lima et al. (2016) studied the U.S, the UK, and Japan stock markets after the implementation of QE and they noted high correlation between the QE and the rise in the main indexes in the represented markets. They had clear indication of confident boost towards the stock markets due to the measures taken by the central banks. They remind us about the lack of long-term studies, but the first hand data still implied that the QE measures were boosting the stock markets strongly.

The problem with QE is that even though the liquidity is injected into the economy, it does not necessarily mean that it is used to finance the companies efficiently. Korab et al. (2021) studied the effects of Corporate Sector Purchase Programme (CSPP) which the European Central Bank (ECB) implemented in the end of 2010's to solve disruptions in Euro zone. The main idea was to purchase the company debts to increase the liquidity and to increase the investments by the companies. They noted that the company leverage was increasing in result, but the companies did not actually use the acquired financing to fund daily operations and investments, but they used it to build the cash reserves. This changed the company's financial structure and the book value of the companies without any significant increase in the profits or turnovers. The similar results were concluded by Pegoraro and Montagna (2021) in their research where they study the issuance of the corporate bonds during the CSPP. Their study revealed that when comparing the companies which issued bonds eligible to CSPP to non-issuing companies, the latter where less levered and they still made the same number of profits to the shareholders.

The situation is complicated since if the companies are experiencing a similar increase in stock value as Lima et al. (2016) witnessed and the companies' profits are not correlating with the increasing value in stock markets, the danger is that the stock prices will decline inevitable at some point. Since the profits have been static regardless the QE, the return for the investments have not increased according to the key ratios. This raises a question whether the increased value in stock

markets an illusion is only compared to the real financial health of the businesses (Korab et al., 2021).

Moreover, Rizvi et al. (2020) observed how the European non-financial companies' valuation reacted to the COVID 19 and which determinants were affecting the valuation. They utilized free cash flow and residual income methods to evaluate the companies. After drawing their conclusion, they noted that the company valuation declined in every sector. Some of the sector companies suffered an up to -60% decline in their book value during the spring 2020. On the other hand, Collins (2020) concluded a different result in his research about the stock market in Europe. He used different approach with paired t-testing from the most know indexes in the world to see how the markets were performing during the COVID 19 and he found that the mean price for Euronext 100 before was 1124 and it decreased to 1107, so it is unsignificant decrease.

Collins (2020) pointed out that the European index was very resilient against the outbreak, but at the same time Rizvi et al. (2020) reminds from huge declines in the European company values. Meanwhile Hurley et al. (2021) mentions about major fiscal actions that the British Government and the Bank of England has set up, such as Coronavirus Job Retention Scheme (CJRS), direct cash grants, government guaranteed loans, and a Bounce Back Loan Scheme (BBLS). They point out that the SME's used around 70-80 billion pounds during 2020.

In conclusion, it is worth considering that the companies are overvalued in the stock markets since neither Rizvi et al. (2020) nor Collins (2020) researched the comparison of the book value and the stock value of the companies. The figures which Hurley et al. (2021) brought to our knowledge show that at least the UK SME's have raised a significant amount of financing from the government and the Bank of England.

2.7 Hypotheses formulation

In conclusion it can be noted that the topic is well studied, and the literature is abundant with empirical studies trying to link the optimal capital structure and maximizing the company's performance. Regardless the efforts of dozens of researchers, there is no consensus how the optimal capital structure should be conducted. The determinants used to gauge the performance are dependent on multiple factors, such as the size of the company and the industry, creating a problem on

creating the theories. Capital structure and company performance dependent on each other, both affecting one another, spiced with the agency issues and human nature.

During the literature review the author formulated three main hypotheses for further analysis. These hypotheses are aimed to answer the research question and to shed light to the dynamics between the capital structure and financial performance of the companies.

The following hypotheses were either accepted or rejected in result of the analysis.

H1: There is a positive relation with company's leverage level and its financial performance.

H2: Companies with a higher debt-to-equity ratio tend to have a higher financial performance due to the interest tax shield.

H3: The optimal capital structure of a company is determined by the trade-off between the cost of equity and the cost of debt, as measured by the CAPM and WACC models.

3 Research Methodology

Creation of research methodology is like drawing a map which is used to navigate through the voyage of discovery for the new knowledge. Scientific research incorporates multiple techniques and methods for gathering and analyzing data in a proper manner. From a student perspective, it is highly important to get familiar with the research methodology, since it depends on the type of research. It is a precise plan on how the researcher is solving the research problem, not only the methods that are used, but a justification for the research problem, hypothesis, data sampling, and research motivation. (Kothari, 2004). In this chapter, the author will draw a map of the thesis research framework, explaining the motivation behind the study, giving the justification to the research problem, and explaining the data collection and analyzing process which is used.

In development of research methodology, the author will follow the research onion framework developed by Saunders et al. (2019). It illustrates the path for the researcher to follow while creating his or her methodology. The onion is constructed in six layers, and the aim is to proceed from

the outer layer towards the very heart of the onion. The outer layer of philosophy is the most profound layer by answering the question of why the research is done (Holden & Lynch, 2003). This of course is affected by the researcher's philosophical assumptions and perspectives, but his or her aim is to be value-free in made assumptions.

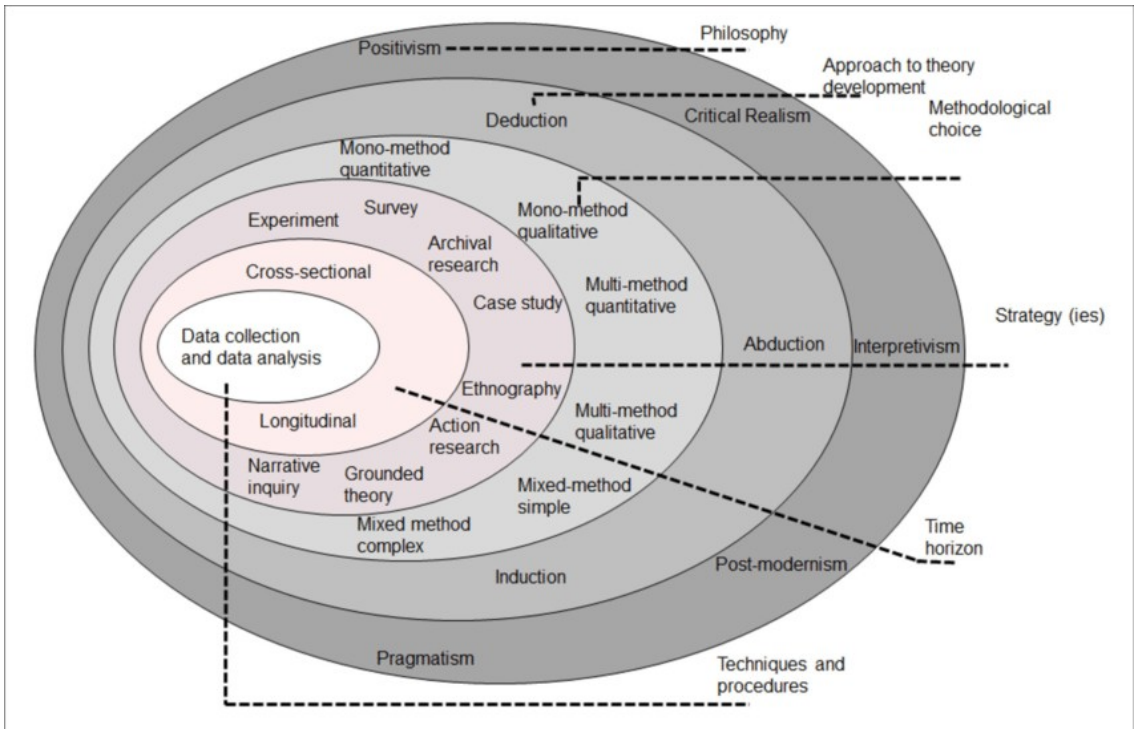

Figure 1. Research onion, adapted from Saunders et al.(2019)

As business and management has emerged as academic discipline in the 20th century, the researchers have absorbed different philosophies from other academic branches. This has resulted in five major philosophies in business and management: positivism, critical realism, interpretivism, postmodernism, and pragmatism. The chosen philosophy depends on the nature of the research and the researcher. As this thesis is based on quantifiable and measurable data, positivism is the most suitable philosophy to follow as it interprets reality through the measurable facts that are not affected by personal opinions or other factors. The results of the research should be based only on observable phenomena to ensure the credibility of the study (Saunders et al., 2019).

According to Saunders et al. (2019), positivism research is many times (but not always) built on existing theories, reinforcing them by studying a specific observable phenomenon. As the objective of the thesis is to verify whether the companies are following existing theories of capital structure by testing the relation of two or more variables, it is approaching the study in deductive manor, which aims to reinforce theories with collected data. Moreover, Weathington et al. (2012) notes that research which is testing hypotheses based on existing theories tends to be deductive by nature. The author expects to gain knowledge in capital structure changes which can be generalized to reflect wider sample of companies in Anglo Saxon countries.

As this thesis is based on purely numerical secondary data, it is quantitative research. The data is collected with a single technique from three different sources, without any connection to company representatives, and thus, the research is conducted as mono method quantitative study.

The purpose of the thesis is to find correlation between variables affecting the corporate capital structure and financial performance in the U.S and UK companies. The thesis is conducting statistical tests to reflect the findings with the existing theories, aiming to explain the relationship between the variables. Therefore, the purpose is explanatory in nature. (Saunders et al., 2019). As the thesis follows companies through the years of 2018 – 2021 to evaluate the changes in their capital structure and financial performance, it has a longitudinal time horizon. This enables the author to track changes and dynamics in capital structure and financial performance which occurred during the COVID-19 outbreak.

The author is following the abovementioned research approach to answer the research question and goal. The object is to conduct value-free deductive and explanatory research through positivism, examining the changes and dynamics in capital structure and financial performance of the top 100 companies in the U.S. and UK markets.

3.1 Data collection

The collected data for this thesis consists entirely of secondary sources. To answer the research question of how did the capital structure change and how did it affect corporate financial performance in the U.S. and UK companies, the author decided to select 100 companies from the Standard and Poor's 500 (S&P500) and Financial Times Stock Exchange 100 (FTSE100) indexes. These

indexes consist of the companies with the highest market capitalization of each market and due to similar regulation, they are comparable with other Anglo-Saxon markets. It is worth mentioning that some of the companies might not exist anymore due to several reasons, and therefore it is important to pay attention to selected time horizons if one wants to replicate the study.

As the topic of the thesis is capital structure and financial performance, the collected data from annual reports are from the income statements and balance sheets. By selecting these documents, the author was able to collect the needed information on companies' level of debt, equity, and income. Collecting data from a single source, such as yahoo finance, was an attractive option but to secure the validity of the data, the author decided to use financial statements extracted directly from the annual reports. All the annual reports were obtained from companies' websites for investors.

The stock market data for the companies and indexes were gathered from Yahoo Finance and Investing.com respectively for the U.S. and UK companies. The goal was to collect all the stock market data from a single source to add confidence, but Yahoo Finance did not have the stock market data for British companies or index. Using the stock exchanges as source was noted to be behind paywall, and therefore the abovementioned sources were selected. The data obtained from stock markets was used to determine the company's beta, daily- and annual returns, and the market risk.

The data was collected from 1.1.2018 – 31.12.2021, representing four years of data per each company, totaling up to 800 corporate years of data. The stock market data was collected as daily closing prices, totaling up to 985 observations per company.

3.2 Variables

Table 1. explains the variables and their role in the analysis. The objective of the thesis is to observe the changes in capital structure and their effects on financial performance. The leverage variables are considered as independent and the financial performance variables are considered as dependent. The thesis uses tax and risk variables to control the results.

Type	Variable	Label	Description	Computing	Source
Dependent variables					
LEVERAGE	Debt to equity	DE	Debt to equity measures the company's leverage	Book value of debt divided by book value of equity	Annual Reports
	Debt to market capitalization	DMC	Debt to market capitalization measures the company's leverage	Book value of debt divided by book value of equity	Annual Reports
	LongDebt to Equity	LDE	Longterm debt to equity measures the "real" debt effects on equity	Book value of longterm debt divided by shareholders equity	Annual Reports
	Long Debt to MarkCap	LDMC	Longterm debt to marketcap measures the "real" debt effects on the marketcap	Book value of longterm debt divided by marketcap	Annual Reports
Independent variables					
ACCOUNTING PERFORMANCE	Return on asset	ROA	Return on asset illustrates the company's ability to create profits with its assets	Net income divided by the book value of total assets	Annual Reports
	Return on equity	ROE	Return on equity measures the companys ability to create income with the acquired equity	Net income divided by the book value of shareholder's equity	Annual Reports
	Return on capital employed	ROCE	Return on capital employed benchmarks the companys ability to utilize debt and equity efficiently	EBIT divided by the capital employed	Annual Reports
STOCK MARKET PERFORMANCE	Price to book	PB	Price to book ratio interprets the relationship between a market price per share and book value per share	A market price for a share divided by earnings per share	Yahoo finance, annual reports
	Jensen's Alpha	JA	Jensen's Alpha is a stock market measure which takes risk in concideration, presenting an average return for the investment	The realized return of the stock minus the risk-free rate of return multiplied by company beta times the realized return of the index minus the risk-free rate of return	Yahoo finance
HYBRID PERFORMANCE	Tobin's Q	TQ	Tobin's Q measures the relationship between market value of equity and the book value of equity	Market value of the equity divided by the book value of shareholders equity	Yahoo finance, annual reports
TAXES	Interest Tax shield	ITS	The amount of reduced income taxes due to deductions	Interest expense multiplied by effective tax rate	Annual Reports
RISK	Capital Asset Pricing Model	CAPM	CAPM describes the linear relationship between required rate of return and risk of an investment	Risk-free rate plus company beta multiplied with the expected return of the market minus the risk-free rate	Yahoo finance, annual reports
	Weighted Average Cost of Caital	WACC	WACC describes the average cost of financing, taking in concideration both debt and equity	Weight of equity multiplied with cost of equity plus weight of debt multiplied with cost of debt multilied with one minus effective tax rate	Annual Reports
	Beta	BETA	Beta reflects the volatility of an asset in relation to the overall market	Covariance divided by variance	Yahoo finance
SIZE	Total Assets	TALN	Company's total assets in natural logaritmic	-	Annual Reports

Table 1. Variable description (created by the author)

As the capital structure can be concluded as a mixture of debt and equity, the dependent variables are the debt-to-equity ratio, debt to market capitalization ratio, long-term debt to equity ratio, and long-term debt to market capitalization ratio. Each of these variables represents the leverage and approach to the topic from a different perspective. Debt-to-equity ratio is traditionally used to measure the leverage of the company, as it is comparing the level of debt with the assets, and it

can be noted to be a key indicator for capital structure. Investors and other stakeholders value the debt-to-equity ratio highly as it provides insights into a company's financial stability and risk. If the ratio is greater than 1, it indicates that the debt outstands the equity, communicating about the riskiness of the company. On the other hand, if the ratio results lesser than 1, it might communicate about conservative financial structure of the company, where equity surpasses debt. This thesis takes into consideration not only the debt-to-equity ratio formulated from the book value of shareholders' but also calculated from the market value of equity. This way this paper considers the stock market performance with its dynamics, which might differ significantly from the accounting performance. The debt-to-equity ratio was formulated in the following way:

$$DE = \frac{Total\ Debt}{Shareholders\ Equity^{BookValue/MarketValue}}$$

Companies are utilizing short- and long-term debt in their operations. They are different in nature as the short-term debt is used to run daily operations and to cover short-term obligations. To consider only the debt affecting the leverage of the company, the author uses the long-term debt to equity and long-term debt to market capitalization.

The independent factors are the performance measures which are divided into six sections: accounting performance, stock market performance, hybrid performance, taxes, risk, and size. The author selected return on asset, return on equity, and return on capital employed to determine the accounting performance. The return on assets and return on equity are both measures which gauge the company's ability to manage its capital. Even though they are talking the same language, they have a different dialect and accent as the debt affects them differently. If the company is more levered, it should be able to convert the debt into assets, making the ROA decrease as ROE stays on the same level, if the income stays on the same level. Selecting both as a variable can bring important insights on the dynamics of debt and equity.

ROCE reflects the company's ability to use both debt and equity efficiently. It talks about the company's capability to generate profits with the managed capital. It is an important variable when determining the company's financial performance and it can be justified to belong in the current study by noting that it takes both debt and equity into consideration.

The ratios were calculated as following:

$$ROA = \frac{Net\ income}{Book\ value\ of\ total\ assets}$$

$$ROE = \frac{Net\ income}{Book\ value\ of\ Shareholder's\ equity}$$

$$ROCE = \frac{EBIT}{Capital\ employed}$$

The stock market performance variables are chosen to be the price to book ratio and the Jensen's Alpha. The price-to-book ratio compares the price of the company stock with its book value per share, reflecting the relation of market value and book value of the company. It can be used to assess whether the company's stock is overvalued or undervalued. If the ratio is below 1, it indicates that the share is traded at a discount to its book value, and if the ratio is above 1, it indicates that the share is traded at a premium to its book value.

Another stock performance variable used is the Jensen's Alpha. It compares the actual return of the investment to the expected return of the investment. It is a valuable measurement as it takes into consideration the incorporated risk of the investment. A positive value of Jensen's Alpha indicates that the investment has succeeded in exceeding the market return. The P/B and Jensen's Alpha were calculated as follows:

$$PB = \frac{Market\ Price\ per\ Share}{Book\ Value\ per\ Share}$$

$$Jensen's\ Alpha = \left(E_t\left(R_{pt}\right) - R_f\right) - \beta\left(E_t\left(R_{mt}\right) - R_f\right)$$

Where:

$E_t(R_{pt})$ = annualized return of the stock considered over period

$E_t(R_{mt})$ = annualized return of the market considered over period

R_f = Risk-free rate

β = Company beta

Tobin's Q measures both accounting and stock market performance. It illustrates the company's market values and ability to replace total assets. It is used to evaluate the overall value of the company and it can indicate the weight of intangible assets in a company's balance sheet. In this case the value would be above 1, suggesting that the market value is greater than the cost of replacing its assets. On the other hand, if the value is below 1, it can indicate that the company is not generating the expected returns. In this case, the market value is not enough to replace the assets, making the company possibly undervalued. It is a useful tool to assess a company's hybrid performance, as it takes into consideration the debt, market capitalization, and the assets of the company. Tobin's Q was formulated as follows:

$$Tobin's\ Q = \frac{(Total\ Debt + Market\ Capitalization)}{Total\ Assets}$$

Interest tax shield is an important variable. Many theories mentioned in the literature review chapter prove that the tax deductibility of the interest payments makes the debt an attractive option for financing. By issuing debt, companies can protect their income by reducing the amount of taxes the company is subjected to. The benefits from tax savings can be substantial as the amount can add up to 10% of the whole company's value. Interest tax shield was formulated in following way:

$$Interest\ Tax\ Shield = Interest\ Expenses * Effective\ Tax\ Rate$$

The systematic risk of the company is traditionally measured with the company beta, and total risk with standard deviation of the daily returns of the stock. Beta explains the company's stock volatility and is an important tool determining the company's stock sensitivity in relation to the overall market. If the beta results equal or close to 1, it means that the share price is moving in line with

the market. Higher beta can be interpreted as more aggressive operations, making the share riskier, therefore reacting in a more volatile manner in relation to the overall market. Vice versa, a beta below 1 can communicate about more conservative companies taking less risks. The beta was formulated in following way:

$$\beta = Correlation \frac{(r_a, r_m) * \sigma_i}{\sigma_m}$$

Where:

r_a = share return

r_m = index return

σ_i = share return standard deviation

σ_m = index return standard deviation

The CAPM takes into consideration both risk and expected return of the company. It is affected by market sentimental as it incorporates the beta of the company as a risk measurement. Moreover, it communicates about the expected return for the investment, and it can affect the investors' willingness to invest in the company. A high CAPM can be interpreted as a high risk for the company as consequently the investor requires a higher return for their investment. Companies would like to have low CAPM, since it makes the company less risky investment in the eyes of investors, making it easier to issue more equity if a need be (Fama & French, 2004). CAPM was formulated in following way:

$$CAPM = R_f + \beta_i * (E(R_m) - R_f)$$

Where:

Rf = risk-free rate (government 10-year bond)

$\beta i =$ asset beta

$E(Rm)$ = market premium of the asset.

WACC is essential part of analysing the capital structure. It is in epicentre of many abovementioned studies, and it can be treated as a hurdle rate which companies are aiming to overcome. WACC takes into consideration both the cost of debt and cost of equity. Obviously, companies would like to have their financing as cheap as possible, and theoretically by issuing more debt, the WACC should decrease. WACC is formulated in the following way:

$$WACC = \frac{V}{E} * R_e + \frac{V}{D} * R_d * (1 - T_c)$$

Where:

V = equity plus debt

E = the book value of equity

D = the book value of debt

Re = cost of equity

Rd = cost of debt

Tc = effective tax rate.

Finally, the last variable selected was the size of the company. To measure the size, author decided to use the natural logarithmic of total assets of the company. Natural logarithmic was taken to decrease heteroscedasticity of the measurements.

3.3 Data analysis

To analyze the data, IBM's Statistical Package for the Social Sciences (SPSS) was used. The author created a four - step structure for analyzing the data to make the process logical and easy to follow. The aim is to move gradually towards robust conclusion through careful analysis step by step. By planning the data analysis, it is possible to add reliability of the current paper.

As the aim of the thesis is to monitor the changes in companies' capital structure and financial performance, the logical first step was to conduct descriptive statistics on the abovementioned variables. This helps the author to compare and describe the numerical data to answer the "how" questions. By comparing the mean averages of the different years, the author was able to draw conclusions on the trends which were visible during the monitored period, revealing the direction of the changes. (Saunders et al., 2019).

The second step was to implement Pearson's Product Moment Correlation Coefficient (r) to analyze the correlation between the variables. R results in value between -1 and 1, reflecting respectively a perfect negative or a perfect positive correlation between variables. If r = ± it reflects a perfect correlation between variables, placing all the measured data points on a straight line (Adams et al., 2014). The model helps to find the correlation between variables, directing the research in the right direction for further analysis. The Pearson's Product Moment Correlation Coefficient can be computed through the following equation:

$$r_{xy} = \frac{cov(x, y)}{S_x S_y} = \frac{\sum (X_t - X)(Y_t - Y)/(n-1)}{S_x S_y}$$

As the third step the R square is included in the output, also known as the coefficient of determination, for further verification of the results. R square is a regression model measure which explains the proportion of dependent variables variance, caused by the independent variable. R square can be used as a goodness-of-fit measure. It results in a 0-100% value of coefficient, which is a convenient and easy measure to understand. The formula for R square is the following:

$$R^2 = \frac{\sum of\ Squares\ Exlained\ by\ Regression}{Total \sum of\ Squares(before\ regression)} = \frac{\sum (\hat{y}_t - \overline{y})^2}{\sum (y_t - \overline{y})^2}$$

After the correlation between variables was established, further analysis with Ordinary Least Squares (OLS) regression is possible to be conducted to determine the dynamics between variables. This third step is an essential part of the analysis to make predictions on dependent variables as the model estimates the coefficients of explanatory or independent variables. In other words, OLS is a linear regression model which helps interpret the changes in independent variables caused by the dependent variables, by minimizing the square of errors. (Adams et al., 2014). The formula for linear regression model is following:

$$y_{¿} = a_{¿} + \sum_{k=1}^{p} \beta_k x_{¿} + \varepsilon_{¿}$$

In where:

y_{it} = dependent variable of firm i in period t

a_{it} = intercept of the model

x_i = corresponds to the i^{th} explanatory variable of the model

ε = the random error with expectation 0 and variance σ^2

By using the multivariate OLS regression analysis, the author was able to underline the functional relationships through the set of following calculations:

$$DE_{¿} = a_{¿} + \beta_1(ROA)_{¿} + \beta_2(ROE)_{¿} + \beta_3(ROCE)_{¿} + \beta_4(PB)_{¿} + \beta_5(JA)_{¿} + \beta_6(TQ)_{¿} + \beta_7(ITS)_{¿} + \beta_9(CAPM)_{¿} + \beta_{10}(WACC)$$

$$DMC_{¿} = a_{¿} + \beta_1(ROA)_{¿} + \beta_2(ROE)_{¿} + \beta_3(ROCE)_{¿} + \beta_4(PB)_{¿} + \beta_5(JA)_{¿} + \beta_6(TQ)_{¿} + \beta_7(ITS)_{¿} + \beta_9(CAPM)_{¿} + \beta_{10}(WAC$$

$$LDE_{¿} = a_{¿} + \beta_1(ROA)_{¿} + \beta_2(ROE)_{¿} + \beta_3(ROCE)_{¿} + \beta_4(PB)_{¿} + \beta_5(JA)_{¿} + \beta_6(TQ)_{¿} + \beta_7(ITS)_{¿} + \beta_9(CAPM)_{¿} + \beta_{10}(WACC$$

$$LDMC_{¿} = a_{¿} + \beta_1(ROA)_{¿} + \beta_2(ROE)_{¿} + \beta_3(ROCE)_{¿} + \beta_4(PB)_{¿} + \beta_5(JA)_{¿} + \beta_6(TQ)_{¿} + \beta_7(ITS)_{¿} + \beta_9(CAPM)_{¿} + \beta_{10}(WA$$

The output of the OLS regression analysis was used to either accept or reject the hypotheses by analysing the significance of the statistical coefficients. The significance level for the regression coefficients was chosen to be 90% by analysing the p-value and t-value. The R square is reinforcing the analysis by indicating the percentage of variation in the dependent variables, caused by the independent variables.

3.4 Validity and reliability

As a scientific researcher, the author feels obligated to produce as trustworthy and reliable data and results as possible. An important part of this process is to choose tools and methods which are as credible and repeatable as possible. To reduce possible flaws and to guide the research in right direction, it is important to pay attention to validity and reliability of the research as they are important concepts in proving the quality of the research (Vu, 2021)

Vu (2021) explains reliability to be the very essence of quantitative research by requiring the research instruments, procedures, and results to be transparent. The aim is to allow external valuations of the research design and results by providing steps to follow and repeat the research, making the measurements and results consistent and certain. When a peer researcher can achieve the same results, using the same research design, the results can be considered reliable and valid.

The concept of validity considers whether the findings are true, and can they be generalized into a bigger group? As the concept of validity relates to the concept of truth, it is clearly debatable. Issues related to validity are often divided into two sections, internal and external. Internal issues include the problems that might incur during the implementation of the study, and external issues relating to the applicability of the results in a wider population (Saunders et al., 2019).

To ensure and increase the validity and reliability of the study, the researcher can use different strategies. One can increase the integrity by providing contextualization and detailed description of the researched phenomena, making the research easy to repeat. An equally important strategy is to identify potential researcher bias by reflecting critically researchers own path. Some factors are supporting the validity and reliability, such as the persistent observation, prolonged engage-

ment, and longitudinal research design, as they are communicating about the researcher's dedication and data validity. (Vu, 2021)

To ensure the internal validity, the author chose to use the official financial statements from the companies. This way the current study is not relying on third party information, and it is easily accessible for other researchers to replicate the study. The stock market data was collected from two sources from the period of 1.1.2018 – 31.12.2021, totaling up to four years of data. This adds to the validity of the study but sheds a doubt of error at the same time. It is possible that the monitored time is not long enough to draw a significant enough conclusion.

As the justification for the external validity, the author has chosen 100 top performing companies in the U.S and UK. Companies represent different industries, and the companies vary in all measured variables, reinforcing the generalization of the results. As a shortcoming, the author notes that the companies are representing the top performing companies, and the results might not be applicable to small startup businesses.

The author used similar variables to analyze the company's capital structure and performance as many previous researchers. All the data was numerical data gathered from official reports and public websites. These factors add to reliability of the study along with the transparent research design. The research design is built in a way which facilitates the possibility of analyzing a different set of companies with similar results, by collecting company data from the same sources.

4 Results

The following chapter will introduce the data analysis results. The chapter is divided into three sections where the first section presents the descriptive results, the second correlation analysis, and the final section the regression analysis.

4.1 U.S. Descriptive results

In descriptive statistics are presented with the values of mean, standard deviation, skewness, kurtosis, range, minimum, and maximum. All the data is in percentages, except for total assets which

are in natural logarithmic and interest tax shield which is in millions of dollars (pounds in the UK companies).

Debt to equity ratio has a mean of 1,60 but as the skewness, kurtosis, and the minimum and maximum shows, the data has a few extreme outliers. At least one company is extremely leveraged with over 40-fold debt over equity and one of the companies recorded an extremely negative shareholder's equity. Interestingly, in 2020 the S&P 500 companies' average debt-to-equity ratio was estimated to be around 1,58 (Holmes, 2020). This can mean that the average debt-to-equity level has remained approximately the same after 2018, or it is equally possible that the debt-to equity ratio has been increasing. According to the finding, the U.S. companies had in average $ 1.60 debt for every $ 1.00 of equity.

When analyzing the debt to market capitalization, it can be noted that the data is much more concentrated. The mean of .23 indicates that companies' overall values in stock market are overvalued in relation to their book value. The standard deviation of .34 evens the dispersity of the data, while the range of 2,89 illustrates the concentration of the data. Data's skewness and kurtosis is still high, indicating that the maximum of 2,89 is achieved only by few outliers.

The long-term debt over equity ratio does not include the short-term credits, and with the mean of 1,32 it can be noted that the U.S companies are mainly operating with long-term debt over the short-term debt. The author argues that the short-term debt is primarily the result of daily operations where the long-term debt is used for financing bigger investments. Similarly with the debt-to-equity ratio, there are big differences with the companies alongside with some extreme outliers reaching the minimum and maximum of -16,77 and 32,93 respectively. Long-term debt over market capitalization follows the same pattern with mean of .19, minimum and maximum of .00 and 2,89 respectively.

Natural logarithmic of total assets communicates about the size of the companies. The range of the companies is 6, varying between the minimum of 9 and maximum of 15. The mean of 11,59 with standard deviation of 1,18 indicates an even spread around the mean. This observation is supported by skewness and kurtosis. This can be interpreted as the dataset holds a good distribution of different size companies.

Return on equity divides the companies aggressively. With the mean of 0,38 along with the minimum of -6,15 and maximum of 30,86 the range is 37,01. The standard deviation, skewness and kurtosis indicates that the dataset has some extreme outliers achieving the lowest and highest results. As the data is highly skewed, the author takes into consideration the median of .19 as it can describe the companies better compared to the mean. Return on equity of 18,75 % can be interpreted to reflect a $0,19 return for every $1.00 invested.

Return on assets is more evenly distributed with a slight skewness and kurtosis. The mean settles in .075 as the minimum is -.15 and maximum .33. The standard deviation is .071 indicating that the companies there are not huge gaps between the companies' abilities on generating profits with their assets. This is a sign of efficiency in using the resources that company has, and it can be concluded that the U.S companies are performing well.

Return on capital employed incorporates both debt and assets. In the case of ROCE, the data is extremely skewed and affected by extreme outliers. With the median of .11, minimum of -.20 and maximum of extreme 11,45 it is evident that some of the companies are using their capital much more efficiently than others. The author argues that the difference between companies is related to the difference of earnings, as some of the companies can generate huge profits. The minimum is near to the minimum of ROA which can indicate that the difference lies somewhere else.

Price-to-book value is hard to estimate since it depends on the industry, but to simplify the analysis, the author is treating the value as intrinsic value, since it is indicating the share price difference between the book value and market value. Again, the data is heavily skewed and there are extreme outliers in both ends of the dataset, along with huge standard deviation of 79,04. The median lies in 7,37 with the extreme values of minimum -241.69 and maximum 1185,63. Since the sample of companies consists of all industries, there are some technological companies with substantial intangible assets and value. These companies can be tremendously overvalued in the market and similarly some of the traditional manufacturing companies can be undervalued. Nevertheless, the data shows that most of the U.S companies are over seven times more valuable in the stock market compared to their book value. The author notes that since 2021 stock markets have been plummeting heavily.

Tobin's Q takes into consideration both stock market performance and accounting performance. It speaks the same language with price-to-book ratio, indicating that all the U.S companies are over-valued with the mean of 4,16, minimum of .11 and maximum of 25,88. The data is moderately skewed in the same direction as the previous data with kurtosis of 4,78, indicating again of some company's extreme values. Interestingly, there is no negative value whereas the price-to-book ratio had the minimum of -241,69. This indicates strongly of the overvalued share price since Tobin's Q valuates the total market value of the company, where price-to-book ratio considers the market value of equity.

U.S companies' beta has a mean of .94, minimum -.08 and maximum of 2,28. The data is normally distributed with low standard deviation, slight negative skewness, and low kurtosis. The mean indicates that the average of the U.S companies have a relatively low systematic risk, since their share price does not react to the index movements with high volatility. Some of the companies are representing the extreme outliers with a negative beta -.08, where the share is moving in the opposite direction in relation to the index, and a beta of 2.28 which makes the share price twice as volatile as the index.

WACC determines the average cost of both equity and debt financing. The mean for the WACC is .094 and the range 1,11 with -.57 minimum and .54 maximum. The data is close to normal distribution with low standard deviation and skewness, but the kurtosis indicates again of some outliers affecting the data. David Trainer, Forbes contributor, noted in Forbes article the average WACC in S&P 500 companies to be 4,7% in 2021 (Trainer, 2021). This means that the average has been higher in previous years, and it is possible that the QE measures by the FED are impacting the WACC by increasing the cheap financing as a form of crisis packages. This of course requires further research and current study cannot conclude on purely hypothetical assumption.

CAPM is the required rate of return which incorporates the systematic risk of the company. It indicates the rate of return which the investor expects to gain for the risk he or she is taking. The CAPM mean is .17 with the minimum of -.13 and maximum of .65. Interestingly, CAPM is the only variable with slight negative skewness and kurtosis, making the results lean slightly on the right with no extreme outliers. This is a surprising result since the author was expecting extreme outliers as there were in previous variables.

Interest tax shield represents the capital which company was able to protect due to the tax savings. The negative numbers in the data are due to the negative effective tax rate which does not exclude the usage of interest tax shield. The mean is 158,63 with minimum of -817,26 and maximum of 995,70. The data is not strongly skewed but it is moderately affected with outliers. The data shows that the U.S companies are benefiting substantially from the interest tax shield.

The overall image of the data is characterized by extreme outliers where few companies are reaching the minimums and maximums. The author was surprised by the extent of the overvaluation of the U.S companies.

US Companies Statistics

	N Valid	Mean	Median	Std. Deviation	Skewness	Kurtosis	Range	Minimum	Maximum
D/E	396	1,597	,875	4,292	4,476	37,632	58,309	-17,462	40,847
DMC	395	,228	,107	,342	3,722	18,236	2,887	,000	2,887
LDE	400	1,316	,713	3,817	4,208	35,154	49,705	-16,774	32,931
LDMC	399	,188	,089	,267	3,075	11,552	1,971	,000	1,971
TALN	400	11,588	11,000	1,175	,762	,568	6,000	9,000	15,000
ROE	400	,376	,188	1,860	11,753	186,225	37,006	-6,151	30,855
ROA	400	,075	,064	,071	,794	1,067	,478	-,152	,326
ROCE	400	,160	,111	,579	18,704	365,482	11,643	-,197	11,446
P/B	399	19,313	7,372	79,040	10,079	134,337	1427,324	-241,691	1185,633
TQ	400	4,164	3,340	3,730	1,818	4,782	25,770	,110	25,880
BETA	399	,945	,960	,354	-,131	,473	2,360	-,080	2,280
WACC	399	,094	,098	,107	-,298	3,705	1,110	-,569	,541
CAPM	400	,172	,210	,152	-,322	-,836	,784	-,135	,649
ITS	364	158,634	103,080	245,213	,646	2,666	1812,960	-817,260	995,700

Table 2. The U.S. companies descriptive statistics

4.2 UK Descriptive statistics

Debt-to-equity ratio in the UK companies is heavily skewed and likewise the U.S. companies, the data contains extreme outliers. The mean is 1,16 with the minimum of .00 and maximum of 56,83. The UK companies have more balanced capital structure with 15,9 % more debt than equity, but at the same time it has the most leveraged company in the sample with debt-to-equity ratio of 56,83. The UK data was characterized by unique companies with zero debt or very high levels of debt, and the results are reinforcing this observation.

Debt-to-market capitalization follows the same path as the U.S. companies by having a range of 8,29 from minimum of .00 and maximum of 8,29. The mean is .30 while the data is positively skewed and leptokurtic. The similar conclusion as in the U.S companies can be made, stating that the UK companies are overvalued in the stock market since the ratios are substantially smaller compared to det-to-book value of equity.

Long-term debt ratios follow the same pattern with long-term debt-to-equity mean of .86 and long-term debt-to-market capitalization mean of .14. The author notes that the maximum of the debt-to-equity ratio is the same as the maximum of long-term debt-to-equity. This means that the company has reported all the company debt to be long-term in nature.

The UK companies' size is the most evenly distributed dataset, ranging from the minimum of 4,00 and maximum of 15,00. The mean is 9,69, making the UK companies slightly smaller in relation to the U.S companies. This is shown also as lower minimum size compared to the U.S data.

The return on equity is considerably smaller compared to the U.S companies with mean of .27, minimum of -4,31 and maximum of 28.50. The data is positively skewed as in the U.S and the high kurtosis indicates about the extreme outliers.

The return on assets is lower and more evenly distributed than ROE with the mean of .07, minimum of -.23 and maximum of 2.50. Interestingly one of the UK companies outperforms all the U.S companies in ROA. The dataset reveals this outliner with high kurtosis and positive skewness.

Similar conclusions apply on return on capital employed can be made as it was in the U.S companies. Some of the companies are managing their capital more efficiently than others. The mean for ROCE sets in .15 when the minimum is -.37 and maximum is 7,96. The values are closer to ROA than ROE, indicating that the reasoning for the huge range can be in the profits of the companies.

The price-to-book ratio is substantially different in the UK companies compared to the U.S companies. The mean is .23 with minimum of -2,14 and maximum of 21,34. The data is skewed, and kurtosis indicates the extreme outliers. The results are indicating that the UK companies are much closer to their book value in relation to their stock market value. The author suspects that this

might be connected to investor sentimental, or the way investors perceives the stock markets. Most of the UK companies are reasonable valued in the stock market, as most of the U.S companies are highly overvalued. It can be that the sampling of the data is setting a limitation for interpreting the data, since top 100 companies in the U.S can be more technological industry companies compared to the UK top 100 companies.

Tobin's Q has the same characteristics as price-to-earnings ratio. The data is skewed and is affected by extreme values with the mean of 3,63, minimum of .02 and maximum of extreme 130,60. The same phenomena where Tobin's Q is not catching any negative values is present, indicating that when considered fully market value and assets, the companies are overvalued.

Beta of the UK companies can be interpreted to be normally distributed with the mean of 1,06, minimum of -.32 and maximum of 2.67. The UK companies are therefore a bit more volatile compared to the U.S companies, which is a surprise considering the huge overvaluation of the U.S companies. Nevertheless, the UK companies can be considered as fairly low risk investments.

WACC is evenly distributed with small standard deviation. The mean for the UK companies lies in .032 as the minimum is -.487 and maximum is .323. The UK companies are having slightly lower WACC compared to the U.S companies, and the outliers are not as far away.

CAPM is characterized similarly as the WACC, positioning the mean in .028, minimum in -.228 and maximum in .338. The investors are demanding slightly lower returns on the investments to the UK companies in relation to the U.S counterparts. This could indicate further about abovementioned investor sentimental which could affect the dynamics in respected stock markets.

The UK companies are benefitting from interest tax shield less than the U.S companies. The mean is 63.16 but when we consider the minimum (-467.10) and maximum (901,89) the data is similar. By considering the currency, the UK maximum converted to dollars is larger, and therefore the outliers are bigger. The differences between the companies can be explained with through different taxation and regulations.

It can be noted that the U.S and the UK companies' descriptive statistics are similar with modified by slight differences caused by the characteristics of different stock markets, regulations, and investor sentimental.

UK Companies Statistics

	N Valid	Mean	Median	Std. Deviation	Skewness	Kurtosis	Range	Minimum	Maximum
D/E	388	1,159	,614	3,2727	13,752	222,558	56,833	,000	56,833
DMC	386	,302	,130	,6492	8,040	85,674	8,288	,000	8,288
LDE	396	,861	,450	3,1261	15,286	265,051	56,833	,000	56,833
LDMC	396	,142	,080	,2233	4,439	27,379	2,082	,000	2,082
TALN	396	9,694	9,000	1,9318	,572	,230	11,000	4,000	15,000
ROE	396	,271	,133	1,6220	14,420	240,984	32,807	-4,307	28,500
ROA	396	,072	,047	,1895	8,941	97,452	2,729	-,229	2,500
ROCE	396	,148	,096	,4776	12,835	193,207	8,356	-,396	7,960
P/B	395	,230	,028	1,4719	10,693	132,487	23,476	-2,135	21,341
TQ	395	3,630	1,830	10,4972	9,328	95,665	130,580	,020	130,600
BETA	395	1,025	1,022	,4400	-,110	,233	2,673	-,388	2,284
WACC	395	,032	,028	,0955	-,228	1,117	,810	-,487	,323
CAPM	396	,028	,004	,1418	,132	-1,407	,565	-,228	,338
ITS	371	63,164	14,610	153,4300	2,784	10,679	1369,000	-467,110	901,890

Table 3. The UK companies descriptive statistics

4.3 The U.S companies' correlations

The correlation analysis is consisting of all the variables which are used in the current study, including the independent variables of natural logarithmic of total assets (TALN), return on equity (ROE), return of assets (ROA), return on capital employed (ROCE), price-to-book ratio (P/B), Tobin's Q, Beta, weighted average cost of capital (WACC), and capital asset pricing model (CAPM), and dependent variables of debt-to-equity ratio (D/E), debt-to-market capitalization (DMC), long-term debt-to-equity ratio (LDE), and long-term debt-to-market capitalization ratio (LDMC). Correlations with the significance levels of 0.01% and 0.05% were considered significant.

Debt-to-equity ratio is strongly correlating positively with long-term debt to equity, return on equity and price-to-book ratio. This result was expected to show as all the correlating variables are incorporated with equity and as the equity increases, so does the correlating ratios. Debt-to-equity is correlating weakly negatively with WACC and CAPM. Modigliani and Miller stated that the com-

panies would be increasing their leverage in hope of lowering their WACC, and this finding supports the MM assumption. Interestingly, CAPM is correlating negatively also. This is a surprise since the author assumed that the CAPM would be increasing due to raising leverage. The author notes that the CAPM correlates with lower significance level of 0.05.

Debt-to-market capitalization correlates positively with long-term debt-to-market capitalization and total assets of the company. Almost perfect correlation with long-term debt-to-market capitalization is explained with incorporation of debt in both variable. Moderate correlation with the total assets, the size of the company, indicates that the companies with more debt in relation to their market capitalization are bigger in size. Debt-to-market capitalization is negatively correlating with performance measures of ROA, ROCE, P/B, and Tobin's Q. ROCE and P/B have a weak negative correlation whereas ROA and Tobin's Q have a moderate negative correlation. This means that as company's debt is increasing in relation to its market capitalization, the performance measures are decreasing, indicating that the debt is negatively affecting the financial performance.

Long-term debt-to-equity is positively correlating with D/E, ROE, and P/B. All the correlations are strong and are indicating that increase in long-term debt generates more return on equity and increases the price-to-book ratio. The author notes that this could lead in a situation where the market value of companies is inflated by adding debt. This statement is reinforced by the observation of overvalued companies. Long-term debt-to-equity is negatively correlating with the total assets, beta, WACC, and CAPM. Even though the correlation is weak it is a very interesting finding as it indicates that the increasing long-term debt in relation to company's equity is decreasing the risk measures. Another interesting finding is that the companies with higher debt-to-book value of equity tend to be smaller is size. This indicates that the companies with overvalued valuations in the stock markets are more leveraged.

Long-term debt-to-market capitalization is correlating positively total assets and interest tax shield. This means that the companies with more debt in relation to their market capitalization tend to be bigger in size and benefiting from higher tax shield. Negatively long-term debt-to-market capitalization correlates with all the performance measures, which indicates that as the long-term debt-to-market capitalization increases, financial performance decreases. This is an import-

ant finding as it can indicate that the U.S companies are not using their debt financing very efficiently.

The total assets of the company correlate positively with WACC and interest tax shield. This finding supports the previous observations by indicating that as the company is bigger, and therefore more leveraged, the WACC increases. As the size of the company increases, so does the interest tax shield. The company size is negatively correlating with ROA, ROCE, P/B, and Tobin's Q. This means that these ratios decrease as the company size increases. The size itself does not guarantee good performance but indicates about other factors making the company less efficient.

Return on equity correlates positively with ROA and P/B, while negatively with CAPM. The correlation with CAPM is interesting as the increasing return on equity is lowering the required rate of return. The author explains the result by illustrating it through an example: investor is satisfied with the increasing return on equity for his or her investment and therefore is satisfied with lower expected return in the future.

Return on assets is positively correlating with all performance variables, especially with Tobin's Q. This is an interesting result since even when Tobin's Q incorporates company's assets, it does not get affected by return on assets. The results indicates that when a company it is managing its assets efficiently, it reflects in hybrid performance measures. In other words, well managed assets are increasing the company's market performance.

Return on capital employed is negatively correlating with WACC, which can indicate the efficient use of short-term debt in daily operations, or the absence of the debt. While analysing total assets of the company, it was noted to correlate negatively with ROCE. Hence, if ROCE is increasing, the assets and short-term debt must be both decreasing, lowering the WACC.

Price-to-book ratio is positively correlated with Tobin's Q and negatively with CAPM. The dynamics with P/B and CAPM are interesting since the P/B compares the market value of the company to its book value. The result is suggesting that the more valuable the market perceives the company, the lower is the required rate of return. This can indicate that the investors are affected by the sentimental of the market more than the fundaments of the company.

Tobin's Q is positively correlating with beta and negatively with interest tax shield. This means that the companies with higher market capitalization are increasing the beta but decreasing the interest tax shield.

WACC correlates positively very strongly and significantly with CAPM. This means that when WACC increases, so does CAPM, and vice versa. This is an interesting finding as theoretically decrease in WACC due to increase in debt would increase the risk of the company, consequently increasing CAPM.

US Companies' Correlations															
		X1	X2	X3	X4	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
X1	Pearson Correlation	1,0	0,073	,979**	0,050	-0,082	,706**	-0,024	-0,037	,855**	0,017	-0,085	-,137**	-,115*	-0,071
	Sig. (2-tailed)		0,149	0,000	0,319	0,102	0,000	0,634	0,469	0,000	0,731	0,093	0,007	0,023	0,178
X2	Pearson Correlation	0,073	1,0	0,044	,970**	,449**	-0,078	-,404**	-,105*	-,104*	-,436**	0,056	-0,065	0,068	0,096
	Sig. (2-tailed)	0,149		0,381	0,000	0,000	0,119	0,000	0,037	0,038	0,000	0,269	0,200	0,178	0,069
X3	Pearson Correlation	,979**	0,044	1,0	0,049	-0,070	,675**	-0,019	-0,034	,840**	0,027	-,100*	-,130**	-,119*	-0,055
	Sig. (2-tailed)	0,000	0,381		0,331	0,163	0,000	0,712	0,495	0,000	0,593	0,046	0,010	0,017	0,293
X4	Pearson Correlation	0,050	,970**	0,049	1,0	,490**	-0,084	-,434**	-,108*	-,110*	-,461**	0,038	-0,067	0,063	,152**
	Sig. (2-tailed)	0,319	0,000	0,331		0,000	0,093	0,000	0,031	0,028	0,000	0,450	0,181	0,207	0,004
Y1	Pearson Correlation	-0,082	,449**	-0,070	,490**	1,0	-0,070	-,453**	-,163**	-,133**	-,522**	0,045	,126*	0,079	,354**
	Sig. (2-tailed)	0,102	0,000	0,163	0,000		0,165	0,000	0,001	0,008	0,000	0,373	0,012	0,113	0,000
Y2	Pearson Correlation	,706**	-0,078	,675**	-0,084	-0,070	1,0	,165**	0,012	,921**	0,095	-0,029	0,010	-,104*	-0,054
	Sig. (2-tailed)	0,000	0,119	0,000	0,093	0,165		0,001	0,807	0,000	0,058	0,563	0,842	0,038	0,305
Y3	Pearson Correlation	-0,024	-,404**	-0,019	-,434**	-,453**	,165**	1,0	,224**	,118*	,690**	0,056	0,071	0,002	-,169**
	Sig. (2-tailed)	0,634	0,000	0,712	0,000	0,000	0,001		0,000	0,018	0,000	0,268	0,156	0,976	0,001
Y4	Pearson Correlation	-0,037	-,105*	-0,034	-,108*	-,163**	0,012	,224**	1,0	0,003	,208**	-0,002	-,100*	0,009	-0,030
	Sig. (2-tailed)	0,469	0,037	0,495	0,031	0,001	0,807	0,000		0,959	0,000	0,966	0,047	0,864	0,571
Y5	Pearson Correlation	,855**	-,104*	,840**	-,110*	-,133**	,921**	,118*	0,003	1,0	,179**	-0,033	-0,074	-,121*	-0,074
	Sig. (2-tailed)	0,000	0,038	0,000	0,028	0,008	0,000	0,018	0,959		0,000	0,510	0,137	0,015	0,158
Y6	Pearson Correlation	0,017	-,436**	0,027	-,461**	-,522**	0,095	,690**	,208**	,179**	1,0	,155**	0,039	0,065	-,208**
	Sig. (2-tailed)	0,731	0,000	0,593	0,000	0,000	0,058	0,000	0,000	0,000		0,002	0,435	0,196	0,000
Y7	Pearson Correlation	-0,085	0,056	-,100*	0,038	0,045	-0,029	0,056	-0,002	-0,033	,155**	1,0	,297**	,380**	-,122*
	Sig. (2-tailed)	0,093	0,269	0,046	0,450	0,373	0,563	0,268	0,966	0,510	0,002		0,000	0,000	0,021
Y8	Pearson Correlation	-,137**	-0,065	-,130**	-0,067	,126*	0,010	0,071	-,100*	-0,074	0,039	,297**	1,0	,747**	-0,092
	Sig. (2-tailed)	0,007	0,200	0,010	0,181	0,012	0,842	0,156	0,047	0,137	0,435	0,000		0,000	0,079
Y9	Pearson Correlation	-,115*	0,068	-,119*	0,063	0,079	-,104*	0,002	0,009	-,121*	0,065	,380**	,747**	1,0	-0,039
	Sig. (2-tailed)	0,023	0,178	0,017	0,207	0,113	0,038	0,976	0,864	0,015	0,196	0,000	0,000		0,456
Y10	Pearson Correlation	-0,071	0,096	-0,055	,152**	,354**	-0,054	-,169**	-0,030	-0,074	-,208**	-,122*	-0,092	-0,039	1,0
	Sig. (2-tailed)	0,178	0,069	0,293	0,004	0,000	0,305	0,001	0,571	0,158	0,000	0,021	0,079	0,456	

X1: D/E; X2: DMC; X3: LDE; X4: LDMC

Y1: TALN; Y2: ROE; Y3: ROA; Y4: ROCE; Y5: P/B; Y6: TQ; Y7: BETA; Y8: WACC; Y9: CAPM; Y10: ITS

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

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

Table 4. U.S companies' correlations

4.4 The UK companies' correlations

The debt-to-equity ratio of the UK companies correlates positively with the long-term debt-to-equity, long-term debt-to-market capitalization, ROE, ROA, and ROCE. The finding is different from the U.S companies, as the UK companies financial accounting measures are increasing along with debt-to-equity ratio. The results indicate that the UK companies are managing their debt better. WACC and CAPM are correlating negatively in relation to D/E, which is a similar interesting result as the U.S data revealed.

Debt-to-market capitalization is positively correlated with interest tax shield and negatively with Tobin's Q. This indicates that as the debt amount is increasing the interest tax shield is increasing as well. Tobin's Q is reacting in a different manner, decreasing whereas debt-to-market capitalization increases. The results are considerably different in relation to the U.S companies' data which indicated that the company's financial profitability ratios were negatively affected by increasing debt-to-market capitalization.

Long-term debt-to-equity is positively correlating with long-term debt-to-market capitalization and ROE. It means that the companies are fairly valued, as the amount of debt can increase the long-term debt-to-market capitalization. In the U.S companies this was not as evident since the companies are substantially overvalued, diminishing the effect of debt on the ratio. It also seems that the increase in long-term debt increases the return on equity. Negatively the variable correlates with total assets, indicating that the companies which are financing their operations more with long-term debt tend to be smaller in size. This can indicate that the big companies could finance their operations according to pecking order theory, utilizing first the retained earnings.

Long-term debt-to-market capitalization correlates positively only with intertest tax shield. This indicates that the companies with more debt over their market capitalization are increasing their interest tax shield, but as it is correlating negatively with ROE, ROA, and ROCE, the effects of benefits of increasing interest tax shield remains questionable. The similar results were found in the U.S companies, which experienced decrease in all performance measures as the debt increases.

The size of the company correlates positively with the beta and interest tax shield. This indicates that the U.S companies' systematic risk is increasing along with the size of the company. At the

same time, bigger companies are benefitting from increasing interest tax shield. Total assets correlate negatively with long-term debt-to-equity, ROE, ROA, ROCE, P/B, and Tobin's Q. The results are surprising as increasing assets are decreasing all the performance variables. To summarize, bigger U.S companies seem to be riskier and less profitable.

All the performance variables correlate positively with each other, indicating that good financial performance feeds all the measures. Interestingly, ROA is the only performance measure which has a negative correlation. It correlates negatively with beta, indicating that companies which generate the higher returns on its assets, also decreases the systematic risk of the company.

Beta correlates positively with CAPM and interest tax shield. Increasing beta raises the risk of the company, and consequently the investors are requiring higher expected returns for their investments. Increasing beta is increasing the interest tax shield, most probably due to higher leverage of the big companies.

WACC correlates positively very strongly and significantly with CAPM. This means that when WACC increases, so does CAPM, and vice versa. This is an interesting finding as theoretically decrease in WACC due to increase in debt would increase the risk of the company, consequently increasing CAPM.

UK Companies' Correlations															
		X1	X2	X3	X4	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
X1	Pearson Correlation	1	0,075	,974**	,165**	-0,048	,785**	,161**	,139**	0,068	0,063	0,004	0,003	-0,027	0,070
	Sig. (2-tailed)		0,147	0,000	0,001	0,346	0,000	0,001	0,006	0,183	0,217	0,935	0,958	0,597	0,181
X2	Pearson Correlation	0,075	1	-0,021	0,005	0,084	-0,010	-0,025	-0,020	-0,028	-,242**	0,021	0,007	-0,004	,148**
	Sig. (2-tailed)	0,147		0,685	0,920	0,098	0,843	0,630	0,691	0,586	0,000	0,683	0,885	0,934	0,005
X3	Pearson Correlation	,974**	-0,021	1	,179**	-,115*	,749**	0,055	0,024	0,011	0,054	-0,018	0,006	-0,027	0,011
	Sig. (2-tailed)	0,000	0,685		0,000	0,023	0,000	0,277	0,640	0,825	0,286	0,718	0,904	0,598	0,833
X4	Pearson Correlation	,165**	0,005	,179**	1	0,084	-,105*	-,137**	-,100*	-0,089	-0,057	-0,001	-0,004	-0,029	,155**
	Sig. (2-tailed)	0,001	0,920	0,000		0,095	0,036	0,006	0,047	0,076	0,257	0,984	0,940	0,565	0,003
Y1	Pearson Correlation	-0,048	0,084	-,115*	0,084	1	-,209**	-,380**	-,318**	-,277**	-,121*	,259**	0,001	0,040	,453**
	Sig. (2-tailed)	0,346	0,098	0,023	0,095		0,000	0,000	0,000	0,000	0,016	0,000	0,978	0,432	0,000
Y2	Pearson Correlation	,785**	-0,010	,749**	-,105*	-,209**	1	,484**	,471**	,701**	,309**	-0,091	-0,016	-0,037	-0,048
	Sig. (2-tailed)	0,000	0,843	0,000	0,036	0,000		0,000	0,000	0,000	0,000	0,070	0,751	0,458	0,356
Y3	Pearson Correlation	,161**	-0,025	0,055	-,137**	-,380**	,484**	1	,951**	,782**	,462**	-,099*	0,042	0,018	-0,078
	Sig. (2-tailed)	0,001	0,630	0,277	0,006	0,000	0,000		0,000	0,000	0,000	0,050	0,405	0,715	0,133
Y4	Pearson Correlation	,139**	-0,020	0,024	-,100*	-,318**	,471**	,951**	1	,764**	,549**	-0,075	0,018	0,008	-0,054
	Sig. (2-tailed)	0,006	0,691	0,640	0,047	0,000	0,000	0,000		0,000	0,000	0,136	0,717	0,880	0,302
Y5	Pearson Correlation	0,068	-0,028	0,011	-0,089	-,277**	,701**	,782**	,764**	1	,296**	-0,056	0,090	0,093	-0,057
	Sig. (2-tailed)	0,183	0,586	0,825	0,076	0,000	0,000	0,000	0,000		0,000	0,267	0,075	0,064	0,275
Y6	Pearson Correlation	0,063	-,242**	0,054	-0,057	-,121*	,309**	,462**	,549**	,296**	1	-0,028	0,030	0,026	-0,023
	Sig. (2-tailed)	0,217	0,000	0,286	0,257	0,016	0,000	0,000	0,000	0,000		0,574	0,555	0,601	0,660
Y7	Pearson Correlation	0,004	0,021	-0,018	-0,001	,259**	-0,091	-,099*	-0,075	-0,056	-0,028	1	-0,006	,143**	,150**
	Sig. (2-tailed)	0,935	0,683	0,718	0,984	0,000	0,070	0,050	0,136	0,267	0,574		0,910	0,004	0,004
Y8	Pearson Correlation	0,003	0,007	0,006	-0,004	0,001	-0,016	0,042	0,018	0,090	0,030	-0,006	1	,779**	-0,005
	Sig. (2-tailed)	0,958	0,885	0,904	0,940	0,978	0,751	0,405	0,717	0,075	0,555	0,910		0,000	0,917
Y9	Pearson Correlation	-0,027	-0,004	-0,027	-0,029	0,040	-0,037	0,018	0,008	0,093	0,026	,143**	,779**	1	0,002
	Sig. (2-tailed)	0,597	0,934	0,598	0,565	0,432	0,458	0,715	0,880	0,064	0,601	0,004	0,000		0,972
Y10	Pearson Correlation	0,070	,148**	0,011	,155**	,453**	-0,048	-0,078	-0,054	-0,057	-0,023	,150**	-0,005	0,002	1
	Sig. (2-tailed)	0,181	0,005	0,833	0,003	0,000	0,356	0,133	0,302	0,275	0,660	0,004	0,917	0,972	

X1: D/E; X2: DMC; X3: LDE; X4: LDMC

Y1: TALN; Y2: ROE; Y3: ROA; Y4: ROCE; Y5: P/B; Y6: TQ; Y7: BETA; Y8: WACC; Y9: CAPM; Y10: ITS

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

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

Table 5. UK companies correlations

4.5 U.S companies regression analysis

The following tables 6 and seven illustrates the dependence of debt-to-equity, debt-to-market capitalization, long-term debt-to-equity, and long-term debt-to-market capitalization on total assets, return on equity, return on assets, return on capital employed, price-to-book ratio, Tobin's Q, Beta, WACC, CAPM, and interest tax shield. The significance level is denoted by *, **, and ***, representing p<0.1, p<0,05. and p<0,01 respectively. The author has compressed the results to showcase the the estimated coefficient B on the upper line, and the t-value in brackets indicating the significance.

The debt-to-equity ratio is positively dependent on the return on assets, and significantly on price-to-book ratio. It can be noted that the companies that are producing more returns on their assets are more leveraged. This indicates that companies are using the debt financing to increase the productivity to maximize the profits. Since the D/E is significantly dependent on the price-to-book ratio, it can be noted that the companies with larger market valuation in relation to their book value, are more leveraged. Debt-to-equity is negatively dependent on ROE, Tobin's Q, and WACC. Interesting result is the significance of ROE. It can be said that as the company's return on equity is decreasing it is issuing more debt. This means that the returns are decreasing, the companies have been repurchasing the shares, or it relies more on debt financing over equity. Another interesting indicator is the Tobin's Q, as it is significantly affecting debt-to-equity whereas the P/B acted the opposite. The increase in replacement cost capability is decreasing the leverage of the company. This means that the company is either increasing their assets or decreasing their market capitalization. Debt-to-equity is negatively dependent on WACC as the companies with lower WACC tends to have higher leverage. This supports the theories stating that companies would borrow more to reduce the cost of capital.

Debt-to-market capitalization is positively dependent on total assets, beta, and CAPM. The companies which are bigger in size, are riskier investments, and have higher required rate of return, have more debt over their market capitalization. These companies are significantly decreasing their WACC, in other words, they can borrow with smaller costs. This is proven by the fact that debt-to-market capitalization is significantly negatively dependent on WACC.

When short-term debt is excluded, the results are not changing significantly.

The D/E has a R square of .831, DMC .232, LDE .826, and LDMC .280. The results are reliable especially in variables considering the book value of equity.

Dependent variables				
Independent variables	D/E	DMC	LDE	LDMC
TALN	-0,142 (-1,208)	0,039 * (2,639)	-,008 (-,075)	0,32 ** (3,128)
ROE	- 2,504 *** (-1,102)	-,022 (-,799)	-2,663 *** (-13,603)	-,015 (-,800)
ROA	,5537 * (2689)	-,453 (-1,763)	6,774 *** (3,691)	-,423 (-2,329)
ROCE	-,047 (-279)	-,012 (-,593)	,004 (3,691)	-,008 (-,517)
P/B	0,104 *** (20,301)	,000 (0,764)	,102 *** (22,067)	,000 (,744)
TQ	-,348 *** (-8,438)	-,020 *** (-3,804)	-,309 *** (-8,337)	-,014 *** (-3,818)
BETA	-,246 (-,812)	,021 (,545)	-,362 (-1,330)	-.002 (-.081)
WACC	-4,394 * (-2842)	-,732 *** (-3,795)	-2,484 (-1,818)	-.514 *** (-3,802)
CAPM	2,661 (2,486)	,401 ** (2,998)	1539 (1,609)	,297 ** (3,135)
ITS	-,001 (-1,229)	-5,076 (-,947)	,000 (-,774)	-8,956 (-,235)
R square	,831	,232	,826	,280
Durbin-Watson	1,939	1,791	1,928	1,737

Table 6. U.S companies' regression

4.6 The UK companies regression analysis

The UK companies' regression analysis follows the same path with some differences. Debt-to-equity ratio is positively dependent on ROCE and P/B. This means that a company's ability to manage its capital positively affects the debt-to-equity ratio. In other words, if the company is managing its capital correctly, it tends to borrow more. Similarly, as the U.S companies, companies with higher price-to-book ratio are more leveraged. D/E is significantly negatively dependent on ROE, indicating that when the companies return on equity is decreasing, companies tend to borrow more. Excluding the short-term debt from the ratio did not have significant impact on the results.

Debt-to-market capitalization is dependent only negatively on Tobin's Q. The dependence is significant, proving that companies which debt in relation to market capitalization is increasing, their replacement costs are decreasing. This indicates that as the company's market valuation is decreasing in relation to its assets, the company tends to borrow more.

In contrast to the U.S companies, the UK companies' long-term debt-to-market capitalization differs slightly from the debt-to-market capitalization. By comparing the long-term debt-to-market capitalization a significant positive dependence on ROCE was found. This means that a company's ability to manage their capital has a clear impact on the increased long-term debt over market capitalization. This communicates the companies efficient use of the assets, since the long-term debt is used to finance the big investments whereas the short-term debt is more operational in nature. Long-term debt-to-market capitalization is negatively dependent on ROE, which means that when a company's return on equity is decreasing, the company is increasing the long-term debt over its market capitalization. This communicates about the hierarchy in financing the company's operations, reinforcing the pecking order theory.

The R square of D/E is 0.245, DMC .086, LDE .211, and LDMC 0.98. The results can be understood as significant but there are other factors affecting the leverage of the company. Therefore, the independent variables are partially explaining the changes in leverage, and more research is required for deeper analysis of the subject.

Dependent variables				
Independent variables	D/E	DMC	LDE	LDMC
TALN	,147 (2,459)	-,007 (-,280)	-,039 (-,828)	,002 (,252)
ROE	-2,617 *** (-9,440)	,203 (1,624)	-1,787 *** (-8,886)	-,142 *** (-4,110)
ROA	,759 (,282)	-,839 (-,746)	-2,040 (-1,627)	-,532 (-2,467)
ROCE	4,343 * (2,706)	,392 (,592)	2,384 *** (4,273)	,338 *** (3,524)
P/B	,767 *** (5,922)	-,034 (-,620)	,554 *** (5,342)	,021 (1,185)
TQ	-,014 (-1,484)	-,060 *** (-4,580)	-,004 (-,476)	-,001 (-,504)
BETA	-,145 (-,762)	-,034 (-,410)	-,106 (-,668)	-,036 (-1,335)
WACC	-,561 (-,383)	,154 (,242)	-,678 (-,562)	,120 (,576)
CAPM	-,255 (-,265)	,046 (,111)	,138 (,173)	-,134 (-,978)
ITS	,001 (2,137)	,001 (2,316)	,001 (1,427)	,000 (2,383)
R square	,245	,086	,211	,098
Durbin-Watson	1,788	1,719	1,957	2,048

Table 7. UK companies' regression

5 Conclusion

This chapter summarizes and clarifies the results and carries a discussion regarding the hypotheses to answer the research question. The author will outline the recommendations for future research and practical implications of the current research.

5.1 Discussion

The author started the journey by asking the questions of how does capital structure impact corporate financial performance, and what are the determinants affecting corporate capital structure? The study can answer both questions after thorough literature review and deep analysis of

the company's capital structure and financial performance. The author formulated the following hypotheses to answer the research questions.

1.There is a positive relation with company's leverage level and its financial performance.

The first hypothesis is rejected in case of the U.S companies. The evidence proved that the companies are not experiencing a positive relation between leverage and financial performance. The results are indicating that when leverage is increasing, companies return on equity and Tobin's Q are decreasing. The decrease in ROE indicates problems in generating profits or that the company increases equity, but as the D/E increases it is unlikely that the companies are issuing new shares. The increase in ROA means that the debt is boosting the management of the assets, and even though the ROA is positively related to the leverage of the company, it is true only when the book value of debt is considered. Moreover, author notes that the increase in ROA can be caused by selling the assets or low taxation. The author argues that the increase in debt has inflated the company's market value artificially, enhancing the price-to-book ratio.

In case of the UK companies, the hypothesis can be accepted. The main difference compared to the U.S companies is that the UK companies are managing their capital significantly more efficiently. As the leverage increases in the UK companies, the ROCE increases alongside, while the ROA and Tobin's Q remains unaffected. The price-to-book ratio acts similarly as in the U.S, indicating that the more levered companies are overvalued in their market valuation in relation to their book value. ROE is decreasing as the leverage increases, and author suspects that the economic environment does not allow companies to increase the profits. The author ranks the ROCE to be better indicator for company's financial performance as it considers both debt and equity.

2.Companies with a higher debt-to-equity ratio tend to have a higher financial performance due to the interest tax shield.

The second hypothesis can be rejected in both cases. There is no dependency between leverage and interest tax shield. This is a proof against the trade-off theory which states that the companies would be balancing between the benefits of the debt and cost of financial distress. In contrast, the

results proved that the companies seem to issue more debt to finance their operations, which is supporting the pecking order theory.

3.The optimal capital structure of a company is determined by the trade-off between the cost of equity and the cost of debt, as measured by the CAPM and WACC models.

In case of the U.S companies, the hypothesis is accepted. The WACC and CAPM are interconnected according to the theories and expectations, where increasing leverage is lowering WACC with cheaper debt financing. But as the debt increases, it results in increasing risks, which in turn raises the required rate of return for investors investment. This phenomenon is proved by the results, especially among the dependent variables incorporating the market capitalization.

The UK companies leverage did not have any dependencies relating to WACC or CAPM. Therefore, the hypothesis is rejected. The author was not able to underline specific determinants affecting the leverage of the UK companies, since the R square resulted to be low, and the dependencies between variables were inconsistent, implicating that the variables themselves need adjusting.

To conclude the findings, author notes that the capital structure and its dynamics to financial performance remains to be a puzzle. The subject is extremely complicated as the markets are not perfect and the directors of the companies are human beings, affected by many factors that are not included in the current study. The previous studies are supporting all the capital structure theories, not reaching a clear consensus on the topic. The current study is no different, the results are proving the pecking order to be correct, indicating that the companies are having a natural hierarchy when deciding on preferred source of financing, but at the same time, it supports trade-off theory and even market timing theory. To make any more meaningful conclusion on theoretical base, deeper research is required.

The author points out that maybe one of the most meaningful insights which was left a bit in the shadows, is the overvaluation of the companies. In retrospect it is easy to draw the conclusion that this study indicated the outcome of stock market plummeting, as the overvaluation in price-to-book ratio combined with declining return on equity and increasing debt was a clear red flag. The present proves that the dataset and research method used in this study is valid and reliable.

5.2 Practical implementations

The topic of capital structure is attracting with its complicate dynamics with multiple determinants. Managers and researchers are trying to find the key to unlock the secrets of the optimal capital structure, but so far, the key is still lost. Since the topic is so complex, there is a high possibility that there exists no one solution or ratio for the optimal capital structure. The world is too chaotic with unpredicted events and phenomena for static capital structure. The current study can help managers to get an overview on the dynamics of capital structure and financial performance in troublesome times. They can review the results to see how the companies reacted to a change in certain fundaments, such as D/E ratio, to guide them in decision-making process. This study can help on planning the strategies for company's financing by outlining the possible scenarios.

The study can help fellow researchers to continue the study on capital structure forward. The dataset is valid and there are multiple options to choose from, when deciding the desired direction of the future studies.

5.3 The limitations of the study and recommendations for the future

A part of validity and reliability is to acknowledge the shortcomings of the research to let the fellow researchers build new research on top of the current one. This thesis has several limitations which could be affecting the results.

The main limitation is the time horizon of the study. This study used multiple variables to analyze the correlations between them and run OLS regression through four different models. The number of variables measured and compared requires a bigger sample of datapoints. To mitigate the errors and effects of short-term phenomenon, it is important to increase the observed company years. If one is willing to replicate the study, the author is suggesting that the monitored period would start from 2010 until present. This would gather enough data points and capture different eras in the companies' history.

R square was significantly lower on the UK companies independent variables. In future research, it is recommended to review the variables to search for more suitable variables to increase the validity of the results. Of course, the R square is not an intrinsic value, and it must be understood in the

context of the study. Nevertheless, the R square of the U.S companies was high, indicating that the variables were not completely incorrect.

As this research centres upon quantitative data, it will acknowledge the corporate governance as a determinant that impacts the capital structure and performance, therefore, the author acknowledges this as a limitation of the study as it is not explicitly taken in consideration. It is suggested that the future studies should take this into the consideration.

The study was planned to be conducted on the U.S and UK companies to be able to generalize the results in Anglo-Saxon markets. It is recommended to include risk, taxation, corporate governance, and investor behavior in the context of the future studies. This would add value to the study of the capital structure since it is a sum of all the mentioned determinants.

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