

Financial Structure and Performance: Evidence from Technology Companies in US Stock Exchange Markets

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ABSTRACT

Many Financial decisions should be decided to get the optimal capital structure which shows the ability of the company to survive and compete in the market. Financing decision is one of the most important decisions that corporations make, determining the capital structure requires determining the level of debt and equity to be used to obtain the optimal capital structure. This study aim is to investigate the factors which affect the capital structure of a sample of some technology companies in the American stock exchange markets (NASDAQ and NYSE). Moreover, it aims to indicate the association of financial structure and financial performance. For this purpose, the study was conducted using panel data methodologies for five companies listed on the US stock market during 2006-2015. The data is collected from Thomson Reuters DataStream. The results of the study indicate that there is a negative association between profitability and leverage ratios and a positive association between the size of a firm and profitability. Moreover, the findings indicated that the tangibility of assets has positive relationships with profitability and debt financing.

Keywords: Financial performance, Financial structure, US technology companies.

ÖZ

Finansal global ortamda şirketler hayatta kalmak ve rekabet edebilmek için performansı artırmak için birçok karar verirler. Finansman kararı, şirketlerin yaptığı en önemli kararlardan biridir; sermaye yapısını belirlemek, optimal sermaye yapısını elde etmek için kullanılacak borç ve öz sermaye düzeyini belirlemeyi gerektirir. Bu çalışma, Amerikan borsa piyasalarında (NASDAQ ve NYSE) bazı teknoloji şirketlerinin bir örneğinin sermaye yapısını etkileyen faktörleri araştırmaktır. Ayrıca, mali yapı ile finansal performans arasındaki ilişkiyi belirtmeyi amaçlamaktadır. Bu amaçla, çalışma, 2006-2015 yılları arasında ABD borsasında listelenen beş şirket için panel veri yöntemleri kullanılarak yürütülmüştür. Veriler Thomson Reuters DataStream'den toplanır. Çalışmanın sonuçları, kârlılık ve kaldıraç oranları arasında negatif bir ilişki olduğunu ve firma büyüklüğü ile kârlılık arasında pozitif bir ilişki olduğuna işaret etmektedir. Ayrıca, elde edilen bulgular, varlıkların somutluğunun kârlılık ve borç finansmanı ile olumlu ilişkilere sahip olduğunu gösterdi.

Anahtar Kelimeler: Finansal performans, Finansal yapı, ABD teknoloji şirketleri.

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DEDICATION

Dedicated to the memory of my angel up there in the sky, MOM..Avitan Shalbak

The angel who I owe her every single moment of my life

I hope she is up there with god and saying proudly... "That's my kid!".

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Chapter 1

INTRODUCTION

1.1 Introduction

In the financial global environment, corporations make many decisions to improve performance in order to survive and be competitive. Financing decision is one of the most important decisions that corporations make, determining the capital structure requires determining the level of debt and equity to be used to obtain the optimal capital structure (Dare and Sola, 2010; Pandey, 2010). The capital structure can be considered as an optimal one when it has a lower corporation's cost of capital, and a higher stakeholder's value. Moreover, in the financial literature, capital structure is also recognized as an important factor affecting the profitability of the firm which is a key performance measurement factor. However, the profitability of the corporation is influenced by internal and external factors, capital structure is considered as one of these factors which it has a significant influence (Khan et al., 2013). The decision on how the company will be funded will be a responsibility of the firm's managers and fund providers. Therefore, if funding is made using the wrong combination of debt and equity, the performance and durability of the company will be negatively affected. Thus, in order to maximize corporate value, management must carefully consider capital structure decisions. Capital structure decisions are complex and leverage usage varies between the corporations.

Capital structure decisions in corporate finance are the most controversial topic for corporate finance professionals and practitioners, beginning with the seminars of Modigliani and Miller (1958). They stated, in an assumed perfect capital market with no taxes and no transaction costs, that the value of the firm is irrelevant to the capital structure decision. However, Modigliani and Miller (1963) have incorporated corporate tax into their initial assumptions and said that the benefits of tax savings on debt use can provide an optimal capital structure for 100% debt financing.

The studies of capital structure over the last 30 years have established a number of theories of capital structure that predict many contradictory findings. For instance, trade-off theory stated that a maximizing value firm will consider a trade-off between the tax shelter provided by debt and the cost of financial distress and indicated that leverage and firm's performance are positively correlated Brealey & Myers (2003), The optimal combination can be achieved when the marginal value of the payback is related to debt concerns. This will offset the current cost increase by distributing more debt (Myers, 2001). The main benefit of debt is the tax deductibility of interest payments. The tax deduction of corporate interest payments favors the application of debt (Rasian & Kim, 2011). According to this theory, another benefit of debt financing is to control the distinction between managers and shareholders. Corporate managers have the incentive to misuse free cash flow and ineffective investment decisions on ownership. Debt financing controls these companies' difficulties by limiting the free cash flow available to managers. While pecking-order theory stated that firms should fund its operations with a perfect hierarchy for financing decisions, in other words, The first option for corporations is to use their internal sources for

funding their operations, but if the internal sources are not adequate then corporations should tend toward debt financing, and they should use equity financing as their last choice, it indicated the opposite of trade-off theory that leverage and firm's performance are negatively correlated (Rasian & Kim, 2011).

Another theory has been established "Free Cash Flows Theory" which stated that Companies try to preserve a risky level of debt because they believe that this high level will cause an accretion in their value even though the threat of financial difficulties. Free cash flow is a common practice for mature corporations that are investing heavily when the corporation's operating cash flow significantly exceeds profitable investments (Myers, 2001). As stated by Brealey, Myers and Marcus (1995), the theory of free cash flow anticipates that mature cash firms are the most presumably targets of leverage buyout, but does not guarantee this assumption as the only explication of the existence of leveraged buyout.

One more theory was established which it's the agency theory, conflict of interest occurs in firms due to the difference of propositions between the management and shareholders which causes an agency cost and an agency problem. Jensen, (1986) tried to explain the agency problem by investigating free cash flows case. He indicated that when managers have access to free cash flows, will think about their personal benefits in the first place before they think about shareholder's benefit. Therefore, the company must govern the behavior of a potential manager by securing more debt because the debt can absorb the free cash flow.

If the proportion of debt procurement increases as a Through the combination of capital structure, companies can reduce the manager's agency conflict.. Thus,

although internal funds may be available, in situations where there is a potential for agency costs, Companies can increase leverage to increase manager involvement and minimize profiteering of individuals. (Lewis and Sappington, 1995). In 2008, the whole world suffered from a big financial crisis and the United States economy was one of the most economies which were affected by this crisis.

1.2 Aim of the study:

The process of determining the optimal capital structure is full of difficulties and complexities. Financial managers have to choose the appropriate mixture of debt and equity to finance their firm, to protect their financial performance and to be competitive in the market. Hence, the main aim of this study is to investigate the financial structure and performance of a sample of technology companies in the American markets by evaluating their financial structure and determining the factors affecting their financial performance.

1.3 Thesis structure:

This thesis has five chapters, it starts with an introduction to the topic of the thesis in chapter one after that theories of capital structure are briefly explained in the same chapter. Afterward, chapter two introduces the literature review and previous studies investigating on the same field. Later on, in chapter three, there is a brief about the firms which their data has been tested. Chapter four indicates the data which has been tested and the methodology of analyzing the dependent variables and independent variables after listing them with brief definitions for each one. Then, in chapter five explicates the results of the analysis. Finally, in the last chapter, it has the conclusion and it provides some recommendations.

Chapter 2

LITERATURE REVIEW

2.1 Literature review

A considerable number of studies have considered features and determinants of financial performance in stock and financial markets like (Berument and Dogan, 2011; Buyuksalvarci and Abdioglu, 2010; Kalim et al., 2012; karacaer et al. , 2010; Sodeyfi ; 2016). Sodeyfi, S (2016) have documented the links of financial leverage with business environment and financial performance. The empirical literature on the relationship between leverage and stock returns is extensive during the last decades but is not conclusive. For example, Arditti, (1967) investigated the relationship between leverage and the geometric mean of profits for industry, rail and utility companies in S&P index over the 1946-1963 period. He documented a negative relationship between variables, but it was not statistically significant. Arditti concluded that the insignificance could be a consequence of excluding risk variables that have a positive association with the return and a negative association with leverage.

Also Hall & Weiss (1967) documented that while investigating the relationship between company size and profitability, their findings indicated that there is a negative relationship between leverage and profit. They investigated the 500 largest industrial companies in the United States and defined stock returns as revenue for the stock after taxes. Moreover, Kester (1986) indicated a negative association between profitability which it indicate performance and capital structure that there is a

negative relationship between capital structure and performance (profitability) of the US and Japan, likewise Sheel (1994) supported the negative relationship between Leverage behavior and past profitability. In addition, Wiwattanakantang (1999) indicated that leverage and ROA are negatively associated after examining panel data of 270 Thai companies.

In the beginning of the new millennium, studies and researches on the relationship between leverage and firm's performance has increased in the various economic sectors. Bevan and Danbolt (2004) analyzed the capital structure determinants of 1,054 English firms from 1992 to 1997. They documented that the results of the fixed effect panel evaluation indicate that large corporations have higher long-term and short-term debt levels than SMEs. Furthermore, they indicated that profitability has a negative correlation with the level of gearing.

Another study of Bauer (2004) focuses on Czech companies to examine the determinants of financial structure. In order to investigate if there is a significant relationship or not, some variables were tested like: profitability, firm size, growth opportunities, and the tangibility of assets, risk, tax and operating sector. The results show that where volatility does not have a significant relationship, profitability and size have a positive impact on the leverage ratio.

Likewise, Shah et al. (2004) indicated that the tangibility of assets and the leverage ratio have a significant relationship while their investigation of the capital structure determinants in Pakistani firms. By the same token, Sogrob-Mira (2005) analyzed the panel data for 6482 Spanish financial SMEs during the five years from 1994 to 1998. The results suggest that both non-debt relief and profitability are negatively

associated with SME leverage. In the subsequent year, Haung and song (2006) recorded that leverage is negatively associated with performance (EBIT to Total assets) by using data for Chinese firms. Likewise, a study by Zertun and Tian (2007) used a sample of panel data representing 167 companies in Jordan from 1989 to 2003 to examine the effect of capital structure on firm performance. This study has shown that a company's capital structure is negatively associated with the performance of a company in significant way in both financial and economic indicators.

After the global financial crises in 2008, firms started to be more cautious in every single transition they take. So as one of the consequences, studies have been increased rapidly to indicate the relevance of capital structure with corporation's performance. For instance, Lima (2009) shows that the size, value of assets and bankruptcy costs impact on the capital structure of pharmaceutical companies in Bangladesh.

Another remarkable consequence is that, like what he said, the size of the firm is linked significantly in a positive way with firms' access to market funds, therefore, large corporations have a low probability of default and high debt levels. Moreover, George & Hwang (2009) indicated that stock-revenue is negatively associated with leverage. They illustrated this negative association due to the different types of risk types than leverage risks and that high returns on low leverage companies which can be a compensated for those risks. Chakraborty (2010) used two performance measures, the first measure was EBIT and before depreciation to total assets and the second one was cash flow to total assets. The two leverage measures were a ratio of total borrowing to assets and ratio of liability and equity and at the end, they reported a negative relationship between these measures. Moreover, Sheikh&Wang (2011)

made an investigation which was conducted using panel data procedures for 160 companies listed on the Karachi Stock Exchange in 2003-2007. The results suggest that profitability, liquidity and profit volatility are negatively associated with leverage. In another study, Manawaduge et. al (2011) investigated leverage's impact on the profitability of Sri Lankan companies. Analysis of panel data from 155 companies during 2002-2008 showed that leverage's impact on corporate profitability is negative.

In a comparison between the western economies and the economies in the developing countries, Pathak Rajesh (2011) found that debt levels do not match the results of many studies on the Western economy, but there is a significant negative association with firm performance consistent with the findings of Asian countries. One of the significant reasons for this inconsistent result is that higher debt charges can be incurred in developing countries such as India compared to Western countries.

In the same year, Pratheepkanth (2011) attempted to determine the effect of the capital structure on company's profitability, with taking into consideration the level of the company's financial performance. The impact of the financial structure of companies in Sri Lanka on capital structure and financial performance from 2005 to 2009 was analyzed. The results showed that financial performance is associated significantly in a negative way with capital structure. Moreover, Chen and Chen (2011) examined whether leverage is an arbitration variable for profitability and firm performance. Based on data from 647 publicly traded companies in Taiwan from 2005 to 2009, they documented that the regression coefficient of profitability on leverage is negative. In addition, Memon et. al (2012) investigated the impact of capital composition decisions on the productiveness of the corporations in Pakistan,

the researchers analyzed the performance of the Pakistani firms using ROA as a single performance indicator. They recorded that total debt to total assets is significantly associated in a negative way with ROA after testing 141 textile firms in Pakistan. They considered a leverage ratio (debt to the total asset) as the measurement of capital and return on assets as the measurement of firm's profitability. Moreover, Muritala and Adewale (2012) used leverage in the capital structure to examine the impact on companies' performance in Nigeria. They collected data for 10 companies during 2006-2010 and observed the negative impact of debt on total assets to ROA by applying a panel least-squares approach. Within a different research, data from seventy six companies during the period of 2001 till 2006, Soumadi and Hayajneh (2012) used the least squares method (OLS) as a technique for analyzing the effects of capital market structure on firm's performance. The results of the research conclude that there is a negative relationship between capital structure and the firm's performance of the companies in the study sample. As one measure is insufficient to assess the company's performance, Salim and Yadav (2012) used earning per share, return on assets and return on investment as profitability assessment. Data of 237 corporations in Malaysia during the period of 1995–2011 was employed to be examined and recorded a considerable inverse effect of total debt to total assets, and long-term debt to total assets and short-term debt to total assets on earning per share, return on assets, return on equity and Tobin's Q.

Moreover, Pouraghajan and Malekian (2012) examined the impact of capital structure on the financial performance of listed companies on the Tehran Stock Exchange. For this purpose, they studied and tested samples from 400 listed companies in the Tehran stock exchange in the form of 12 industry groups from 2006 to 2010. In this study, they used Return on Asset Ratio (ROA) and Return on Equity

(ROE) variables to measure a firm's financial performance. The results suggest that there is a significant negative relationship between debt ratio and financial performance. Likewise, AL-Taani and Khalaf (2013) used a sample of Jordanian manufacturing companies in Jordan to examine the relationship between capital structure and firm performance across industries. The annual financial statements of 45 manufacturers listed on the Amman Stock Exchange were used in this study for five years from 2005 to 2009. The results show that there is a negative and insignificant relationship between short-term debt to total assets and long-term debt to total assets, and ROA and profit margin. Also, Iavorskyi (2013) used a sample of 16,500 Ukrainian companies between 2001 and 2010 to investigate this relationship, and he found that the relationship between leverage and firm performance is actually negative. By the same token, Adami et. al (2013) explored stocks listed on the London Stock Exchange for any relationship between capital structure and stock performance during 1980 and 2008. Their empirical results showed that debt financing has a negative impact on stock returns. The result explains that investors prefer to invest in a financially flexible company and therefore generate higher returns when investing in leaner firms than high leverage firms.

Furthermore, Ali (2014) investigated the impact of financial leverage on the performance of non-financial chip firms listed in the NSE 20 index focused on the period from 2008 – 2013. The results show that there is a significant negative relationship between leverage and ROA. Also, Abdel-Jalil (2014), by using multiple regression models, he has indicated a certain adverse effects of leverage ratios and the impact of leverage ratios on return on investment activities. Moreover, Mwaura and Mbugua (2014) investigated in a study to evaluate the correlation of the capital structure and profitability of companies registered in the Stock market in Nairobi.

The target population was comprised of three investment companies listed in the Investment Section of the Market segment of the Nairobi Stock Exchange (NSE) in June 2014. Data for all variables in the study provide financial statements of investment companies listed on the NSE from 2010 to 2013 when the quarterly report was used. From the results of the correlation analysis, this study showed a strong relationship between capital structure and financial performance. This study concludes that total debt negatively impacts the financial performance of companies listed on the NSE.

Some studies investigated the relationship between capital structure and performance in the banking sector, like Hasan et al. (2014) examined the impact of capital structure choices on the performance of Bangladesh companies during 2007-2012, including the performance of the banking sector. The researchers used earning per share, return on equity and return on assets as performance indicators and applied pooled OLS to observe negative impacts.

In another study, Acheampong and Shibu (2014) investigated the effects of financial leverage and the size of the market on selected stocks returns. They used OLS as their model to identify the relationship between the dependent and the independent variables. By using data of five firms during the period 2006-2010, they documented that there is a significant negative relationship between financial leverage and stock performance and a positive relationship between the size of the firm and stock performance. In addition, Dumont and Svensson (2014) examined the development of capital structure and firm performance in Swedish companies over the past decade. In large-scale quantitative cross-sectional study involving 300 Swedish companies and eight years of financial statement data, Relationships were tested with

multiple regression models, and financial data development was tracked and compared for eight years. They documented a negative relationship between debts to equity and return on equity for Swedish firms for the period of 2005-2012. For the same purpose, Ramadan and Ramadan (2015) analyzed data from 2008 to 2012 to investigate the impact of capital structure variables, total debt to total assets, long total debt to total assets and short total debt to total assets on Jordanian firms' performance. They used data from 72 companies during 2005-2013 and documented an adverse impact of capital structure on return on assets through applying merged OLS. Also, Yazdanfar & Öhman (2015) examined the relationship between debt levels and performance among SMEs. This study uses a three-stage least squares (3SLS) and fixed effect model to analyze comprehensive, cross-sectoral samples of 15,897 Swedish SMEs operating in five industry sectors during 2009-2012. This study confirms that debt ratios negatively impact corporate performance in terms of profitability. Furthermore, Hossain and Hossain (2015) examined the determinants of capital composition in Bangladesh. They employed data of 74 corporations from 2002 to 2011 were used. An adverse correlation among most variables indicated after applying a panel corrected standard regression model. Also Rouf and Abdur (2015) examined the impact of capital structure on the performance of non-financial companies, where the performance, measured by ROA and ROS, taking into consideration data from 2008-2011 for 106 manufacturing companies. And it was a significant negative impact.

In another study, Meero (2015) investigated the relationship between capital structure variables and performance of Islamic and commercial banks in Gulf countries (GC). The investigation was conducted on a sample of 16 GC banks (8 Islamic banks and 8 Conventional banks) during 2005-2014. Research shows that

ROA as a measure of performance has a significant negative relationship with financial leverage.

There are some recent studies which investigated likewise but in a different sector, Habib et. al (2016) examine the relationship between debt and profitability of firms with empirical evidence in the non-financial sector of Pakistan. They used 10-year panel data from 2003 to 2012. The results show a significant negative relationship between short-term debt, long-term debt, total debt and return on assets. Moreover, Revathy et. al (2016) examines the impact of capital structure on the profitability of Indian manufacturing companies. This study demonstrated that there is a strong one-to-one negative relationship between capital structure variables and profitability variables. This means that capital structure variables have a significant impact on profitability. The use of debt funds in capital structure variables tends to minimize the profitability of manufacturing companies. In addition, Kamara et. al (2016) they theoretically and empirically show that the negative relationship between profitability and leverage is consistent with the trade-off theory. Furthermore, Sher et. al (2016) examined 19 companies from Karachi stock exchange, to find out the impact of the capital structure (debt to equity ratio) on profitability during the period of 2012-2016. The Study has shown that capital structure (debt/equity) is negatively associated with profitability, which means that an increase in debt capital will reduce the profitability of the company and vice versa.

Also, in the banking sector, Siddik et. al (2017) used panel data from 22 banks during 2005-2014 to empirically investigate the impact of capital structure on the performance of Bangladesh banks rated as capital return, asset return and EPS. The consequences of the least squares method show that capital structure has an adverse

influence on bank performance. Liaqat et. al (2017) examine the impact of the capital structure on the financial performance of Pakistan's fuel and energy sector, taking into consideration the secondary data for 2006-2014. Empirical results show that the capital structure is adversely correlated to the ROA and ROE of Pakistan's fuel and energy sectors. Also, Kana and Michel (2017) showed in their study about determinates of profitability that the non-significant variables (equity capital, loan, saving deposit, fixe term deposit) have a negative impact on bank profitability.

In real estate sector, Khoiro and Handayan (2017) investigated at property and real estate sector listed in Indonesia Stock Exchange (IDX) during the periods of 2009-2012. Data was collected from 36 annual financial statements using intentional sampling. As a result, capital structure has a negative impact on profitability. Also, Olubukol-a (2017) emphasized what Khalid et al. (2013) documented that there is a negative relationship between capital structure variable (debt to equity ratio) and profitability. In addition, Muriu et. al (2017) used annual data of agricultural firms for the period 2010-2015 to detect the determinants of capital structure of these firms. Estimation results provide evidence that a firms' profitability, liquidity, age and size are important determinants of its capital structure. In particular, the results indicate a negative relationship between profitability and long-term debt and a positive relationship between the company's age and long-term debt.

On the other hand, some empirical studies showed by their findings that capital structure and stock performance are positively correlated. For example, Roden and Lewellen (1995) inspected 48 US companies capital structure during 1981-1990 and found that profitability is positively correlated to capital structure. Moreover, some studies documented that company's performance is positively associated with capital

structure like (Gosh et al. 2000; Hardlock and James, 002; Frank and Goyal, 2003; Berger and di Patti, 2006). In addition, (Abor, 2005) tried to examine if capital structure has an effect impact on the performance of corporations in the Ghana Stock market and found that short total debt to total assets and total debt to total assets were associated positively with ROE. The authors also observed that long total debt to total assets was negatively associated ROE. Also in the banking sector, Pratomo and Ismail (2006) examined the influence of Malaysian banks' capital structure on bank performance; their findings showed that high leverage is related to the bank's high profitability which is a positive relationship. Moreover, Shlash et. al (2006) studied Jordan Public Corporation, which was registered in the Amman Stock Exchange at the time (1997-2001). This study indicated that capital structure has a significant positive association with corporation's performance.

Also after the big financial crisis in 2008, a lot of studies stated that debt is positively correlated with firm profitability. For example, Zhuang et. al (2009) studied IT companies listed on the Shanghai Stock Exchange and indicated that capital structure is positively associated with firm profitability. Also, Arbabiyan and Safari (2009), by using data from 100 companies from 2001 to 2007, reported that short total debt to total assets and total debt to total assets showed a significant positive correlation with ROE. However, the authors observed that long total debt to total assets is correlated to ROE in an adverse way. The study's disadvantage is that it uses only ROE, for mensuration performance. In addition, Chowdhury and Chowdhury (2010) examined impact of capital structure on the aim of maximizing value of the company. They viewed the data of 77 non-financial companies excluding the financial sector as 1994-2003 and observed the positive effect. Furthermore, Nimalathan and Valeriu

(2010) tested the influence of Sri Lanka's capital structure on performance and the findings indicated that debt ratio is positively associated with profitability.

Back to the banking sector, Esiemogie and Adeleke (2009) examined the impact of the capital structure on the profitability of listed Nigerian banks and compared the data of banks listed on the Nigerian Stock Exchange (NSE) from 2008 to 2012 for five years. The findings of this study show that capital structure has a significant positive impact on the profitability of Nigerian banks.

By the same token, San and Hang (2011) also confirmed that capital structure is positively correlated to the financial profitability in the construction sector of Malaysia. Moreover, In China's power industry, Junhua (2011) documented that Capital structure and firm performance are positively correlated. Also Gill et al. (2011) distinguished between short-term and long-term debt to investigate the relationship between return on equity and capital structure. Their findings show that there is a positive relationship between debt ratio and return on capital. This consequence is stratified with the study results of Abu-Rub (2012) about registered corporations in Palestinian Security exchange. The study was conducted between 2006 and 2010, using panel data procedures, for 28 companies registered in the stock market of Palestine (PSE). The results show that the company's capital structure has a positive impact on the performance of the company. Likewise, Mehboob et. al (2012) examined the influence of capital structure (i.e. short-term, long-term and total debts) on the performance of corporations in the textile industry of Pakistan while controlling the size of the company. A total of 17 companies were selected randomly for the study. The results show that Although short-term debt has a positive and significant effect on the performance of the company, long-term debt

has no influence on performance This positive relationship has been confirmed through research by Ali et. al (2012) who investigated the effect of the capital on the performance of the Pakistani petroleum sector and control the size of the company, A total of 12 companies were randomly selected for this study and collected data for 10 years from 2001 to 2010. The results show that the capital structure has a significant and positive impact on the profitability of the petroleum sector.

In the banking sector, Nikoo (2015), by using data from 17 banks during 2009-2014, stated that capital structure of these banks impacts on their performances in a significantly positive way. Moreover, Riaz and Qasim (2016) examined the capital structure and growth to profitability and its impact on the value of firm on Islamic microfinance institutions in Pakistan. Multiple regression analysis shows that capital structure has an effective positive relationship with profitability.

Although most of the studies indicated that capital structure and firm's performance are correlated, there were some studies which couldn't find any relationship whether negative or positive. For example, Al-Taani (2013) investigated the linkage among Jordanian capital structure choice and profitability. Applying the 2005-2009 data, no statistically significant correlation was found among return on assets and leverage ratio. In addition, Ebaid (2009) examined the impact of capital structure decisions on corporate performance. By employing data from 64 companies registered in the capital market of Egypt during 1997-2005, they performed multiple regression analyses and observed that there was no effect or just a weak impact.

Chapter 3

INTRODUCTION OF THE FIRMS

3.1 American Telephone & Telegraph (AT&T):

AT&T Inc. is a holding company. The firm introduces many services to the audience in United States, Mexico and Latin America such as digital entertainment services and telecommunications worldwide. The beginning of AT&T was when Abraham bell invented the telephone in the United States. After that, the Bell System Corporation, which was a 19th-century US phone monopoly, turned into a subsidiary for AT&T Company. All the telephone services by that time were provided by the Bell System Company. After that, the Bell System was separated in the beginning of 1980s to eight corporations by the American department of justice, The history of AT&T (2013)

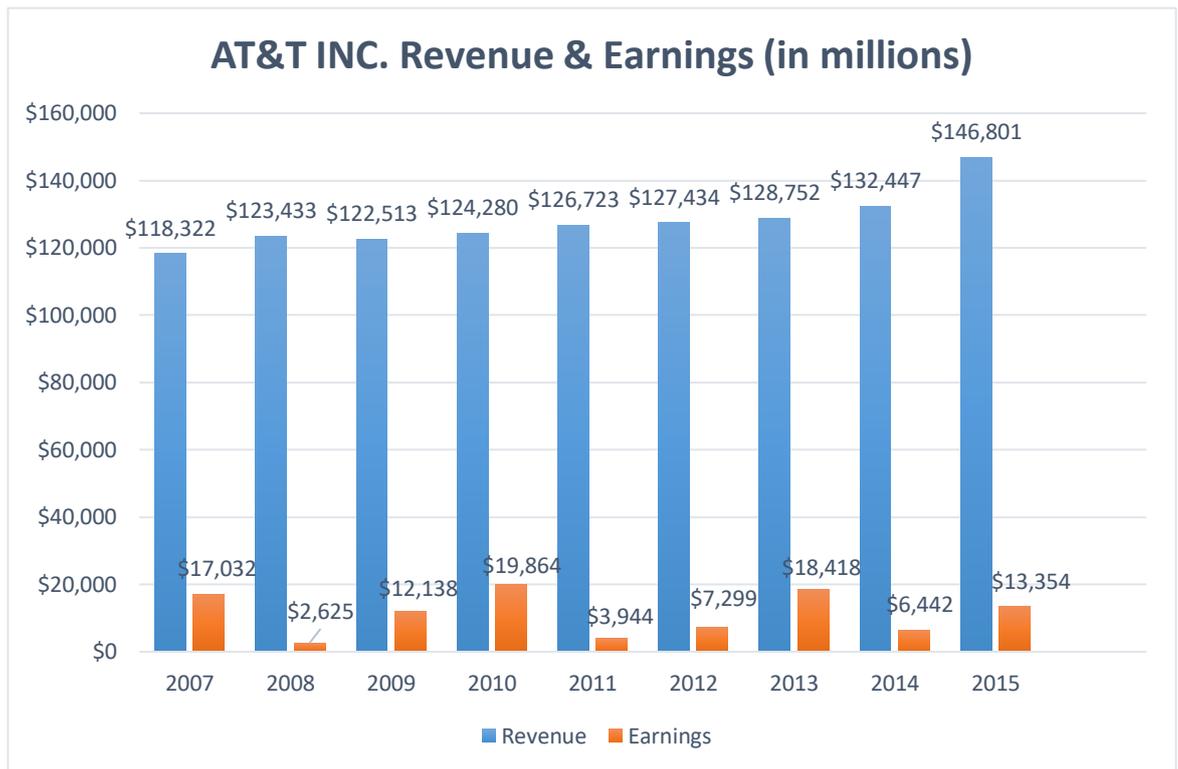


Figure 3.1. 1: AT&T Revenue & Earnings (2007-2015)
 Data retrieved from: <http://www.nasdaq.com/symbol/t/historical>

American Telephone & Telegraph Company has outperformed its competitors due to the integration of its services and its equipment. These days, AT&T is considered as one of the biggest companies which serve telecommunication services globally. Services and products provided by the company depends on the market. AT & T began its public offering at a price of \$ 1.32 on July 19, 1984, and began paying dividends the same year on September 24.



Figure 3.1.2: the stock price of AT&T (2007-2016)

Data retrieved from: <http://www.nasdaq.com/symbol/t/historical>

3.2 Oracle:

Larry Ellison, Bob Miner and Ed Oates initiated the Software Development Labs (SDL) in 1977 and have recently become Oracle. After couple of years, they released the initial effective Oracle database system and renamed the corporation to RSI (Relational Software Inc.). Finally, in 1985, they changed their company's name to Oracle. The initial public offering of Oracle occurred in the first quarter of the year of 1986 and the payout of dividends started by 2009. Oracle earliest loss was in 1990 and it caused to lay off hundreds of workers. In the following years, Oracle Database software improved and showed itself as the first software to pass the industry's nine security valuation. The company is committed to enhancing the technology level and providing quality data at its best level. As a result of in reducing the cost of evaluation, companies with high-quality information can make better decisions. Oracle started to produce several efficient brands. The hardware business consists of

two parts, which include hardware products and hardware support. The services business includes activities such as consulting services, enhanced support services, and training services.

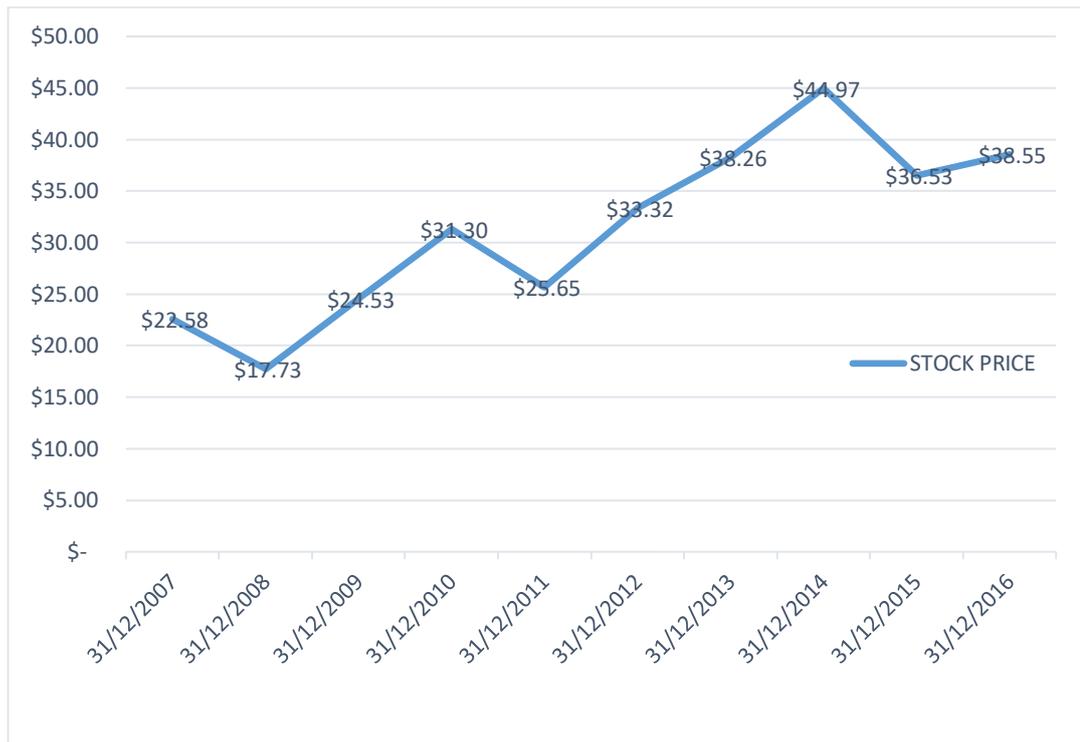


Figure 3.2. 1: the stock price of Oracle (2007-2016)
Data retrieved from: <http://www.nasdaq.com/symbol/orcl/historical>

3.3 SAP SE:

SAP SE is a multinational software company. The company develops business software including e-business and enterprise management software, organizes application software, and provides consulting services. SAP sells products and services around the world. In 1976, SAP GmbH was founded and its headquarters was Walldorf, Germany. Three years later, in 1979, SAP launched SAP R / 2 to extend the functionality of the system to other areas, such as material management and production planning. There is a long history of association among Oracle

company and SAP AG by conjunction SAP's R / 3 enterprise application suite with Oracle's relational database products. Although the current SAP partnership with Microsoft and the integration of SAP products with MS softwares is increasing, Oracle and SAP are working together. Oracle Company declared that most of SAP consumers are subscribers in Oracle database. In 2005, The Company's software licensing revenue was 18% and it recorded particularly high rates of growth in the Americas. The company got affected a lot due to the financial crisis in 2008, according to the data of "Thomason Reuters, the growth rate of the firm for 2009 was -1% which means there was a decrease in the total assets since it was in 2008 \$ 19.429B then it became in 2009 19.146B with a loss of \$283m. In May 2010, SAP announced plans to acquire a "California company, Sybase" for approximately \$ 5.8 billion. Sybase is the largest business software and services provider specializing in information management and mobile data usage. And its active in New York stock exchange market.



Figure 3.3. 1: SAP SE Inc. Stock Price (2007-2016)
 Data retrieved from: <http://www.nasdaq.com/symbol/sap/historical>

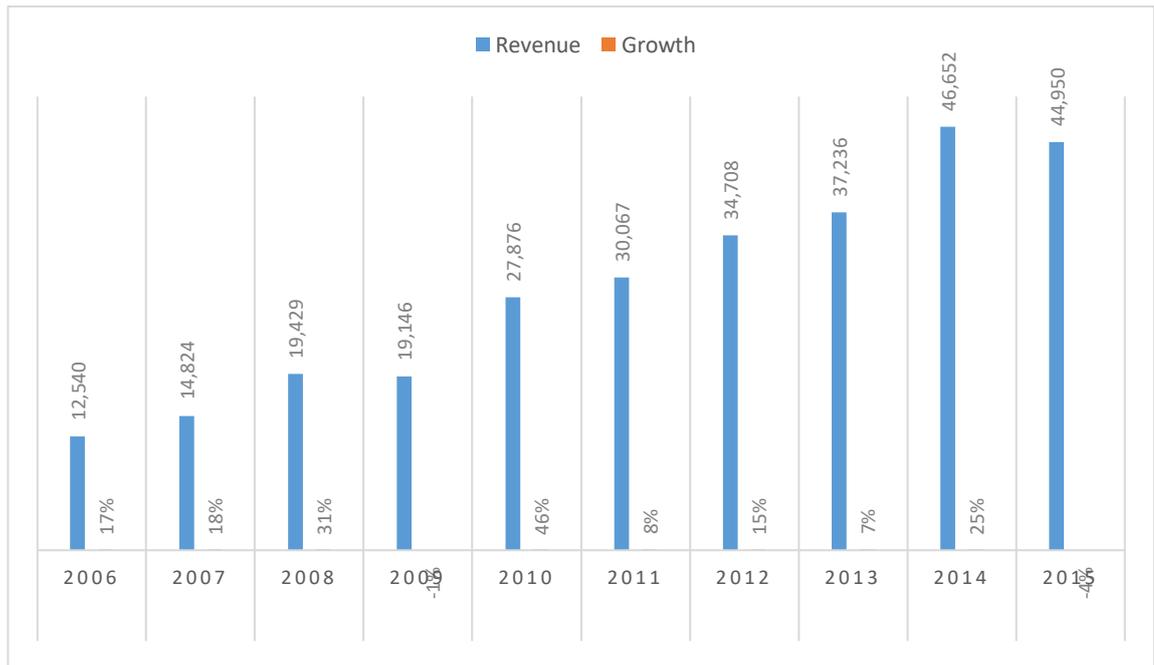


Figure 3.3. 2 SAP SE Revenue and Growth in millions (2006-2015)
 Data retrieved from: <http://www.nasdaq.com/symbol/sap/historical>

3.4 Adobe:

Adobe Systems Incorporated is a software company founded on May 9, 1997. It is an American multinational company. The company is headquartered in San Jose, CA, USA. It provides a line of products and services that enable professionals, marketers, knowledge workers, application developers, enterprises and consumers to create, manage, deliver, measure, optimizes and leverage powerful content and experience across multiple operating systems, devices and media. The company operates in three categories: digital media, digital marketing and printing and publishing. Through salespeople and application stores, the company sells products and services directly to end users and provides licenses to enterprise customers.

Adobe Systems joined NASDAQ in August 1986. Its revenue has increased from about \$ 1 billion in 1999 to about \$ 4 billion in 2012. Adobe's fiscal year is between

December and November. For example, fiscal 2007 ended on November 30, 2007. Adobe's revenue was \$ 3.6 billion in 2008, down 18% to \$ 2.9 billion in 2009. The total market value of a company in these days is \$72.26 and it has 493.1 million shares. The company didn't get affected in the financial crisis in 2008 since the growth rate of the firm in 2009 was 25.1% with firm size of \$7.28B.

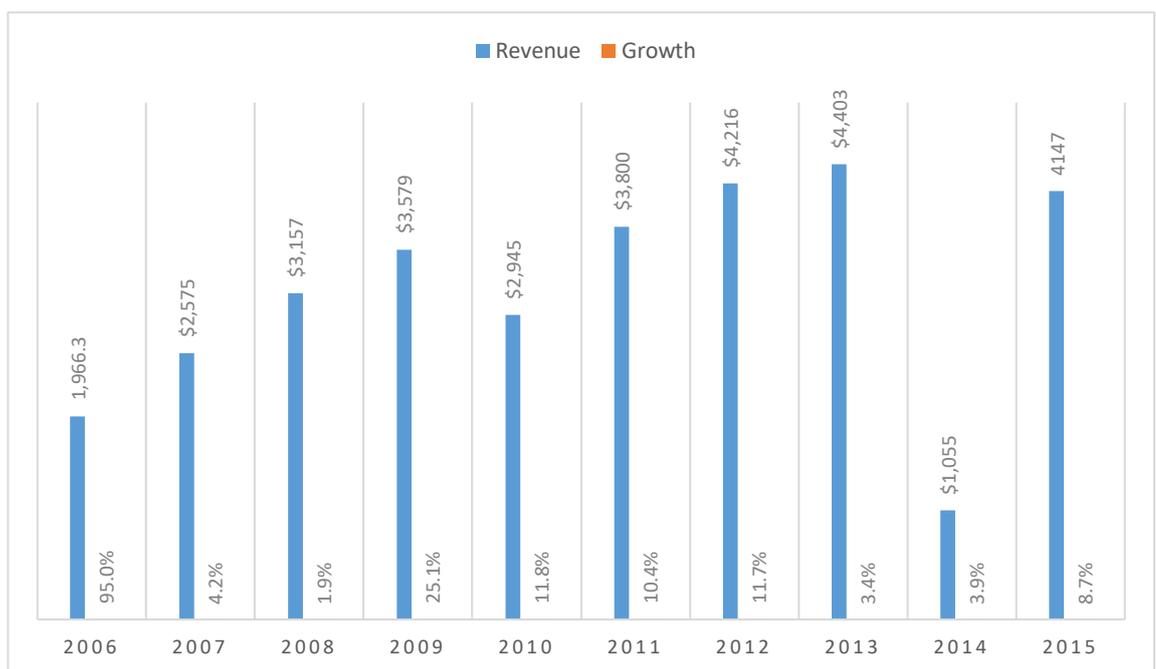


Figure 3.4. 1 Adobe Revenue and Growth (2006-2015)
 Data retrieved from: <http://www.nasdaq.com/symbol/adbe/historical>



Figure 3.4. 2: Adobe Inc. Stock Price (2007-2016)
 Data retrieved from: <http://www.nasdaq.com/symbol/adbe/historical>

3.5 Cisco system:

Cisco Systems, Inc. (Known as Cisco) is an American multinational corporation which it's specialized in technology and its head office in San Jose, California.

Silicon Valley, Cisco incorporated on December 10, 1984, by Leonard

Bosack and Sandy Lerner, two Stanford University computer scientists. The

company offers an integrated solution that designs, sells, and services a variety of products, and develops and connects networks around the world. During the 1990

NASDAQ listing, the market value of Cisco was estimated by \$242m. By 2000,

Cisco considered as the world's richest corporation with a market value of more than

\$ 5000 million. In July 2014, financial reports indicated that Cisco was still one of

the most valuable companies with market capitalization of \$129B.

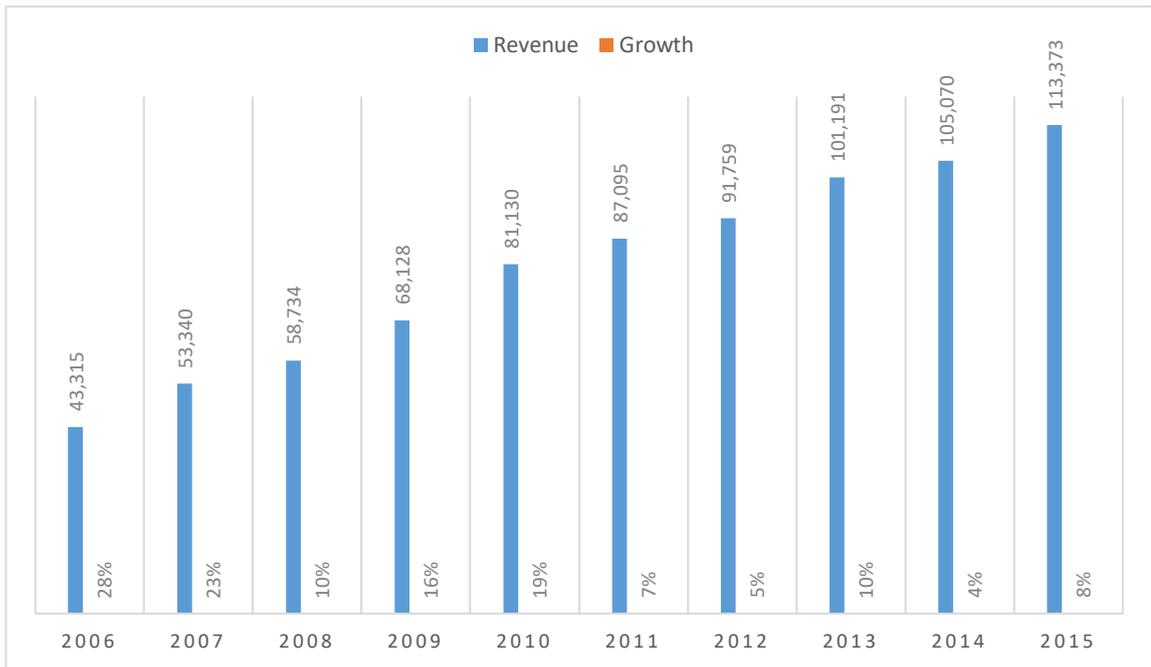


Figure 3.5. 1: Cisco Revenue (in millions) and Growth during (2006-2015)

Data retrieved from: <http://www.nasdaq.com/symbol/CSCO/historical>

Chapter 4

DATA AND RESEARCH METHODOLOGY

This part introduces the employed data which was analyzed to investigate the study topic. Then, the study methodology used to assess the reliability of the introduced model and briefly explicated.

4.1 Data

A sample of companies active in the technology industry from United States exchange markets (NASDAQ stock market and NYSE stock market) is selected to examine the correlation between the financial capital structure and profitability of the firms. The sample includes five firms from 2006 to 2015, and the data is collected from Thomson Reuters' software DataStream. An overview of the firms is given in Table 1. E-views program is used for analysis that provides solutions for econometric analysis. Moreover, it applies panel data is applied for many reasons like improving observations number in the analyzing model and also provides a framework to alleviate some degree of collinearity.

Table 4. 1: overview of the selected firms

firm name	firm headquarter	Sub-industry	Trade quote: Exchange
Adobe	San Jose, California , United States	computer software	NASDAQ: ADBE
Oracle	Redwood Shores, California, United States	Computer technology	NYSE: ORCL
SAP SE	Walldorf, Germany	Software	NYSE: SAP
Cisco System	San Jose, California, United States	networking equipment	NASDAQ: CSCO
AT&T	downtown Dallas, Texas, United States	telecommunications	NYSE: T

The first step of this statistical analysis is listing the dependent variables and the independent variables of this analysis, afterward, defining the variables to be tested in the study one by one based on some previous literature reviews.

4.2 Variables:

4.2.1 The Dependent Variables:

Return on Assets (ROA):

As Lin et. al (2005) mentioned, return on assets is a convenient measurement instrument for measuring the performance of a company. Also, it's a common metric used to compare the performance of a firm because most of the assets are recorded in financial statements with values close to the actual market value. Moreover, it shows how effectively a company's assets are utilized to get income. ROA can be estimated by dividing net profit on total assets.

Return on Equity (ROE):

Return on equity is one more metric to measure the profitability of a corporation and it's considered as an indicator of the firm's performance, it shows the efficiency of generating income by contributing money of the shareholders. Or it could be defined as the earning of the investors after deduction all debt costs have been inserted into the equity invested in the assets (Damodaran, 2007). ROE can be measured by dividing net income on equity of the firm.

4.2.2 The Independent Variables:

Growth opportunities of firm:

Growth opportunities can have a positive or negative impact on a company's performance. It could be as an Agent's motivation which can improve productiveness and effectiveness. On the other hand, other explications of growth may weaken inspiration and weaken effectiveness of the production. (Delmar et. Al, 2003). Thus, this factor should be expounded for stating its impact on the

performance. Thereby, growth opportunities are defined as changes in total assets over the previous year.

Long Term Debt to Capital:

Capital structure theory discusses the impact of leverage on a firm's financial performance. Leverage is therefore very important in the framework of firm performance analysis. As external funding source is related to financial difficulties and bankruptcy costs, the first funding source for a company is internal financing, aforementioned by the pecking order theory (Myers and Majluf, 1984). Also, a lot of researches indicated that leverage has a big contribution in the performance of firms. For example, Campello (2006) debates that there is a relationship between leverage and firms' performance whether it is a positive impact or negative one. As many professionals and professors asserted that leverage is very important factor in the process of stating the determinants of profitability. Thus, we can adopt leverage ratio as a dependent variable to be analyzed. Long term debt to capital is one of the leverage ratios which can be measured as ratio of long term debt to the available capital of the company, by using this ratio, investors can determine the amount of leverage utilized by a particular firm and analyze the risk exposure of the firm to other firms.

Tangibility of assets:

One more factor used to assess financial performance that is generally referred is the tangibility of the asset. Bigger et. al (2007) indicated that assets' tangibility is associated positively with leverage, in other words, if a company has a high portion of tangible assets then there will using debt financing will be more than using equity

financing. In addition, the company's assets structure is considered to be a significant impact on the leverage ratio (Frank and Goyal, 2007).

Taxation Benefits:

Tax benefits may have an impact on corporate performance by providing a tax shield in order to improve the profitability of the company. Birger et. al (2007) indicated that the tax benefits provided by depreciation allowances and tax credits have a significant impact on the performance of firms and financial structures. Therefore, tax benefit could be considered as independent variable calculated by the ratio of depreciation to total assets.

Firm Size:

In the literature, many have asserted that firm size is a significant factor in the process in assessment the performance of company (Winter, 1994; Gschwandtner, 2005). Therefore, it will be considered as an independent variable to investigate its effect on firm's performance. Firm size is measured by stating the natural log of sales revenue.

Table 4. 2: dependent and independent variables formulas.

Variable	formula
ROA	$\frac{\text{Net Income}}{\text{Total Assets}}$
ROE	$\frac{\text{Net Income}}{\text{Equity}}$
Growth opportunities of firm:	$\frac{\text{Total Assets } t - \text{Total Assets } t - 1}{\text{Total Assets } t - 1}$
Leverage Ratio	$\frac{\text{Long Term Debt}}{\text{Total Capital}}$
Tangibility of Assets	$\frac{\text{Fixed Assets}}{\text{Total Assets}}$
Taxation Benefits	$\frac{\text{Depreciati on}}{\text{Total Assets}}$
Firm Size	Natural Log of Sales

4.3 Panel Data Regression Analysis:

Testing data can be performed with a variety of approaches: time series analysis which it performs a series of observations of the same unit over a period of time, cross section analysis which it analyzes the data for a specific time, the difference between units is considered and panel data analysis and the third approach is panel data that combines time series analysis and cross-sectional analysis. Several techniques are used for examining the data, fixed and random effects techniques are considered as the most prevalent of these techniques. The major variance among them is in the function of dummy variables. Bear in mind that dummies are considered as part of the intercept in fixed-effect, while a random-effect deems dummies as error terms.

4.4 Proposed Model of Study:

The study variables are already identified in the previous part. In this part, proxy variables are linked into functions for indicating the potential correlations between them. Thereby, dependent variables and independent variables appear in the following function form:

$$\text{Performance} = f(\text{leverage ratio, growth, tangibility of assets, firm size, tax benefit})$$

Afterward, this function must be imported into equations for regression analysis. The functional relationship between Return on Assets (ROA) and Return on Equity (ROE), which represent the dependent variables, and Growth opportunities of a firm (Growth), Leverage ratio (LTDC), tangibility of assets (Tangibility), firm size (Size) and taxation benefit (Tax), which are the independent variables, Therefore, the equations of the function can be expressed accordingly to:

$$\text{ROA} = \beta_0 + \beta_1(\text{LTDC}_{j,t}) + \beta_2(\text{Growth}_{j,t}) + \beta_3(\text{Tangibility}_{j,t}) + \beta_4(\text{Size}_{j,t}) + \beta_5(\text{Tax}) + \varepsilon_t$$

$$\text{ROE} = \beta_0 + \beta_1(\text{LTDC}_{j,t}) + \beta_2(\text{Growth}_{j,t}) + \beta_3(\text{Tangibility}_{j,t}) + \beta_4(\text{Size}_{j,t}) + \beta_5(\text{Tax}) + \varepsilon_t$$

4.4.1 Panel Unit Root Tests:

A unit root test should be performed prior to performing a regression analysis to ensure the same integration sequence of the variables. Or else, the regression would be a dummy (Gujarati, 2003). Unit root test is used to evaluate stationary or non-stationary data, which means that the mean, variance, and covariance of a variable do not change or change over time.

Levin and Lin (1993) proposed that the panel unit root test would improve test capability in contrast of the time series unit root test. Their technique depends on a similar approach as the time series ADF unit root test, and the null hypothesis is that there is a unit root.

There are various panel unit root tests, for instance: (Fisher test, 1932; and Im-Pesaran-Shin or IPS, 1997).

Chapter 5

EMPIRICAL RESULTS

Introduction

This part shows the results obtained from analyzing the data samples. On this matter, the variables of the proposed study model are analyzed by various statistical tests, and correlation and regression analysis will be used to explain the relationship between dependent and independent variables. Later, the results of this analysis are discussed according to the purpose of the study so this section begins with the correlation analysis in order to have an overall view of the degree and heading of potential correlations between these variables. Unit roots are then tested to ensure that the variables are in the same integration arrangement. Finally, regression test is performed for assessing the correlation among all variables in the method.

5.1 Correlation Analysis

Correlation analysis is being done to check the degree and tendency of the relationships among model variables. Furthermore, the table below shows that some variables have negative correlations and other have positive correlations.

According to the correlation table below, it can be noticed that LNFSIZE (size of firm) is associated negatively with LNROE (Return on Equity) and LNROA (Return on Assets) by -0.063,-0.356, respectively, so we can conclude that higher size of a firm doesn't mean a higher profitability. In the same way, LNLTDC (long term debt to capital) which represents leverage rate is negatively correlated to LNROE (return on

equity) and LNROA (return on assets) by -0.233 and -0.353, respectively. Which means that if leverage ratio increase by 1 then ROE will decrease by 0.233 and ROA will decrease by 0.353.

On the other hand, LNGROWTH (growth opportunities of a firm) has a positive significant correlation with ROE and ROA by 0.317 and 0.271 respectively. This result means that growth has an impact on ROE and ROA which is logical because an increase of the growth opportunities of a firm means an increase in the total assets of the firm, which will lead to new opportunities to generate revenue. Moreover, growth can be an impulse for the employees of the firm to work harder and more efficient, which will cause a higher profitability. Likewise, LNTAN (tangibility of assets) is a positively correlated to ROE and ROA by 0.51 and 0.72, respectively, but at the same time, its negatively correlated to the leverage ratio which implies a company with a high portion of tangible assets won't depend on debt financing.

Finally, LNTAX (tax benefit) has a positive correlation with LNROE (return on equity) by 0.062 which stated as the lowest degree in this correlation analysis, but on the other hand, LNTAX has a negative impact on LNROA (return on Assets) by 0.08, which it can be considered as one of the lowest correlations between the variables.

Table 5. 1: Correlation Analysis

	LNROE	LNROA	LNGROWTH	LNSIZE	LNLTDC	LNTAN	LNTAX
LNROE	1						
LNROA	0.930513	1					
LNGROWTH	0.317413	0.271693	1				
LNSIZE	-0.063268	-0.356421	-0.248422	1			
LNLTDC	-0.233337	-0.353107	-0.163801	0.450878	1		
LNTAN	0.514743	0.727151	0.333131	-0.582603	-0.227954	1	
LNTAX	0.062789	-0.089824	-0.222578	0.298606	0.204842	-0.372205	1

Note: LNROE: the logarithm of ROE, LNROA: the logarithm of ROA, LNSIZE: the logarithm of size,

LNLTDC: the logarithm of long term debt to capital, LNGROWTH: the logarithm of growth, LNTAN: the

logarithm of tangibility of assets and LNTAX: the logarithm of Tax Benefit.

5.2 Panel unit root test

According to Gujarati (2003) and as it mentioned in the previous chapter, the variables should be tested in order to check integration between them, because the results will be a dummy if there is no integration.

For this purpose, as Gujarati (2003) mentioned, number of tests can be done to investigate if the variables of our model are stationary or non-stationary. Analysts can use the VAR to correct the non-stationary variables in order to have the ability to analyze them to get correct outputs of regression analysis. For instance, the analysts use Levin and Lin (1993) which it proposes that the panel unit root test would improve test capability contrasted with the time series unit root test their technique depends on a similar approach to the time series ADF unit root test. Their null hypothesis is that every panel contains a unit root. There are various panel unit root tests, for example: Fisher test, (1932), and Im-Pesaran-Shin or IPS (1997) which have the same null hypothesis.

After testing all of the variables of the model, the checking according to the tests above shows that we can reject the null hypothesis. Therefore, we can accept the alternative hypothesis which says that all variables are stationary and available to be analyzed.

5.3 Regression Analysis:

E-views 7 will be used to perform regression analysis for the two models of the study. In the proposed study model, the relationship between independent variables and ROA will be analyzed.

$$ROA = \beta_0 + \beta_1(LTDC_{j,t}) + \beta_2(Growth_{j,t}) + \beta_3(Tangibility_{j,t}) + \beta_4(Size_{j,t}) + \beta_5(Tax) + \varepsilon_t$$

$$ROE = \beta_0 + \beta_1(LTDC_{j,t}) + \beta_2(Growth_{j,t}) + \beta_3(Tangibility_{j,t}) + \beta_4(Size_{j,t}) + \beta_5(Tax) + \varepsilon_t$$

There are three models for estimating longitudinal data regression, pooled OLS regression, panel model of fixed effects and panel model of random effects model. And these are the most widespread. The major significance of these models is their capability monitor what firms effect on the assessed parameters which may not be checked by ordinary least squares model.

Table 5. 2: Regression Results for the dependent variable : ROA

Independent Variables	OLS	FE	RE
C	-4.4130 * (-4.1947)	-5.5151 * (-4.6976)	-7.437* (-4.194)
LNGROWTH	0.41127 (0.01838)	0.5084 (0.01218)	0.9715 (0.01838)
LNSIZE	1.6565 (0.1106)	2.10535 ** (0.12661)	2.03140 ** (0.1106)
LNTAX	2.1897 ** (0.2566)	2.7986* (0.12438)	4.0951* (0.25660)
LNTAN	6.7083* (0.5607)	8.2614* (0.5531)	8.3175* (0.5607)
LNLTDC	-2.6765** (-0.1621)	-3.0160* (-0.1024)	-10.2163* (-0.1621)
R ²	0.642	0.706	0.64
F-statistics	13.325 *	4.803*	13.3257*
DW	1.88	1.93	1.88
Likelihood		0.667	
Hausman			0.00

According to panel model of fixed effects in the table above, the coefficients of leverage ratio β_1 (LTDC) , tangibility β_3 , SIZE β_4 , and tax β_5 are the significant variables which affect the dependent variable (ROA). Moreover, R^2 indicates that these variables can explain 70% of the change in ROA.

according to this regression model, we can conclude that tangibility, tax benefit are positively associated with ROA at 99% significant and size is positively associated with ROA at 95% significant, while leverage coefficient is negatively associated with ROA at 99% significant. And these results emphasize the trade-off theory which says that debt financing and profitability of a firm are in a negative association (Rasian & Kim, 2011).

In OLS model, the findings are different from the findings of panel model of fixed effects, the coefficients of the affecting variable are of leverage ratio β_1 (LTDC) ,tangibility β_3 ,and Tax β_5 with 0.64 as a value of R^2 . More accurately, according to OLS model, leverage ratio has a negative impact on ROA, while tangibility β_3 and taxation benefit have a positive impact on ROA.

Finally, for random effects model, the results show that the coefficients of leverage ratio β_1 (LTDC), tangibility β_3 , SIZE β_4 , and tax β_5 are the significant variables which affect the dependent variable (ROA). Moreover, R^2 indicates that these variables can explain 64% of the change in ROA. We can conclude that tangibility, tax benefit are positively associated with ROA at 99% significant and size is positively associated with ROA at 95% significant, while leverage coefficient is negatively associated with ROA at 99% significant.

For the second model of this study, which is ROE equation, the table below shows the variables which have an impact on ROE according to the three models of regression.

The first model is OLS, it shows that size of the firm and tangibility of assets have a significant positive impact on ROE at 99% and taxation benefit has a significant positive impact on ROE at 95%, while leverage ratio has a significant negative impact on ROE at 95%. Moreover, R² indicates that these variables can explain 52.3% of the change in ROE

The second model which is panel model of fixed effects shows that size of a firm, taxation benefit and tangibility of assets are positively correlated ROE at 99% significant, and growth opportunities of a firm has a significant positive impact at 95%, while leverage ratio has a significant negative association with ROE at 95%. In addition, R² indicates that these variables can explain 59.4% of the change in ROE

According to the third model which is panel model of random effects, the results indicate that the coefficients of leverage ratio β_1 (LTDC), β_2 growth, tangibility β_3 , size β_4 , and tax β_5 are the significant variables which affect the dependent variable (ROE). Moreover, R² indicated that these variables can explain 52.3% of the change in ROE. We can conclude that tangibility, tax benefit, size of firm and growth opportunities have a significant positive impact on ROE at 99%, while leverage coefficient has a significant negative impact on ROE at 99%.

Table 5. 3: Regression Results for the dependent variable: ROE

Independent Variables	OLS	Fixed Effects	Random Effects
C	-4.1842* (-4.1552)	-5.3277* (-4.628)	-6.007* (-4.1552)
LNGROWTH	1.6315 (0.07620)	2.1016** (0.0713)	4.35044* (0.0762)
LNSIZE	3.1596* (0.2204)	3.641* (0.2358)	3.39133* (0.22040)
LNTAX	2.5347** (0.3103)	4.3614* (0.1850)	5.00549* (0.31033)
LNTAN	5.2480* (0.45831)	6.2967* (0.4488)	6.3181* (0.4583)
LNLT	-2.3865** (-0.1510)	-3.8183* (-0.0944)	-10.7919* (-0.1510)
R ²	0.523	0.594	0.523
F-statistics	8.1361*	2.93347*	8.1361*
DW	1.85	1.85	1.856
Likelihood		0.550	
Hausman			0.00

Note: LNROE: the logarithm of ROE, LNSIZE: the logarithm of size, LNLTD: the logarithm of long term debt to capital, LNGROWTH: the logarithm of growth, LNTAN: the logarithm of tangibility of assets and LNTAX: the logarithm of Tax Benefit. *, **, *** indicate repudiation of the null hypothesis at 1%, 5%, and 10% levels. FE: fixed effects, RE: random effects

Chapter 6

Conclusion

6.1 Conclusion

Examining the capital structure and determining the factors which have an influence on the capital structure and profitability in selected technology corporations in US stock markets was the substantial purpose of the study.

For this purpose, DataStream software was used to collect the specific data of the five selected technology companies in the American stock exchange markets from 2006 to 2015. After analyzing the proposed models, the outputs of the analysis indicated that ROA has a negative association with leverage ratio while tangibility, tax benefit are positively associated with ROA. And the same for ROE, since leverage ratio has a negative influence on profitability and size, tangibility of assets and taxation benefit have a positive association with profitability. These results of study emphasize the pecking order theory which it says that firms tend toward internal financing and there is a negative association among performance and leverage ratios (Myers and Majluf, 1984). In addition, these results indicate the opposite of trade-off theory which says that leverage has a positive association with profitability (Brealey & Myers, 2003).

On the other hand, the study emphasizes the positive association between size of a firm and profitability which it was mentioned in previous studies like (Bauer, 2004). Moreover, the findings indicated that there is a positive correlation among tangibility

of assets and debt financing, in other words, if a corporation has a high portion of tangible assets then there will use debt financing more than using equity financing as it was concluded in Bigger et al, (2007).

Return on assets of these companies (ROA) appears to be influenced by the change in the corporation's size and tax reductions or assessment shield given by depreciation. This result is consistent with Brealey & Myers, (2003).

Finally, this study has an output which can be used to have an efficient and appropriate capital structure with a high performance level for the firms.

It should be mentioned that there were a lot of fluctuations in the performance of these companies especially in 2008 and later due to the global financial crisis.

6.2 Recommendations:

First, it can be notified that managers should be cautiously financing among debt and equity. Debt financing has several features, but it is related to negative indications such as lesser profitability and reduced net profit. As a result, it must take into consideration these issues while a firm is structuring its capital structure.

Second, technology firms can depend on internal funds to be used for increased revenue instead of utilizing debt financing. For this situation, the net profit will increase and profitability will be improved and it can be estimated as an improvement in the creditability of firm in the market.

REFERENCES

- A. Pouraghajan, E. Malekian, M. Emamgholipour, V. Lotfollahpour, M.M.Bagheri. (2012).
The Relationship between Capital Structure and Firm Performance Evaluation
Measures: Evidence from the Tehran Stock Exchange, *International Journal of
Business and Commerce*, 1 (9) pp. 166-181
- Abdel-Jalil, Towfiq. (2014). The impact of capital structure on the performance of the
Jordanian publicly-held industrial companies. *Jordan Journal of Business
Administration* 10: 390–403.
- Abdelrhman Ahmad Meero (2015). The Relationship between Capital Structure and
Performance in Gulf Countries Banks: A Comparative Study between Islamic Banks
and Conventional Banks, *International Journal of Economics and Finance*; Vol. 7,
No. 12.
- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed
firms in Ghana”, *The Journal of Risk Finance*, 6 (5).
- Abu-Rub, Nou.(2012). Capital structure and firm performance: Evidence from Palestine
stock exchange. *Journal of Money, Investment and Banking* 23: 109–17
- Adami, Roberta & Gough, Orla and Muradoglu, Yaz Gulnur and Sivaprasad, Sheeja, (2013).
How Does a Firm's Capital Structure Affect Stock Performance? *Frontiers in
Finance and Economics*, Vol. 12, No. 1,

- AL-Taani, Khalaf. (2013). The relationship between capital Structure and firm's performance: Evidence from Jordan. *Journal of Finance and Accounting* 1: 41–5.
- Arbabiyan, Ali-Akbar, & Mehdi Safari. (2009). The effects of capital structure and profitability in the listed firms in Tehran Stock Exchange. *Journal of Management Perspective* 33: 159–75
- Arditti, F. D., (1967). Risk and return on equity. *Journal of Finance*, 22 (1): 19-36.
- Arjudba. (2008). History of Oracle Corporation. Retrieved from <http://arjudba.blogspot.com>:
<http://arjudba.blogspot.com/2008/04/history-of-oracle-corporation.html>
- AT&T. (2013). The History of AT&T. Retrieved from <http://www.corp.att.com>:
<http://www.corp.att.com/history/>
- Bermunt, H. & Dogan, N. (2011). Stock Market Return and Volatility Relationship: Monday Effect, *International Journal of Economic Perspectives*, Volume (5) Issue 2, pp. 175-185.
- Biger, N., Nguyen, N. V., & Hoang, Q. X. (2007). —The determinants of capital structure: Evidence from Vietnam.¶, *International Finance Review*, 8: pp. 307-326.
- Brealey, R. A., & Myers, S. C. (2003). Principles of corporate finance. International edition. Boston, McGrawHill, MA.

- Buyuksalvarci, A. & Abdioglu, H. (2010). the Causa Relationship between Stock Price and Macroeconomic Variables: A Case Study for Turkey, *International Journal of Economic Perspectives*, Volume (4) issue 4, pp. 601-610.
- Campello, M. (2006). —Debt financing: Does it boost or hurt firm performance in product markets?‡, *Journal of Financial Economics*, 82(1): pp. 135-172.
- Chakraborty, I., 2010. “Capital structure in an emerging stock market: The case of India”, *Research in International Business and Finance*, 24, 295-314.
- Chen, Zhiyao & Harford, Jarrad and Kamara, Avraham(2016). Operating Leverage, Profitability and Capital Structure, *European Financial Association 2013 Annual meeting*, Cambridge, UK.
- Chowdhury, Anup, & Suman Paul Chowdhury. (2010). *Impact of capital structure on firm's value: Evidence from Bangladesh. Business and Economic Horizons* 3: 111–22
- Damodaran, & Aswath(2007). Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): *Measurement and Implications*
- Dare, F.D. & Sola, O. (2010). Capital Structure and Corporate Performance in Nigeria Petroleum Industry: Panel Data Analysis. *Journal of Mathematics and Statistics* 6 (2): 168-173.

- Darush Yazdanfar, & Peter Öhman, (2015). "Debt financing and firm performance: an empirical study based on Swedish data", *The Journal of Risk Finance*, Vol. 16 Issue: 1, pp.102-118,
- Delmar, F., & Wiklund, J. (2003). —The effect of small business managers' growth motivation on firm growth: A longitudinal study., *Entrepreneurship Theory & Practice*, 32(3): pp. 437-457.
- Ebaid & Ibrahim El-Say. (2009). The impact of capital-structure choice on firm performance: Empirical evidence from Egypt. *The Journal of Risk Finance* 10: 477–87.
- Fisher, R.A. (1932). —Statistical methods for research workers., Oliver & Boyd, Edinburgh, Scotland.
- Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure., *Journal of financial economics*, 67(2): pp. 217-248.
- George, Thomas J., Hwang & Chuan-Yang, (2009). A resolution of the distress risk and leverage puzzles in the cross section of stock returns. *Journal of Financial Economics* 96, 56–79.
- Gill, A., Biger, N., & Mathur, N. (2011). The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management*, 28(4), 3.

Guihai Huang & Frank M. Song (2006). The determinants of capital structure: Evidence from China. *China Economic Review* , vol. 17, issue 1, pages 14-36

Gujarati, D. N. (2003), —Basic Econometrics, Fourth Edition, McGraw Hill, NY, USA.

Hasan, Md. Bokhtiar, A. F. M. Mainul Ahsan, Md. Afzalur Rahaman, & Md. Nurul Alam. (2014). Influence of capital structure on firm performance: Evidence from Bangladesh. *International Journal of Business and Management* 9: 184–94.

Hassan Jan Habib, Faisal Khan & Dr. Muhammad Imran Wazir.(2016). impact of debt on profitability of firms; evidence from non-financial sector of Pakistan , *City University Research Journal* Volume 06 Number 01

Hossain, Md. Imran, & Md. Akram Hossain. (2015). Determinants of capital structure and testing of theories: A study on the listed manufacturing companies in Bangladesh. *International Journal of Economics and Finance* 7: 176–90.

Idode, Patrick Esiemogie, Adeleke, Toyin Mary, Ogunlowore, Akindele John, Ashogbon, and Oyekan Samuel (2014). Influence of capital structure on profitability: Empirical Evidence from listed Nigerian banks *IOSR Journal of Business and Management* (IOSR-JBM) Volume 16, Issue 11

Idrees Liaqat, Shamila Saddique, Tanveer Bagh, Muhammad Atif Khan, Mirza Muhammad Naseer, Muhammad Asif Khan (2017). Capital Structure as Driving Force of Financial Performance: Case of Energy and Fuel Sector of Pakistan, *Macrothink Institute*. Vol 7, No 1

Im, K. S., Pesaran, M. H. & Shin, Y. (1997). —Testing for unit roots in heterogeneous panels, Mimeo, Department of Applied Economics, University of Cambridge.

Jensen, M. (1986). Agency cost of free cash flow, corporate finance and takeovers. *American Economic Review Papers*

John Brian Kinyua Peter W Muriu (2017). Determinants of Capital Structure of Agricultural Firms in Kenya, *European Scientific Journal* March 2017 edition Vol.13, No.7

Kale Ahmed Ali (2014). The impact of financial leverage on firm performance: the case of non financial firms in kenya.(University of Nairobi)

Kalim, R., Ali, L., Shahbaz, M. (2012). On Foreign Direct Investment and Stock Market Relation: A Case of Pakistan, *International Journal of Economic Perspectives*, Volume 6, Issue 1, pp. 98-116.

Karacaer, S. & Kapusuzoglu, A. (2010). Investigating Causal Relations among Stock Market and Macroeconomic Variables: Evidence from Turkey, *International Journal of Economic Perspectives*, 4 (3), pp. 501-507.

Khalid A, Khursheed A, Mouh-I-Din S (2013). Impact of capital structure on profitability of listed companies (evidence from India). *The Usv Annals of Economics and Public Administration Indian*

- Khan, S., Sheikh, N. A., & Wang, Z. (2013). —The impact of internal attributes of corporate governance on firm performance: Evidence from Pakistan. *International Journal of Commerce and Management*, 23(1): pp. 38-55.
- Levin, A. ,& CF. Lin (1993). —Unit root tests in panel data: New results, *Discussion Paper no. Y3-56*, University of California, San Diego, CA.
- Lewis, T. R., Sappington, & D. E. (1995). —Optimal capital structure in agency relationships. *The RAND Journal of Economics*, 26(3): pp. 343-361.
- Li-Ju Chen and Shun-Yu Chen (2011). The influence of profitability on firm value with capital structure as the mediator and firm size and industry as moderators. *Investment Management and Financial Innovations*, Volume 8, Issue 3
- Lima, M. (2009). —An insight into the capital structure determinants of the pharmaceutical companies in Bangladesh, *GBMF Conference*
- Lin, W.C., Liu, C. F., & Chu C. W. (2005). —Performance efficiency evaluation of the taiwan's shipping industry: an application of data envelopment analysis. *Eastern Asia Society for Transportation Studies*, 5: pp. 467-476.
- Lin, W.C., Liu, C. F., & Chu C. W. (2005). —Performance efficiency evaluation of the taiwan's shipping industry: an application of data envelopment analysis. *Eastern Asia Society for Transportation Studies*, 5: pp. 467-476.

- Liu, Y., & Zhuang, Y. (2009). An empirical analysis on the capital structure of Chinese listed IT companies. *International Journal of Business and Management*, 4(8), 46.
- Maddala, G. S. & Wu, S. (1999). —Cross-country growth regressions: problems of heterogeneity, stability & interpretation, *Applied Economics*, 32(5): pp. 635-642.
- Majid Riaz¹ and Muhammad Qasim (2016). Islamic microfinance institution: the capital structure, growth, performance and value of the firm in Pakistan, *journal of isoss 2016* vol. 2(1), 97-101
- Manawaduge, Athula, Anura De Zoysa, Khorshed Chowdhury, and Anil Chandarakumara. (2011). Capital structure and firm performance in emerging economies: An empirical analysis of Sri Lankan firms. *Corporate Ownership & Control* 8: 253–63.
- Md. Nur Alam Siddik , Sajal Kabiraj and Shanmugan Joghee.(2017). Impacts of Capital Structure on Performance of Banks in a Developing Economy: Evidence from Bangladesh *Int. J. Financial Stud.* 2017, 5, 13.
- Memon, Fozia, Niaz Ahmed Bhutto, and Ghulam Abbas. (2012). Capital structure and firm performance: A case of textile sector of Pakistan. *Asian Journal of Business and Management Sciences* 1: 9–15.
- Modigliani, F. and Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48, pp 261- 297.

- Muritala, Taiwo Adewale. (2012). An empirical analysis of capital structure on firms' performance in Nigeria. *International Journal of Advances in Management and Economics* 1: 116–24.
- Mwaura, Paul Mbugua (2014). The relationship between capital structure and financial performance of investment firms listed at the Nairobi securities exchange (*University of Nairobi*)
- Myers, S. C & Majluf N. S. (1984). —The capital structure puzzle. I, *The journal of finance*, 39(3): pp. 574-592.
- Myers, S. C. (2001). Capital structure. *Journal of Economic Perspectives*, 15(2), 81–102.
- Mykhailo Iavorskyi (2013). the impact of capital structure on firm performance: evidence from ukraine (*Kyiv School of Economics*)
- Nadeem Ahmed Sheikh, Zongjun Wang, (2011). "Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan", *Managerial Finance*, Vol. 37 Iss 2 pp. 117-133
- Nikoo, Seyedeh Farokh. (2015). Impact of Capital Structure on Banking Performance: Evidence from Tehran Stock Exchange. *International Research Journal of Applied and Basic Sciences* 9: 923–27.

- Nimalathan, B., Valeriu B., (2010). Capital Structure and Its Impact on Profitability: A Study of Listed Manufacturing Companies in Sri Lanka , *Revista Tinerilor Economisti/The Young Economists Journal* 13, 55-61.
- Nirajini, A., & Priya, K. B. (2013). Impact of capital structure on financial performance of the listed trading companies in Sri Lanka. *International Journal of Scientific Research Publications*, 3(5), 1-9.
- Otegunrin Adegbola Olubukola (2017). .Adoption of international financial reporting standard, capital structure and profitability of listed firms in Nigeria. *Journal of Internet Banking and Commerce*, May 2017, vol. 22, no. S8
- Pandey, I.M (2010). Financial Management. 10th ed; New Delhi: *Vikas publishing House PVT Ltd.*
- Pathak Rajesh (2011). Capital Structure and Performance: Evidence from Indian Manufacturing Firms, *Social Science Research Network, Online Web.*
- Pratheepkanth. Puwanenthiren, (2011). Capital Structure and Financial Performance: Evidence from Selected Business Companies in Colombo Stock Exchange Sri Lanka, *Journal of Arts, Science & Commerce*, II (2): 1-13.
- Pratomo, W. A., & Ismail, A. G. (2006). Islamic bank performance and capital structure. *University Library of Munich, Germany, MPRA* ,6012.

- Prince Acheampong, Evans Agalega, Albert Kwabena Shibu (2014). The Effect of Financial Leverage and Market Size on Stock Returns on the Ghana Stock Exchange: Evidence from Selected Stocks in the Manufacturing Sector , *Sciedu Press Journals Online* Vol 5, No 1
- Ramadan, Zeyad Saleem, and Imad Zeyad Ramadan. (2015). Capital structure and firm's performance of Jordanian manufacturing sector. *International Journal of Economics and Finance* 7: 279–84.
- Rasiah, D., & Kim, P. K. (2011). A theoretical review on the use of the static trade off theory, the pecking order theory and the agency cost theory of capital structure. *International Research Journal of Finance and Economics*, 63, 150-159.
- Revathy , Dr. Santhi and ,Sreekala (2016). The Impact of Capital Structure on Profitability of Manufacturing Companies: using Multiple Regression Model ,*Asian Journal of Research in Social Sciences and Humanities* Year : 2016, Volume : 6, Issue : 4
- Richard Dumont, Robert Svensson. (2014). Capital structure and firm performance -A study of Swedish public companies, *Handelshögskolan Göteborgs Universitet*
- Roden, D., Lewellen, W. (1995). corporate capital structure decisions: evidence from leveraged buyouts, *Financial Management*, 24: 76-87.
- Rouf, Md. Abdur. (2015). Capital structure and firm performance of listed non-financial companies in Bangladesh. *The International Journal of Applied Economics and Finance* 9: 25–32.

- Sadiq, M.N., & Sher, F. (2016). Impact of Capital Structure on the Profitability of Firm's Evidence from Automobile sector of Pakistan. *Global Journal of Management and Business Research*, Vol. 16, No.1
- Salim, Mahfuzah, and Raj Yadav.(2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia - Social and Behavioral Sciences* 65: 156–66
- Samuel Fosu, (2013). Capital structure, product market competition and firm performance: Evidence from South Africa, *The Quarterly Review of Economics and Finance*vol. 53, issue 2, pages 140-151
- SAP: A 45-year history of success (2017). Retrieved from <https://www.sap.com/corporate/en/company/history.2011-present.html>
- Shlash, A., & Alouf. (2006). Factors specific to the financial structure of the business projects. *Al-Bayt University*, IV(1)
- Soumadi, Mustafa M., and Osama Suhail Hayajneh. (2012). Capital structure and corporate performance empirical study on the public Jordanian shareholdings firms listed in the Amman stock market. *European Scientific Journal* 8: 173–89.
- Sodeyfi, S. (2016). Review Of Literature on the Nexus of Financial Leverage, Product Quality, & Business Conditions, *International Journal of Economic Perspectives*, 10 (2), pp. 146-150.

Wali, Goher, and Mehboob.(2012). “Impact of debt structure on profitability in textile industry of Pakistan”. *Int. J. Eco. Res.*, 2012, v3i2, 61-70

Winter, R. A. (1994). —The dynamics of competitive insurance markets.¶, *Journal of Financial Intermediation*, 3(4): pp. 379-415.

APPENDIX

Appendix A: Panel unit root test

Table 5. 4: Panel unit root test

Variables		LLC	IPS	Levels	
				ADF fisher chi-square	PP Fisher Chi-square
LNROA	τ_T	-0.1425	0.3258	6.008	22.8638*
	τ_μ	-1.01955	0.8250	12.108	30.68 *
	τ	-9.6319*	-	36.7050*	52.4*
LNROE	τ_T	-3.1927*	-0.0838	8.9392	25.9031*
	τ_μ	-3.2853*	-1.321***	14.896***	29.5052*
	τ	-7.869*	-	36.994*	51.034*
LNSIZE	τ_T	-6.1023*	-0.1719	18.339**	45.192*
	τ_μ	-0.0749	0.4058	13.849	26.7669*
	τ	-1.46***	-	11.464	18.965**
LNLTDC	τ_T	-3.8145*	0.028**	7	20.9*
	τ_μ	-6.0341*	-2.303*	25*	34.1*
	τ	-5.680*	-	37*	48.4*
LNGROWTH	τ_T	-2.9941*	-0.0711	4.52	26.8*
	τ_μ	-1.59**	-0.8906	10.1	45.8*
	τ	0.2508	-	21.4633**	54.5*
LNTAN	τ_T	1.4921	0.2335	7.91	42.6*
	τ_μ	1.85914	-0.7268	14.2	53.7*
	τ	-4.8348*	-	29*	55.2*
LNTAX	τ_T	6.9314	-0.0417	12.7	74.4*
	τ_μ	6.2655	0.27413	10.2038	50.0*
	τ	-2.8704*	-	21**	63.8*

Note: LNROA: the logarithm of ROA, LNROE: the logarithm of ROE, LNSIZE: the logarithm of size, LNLTDC: the logarithm of long term debt to capital, LNGROWTH: the logarithm of growth, LNTAN: the logarithm of tangibility of assets and LNTAX: the logarithm of Tax Benefit. Also, π_T entitles model with drift and trends, τ_μ is a model with drift but without trends while τ is the most limited model without drift and trends.

*, **, *** indicate repudiation of the null hypothesis at 1%, 5%, and 10% levels.