Determinants of Capital structure of Airline industries- The case of major airlines of Sub Saharan Africa

A thesis submitted to Addis Ababa university college of Business and Economics in partial fulfilment of the requirements for the degree of Masters of Science in Accounting and Finance

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Statement of declaration

I, Amen Sewunet Muche have carried out independently a research work on the determinants of capital structure of airline industries the case of major airlines of sub Saharan Africa in partial fulfilment of the requirement of Masters of Science program in Accounting and finance with guidance and support of the research advisor. This study is an original work and was not submitted earlier for any degree either at this university or any other university. It complies with the regulation of university and meets the accepted standards with respect to originality and quality.

Name: Amen Sewunet

Signature_____

Date_____

Certification

This is to certify that Amen Sewunet has carried out this research work on the topic entitled "Determinants of capital structure of airline industries the case of major airlines of sub Saharan Africa" under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfilment for the award of Masters of Science in Accounting and finance.

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Board of examiners approval sheet

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This is to certify that the thesis prepared by Amen Sewunet, entitled: Determinants of Capital structure of Airline industries- the case of major airlines of Sub Saharan Africain partial fulfilment of the requirement of masters of Science in Accounting and finance complies with the regulation of university and meets the accepted standards with respect to originality and quality.

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Abstract

This research is intended to identify the internal and external determinant factors of capital structure of major sub-Saharan African airlines. Maintaining the optimum level of leverage ratio is essential to increase firms value. The study used secondary data of three major airline's financial reports from the year 2002-2015 and data of macro-economic factors from web site of World Bank. A panel data of three major sub Saharan African airlines was analyzed using fixed effect regression model.The study has employed a quantitative research approach and explanatory type of research design to see the causal relationship between the independent variables (liquidity, profitability, firm size, tangibility, inflation, currency exchange rate, gross domestic product, and risk) and dependent variable leverage.Statistical tool of Eviews 8 was used to see the relationship betweenregressors and regressand variable. The result of fixed effect model of regression analysis shows that tangibility, inflation and risk are statistically significant and have positive relationship with leverage. Profitability and size are also significant factor but have negative relationship with leverage. Other variables (liquidity, GDP and currency exchange rate are found to be statistically insignificant factor to leverage. The positive sign of tangibility and inflation supports trade of theory and the negative sign of profitability and size supports pecking order theory. The study suggests that, focusing on both internal and external factors of the airline industryespecially on internal factors of profitability, tangibility and size is essential on maintaining the capital structure of these major airlines of sub Saharan Africa.

Key words, Capital structure, Major airlines, sub-Saharan Africa, Internal and External factors

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Acronyms and Abbreviations

AT- Agency theory

BVLTDR-Book value of long term debt ratio

BVTDR-Book value of total debt ratio

CAB-Civil Aeronautics Board

CLRM-classical linear regression model

CVA- Collateralize value of asset

EBIT- Earnings before interest and tax

ET- Ethiopian airlines

EXCH- currency exchange rate

GDP- gross domestic product

INF- inflation rate

KLM- Koninklijke Luchtvaart Maatschappij (Royal Dutch airline)

KQ- Kenyan Airways

Lev- leverage

LIQ- Liquidity

POT-Pecking order theory

PROF- Profitability

SAA- South African Airlines

SSA- Sub-Saharan Africa

TANG- Tangibility

TOT- Trade off theory

Chapter One

1.0. Introduction

1.1 Back ground of the study

Airline/Aviation industry, the business of transporting paying passengers and freight by air along regularly scheduled routes, typically by airplanes but also by helicopter. It provides services everywhere in the world and give people the opportunity to visit places that formally would be thought of as almost impossible. Few other industries get that much attention from the government, media and the public. One explanation concerning this extra attention may be the airline industry's importance in linking the world together. The airline industry is highly energy intensive because of the large fuel consumption. The volatility in fuel prices, adds to the normal operational risk and wanted to see if it influenced the capital structure choices. The airline industry is also capital intensive because of the need for large investments in planes and other fixed assets (Emil 2012).

Air transport has long ceased to be a luxury and a prohibitive means of transport, being preferred increasingly for convenience and speed of flight and for the proper organization. Modern society today cannot be conceived without airports and air transport. Without an efficient and well organized transport system, no state can develop economically. Therefore, the existence of a powerful aeronautics sector inevitably leads to growth and thus to a higher standard of living and degree of civilization. This can be a signal to industry leading manufacturers motivating them to improve more and more the quality of the aircrafts and airlines' management (Ionela 2014).

The management have to choose from different financial sources when raising capital for these large investments. The largest income in the airline industry comes from passenger services. Since the largest part of the revenue comes from passenger service the airlines are dependent on consumer and business confidence. A family will go on vacation when they feel they have good enough economy to treat themselves with something extra. Hence flying, which is often included in a vacation, could be seen as luxury good for leisure travelers. When the consumer confidence drops, you would expect lower demand for leisure travels. An important aspect of passenger service is the business traveler, since they are more likely to fly more frequently than for

example the vacation (leisure) passenger. Airlines try to the get the loyalty of business passengers by using for example frequent flyer programs (Emil 2012). Ethiopian airlines as an example uses Shebamiles as frequent flyer program.

The capital structure of a firm describes the way in which a firm raised capital needed to establish and expand its business activities. It is a mixture of various types of equity and debt capital a firm maintained resulting from the firm's financing decisions (Ionela 2014).

Corporate financial choices are affected by a number of factors. One of the more general classifications of these variables is based on the criterion of the economic character of factors, and therefore distinguishes the micro- and macro-economic determinants. The asset structure (tangibility), which has been widely evidenced to significantly affect capital structure, belongs to the first group, and is one of the most frequently cited factors. According to the financial literature, the asset structure plays an important role in determining the capital structure, although there is no consensus among authors on the direction of the relationship (Julia 2013).

At the time a firm faces a financial deficit that affects its financial condition, the manager of the firm should be able to make a managerial decision as well as a financial decision in order to maintain the viability of the firm. One way that can be chosen is to undertake a capital restructuring, especially debt restructuring. The decision taken on debt restructuring, of course, requires expertise and analytic capabilities so that managers can make the right decisions of financial restructuring for the company. An ideal composition of capital structure which consists of debt and equity, will minimize the cost of capital and maximize the firm's value. Therefore, it is important for the firm's manager to understand the theory of capital structure (Siti 2012).

The pioneers of the determinants of corporate capital structure are Modigliani & Miller(1958), which published their work almost half a century ago. Their main theory, widely known as the Modigliani-Miller Theory, explains that the value of a firm is unaffected by how that firm is financed. This simple theory is probably quite acceptable fifty years ago when the business environment and condition, especially the finance and capital market, was not as complex and as complicated as the current capital market. This theory said that the capital structure of the company hold no importance or relevancy to the company's value at all.

Following on from the pioneering work of Modigliani and Miller (1958), capital structure has aroused intense debate in the financial management arena for the last many years. The static trade-off theory of capital structure claimed that a firm's optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm's assets and investment plans constant (Myers, 1984). The goal is to maximize the firm value for that reason debt and equity are used as substitutes. According to this theory, higher profitability decreases the expected costs of distress and let firms increase their tax benefits by raising leverage; therefore, firms should prefer debt financing because of the tax benefit (Weldemikael, 2012).

Pecking order theory (also referred to as the information asymmetry theory) proposed by Myers states that firms prefer to finance new investment, first internally with retained earnings, then with debt, and finally with an issue of new equity. Myers argues that an optimal capital structure is difficult to define as equity appears at the top and the bottom of the 'pecking order'. Internal funds incur no flotation costs and require no disclosure of the firm's proprietary financial information that may include firm's potential investment opportunities and gains that are expected to accrue as a result of undertaking such investments. (Fakher and Hodgkinson, 2005).

The agency cost theory of capital structure states that an optimal capital structure will be determined by minimizing the costs arising from conflicts between the parties involved. Jensen and Meckling (1976) argue that agency costs play an important role in financing decisions due to the conflict that may exist between shareholders and debt holders. If companies are approaching financial distress, shareholders can encourage management to take decisions, which, in effect, expropriate funds from debt holders to equity holders. Sophisticated debt holders will then require a higher return for their funds if there is potential for this transfer of wealth. Debt and the accompanying interest payments, however, may reduce the agency conflict between shareholders and managers.

1.2 Statement of the Problem

Capital structure (leverage) reflects the firm's method of financing. It measures the comparative amount of leverage used to finance its operation. There are different theories conducted in explaining the capital structure of the firm. The theory of capital structure appeared in 1958,

when Franco Modigliani and Merton Miller proposed the M and M irrelevance proposition. Their assumption was in a capital market with perfect information, no taxes and bankruptcy costs, leverage will not increase the value of the firm. In a perfect world without imperfections, differences between using debt and equity do not exist. To maximize the value of the company it makes no differences if a company capital structure consists of debt or equity (Modgliani and Miller, 1958). The reason is that if there are any changes in the debt to equity ratio, the firm's cash flow will remain unchanged. Also, they argued that all firms have equal opportunities to borrow at the same rate. In a world with only tax as an imperfection this proposition changes. A company needs to borrow as much debt as possible. With more debt the tax payments become lower, because the interest can be subtracted. Therefore, more cash flow remains whereby the value of the company increases. Proposition II with taxes explains that companies with more debt have a higher value due to interest that lowers the tax payments. Proposition II of Modigliani and Miller with tax clarifies that leverage add more risk to companies, but the tax shield reduces something of that risk. Following M and M, there are different theories of capital structure. The structure of the Pecking order theory (POT) focuses on internal financing, for instance, through retention of profits as the first priority, debt financing is a second priority when internal funds are insufficient, and equity financing will be issued as the last option to finance a firm's business. The theory implies that, as much as possible, firms must avoid equity financing because it is an indication to the market that the business needs external capital, thus inviting external parties to invest. As such, the POT model demonstrates a financial market imperfection, whereby the asymmetric information between managers and outside investors affects corporate financing decisions (Myers, 1984). Trade-off theory suggests that there is an optimum capital structure in which the benefits of debt are offset by the cost of debt. This optimal capital structure is achieved when the marginal benefit of an additional unit of debt is exactly offset the marginal cost of an additional unit of debt (Fama & French, 2005). The other theory is Agency theory (AT) focuses on the conflicts between the managers of the company and the shareholders due to their differences in interests and motivations on how the money must be spend. This is how the managers spend the free cash flow. This will be the case when there is plenty of free cash flow. The goal of the managers is to find investments that will let the company grow. More growth is having more power because of increasing resources.

Several researches have been done on capital structure of firms. Songul, (2015) studied the determinants of capital structure: evidence from the Turkish manufacturing sector. The researcher has taken 8 years of data from 79 firms in the manufacturing sector traded on Istanbul stock exchange and found that there are significant relationships between growth opportunities, size, profitability, tangibility and leverage variables. But non-debt tax shields explanatory variable has insignificant effect on leverage. Chin (2008) studied the determinants of capital structure: evidence from selected Asian countries. The researcher has taken sample of 155 listed companies from four selected Asian main stock exchange index-links from the period 2003-2007 and found that profitability and growth opportunities for all selected Asian countries exhibit statistical significant of inverse relationship with leverage whereas non-debt tax shield has significant negative impact on leverage as for Malaysia index link companies only. Firm size gave a positive significant relationship for Indonesia and Philippine index link companies. As for the four country-effect factors; stock market capitalization and GDP growth rate show significant relationship with leverage while bank size and inflation indicate insignificant impacts on leverage. Songul has found that non debt tax shield as insignificant variable for leverage. But, Chin has found that non debt tax shield as a significant factor.

Ebenezer, (2015) studied the determinants of capital structure of Banks under sub Saharan Africa. The researcher has taken 7 years' data of banks from 37 sub Saharan countries. The results indicate that, the return on asset, size, asset tangibility, growth rate of banks and inflation rates are statistically significant in determining the capital structure of banks in Sub-Sahara Africa. However, corporate marginal tax rate, GDP growth rate and the interest rate on loans are not statistically significant in determining banks capital structure in Sub-Saharan Africa. They have got a contradictory result on significant variable between the two above results. GDP is a significant factor for leverage as per the study of Chin, (2008) but insignificant per the finding of Ebenezer, (2015).

Emil and Andreas (2012) have studied on capital structure in the airline industry- an empirical study of determinants of capital structure taking sample of 39 international airlines. Even if there are many theories that deal with capital structure issues, their findings show that none of the mentioned models are able to fully explain the obtained results, which is in line with the common consensus. They obtained positive significant estimates for Collateralize value of asset

(CVA) and leasing for both models. They were surprised by the significant positive estimates to the leasing variables, which were the opposite of their expectations. Size was the only estimate other than CVA and leasing that had significant estimates in the book model. They obtained significant estimates for profit in the market model. They considered as if surprising to find that growth produced no significant estimates, while profit and size only was significant for one of the models. Rafiu(2007) studied the determinants of capital structure of financial firms of Nigeria using data from financial managers of 25 listed banks in Nigeria. The study revealed that ownership structure and management control, growth and opportunity, profitability, issuing cost, and tax economics associated with debt are the major factors influencing bank's capital structure.

Tariku (2015) has studied determinants of financial pattern on construction companies of Ethiopia and found that, debt ratio (leverage) have: a positive relation, with asset tangibility, growth opportunity, and size of the firm. But, have a negative relation, with profitability, liquidity and risk (earning volatility). However, age of a firm, non-debt tax-shield, inflation and GDP have no statistically significant impact on a firm's choice of debt ratio.

Although there are researches on determinants of capital structure of firms worldwide, to the best knowledge of the researcher, no research on this specific title is maintained under airlines of sub Saharan Africa. This motivated the researcher to put his own contribution in identifying the determinants of capital structure of airlines under Sub Saharan Africa.

1.3 Objective

1.3.1 Generalobjective of the study

The general objective of this study is to examine the major determinants of Capital Structure in the three major Airlines of Sub-Saharan Africa.

1.3.2 Specific objective of the study

- To examinethe effect of internal factors on leverage of airlines of SSA.
- To evaluate the effect of macroeconomic (external factors)on the capital structure choice of airlines of SSA.

- To recognize the relationship between independent variables and leverage and
- To realize which capital structure theory best explains the finding of this research.

1.4Research Hypothesis

In this research, the researcher identified variables that best explain leverage ratios based on previous literature and research findings. There are both company specific and external factor explanatory variables. The company specific factors are profitability, tangibility, liquidityand size. External factors are GDP, inflationand currency exchange rate. And industry specific factor of Risk. Based on the above contradictory empirical result mentioned on statement of the problem, the researcher formulated the following hypothesis.

Hypothesis 1. Tangibility has a positive and significant effect on leverage

Hypothesis 2. Profitability has a negative and significant effect on leverage

Hypothesis 3. Firm size has a positive and significant effect on leverage

Hypothesis 4. Liquidity has a negative and significant effect on leverage

Hypothesis 5. Inflation has a positive and significant effect on leverage

Hypothesis 6. Risk has a negative and significant effect on leverage

Hypothesis 7. Currency exchange rate has a positive and significant effect on leverage

Hypothesis 8. GDP has negative and significant effect on leverage

1.5Significant of the study

This study will be significant to academicians by increasing the body of knowledge and fill the gap of the literature by showing the major determinants of the capital structure of the major airlines under sub Saharan Africa. Second, it is essential for higher managements of major Sub Saharan Africanairlinesto have the right decisionsof optimum capital structures that increase the

value of the firm.Third, government authorities like revenue and custom authorities will be assisted in establishing code of corporate governance that will reduce the problem related with debt financing. The finding of this research will be useful to the investors who buy shares of the airlines.

1.6 Scope of the study

The scope of this study was limited to the relationship between leverage and independent variables (liquidity, profitability, risk, size, tangibility, inflation, GDP and currency exchange rate).This study has focused only on the three major airlines of sub-Saharan Africa (Ethiopian, South African and Kenyan airways) and its meeting point is only the time from 2002-2015. The study has included 14 years of data(financial statement of selected airlines) to see the effect of explanatory variables on regressand. As the airline industry is capital intensive, debt financing is mandatory for such industries. So, leverage is a dependent variable for the study. These airlines and time frame is chosen because of they are major and it is within these time frame data are availability.

1.8 Limitation of the study

This study has focused on eight independent variables namely; Size, profitability, liquidity, tangibility, inflation, risk, GDP and currency exchange rate. Other variables were not chosen for this study due to shortage of data on the other variables and some removed because of their effect in making problem on diagnosis tests of the output of Eviews 8. The second limitation is, the study has been employed in three major airlines of Sub Saharan Africa Namely, Ethiopian airlines, South African airlines and Kenyan airways and the results may not be applicable to other airlines with different operating environment. The other limitation is lack of secondary financial market in Ethiopia which minimizes the ability of the researcher to measure the dependent variable. In this, even firms are unable to optimize their firm leverage using market timing theory.

1.9. Organization of the study

The Final thesis is organized into five chapters. The first Chapter presents introduction of the study, statement of the problem, the objectives, research questions research hypothesis and significance of the study. The literature review part of the study is presented in the second chapter. The review of literature includes the theoretical review and the empirical review consecutively. The third Chapter presents the research design and methodology. On fourth chapter, analysis of the results and discussion part of the paper is presented. Finally, the fifth chapter presents the conclusions and recommendations of the study.

Chapter two

2.0 Theoretical literature

2.1. Airline Industry Overview

The international airline industry provides service to virtually every corner of the globe, and has been an integral part of the creation of a global economy. The airline industry itself is a major economic force, both in terms of its own operations and its impacts on related industries such as aircraft manufacturing and tourism. Now a days, the airline industry is growing faster in a competitive way. There are luxurious aircrafts with private room, shower and flatbed seats. And some others like Ryan air charges for onboard toilets. This give a chance to choose the passenger either to fly with luxurious or using low cost carriers.

2.2. Theories of capital structure

2.2.1. The Modigliani-Miller Theorem

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Before them, there was no generally accepted theory of capital structure. Modigliani and Miller started by assuming that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets, all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for homemade leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. As a result, the leverage of the firm has no effect on the market value of the firm.

Modigliani and Miller made two findings under these conditions. Their first proposition was that the value of a company is independent of its capital structure. Their second proposition stated that the cost of equity for a leveraged firm is equal to the cost of equity for an unleveraged firm, plus an added premium for financial risk. This implies that the firm's debt to equity ratio does not influence its cost of capital. A firm’s value is only determined by its real assets, and it cannot be

changed by pure capital structure management. Consequently, it means that there is no optimal capital structure exists (Ross et al. 2007, pp. 433-440)

M&M Proposition I: In a perfect capital market, the total value of a firm is equal to the market value of the total cash flows generated by its assets and is not affected by its choice of capital structure. Market value of any firm is independent of its capital structure (Miller & Modigliani, 1958). Even though there is a change in the proportions of capital structure of a firm, the total values of its outstanding securities remain the same (Ross et al., 2011). According to the equation VU=VL, where VU is the value of an unlevered firm value and VL is the value of a levered firm, which illustrates that whether a firm has no debt or a company that funds its operations by taking out loans, the values of the two corporations is identical.

M&M Proposition II: The cost of capital of levered equity increases with the firm's market value debt-equity ratio. (Berk & Demarzo, 2007, s. 461) Proposition II is an implication of M&M theory and proposition I. It states that the expected rate of return on the common stock of a levered firm increases in proportion to the debt-equity ratio, expressed in market values. Debt issues have an explicit and implicit cost. The explicit cost is the rate of interest charged on the firm's debt. The implicit cost is that it increases the firm's financial risk and therefore causes shareholders to demand a higher return on their investment. The implicit and explicit cost together makes that debt is no cheaper than equity, and the return that the investors require on their investment is unaffected by the firm's capital structure Emil (2012)

2.2.2. Trade-Off theory (TOT)

As the name on theory also indicates, the idea of Trade-off theory is to find an optimal compromise between equity and debt. Firms that obey this kind of thinking try to balance between the advantages of debt, like tax-deductibility of interests and disadvantage like direct and indirect costs of bankruptcy. The trade-off theory suggests that there is an optimum capital structure in which the benefits of debt are offset by the cost of debt. This optimal capital structure is achieved when the marginal benefit of an additional unit of debt is exactly offset the marginal cost of an additional unit of debt (Fama & French, 2005) as cited by Asrat 2016. The trade-off theory (also referred to as the tax based theory) states that capital structure is determined by a trade-off between the benefits of debt (tax savings) and the costs of debt

(liquidation and bankruptcy). In that sense, then, firms ought to balance the tax benefits of debt against the burden costs of liquidation or bankruptcy Ahmad (2015).

2.2.3. Pecking Order theory (POT)

According to this theory which is popularized by Myers (1984) and Myers and Majluf (1984), finance policies of companies adhere to a hierarchy of financing sources. Most companies prioritize internal financing in order to maintain dividend disbursement or to finance investment opportunities. It is followed by short-term debt with low-risk and long-term debt with high-risk. Issuance of new equity is considered as the last resort. Corporations tend to minimize the necessity of external funding, in accordance with the Pecking order theory of capital structure, by relating growth and profit occasions to their own long-term target dividend payout ratios. Contrary to the static trade off model, this theory assumes that there is no target level of leverage, and companies use debt only when their internal funds are insufficient. If managers do not have any credible way of conveying inside information to the outsiders then they might prefer raising capital first from retained earnings, second from debt and then from equity market as last resort to avoid information premium. Since profitable firms are also likely to have more retained earnings we would expect a negative association between leverage and past profitability. On the other hand, the static trade-off theory envisages a positive relation between profitability and leverage because a firm with high profits would require more tax shelter and they also have more debt taking capacities.

The pecking order theory explains the phenomenon that highly profitable firms have a low debt ratio. In order to avoid information asymmetry between managers and investors, the priority of financing is ranked as: 1) internal financing through retained earnings; 2) the use of debt before issuing equity shares; 3) issuing equity shares if the above two options do not meet the capital amount needed (Myers, 2001). Highly profitable firms tend to use their retained earnings than financing through external debt.

Angga, 2014 studied capital structure and information uncertainty: evidence from a pooled sample of Dutch firms and analyzed that firm can either issue debt or equity to finance new investment. Debt is the prior claim on assets and earnings while equity is the residual claim. Debt investors are therefore more protected from errors in valuing the firm than equity investors. This,

in turn, will reduce information asymmetry between investors and managers. Therefore, if firm decides to issue debt, the impact of stock price drop is smaller than if they issue an equity. This view suggests that managers will choose to issue debt than equity. Equity issues will only occur if debt is costly – that is, for example, when the firm that already has high level of debt where managers and investors' concern about costs of financial distress. This leads to the pecking order theory of capital structure:

1) Firms prefer internal financing to external financing. (Information asymmetry is likely to occur from external financing)

2) If external financing is required, firms will issue the safest security first, that is, debt before equity. If firm generates excess cash internally, this will be used to pay down debt rather than repurchase equity. As the requirement for external financing increases, the firm will issue safe to riskier debt, then go for hybrid securities (convertible bonds or preferred stock) and finally to equity as a last resort.

3) Dividends are "sticky", meaning that dividend cuts are not used to finance capital expenditure, and so that changes in cash requirements are not soaked up in short run dividend changes. Meaning, changes in net cash show changes in external financing.

4) Firm's debt ratio reflects its cumulative requirement for external financing.

2.2.4. Agency costs theories (AT)

The agency cost theory view on capital structure decisions has its origin from the principal-agent theories. Shareholders are defined as the principal, which because of time limitations need to hire an agent (the managers of the company) to govern the company in their best interest. Hence, maximize shareholder value. In a non-perfect world, there exist information asymmetries, which imply that the principal cannot control all the decisions made by the management. The main idea behind this capital structure theory is that the shareholders choose a level of leverage in order to discipline the company management (Jensen 1986), and by doing this, save a lot of time consuming efforts and monitoring costs. By using debt as a disciplinary factor, stakeholders may also have better control on the strategy, which the company management chooses to follow.

Shareholders assume that managers do not spend the cash in the right way; this is due to the different interests. The goal of the managers is to find investments that will lead to growth of the company. More growth means more power for them, because of the increasing resources. A developing company usually means a higher compensation for managers as well. Another reward for managers when they deliver good work can be promotion. Therefore, managers first investigate how they can increase their own wealth before thinking about the shareholders' interests. The shareholders of the company want the manager to spend money in such a way that they will get the highest value or dividend for their investment in the shares of the company. To let the companies grow, investments must be made. Hence, managers use some of the money that can be paid as dividends for their own interest to expand the company's value (Jensen, 1986).

According to (Myers S., 2001) the free cash flow theory is developed due to sensitivity of companies to overinvest. This is the case when firms have a large amount of cash flow but there is not enough profitable investment. As mentioned before, managers act in their own interests.

Therefore, if there were no profitable investments left, managers would like to invest in unprofitable projects to do everything in their power to let the company grow. By borrowing money companies can prevent against this threat, due to the lower amount of free cash flow that is available. Only this is not intended for companies with potential high profitable investments. It is not the intention that managers have no free cash flow to spend on profitable projects (Jensen,1986).

To see if the managers are not investing in non-profitable projects, agency costs must be made. To lower the agency costs, debt can be used. Agency costs can be described as the costs that are needed to monitor and control the managers of the company (Myers S., 2001). The management act like an agent for the shareholders to invest their money in the right way. To control that the money is invested in the right way, costs must be made, because of the different perceptions and interest of the managers (Jensen, 1986). Another threat that leads to agency costs is underinvestment; this is the case when companies need to invest in low risk assets by means of the debt covenants. The problem is that even if the asset has a positive NPV, only the debt providers will get their money due to the low profit which has been provided with the asset. This

leads to a conflict between the shareholders and debt providers. To control the managers for not investing into risky projects agency cost must be made (Myers S. C., 1984).

Myers S., 2001, state that companies with higher growth opportunities will have a smaller amount of debt comparable to companies with low growth opportunities. Higher growth opportunities increase the likelihood of investing in risky projects or suboptimal. This makes it more difficult to obtain debt, since it is less likely for debt providers to get their money back (Asrat, 2016)

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

Corporate managers are the agents of the shareholders. This relationship causes conflict of interest between them. The separation of management and ownership in a firm causes agency problem. Because management and shareholders each attempt to act on their own self-interest, managers may make decisions that are not in line with the goal of wealth maximization (Chin, 2008).

Debt holders sometimes want to safeguard their investments using different mechanisms such as imposing restrictive covenants in the loan agreements that constrain management’s freedom of action. This may restrict companies how much they can raise their debts, set target current ratio, restrict the payment of excessive dividend and any other more actions that the company wanted to engage in may be restricted by the debt holders (Njiru, 2011). Leverage might not only be able to reduce the agency costs of freecash flow, but also can increase the efficiency of the managers. This is due to the debt market that might function as a more effective capital market monitoring. In addition, in order to obtain the debt financing, managers must show their abilities and efficiencies in managing the firmDr. Kennedy and etal 2015.

2.2.5. Market Timing Theory

The market timing hypothesis is a theory of how firms and corporations in the economy decide whether to finance their investment with equity or with debt instruments. It is the act of moving in and out of the market or switching between asset classes based on using predictive methods such as technical indicators or economic data. Because it is extremely difficult to predict the future direction of the stock market, investors who try to time the market, especially mutual fund investors, tend to underperform investors who remain invested. Some investors, especially academics, believe it is impossible to time the market. Other investors, notably active traders, believe strongly in market timing. Thus, whether market timing is possible is really a matter of opinion. What can be said with certainty is it is very difficult to successfully time the market consistently over the long run. For the average investor who does not have the time, or desire, to watch the market on a daily basis, there are good reasons to avoid market timing and focus on investing for the long run. Firms do not generally care whether they finance with debt or equity, they just choose the form of financing which, at that point in time, seems to be more valued by financial markets.

The market timing theory of capital structure argues that firms time their equity issues in the sense that they issue new stock when the stock price is perceived to be overvalued, and buy back own shares when there is undervaluation. Consequently, fluctuations in stock prices affect firm's capital structures. There are two versions of equity market timing that lead to similar capital structure dynamics.

- Economic agents to be rational. Companies are assumed to issue equity directly after a positive information release which reduces the asymmetry problem between the firm's management and stockholders. The decrease in information asymmetry coincides with an increase in the stock price. In response, firms create their own timing opportunities.
- The economic agents to be irrational: Managers issue equity when they believe its cost is irrationally low and repurchase equity when they believe its cost is irrationally high. It is important to know that the second version of market timing does not require that the market actually be inefficient. It does not ask managers to successfully predict stock returns. The assumption is simply that managers believe that they can time the market.

Baker and Wurgler (2002) provide evidence that equity market timing has a persistent effect on the capital structure of the firm. They define a market timing measure, which is a weighted average of external capital needs over the past few years, where the weights used are market to book values of the firm. They find that leverage changes are strongly and positively related to their market timing measure, so they conclude that the capital structure of a firm is the cumulative outcome of past attempts to time the equity market. In a study by Graham and Harvey (2001), managers admitted trying to time the equity market, and most of those that have considered issuing common stock report that the amount of stock is undervalued or over-valued was an important consideration.

2.3. Capital Structure

The capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure. So, a firm's capital structure can be a mixture of long-term debt, short-term debt, common equity and preferred equity. A company's proportion of short- and long-term debt is considered when analyzing capital structure. When analysts refer to capital structure, they are most likely referring to a firm's debt-to-equity (D/E) ratio, which provides insight into how risky a company is. Usually, a company that is heavily financed by debt has a more aggressive capital structure and therefore poses greater risk to investors. This risk, however, may be the primary source of the firm's growth.

A capital structure is all about portion of debt and equity. Debt is the main way of raising capital in the capital markets. Companies issue debt because of the tax advantage. Interest payments are tax-deductible. Debt also allows a company or business to retain ownership, unlike equity. Additionally, in times of low interest rates, debt is abundant and easy to access. But, Equity is more expensive than debt, especially when interest rates are low. However, unlike debt, equity does not need to be paid back if earnings decline. On the other hand, equity represents a claim on the future earnings of the company as a part owner. Both debt and equity can be found on the balance sheet. The assets listed on the balance sheet are purchased with this debt and equity.

Companies that use more debt than equity to finance assets have a high leverage ratio and an aggressive capital structure. A company that pays for assets with more equity than debt has a low leverage ratio and a conservative capital structure. That is, a high leverage ratio and/or an aggressive capital structure can also lead to higher growth rates, whereas a conservative capital structure can lead to lower growth rates. It is the goal of company management to find the optimal mix of debt and equity, also referred to as the optimal capital structure.

While formulating or amending its capitalization structure, a company has to consider the pros and cons of various sources of capital. For example, equity capital is dilutive, but places less demands on the financial strength of a company. On the other hand, interest payments on debt are generally tax-deductible, but debt increases leverage and, hence, the risk profile of the company. Although firms in the same business sector will generally have a similar capitalization structure, it varies widely across different sectors. For example, companies in the technology and biotechnology sectors have a capital structure that consists almost entirely of equity or common stock, since they have few tangible assets that can be used as security for debt. On the other hand, debt forms a significant proportion, often exceeding 50%, of the capitalization structure of utilities, due to the capital-intensive nature of their business.

The choice between using long-term debt and other forms of capital namely preferred and common stock or categorically called equity is a balancing act to build a financing capital structure with lower cost and less risk. Long-term debt can be advantageous if a company anticipates strong growth and ample profitability that can help ensure on-time debt repayments. Lenders collect only their due interest and do not participate in profit sharing among equity holders, making debt financing sometimes a preferred funding source. On the other hand, long-term debt may be risky when a company already struggles with its business, and the financial strain imposed by the debt burden may well lead to insolvency.

2.3.1. Optimal Capital structure

In search of optimal capital structure, firm is striving for such balance where value of a firm and value of equity are maximized. In other words, Executives are supposed to do such decisions to choose the best possible distribution between equity and debt Jukka, (2015). An optimal capital structure is the best debt-to-equity ratio for a firm that maximizes its value. The optimal capital

structure for a company is one that offers a balance between the ideal debt-to-equity ranges and minimizes the firm's cost of capital. In theory, debt financing generally offers the lowest cost of capital due to its tax deductibility. However, it is rarely the optimal structure since a company's risk generally increases as debt increases. A company's ratio of short- term and long-term debt should also be considered when examining its capital structure. Capital structure is most often referred to as a firm's debt-to-equity ratio, which provides insight into how risky a company is for potential investors. Determining an optimal capital structure is a chief requirement of any firm's corporate finance department.Capital structure is defined as the way a firm finances its investment via some combination of equity and debt. Despite being different in nature, debt and equity complement each other as source of finance for firm's investment projects. The main concern is to figure out the best mix of both Fauzias and etal, 2011.

Companies can raise capital with either debt or equity. Each strategy has its own advantages and disadvantages. Debt usually costs less than equity due to tax advantages, especially when rates are low. However, debt also obligates the company to pay out a portion of future earnings, even when earnings are declining. By contrast, equity does not need to be paid back. However, equity comes with an exchange of ownership. Most companies use a mix of both debt and equity to raise capital. This mix is referred to as the capital structure. It is the goal of most public companies to operate at an optimal capital structure to maximize profits.

There are different explanatory variables that explain leverage of the firms. The total asset of the firm will be taken as a base to measure its size. Natural logarithm of total asset will be used. Since the information disclosed by larger firms is more visible to outsiders than for smaller firms, size may be considered as a proxy for asymmetry information for outside investors. However, the negative relationship between firm size and leverage ratio is proposed by the pecking order theory as, in the absence of long-term debt, smaller firms would make more use of short-term debt. Due to the asymmetric information, smaller firms face higher costs for issuing new equity compared to large firms Ting, (2014).

A tangible Asset is an asset that has a material or physical form anything that can be touched. The firm's asset structure plays an important role in determining its capital structure. It is easier for the lender to establish the value of tangible rather than intangible assets because typically there is more asymmetric information about the value of intangibles. Moreover, in the event of

bankruptcy, intangible assets such as goodwill and structural capital will rapidly disappear. Thus, reducing the net worth of a firm and further accelerating the possibility of bankruptcy (Loof, 2003).

There are also mixed predictions referring to the relationship between tangibility and debt finance. The trade-off and pecking order theories support the positive while the agency theory suggests the negative. Tangibility is the nature of the assets which can assist outsiders in their valuation of firms. The tangible assets mainly refer to property, plant and equipment assets which can be used as collateral. When firms hold more tangible assets, the risk for lenders is low, therefore reducing the expected financial distress. In this case, the positive prediction can be given due to the impact of tangibility on capital structure. According to the agency theory, the negative relationship between tangibility and debt finance is caused by the close monitoring function of bondholders.It is difficult for managers to consume excessive perquisites from highly leveraged firms. The costs incurred from this agency relationship are normally higher for firms with fewer tangible assets. Therefore, it is a voluntary decision by firms with fewer tangible assets to choose higher debt levels, thus controlling the consumption of perquisites Ting, (2014).

The variation in a firm's income is supposed to influence its optimal leverage negatively because the more variable a firm's operating income, the greater the risk that the firm will be unable to cover its interest payments and the higher the probability of bankruptcy is (Loof, 2003).The volatility of profitability is connected with business risk, which is proved to be inversely related to leverage without any difference for pecking order or trade-off theory Maria and etal (2010).
A currency, in the most specific use of the word, refers to money in any form when in actual use or circulation as a medium of exchange, especially circulating banknotes and coins. A more general definition is that a currency is a system of money (monetary units) in common use, especially in a nation. These various currencies are recognized stores of value and are traded between nations in foreign exchange markets, which determine the relative values of the different currencies. Currencies in this sense are defined by governments, and each type has limited boundaries of acceptance. As the usage of these currencies have limited boundaries to use, exchange between currencies is essential for external transactions. The increase and decrease in exchange rate causes either increase or decrease a firm's value and the amount of interest payments to be maintained for foreign debts. The exchange rate reflects the demand and

supply of currencies in foreign exchange market. When currency of home country devaluates against US banks, firms need to reduce their long term debts in the near future. As the currency of home devaluates, there will be higher amount of interest to be paid for foreign debt holders (Dr. Zhi, 2011).

Gross domestic Product (GDP) is the total market value of goods and services produced in a country in a given year. GDP is commonly used as an indicator of the economic health of a country, as well as a gauge of a country's standard of living. GDP includes all private and public consumption, government outlays, investments and exports minus imports that occur within a defined territory. Put simply, GDP is a broad measurement of a nation's overall economic activity (Abe and etal 2007)

Inflation can be defined as a persistent increase in general price levels in an economy over the time. Low or medium levels of inflation in a country can have a positive effect on the business sector, in that it can act as an incentive to production. High levels of inflation however can harm company's profitability by affecting the cost of inputs as well as reducing final demand for its output. Ultimately the effect of inflation on a firm is determined by the nature of its operations as well as its competitive environment (Charles and etal 2013). Inflation is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling. As inflation rises, every dollar you own buys a smaller percentage of a good or service. When prices rise, and alternatively when the value of money falls, there is inflation.

Firms assess the sensitivity of market risk through fluctuations in interest rate, foreign exchange rates and equity prices. Market risk is the outcome of trading, non-trading and foreign exchange activities. Firm's earning capability is influenced through the variation in these variables and sensitivity to market risk determines how adversely the firm is affected by such variation (Parvesh, 2014).

2.4. Empirical literature

The empirical literature of this study is done by looking in to the researches done on capital structures, identifying the findings of the research and by comparing the results with the results of predecessor or successor researches done on the determinant factors of capital structure. The

factors that determine the capital structure of the companies have been studied by many researchers. Researchers were finding the same result as of different researcher's result and some of the findings are completely different from the finding of the others. This is to mean that the significant variable in one study may be insignificant for the other. The capital structure of the firm is affected by different internal and external factors (firm specific factors and macroeconomic factors). Nur, 2014 studied how the debt equity choices of Listed Malaysian Government linked Companies (GLCs) are influenced by the firm specific characteristics and macroeconomic variables using a sample of 13 GLCs from 1997 to 2009. The researcher has used book value of total debt ratio (BVTDR) and long term debt ratio (BVLTDR), to check for any significant changes in corporate financing and found mixed results. Tangibility and firm size are the most significant variables to determine the corporate financing of GLCs. Liquidity and interest rate are negatively significant with BVTDR and BVLTDR respectively. The study concluded that profitability is inconsequential in determining corporate financing. With the proper design of capital structure and intervention from the government, the study also concluded that GLCs rely less on leverage to support their investment activities. Mawih and etal, 2015, have studied the determinants of capital structure: an empirical study on Omani listed industrial companies and found that risk and tangibility have statistically positive association with leverage. Also, growth rate and profitability have statistically negative association with leverage, while there is no association with size. Size, tangibility and risk have a statistically significant effect on leverage.Adaramola and etal 2015, has studied the determinants of capital structure in Nigerian quoted composite insurance companies and have found that tangibility, growth and liquidity had a negative impact on the leverage while risk, return on asset and size have a positive influenced on leverage; it was discovered from this study that all the variables identified are statistically significant except return on asset and growth.

Emil and etal (2012) have studied on capital structure in the airline industry- an Empirical Study of Determinants of Capital Structure taking sample of 39 international airlines. Even if there are many theories that deal with capital structure issues, their findings show that none of the mentioned models are able to fully explain the obtained results, which is in line with the common consensus. They have used two dependent variables (Bivariate) and obtained positive significant estimates for Collateralize value of asset (CVA) and leasing for both models. They were surprised by the significant positive estimates to the leasing variables, which were the

opposite of their expectations. Size was the only estimate other than CVA and leasing that had significant estimates in the book model. They obtained significant estimates for profit in the market model. They considered as if surprising to find that growth produced no significant estimates, while profit and size only was significant for one of the models. Rafiu,2007 studied the determinants of capital structure of financial firms of Nigeria using data from financial managers of 25 listed banks in Nigeria. The study revealed that ownership structure and management control, growth and opportunity, profitability, issuing cost, and tax economics associated with debt are the major factors influencing bank's capital structure. Ahmad (2015) studied the determinants of capital structure: empirical evidence from Kuwait. The researcher has used 6 years' data of 49 industrial and service firms of Kuwait and found that growth opportunity, firms' age, liquidity, profitability, size, tangibility, and industry type have statistically significant relationship with firm's leverage. Dividends policy and ownership structure of the firm, however, were found to have negative but statistically insignificant relationships with capital structure. These two researches above found growth as a significant factor of capital structure but Emil and etal (2012) found it as insignificant factor for leverage.

Ionela (2014), has studied the effect of capital structure on world airlines' value and has found firm size have been found as negative determinant of capital structure, while tangibility, have been found as positive determinant of capital structure. But non-debt tax shields, growth, uniqueness, volatility, profitability, net working assets and leverage have been detected to have no impact on the airlines' value. This research has a different result than the other most results of the researches.

Songul, (2015) studied The Determinants of Capital Structure: Evidence from the Turkish Manufacturing Sector. The researcher has taken 8 years of data from 79 firms in the manufacturing sector traded on Istanbul stock exchange and found that there are significant relationships between growth opportunities, size, profitability, tangibility and leverage variables. But non-debt tax shields explanatory variable has insignificant effect on leverage. Chin, (2008) studied the determinants of capital structure: evidence from selected Asian countries. The researcher has taken sample of 155 listed companies from four selected Asian main stock exchange index-links from the period 2003-2007 and found that profitability and growth opportunities for all selected Asian countries exhibit statistical significant of inverse relationship

with leverage whereas non-debt tax shield has significant negative impact on leverage as for Malaysia index link companies only. Firm size gave a positive significant relationship for Indonesia and Philippine index link companies. As for the four country-effect factors; stock market capitalization and GDP growth rate show significant relationship with leverage while bank size and inflation indicate insignificant impacts on leverage. Songul has found that non debt tax shield as insignificant variable for leverage. But, Chin has found that non debt tax shield as a significant factor. Ebenezer (2015) studied the determinants of capital structure of Banks under sub Saharan Africa. The researcher has taken 7 years' data of banks from 37 sub Saharan countries. The results indicate that, the return on asset, size, asset tangibility, growth rate of banks and inflation rates are statistically significant in determining the capital structure of banks in Sub-Sahara Africa. However, corporate marginal tax rate, GDP growth rate and the interest rate on loans are not statistically significant in determining banks capital structure in Sub-Saharan Africa. They have got a contradictory result on significant variable between the two above results. GDP is a significant factor for leverage as per the study of Chin, (2008) but insignificant per the finding of Ebenezer (2015).

Md. Imran and etal (2015) studied determinants of capital structure and testing of theories: a study on the listed manufacturing companies in Bangladesh

Managerial ownership positively and Growth rate, Profitability, Debt service coverage ratio, Non-debt tax shield, Financial costs, Free cash flow to firm, Agency costs and Dividend payment negatively affect the capital structure. Tangibility and Liquidity ratio have positive relationship with Long term debt and negative relationship with Short term debt and Total debt. It was also found that Pecking-order theory and Static Trade-off theory are the most dominant capital structure theories in Bangladesh.

Julia (2013), studiedhow does asset structure correlate with capital structure? cross-industry and cross-size analysis of the EU countries and found The correlation between several assets structure ratios and capital structure ratios is examined across countries, industries and size groups of firms in order to find out how the country-specific factors, the industry-specific factors and the factors related to firm size influence this relationship in the period 2000-2010. Findings provide evidence that the firm size has relatively the weakest impact on the way assets structure

correlate with capital structure. However, both the direction and the significance of the relationship are considerably influenced by country and industry specificity.

Tor and etal 2015, have studied Capital Structure Policy Decisions in Nordic Listed Firms and found that more than 60 percent of the companies have a relatively flexible debt target, whether a strict target or no target, and find support for both firm characteristics as well as behavioral variables. They also studied the link betweencapital structure policy and dividend policy, and found that dividend-paying firms as well as firms which state that they have a definite dividend policy are more likely to also have a stricter debt target.

Weldemikael 2012, studied the determinants of capital structure of commercial banks in Ethiopia. The findings show that profitability, size, tangibility and liquidity of the banks are important determinants of capital structure of banks in Ethiopia. However, growth and risk of banks are found to have no statistically significant impact on the capital structure of banks in Ethiopia.

Ebenezer (2015), studied the determinants of capital structure of banks: evidence from sub-Sahara Africa and found that, the return on asset, size, asset tangibility, growth rate of banks and inflation rates are statistically significant in determining the capital structure of banks in Sub-Sahara Africa. However, corporate marginal tax rate, GDP growth rate and the interest rate on loans are not statistically significant in determining banks capital structure in Sub-Sahara Africa.

As per Ahmad (2015), on determinants of capital structure of Kuwait firms, size has statistically significant relationship with leverage. Same way, Patrik (2004) study on determinants of Capital Structure - Empirical Evidence from the Czech Republic, leverage of a firm is positively correlated with size.

Kibrom (2010), has studied determinants of capital structure of Ethiopian commercial banks and has found that profit has statistically significant but negative relationship with leverage. In contrary, Paul and etal, 2013, studied Determinants of Capital Structure: Evidence from Ghanaian Firms and have found that profitability has significant positive relationship with leverage. Again the other researcher Ogbulu(PHD) and Emeni, (ACA), 2012, studied the determinants of capital structure in Nigeria and have found as profitability has no significant

impact on leverage Natasa (2012), has studied the impact of liquidity on the capital structure: a case study of Croatian firms and found liquidity has significant negative relationship with leverage. This is the more liquid assets firms have, the less they are leveraged.

Zelia (2016) has studied the determinants of capital structure: New evidence from Portuguese small firms using both long term debt and short term debt as dependent variable and found liquidity has positive significant relationship with long term debt and negatively related with short term debt. In other research, Prasit (2010) has studied liquidity and capital structure in the case of Thailand and has found an inverse relation between liquidity and leverage.

Tariku (2015) has studied determinants of financial pattern on construction companies of Ethiopia and found that tangibility of an asset has a significant positive relationship with leverage. A fixed asset serves as collateral for loans. The greater the proportion of tangible assets on the balance sheet, the more the lenders of willingness will be, consequently, leverage will be high. In other words, firms with more tangible assets have a greater ability to secure debt and lenders suffer a smaller loss of value when firms face distress (Tariku, 2015). Fixed asset turnover ratio will be used as a proxy in this research.On the other way Kibrom (2010), has studied the determinants of capital structure evidence from commercial banks of Ethiopia and found tangibility is positive but not statistically significant variable to leverage.

As indicated by Huang and Song 2002, as the variance of the value of the firm's asset increases, the systematic risk of equity decreases. So, the business risk is expected to be positively related to leverage. The researcher concluded that leverage of firms of china will increase with volatility. Kim (1986), studied evidence on the impact of agency costs of debt in corporate debt policy and has found that high operating risk firms use more debt than less debt. Conversely, there are also other findings that concluded as risk has inverse proportion to leverage. Conversely, there are also other findings that concluded as risk has inverse proportion to leverage. Tariku (2015) has studied determinants of financial pattern on construction companies of Ethiopia and found that risk is a negative significant factor to leverage.

Some researchers have evaluated whether GDP per capita is associated with capital structure choice. Abe and etal 2007, have studied Capital Structure around the World: The Roles of Firm and Country-Specific Determinants and found that GDP growth rate has a negative significant

relationship with corporate capital structure. But according to Tariku 2015, GDP has no statistically significant relationship with leverage. In contrary, Mk Magwai(2014), studied effect of macro-economic conditions on capital structure choice for listed South African firms and has found GDP have a positive influence on long term and over all leverage.

Sakshi and etal 2015 studied the Effect of macroeconomic variables on the capital structure decisions of Indian Firms and has got inflation has a positive significant relationship with leverage. If a firm expects that due to rising inflation, the interest will increase in future in comparison to the existing interest rate, then it will be profitable for the firm to issue debt now because if the firm's expectation appears to be true yet the firm will pay low interest on debt.

2.5. Conclusions and Knowledge Gap

Leverage have been the focus of many theories and researchers since Modigliani and Miller published their seminal paper in 1958. Many researchers identified the determinants of capital structure of companies in different countries only limited studies in airlines of developing countries like airlines of sub Saharan Africa.

In case of Africa, there are some researches conducted in different firms other than airline industries to the best of researcher's knowledge. Tariku (2015) has studied determinants of financial pattern on construction companies of Ethiopia and found that debt ratio (leverage) have: a positive relation, with asset tangibility, growth opportunity, and size of the firm. But, have a negative relation, with profitability, liquidity and risk (earning volatility). However, age of a firm, non-debt tax-shield, inflation and GDP have no statistically significant impact on a firm's choice of debt ratio. The results mostly appear to support the pecking order theory of capital structure. Rafiu (2007) studied the determinants of capital structure of financial firms of Nigeria using data from financial managers of 25 listed banks in Nigeria. The study revealed that ownership structure and management control, growth and opportunity, profitability, issuing cost, and tax economics associated with debt are the major factors influencing bank's capital structure

Wedad (2017) has studied capital structure determinants for family business in Mena region in Egypt and the main result of the thesis was that family ownership concentration has no effect on the capital structure decisions showing that financing decisions do not vary between family and non-family owned business. All researches conducted so far didn't touch the airlines industry of sub Saharan Africa. This industry is different from other industries as it is very sensitive and produce perishable products. Thus, this paper will fill the gap of such geographic locations.

2.4.1. Conceptual Framework

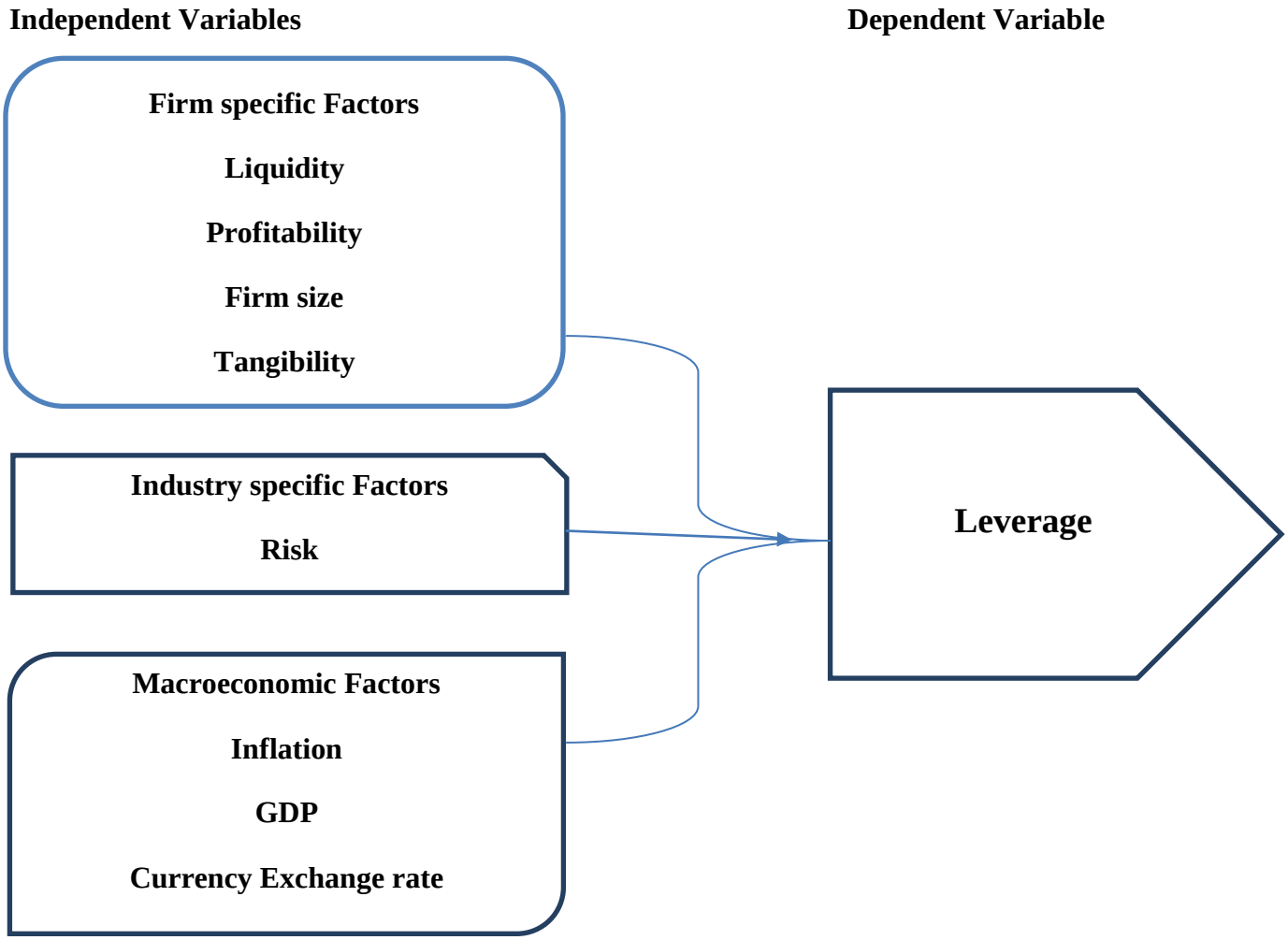

Figure 2.1 conceptual framework

Source: Researcher's Personal design

Chapter Three

3.0 Research design and methodology

Introduction

The preceding chapter presented the review of existing literatures, theories, and research findings that shows the factors affecting capital structure of a firm. These literatures are essential in identifying the explanatory variables need to be selected and tested. This chapter will discuss methods that the researcher has used when collecting data, analyzing and presenting findings. This includes, research design, data collection methods and data analysis techniques. In order to test the availability of relationships among variables and its significance, regression analysis needs to be conducted. For this analysis, the researcher has used EVIEWS 8 system for the analysis.

3.1Research Design

This study has employed explanatory type of research design to establish causal relationship between variables. The researcher has used panel data (both time series and cross sectional data) from three major airlines of Africa on the variables to examine the impact of independent variables (Size, profitability, liquidity, tangibility, risk, inflation, GDP and currency exchange rate) over the dependent variable (Capital structure) from the period 2002-2015.

3.2Data source and sample size

The Sub-Saharan Africa has various types of air transportation service providers like full service (network carriers), domestic and regional carriers and low cost carriers. From the airlines found in sub Saharan Africa, the researcher has selected three potential major airlines of SSA. Ethiopian, South African and Kenyan airways. These airlines have been selected because of the data needed are available and the airlines are also dominant airlines of SSA airline. South African airways, Ethiopian airlines and Kenyan airways occupy top three positions in the past decade in terms of international network coverage, membership in global airline alliances, fleet size, level of customer services and number of passengers transported (Fikre 2015). World Atlas has reported the largest airlines of Africa Egypt Air, South African airways, Royal Air Maroc,

Ethiopian Airlines, Air Algerie, Tunisia air and Kenyan airways respectively, are the largest airlines operating in Africa.The base for the requirement of the airlines to be major is the number of passengers transported per year in millions. Out of which, those airlines from sub-Saharan Africa are selected as major for this research.

For the research to be conducted, data must be collected form the selected samples. Sample is a portion of the population that infer about the population. In this study, the researcher has used secondary data (panel data) to investigate the relationship between independent variables (Size, profitability, liquidity, tangibility, risk, GDP, currency exchange rate and inflation) and the dependent variable (Capital structure). The study included time series data which has been collected from Ethiopian airlines, South African airlines and Kenyan airways from year 2002 to 2015. These years are selected because of availability of the data on the website of the airlines andWorld Bank.

3.3Data collection method

In order to gather the required data to answer the research questions, secondary data has been collected from different sources. Data from Ethiopian airlines has been collected from Ethiopian airlines statistics office. Data needed from South African airlines and Kenyan airways have been collected from their websites. And for economic variables, data have been collected from the website of World Bank.

3.4Data analysis technique

The collected data has beenanalyzed using EVIEWS 8. In this study, the researcher has conducted descriptive analysis, diagnosis test, Hausman test, and regression analysis. Descriptive analysis will show the detailed information about each relevant variable. To insure that the data suits the basic assumptions of CLRM, diagnosis test is essential. Hausman test will use to choose between fixed and random effect models. Regression analysis is used to examine the relationship between capital structure and the independent variables.

3.5. Variable Definition

Table 3.1 variable definition.

Variables	**Proxies**
Dependent variable	
Leverage (LEV)	Total debt/total asset
Independent variable	
Firm Size (SIZE)	Natural logarithm of total asset at the end of firms operating year.
Profitability (PROF)	Earnings before interest and taxes (EBIT) divided by total assets.
Liquidity (LIQ)	Current asset/Current liability
Tangibility (Tang)	Total fixed asset/Total Asset
Inflation (INF)	Inflation of the year of the sample years of each country.
Risk	Standard deviation of return on asset
Exchange rate (EXC)	Currency exchange rate of the countries.
Gross domestic product (GDP)	Gross domestic product of the countries.

3.6Model Specification

The research paper included data between years 2002-2015 from selected major airlines of sub Saharan Africa. The nature of the data is panel and which is very advantageous than cross sectional and time serious. The study employed Hausman test for the model and has got fixed effect model is appropriate. In order to assess extent of effect of the above variables on capital structure, fixed effectRegression model consisting of eight independent variables has been used to test the effect on dependent variable and are modeled as shown below;

$$LEV= \alpha +\beta 1\ (SIZE) +\beta 2(PROF)+\beta 3(LIQ)+ \beta 4(TANG) + \beta 5(INF) + \beta 6(Risk) + \beta 7(EXC) +\beta 8(GDP) +\varepsilon it$$

Whereas

- ✓ LEV- Leverage (Debt ratio)

- ✓ SIZE-natural logarithm of total asset
- ✓ PROF- profitability of the firm
- ✓ LIQ-Liquidity
- ✓ TANG-tangibility of assets
- ✓ Risk
- ✓ EXC-currency exchange rate of the country
- ✓ INF- inflation of the countries.
- ✓ GDP-gross domestic product
- ✓ εit - error component showing unobserved factor

Table 3.2. Expected sign and source and nature of data

Research Hypothesis	Source and Nature of data
Hypothesis 1. Liquidity has a negative and significant effect on leverage.	Current asset and Current liability: how liquidity affects leverage of firm
Hypothesis 2. Profitability has a negative and significant effect on leverage.	EBIT and total asset: How does firms EBIT affect leverage
Hypothesis 3. Tangibility has a positive and significant effect on leverage.	Fixed asset and total asset: How does fixed asset section of the firm affects the leverage of the firm
Hypothesis 4. Firm size has a positive and significant effect on leverage.	Total asset: How does total asset of the firm affect the leverage of the firm?
Hypothesis 5. Inflation has a positive and significant effect on leverage.	Inflation rate of countries: how inflation affects leverage of a firm?
Hypothesis 6. Risk has a negative and significant effect on leverage.	Standard deviation of ROA: How risk affects leverage of the firm.
Hypothesis 7. Currency exchange rate has a positive and significant effect on leverage.	Currency exchange rate of the country: How exchange rate of the country affects leverage of the firm?
Hypothesis 8. Gross domestic product has negative and significant effect on leverage.	Gross domestic product of countries: How GDP of a countries affect leverage of the major airlines?

Chapter Four

4. Results and discussions

Introduction

The previous chapter presented the method data collection, research design, data source, sample size and research method and model of regression to be used. In this chapter, the collected data will be analyzed using statistical tool EVIEWS and presented in to two sections. The result part contains descriptive statistics, CLRM assumptions, diagnostic test, correlation analysis and regression analysis. The second part will include discussions of the results.

4.1 Results

From the statistical tool output, 4.1.1 presents the descriptive analysis which focusses on the distribution of the data mean, minimum, maximum and standard deviation. 4.1.2 Presents the CLRM, 4.1.3 presents the correlation analysis between dependent and independent variables, 4.1.4 presents test of the models and 4.1.5presents the regression result of the model.

4.1.1 Descriptive statistics

This section presents the descriptive statistics of dependent and independent variables. The dependent variable is leverage of the firm computed by the ratio of total debt to total asset. The independent variables are liquidity (current asset to current liability), profitability (EBIT to total asset), firm size (Log of total asset), risk (standard deviation of ROA), tangibility (fixed asset to total asset), Inflation (inflation rates of countries), GDP (GDP of the country) and Exchange rate (currency exchange rate of the countries).

As presented on the below table, there are 42 observations of three major sub Saharan African airlines from year 2002-2015. The average mean value of leverage is 0.799. This means, from the total asset of these airlines from the period 2002-2015, on average, 79.9% is debt. The standard deviation of leverage on these years is 0.209. This means the volatility of leverage from the mean value is 0.209. In addition, between the year 2002-2015, leverage has a minimum value

of 0.441 and maximum value of 1.649. The mean value of profitability is 0.009. This means, selected airlines of sub Saharan Africa were generating return of 0.9% from their asset employed from the period between 2002 and 2015. The mean value of liquidity of these firms within these periods is 0.891. This means that, the current asset section of these firms is 0.891$ for each 1 dollar on current liability within the period of 2002-2015.The minimum and maximum value of liquidity is 0.392 and 1.694. This implies, the current asset section of these firms were to the minimum will pay 39.2% of its current obligation and has a maximum capacity of paying its debt by 169.4%. Which is, the company can pay its current debt and will have more 0.69 $ for each 1$ of additional current debt. The mean value of tangibility is 0.668. This is to mean that, out of the total asset, 68.8% of these firms between 2002-2015 is fixed assets. The mean value of GDP growth is 0.123. This shows that on average, GDP increases by 12.3%. The mean value for risk is 0.241. The mean value of firm size is 3.092. The average value of inflation is 0.102. This shows that, on average, inflation increases by 10.2%. And currency exchange rate has average value of 33.622. This shows that, the average exchange rate of countries was 33.622 between years 2002-2015.

Table 4.1. Summary of descriptive statistics

	LEV	LIQ	PROF	RISK	TANG	INF	GDP	SIZE	EXCH
Mean	0.799	0.891	0.009	0.241	0.668	0.102	0.123	3.092	33.622
Median	0.737	0.796	0.053	0.198	0.635	0.081	0.104	3.162	11.970
Maximum	1.649	1.694	0.149	0.361	1.000	0.444	0.518	3.611	92.411
Minimum	0.441	0.392	-0.510	0.163	0.415	0.014	-0.095	2.421	6.359
Std. Dev.	0.209	0.321	0.139	0.087	0.180	0.084	0.140	0.296	33.352
Skewness	1.899	1.005	-2.318	0.622	0.513	2.271	0.639	-0.662	0.727
Kurtosis	8.065	3.460	8.178	1.500	2.105	8.779	3.160	2.843	1.639
Jarque-Bera	70.129	7.433	84.548	6.642	3.241	94.550	2.904	3.112	6.934
Probability	0.000	0.024	0.000	0.036	0.198	0.000	0.234	0.211	0.031
Sum	33.560	37.435	0.369	10.119	28.062	4.292	5.157	129.867	1412.107
Sum Sq. Dev.	1.787	4.235	0.788	0.311	1.333	0.291	0.800	3.586	45606.140
Observations	42	42	42	42	42	42	42	42	42

4.1.2. Diagnosis Tests

4.1.2.1. Heteroscedasticity

Heteroscedasticity often arises in two forms; conditional and unconditional. Conditional heteroscedasticity identifies non-constant volatility when future periods of high and low volatility cannot be identified. Unconditional heteroscedasticity is used when future periods of high and low volatility can be identified. In finance, conditional heteroscedasticity is often seen in the prices of stocks and bonds. The level of volatility of these equities cannot be predicted over a period of time. Unconditional heteroscedasticity can be used when discussing variables have identifiable seasonal variability, such as electricity usage Seyed (2013). Harvey test has been used to test heteroscedasticity in this study. As shown below from the test, the probability of F-statistic shows a value greater than 5%. This implies that we failed to reject the null hypothesis saying the variance of error is constant (no heteroscedasticity). So, heteroscedasticity is not an issue for this study.

Heteroskedasticity Test: Harvey

F-statistic	1.212682	Prob. F(8,33)	0.3222
Obs*R-squared	9.542088	Prob. Chi-Square(8)	0.2986
Scaled explained SS	11.52169	Prob. Chi-Square(8)	0.1739

Source: Output of Eviews 8

4.1.2.2. Test for autocorrelation

Autocorrelation is checked through Durbin Watson test. The Durbin-Watson statistic is always between 0 and 4. A value of 2 means that there is no autocorrelation in the sample. Values approaching 0 indicate positive autocorrelation and values toward 4 indicate negative autocorrelation Seyed (2013).Form the DW test result of Eviews output below, the Durbin Watson result shows 1.87. This figure is around to 2. According to Durbin Watson, the amount around 2 shows no evidence of autocorrelation. So, there is no problem of autocorrelation in this study.

Figure 4.1. Rejection and non-rejection region of DW test

RejectH0:positiveautocorrelation	inconclusive	DonotrejectH0:noevidenceofautocorrelation	inconclusive	RejectH0:negativeautocorrelation

0 dLdU2 4-dU4-dL 4

Table 4.2. Result of DW autocorrelation test.

Test	DW test statistics
DW result	1.88

Source: Output of Eviews 8

4.1.2.3. Normality test

The other regression model assumption test is normal distribution of the residual. A normal distribution is an arrangement of the data set in which the most values cluster in the middle of the range and the rest taper of systematically toward either end. The hypothesis are:

Ho: there is no problem of normality

H1: there is problem of normality.

To test the normality assumption of this study, Jarque-Bera normality test assumption is applied. The Jarque-Bera normality test indicates that the residuals of the models are normally distributed. From the below histogram of Jarque-Bera test, kurtosis is around 3 and the probability value shows 86.94%. This result is in favor of the null hypothesis. With 5% significance level, we failed to reject the null hypothesis. So, it is implying that the data are consistent with a normal distribution assumption.

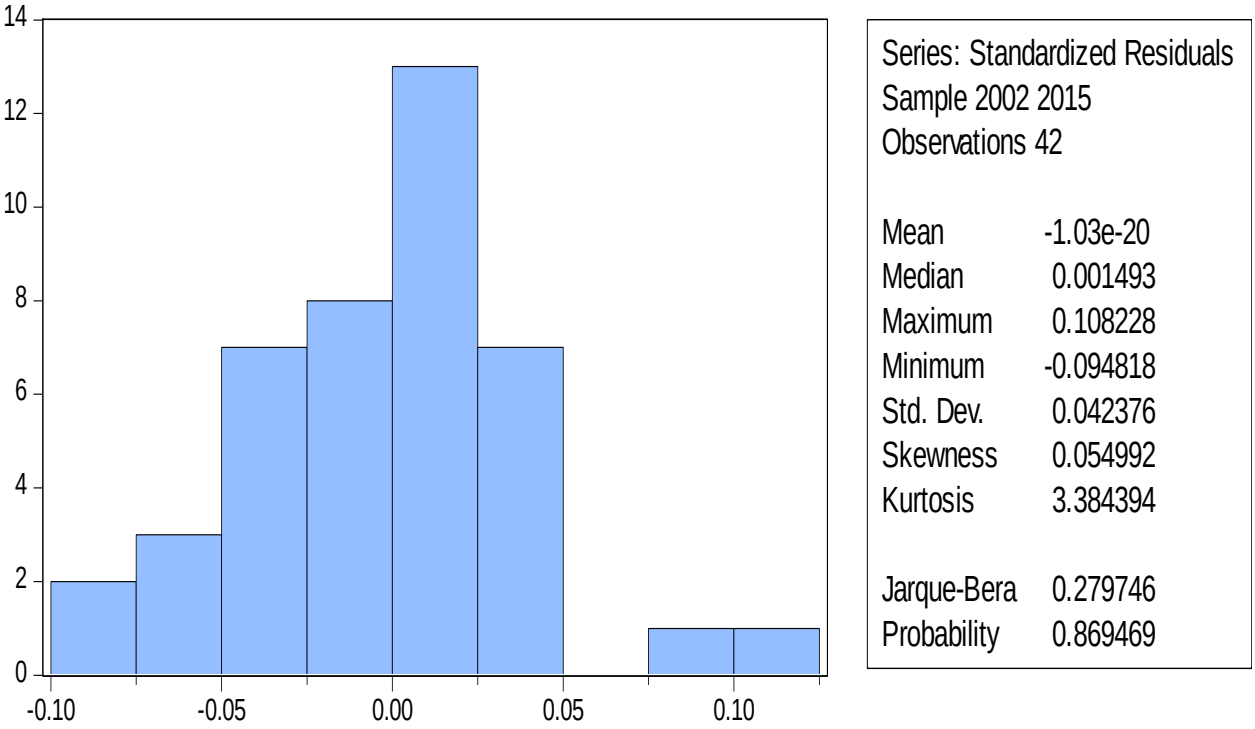

Figure 4.2. Normality test residual

4.1.2.4. Multicollinearity

Multicollinearity is the other test to be applied for the study. Multicollinearity refers to the situation where there is either an exact or approximately exact linear relationship among the explanatory variables Kirubel (2016). The correlation result between independent variables shown below, has a maximum of 52% between liquidity and profitability. As per Kennedy (2011), for the variables to be valid, the correlation between them should not exceed 0.8. Having this, Multicollinearity is not a problem for this study.

Table 4.3 Correlation Matrix of the independent variables

	LIQ	PROF	RISK	TANG	INF	GDP	SIZE	EXCH
LIQ	1.00							
PROF	0.52	1.00						
RISK	-0.47	-0.50	1.00					
TANG	-0.25	0.26	-0.49	1.00	0.15			
INF	0.34	0.28	-0.41	0.15	1.00			
GDP	0.09	-0.09	-0.22	0.25	0.32	1.00		
SIZE	-0.21	-0.30	0.41	-0.28	-0.06	0.07	1.00	
EXCH	-0.36	0.22	-0.40	0.59	-0.01	-0.03	-0.34	1

4.1.3. Correlation Analysis

The determination of correlation matrix in this study is to see the relationship between dependent and independent variable. The correlation coefficient showing positive one is to indicate a perfect positive association between the two variables. The correlation coefficient showing negative one indicates the perfect negative association between the two variables. The correlation coefficient showing zero indicates there is no association between the two variables Kirubel (2016). As indicated below, the strongest negative correlation coefficient is -0.79 between profitability and leverage. This implies that whenever companies increase their profit, they hadreduced their debt. So, this result is in favor of pecking order theory. The highest positive correlation result is 65% between risk and leverage. This implies that, when the risk of a company increases, with an increase of company leverage. The correlation coefficient between leverage andtangibility, Inflation, GDP and exchange rate are -0.35, -0.31, -0.15 and -0.21 shows

negative but weak correlation. The correlation coefficient between size and leverage is 0.43. This implies their positive and weak relationship.The correlation coefficient between leverage and liquidity shows -0.60. This shows a negative and strong relationship between leverage and liquidity. This shows, the more liquid firms had lower debts.

Table 4.4. Correlation matrix of dependent and independent variables.

	LEV	LIQ	PROF	RISK	TANG	INF	GDP	SIZE	EXCH
LEV	1.00								
LIQ	-0.60	1.00							
PROF	-0.79	0.52	1.00						
RISK	0.65	-0.47	-0.50	1.00					
TANG	-0.35	-0.25	0.26	-0.49	1.00				
INF	-0.31	0.34	0.28	-0.41	0.15	1.00			
GDP	-0.15	0.09	-0.09	-0.22	0.25	0.32	1.00		
SIZE	0.43	-0.21	-0.30	0.41	-0.28	-0.06	0.07	1.00	
EXCH	-0.21	-0.36	0.22	-0.40	0.59	-0.01	-0.03	-0.34	1

4.1.4. Model selection test: Random versus Fixed effect model.

The most widely used classification of data are cross sectional, time series and panel data. Cross sectional data are data from units observed at the same time or in the same time period. Time series data are data from a unit observed in several successive periods. Panel data is a combination of both time series and cross sectional Cathrine(2014). For this study, the researcher used panel data to meet the objective of the research. In order to decide between fixed effect and random effect model, Hausman test is conducted having the null hypothesis of random effect model is appropriate and the alternative as fixed effect model is appropriate for the data to be tested. From the Hausman test result, the probability value of the test shows 0.0000 which implies that we reject the null hypothesis saying random effect model is appropriate. So, for this research, fixed effect model is appropriate and has been used to meet the objective of this research.

Table: 4.5. Correlated Random effect Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	44.086761	9	0.0000

4.1.5. Fixed effect regression result

Up on the test maintained above on Hausman, the researcher has selected fixed effect model as more appropriate. This section will present the regression result to examine the effect of independent variables liquidity, profitability, risk, tangibility, firm size, inflation, GDP and exchange rate to the dependent variable leverage. The below table presents the fixed effect model regression output of Eviews 8.

Dependent Variable: LEV
Method: Panel Least Squares
Date: 12/12/17 Time: 17:24
Sample: 2002 2015
Periods included: 14
Cross-sections included: 3
Total panel (balanced) observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIQ	0.009922	0.089244	0.1111840.9126	
PROF	-0.883088	0.138271	-6.386646	0.0000*
RISK	1.464817	0.325199	4.504371	0.0002*
SIZE	-0.208564	0.064280	-3.244603	0.0043*
TANG	0.251772	0.117699	2.139111	0.0456 **
INF	0.456581	0.218827	2.086498	0.0506***
GDP	-0.042131	0.113186	-0.372224	0.7138
EXCH	-0.000548	0.000573	-0.956374	0.3509
KQ2009DUMM	-0.212136	0.088357	-2.400894	0.0268
C	0.903791	0.255354	3.539366	0.0022

Effects Specification

Period fixed (dummy variables)

R-squared	0.788789	Mean dependent var	0.799041
Adjusted R-squared	0.741070	S.D. dependent var	0.208743
S.E. of regression	0.062250	Akaike info criterion	-2.413319
Sum squared resid	0.073625	Schwarz criterion	-1.461738
Log likelihood	73.67970	Hannan-Quinn criter.	-2.064527
F-statistic	20.09257	Durbin-Watson stat	1.883971
Prob(F-statistic)	0.000000		

Source: Output of Eviews 8

Note, *, ** and *** are significant at 1%, 5% and 10% respectively.

Lev =0.903+0.009Liq - 0.883Prof + 1.464Risk -0.208Size + 0.251Tang – 0.042GDP – 0.0005EXCH + 0.456INF

(0.25) (0.089)(0.138) (0.325) (0.064)(0.117)(0.123) (0.0005) (0.218)

R-Square 0.78, Adjusted R-Square 0.74, Prob (F-stastic) 0.000, Durbin Watson stat 1.88

The figures in brackets are standard errors.

The above fixed effect model of regression shows, form the beginning, it shows the dependent variable, number of cross sections and number of observations as leverage, 3 and 42respectively.

The column of the table shows: independent variables, coefficient, standard error, t-statistic and probability. As shown in the table, five of the explanatory variables are significant with 1%, 5% and 10% significant level. Profitability with a probability of 0%, Risk with probability of 0%, tangibility with a probability of 4.56%, firm size with probability of 0.043% and inflation with a probability of 5.06% significantly affect leverage of selected major airlines of Sub Saharan Africa within period between 2002 and 2015. The rest explanatory variables liquidity, exchange rate and GDP are not statistically significant variable for leverage of selected major airlines of Sub Saharan Africa within period between 2002 and 2015.

Profitability and firm size are statistically significant and are negatively related to leverage as indicated in their respective coefficients of -0.883 and -0.208respectively. Risk, tangibility and inflation are a positive significant factor to leverage with a coefficient value of 1.464, 0.251 and 0.456 respectively. Profitability has a negative significant relationship with leverage. The coefficient for profitability shows a 1-unit increase in profitability will have a decrease in debt to total asset by 0.883 units. This means more profitable firms will reduce their debt. Having this, this result supports pecking order theory than trade off. This is to mean that more profitable firms are less levered. The negative effect of firm size shows, a 1-unit increase in firm size keeping other variables constant, will result in decreasing the debt to total asset by 0.208 units. Risk has a positive relationship with leverage. When risk increase by 1 unit, leverage will increase by 1.464 units. Same way, when tangibility of firm's asset increases by 1 unit, leverage will increase by 0.251. Liquidity, GDP and currency exchange rate are insignificant factor to leverage. This implies that the increment and decrement of liquidity, GDP and exchange rate, does not affect leverage of major airlines of sub-Saharan Africa between the periods of 2002-2015.

The lower part of the regression output shows the R-square, adjusted R-square and probability value. The R-square of this regression analysis is 78.87%. This is to mean that the explanatory variables 78.87% explain the dependent variable. The adjusted R-square is 74.1%. This figure will increase only when we add relevant variables. R-square will increase if we add other

explanatory variables regardless of their relevance. Probability of F-statistic is 0.000 indicates that the model fit the sample data well and explanatory variables are jointly significant.

4.1.5.1. Liquidity and leverage

Liquidity is measured by the ratio of current asset to current liability. Liquidity has insignificant positive relationship with leverage in this study. It is insignificant on all of the three significant levels 1%, 5% and 10%. This implies that the increment and decrement of liquidity, does not affect leverage of major airlines of sub-Saharan Africa between the periods of 2002-2015. Similarly, Yitbarek and Fikru have studied Firm level determinants of capital structure decision of construction companies of Ethiopia and have found as liquidity is not a significant factor to leverage.

On contrary, Natasa (2012) has studied the impact of liquidity on the capital structure: a case study of Croatian firms and found liquidity has significant negative relationship with leverage. This is the more liquid assets firms have, the less they are leveraged. Zelia (2016) has also studied the determinants of capital structure: New evidence from Portuguese small firms using both long term debt and short term debt as dependent variable and found liquidity has positive significant relationship with long term debt and negatively related with short term debt.

4.1.5.2. Profitability and leverage

Profitability found to be negative but significant factor to leverage. As per the regression output, the coefficient for profitability shows a 1-unit increase in profitability will have a decrease in debt to total asset by 0.883 units. The negative and significance result supports pecking order theory in which, when firms generate more profits, they prefer internal financing than using external debts. This result is also same with other researchers like the study of Kibrom (2010), on determinants of capital structure of Ethiopian commercial banks and have found that profit has statistically significant but negative relationship with leverage. On the other side, this result is in opposition to different researchers. Ogbulu and Emeni (2012), studied the determinants of capital structure in Nigeria and have found as profitability has no significant impact on leverage. Paul and etal, (2013), studied Determinants of Capital Structure: Evidence from Ghanaian Firms and have found that profitability has significant positive relationship with leverage.

4.1.5.3. Risk and leverage

Risk was assumed to have a negative relationship with firms' leverage. But, from this research regression output, risk has found to be it has both statistically significant and positive relationship with leverage. When risk increases by 1-unit, leverage of the firm will increase by 1.464 units. Risk is positively related with return. When a company seeks higher return, risky investments will be chosen. To entertain this much higher return, they invest even with debt financing. Accordingly, the return together with risk will get higher. So, whenever there is high risk on investment, return will be high. Companies will have more debt to generate this return. For the increase in risk increases return, increase in return will also increase companies leverage and so that this leverage will let the companies entertain tax deductibility of interest. Same way, Huang and Song 2002, studied determinants of capital structure of firms in China and fond risk has a positive significant effect on leverage. The researcher concluded that leverage of firms of china will increase with volatility. Kim W.S. Sorensen, E. H (1986), studied evidence on the impact of agency costs of debt in corporate debt policy and has found that high operating risk firms use more debt than less debt. Conversely, there are also other findings that concluded as risk has inverse proportion to leverage. Tariku (2015) has studied determinants of financial pattern on construction companies of Ethiopia and found that risk is a negative significant factor to leverage. In this study, risk is a standard deviation of return on asset used as a proxy of volatility. Risk return theory explained negative relationship between capital adequacy and profitability. When a bank decides to take up more risk to achieve higher expected returns, the bank will increase leverage or debt in order to boost up profitability. This suggests that if a bank intends to increase leverage, then the bank will need to reduce the equity to asset ratio (capital). Thus, this theory explained capital adequacy can be linked to a bank's profitability due to that bank prefers to use leverage rather than equity Lim and etal (2015).

4.1.5.4. Firm size and leverage

The natural logarism of total asset is considered as firm size to this study. Firm size is a negative but significant factor to leverage as per this regression analysis. The result shows, when the log of the firm size increases by 1 unit, leverage of the firm will decrease by 20.8%. This result is in contrary to Trade-off theory which says, whenever the bigger the corporation, the higher will be

the debt ratio. More stable firms should have more debt. Similarly, Cathrine (2014), studied determinants of capital structure in listed Norwegian firms and found that size is statistically significant but has negative relationship with book value of leverage. In antagonistic, as per Ahmad (2015), on determinants of capital structure of Kuwait firms, size has statistically significant positive relationship with leverage. On the other way, Michael (2012) has studied the determinants of corporate capital structure: evidence from Japanese manufacturing companies and have found firm size is not significant factor to leverage and negatively related.

4.1.5.5. Tangibility and leverage

The relationship between tangibility and leverage has found to be,tangibility positively significantly affects leverage of the major selected airlines of sub Saharan Africa. For this firms, whenever there is a 1-unit increment in fixed asset section, there is an increment of leverage by a unit of 0.251. This result is same with Ahmad andTariku (2015) who have studied the determinants of capital structure: empirical evidence from Kuwaitand determinants of financial pattern on construction companies of Ethiopia respectively and found that tangibility of an asset has a significant positive relationship with leverage. On the other way Kibrom (2010), has studied the determinants of capital structure evidence from commercial banks of Ethiopia and found tangibility is positive but not statistically significant variable to leverage.

4.1.5.6. Inflation and leverage

Inflation is statistically significant and positively related to leverage. When inflation of the countries increases by 1-unit, leverage of the major airlines will increase by 0.456units. This research output is essential for the countries with higher inflation rate than interest rate to be paid to the lenders. If the inflation is higher that the interest rate to be paid, companies will be benefited if they borrow more and increase their leverage ratio. Even if there is increment in interest rate when inflation increases, the interest amount to be paid will increase also. This increase in interest rate has advantage on firm's tax as interest is tax deductible. This result is same as Robert (1985) who has studied secular patterns in the financing of U.S. corporation's corporate capital structures in the united states and found that inflation is a positive factor for leverage. In contrary, Charles and Elizabeth (2013), who have studied on an Empirical Analysis of Macro-Economic Influences on Corporate Capital structure of listed companies in Kenya and

have found Inflation had a negative influence on the short term debts. In other research result, inflation was found to be insignificant factor to leverage of firms. Angga (2014), has studied capital structure and inflation uncertainty evidence from a pooled sample of Dutch firms and found inflation is not a significant factor to debt to equity ratio of firms.

4.1.5.7. GDP and leverage

The regression result of GDP shows a negative and insignificant relationship with leverage. The increment and decrement of GDP, will not significantly affect leverage as per this study. This result is similar with Tariku 2015; GDP has no statistically significant relationship with leverage. Similarly, Asrat (2016), studied Capital Structure and Financial Performance: Evidence from Ethiopian Cements Companies and found that gross domestic product was statistically insignificant factor to leverage. But, according to Abe and etal (2007), who have studied Capital Structure around the World: The Roles of Firm and Country-Specific Determinants and found that GDP growth rate has a negative significant relationship with corporate capital structure.

4.1.5.8. Exchange rate and leverage

Exchange rate of countries is not statistically significant factor for leverage under the year 2002-2015 on major airlines of sub Saharan Africa. This variable is negatively related to leverage as per this finding. The result shows, the increment and decrement of currency exchange rate does not affect leverage of these airlines with in the specified time period. But,on contrary, Dr. Zhi (2011) has studied on foreign exchange rate and capital structure decision in New Zealand listed property trusts. And the researcher has got the appreciation rate of New Zealand dollar against US dollar is found to have a significant negative relationship with changes in the long term date ratio.

Table 4.7. Comparisons of test result and expected sign of the study

Determinants	**Expected outcome**	**Actual test result**
Liquidity	-	+ insignificant
Profitability	-	- Significant
Tangibility	+	+ significant
Firm size	+	- significant
GDP	-	- Insignificant
Inflation	-	+ Significant
Risk	-	+ Significant
Exchange rate	+	- Insignificant

Chapter Five

5.0. Summary, Conclusion and recommendation

The previous chapter presented the analysis of the findings. This chapter will present summary of the findings, conclusions that the researcher made on the research findings and the recommendation that the researcher provided. Accordingly, this chapter has three sections. The first section presents summary of the findings, thesecond section presents conclusion of the research and the last section presents recommendation of the researcher.

5.1. Summary of the findings

This part of the study tries to recapitulate the key findings of the study.

5.1.1 Profitability is statistically significant but has negative relationship with leverage of these major airlines of sub Saharan Africa between the period 2002 and 2015. This result is found to be negative as expected. Profitability is significant at 1% significance level with probability value of 0.000%.

5.1.2 Tangibility is both positive and significant variable to leverage of these major airlines of sub Saharan Africa between the period 2002 and 2015. Tangibility is found to be positive as expected and it is significant at 5% significant level with probability value of 4.56%.

5.1.3 Firm size is statistically significant but has negative relationship with leverage of these major airlines of sub Saharan Africa between the period 2002 and 2015. This result is significant at 1% with probability value of 0.43%.

5.1.4 Inflation is both positive and significant variable to leverage of these major airlines of sub Saharan Africa between the period 2002 and 2015. Inflation is significant at 10% significance level with a probability value of 5.06%.

5.1.5 Risk is both positive and significant variable to leverage of these major airlines of sub Saharan Africa between the period 2002 and 2015. Risk is significant at 1% significance level with probability value of 0.02%

5.1.6 Liquidity, GDP and Currency exchange rate were not statistically insignificant variable to leverage of these major airlines of sub Saharan Africa between the period 2002 and 2015.

5.2. Conclusion

The study has conducted to identify the factors affecting leverage of the major airlines of sub-Saharan Africa.To conduct this research, existing literatures and researches have been reviewed by the researcher and identified that there are both internal and external factors that can affect leverage ratio of the firm. The values of internal factor variables are extracted from yearend balance sheet and income statement of the airlines. The external determinant factors are not related with the operating efficiency of the airlines and they are macro-economic factors. The data of these external factors are extracted from the web site of World Bank. These factors have the influence of changing the debt to total asset section of the airlines as per different reviewed researches.

The researcher has taken leverage of the firm as a dependent variable measured by the ratio of total debt to total asset. Eight explanatory variables have been selected for the study. These variables are liquidity, profitability, firm size, risk, tangibility, GDP, inflation and exchange rate of the country.

To achieve the objective of this research, the researcher has collected secondary data of three major airlines of Africa from the period between2002-2015. The collected data were analyzed by employing fixed effect model of regression using Eviews 8. The regression output of Eviews 8 using fixed effect regression model showed the existing relationship of the dependent and independent variables between selected time periods.

Liquidity had statistically insignificant but positive relationship with leverage. This result was not same as expected.GDP of the country also found to be negative and statistically insignificant. Currency exchange rate is found to be negative and statistically insignificant to leverage. The increment and decrement of these variables will not affect the leverage of major airlines of sub-Saharan Africa.

Profitability is a negative significant factor to leverage and this result is in line with previous expectation. When the firm generates more profit, they prefer internal financing than external. So, the leverage of these major airlines of sub Saharan Africa will decrease with an increase in profit within the period of 2002-2015.Surprisingly, risk has found to be positive and statistically

significant factor to leverage. It was assumed that risk will have a negative sign on leverage.Tangibility is positive and statistically significant as expected. Tangibility has a positive relation with leverage. Airlines with increased fixed asset, have more debt. This result supports trade off theory. Firm size was expected to have a positive relationship with leverage. But, the result showed here is a significant but negative relationship with leverage. The larger the firm the lower the leverage ratio. The other significant factor is inflation. Inflation has a positive significant relationship with leverage.

To conclude, profitability, risk, tangibility, firm size and inflation significantly affect the major airlines of sub Saharan Africa between the periods of 2002-2015. The other explanatory variables GDP, currency exchange rate and liquidity have found to be statistically insignificant variables to leverage of these airlines within this time period. Although firms are the one that is responsible in adjusting their capital structure, governments in the countries under the study need to facilitate infrastructures like establishing stock markets to enable firms to adjust their leverage ratio.

5.3. Recommendations

The results of this study has brought insights in the capital structure of airlines in sub Saharan Africa. From the descriptive statistics, most of the asset section of the airlines is supported by debt. From the regression output section, tangibility is a significant and positive factor to leverage of the airlines. So, airlines need to keep most of their asset tangible to attract creditors so that the airlines can get external debts when needed.

The researcher recommends the management of the airlines to use the result of this data and decide on the airline's leverage. In most theories and researches, maintaining the optimum leverage ratio, will increase the profitability of the firm. This implies that, when managers are aware of the significant factors of leverage, they indirectly are trying to think of their profits. So, managements of these airlines are highly recommended to use the result of this paper and give attention to the significant variables. As airline industry is capital intensive, it is difficult to invest all from own capital without debt. So, the researcher recommends the airline's management to focus on significant variables of both internal and external factors (profitability, tangibility, risk, inflation and size) so that the airlines can set the best possible mix of debt and equity that will maximize the value of the firm.

The management of the airlines need to keep most of their asset as fixed to generate more debt as tangibility is significant and positive factor to leverage. At the year the airlines generated higher profits, it's recommended that the airlines better to decrease their debt and use internal sources (profit) for financing so as when the size of the firm increases. Whenever the inflation of the country increases, it will be difficult to buy expensive assets like aircrafts by own investment only (as it will be more expensive than previous when inflated). So, the researcher recommends the managements of the airlines to use debts to source the assets as inflation is significant and positive factor to leverage.

Although the researcher used to include many explanatory variables for this study, the researcher recommends the future researchers to include more explanatory variables and other more sample airlines.

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Appendix

Appendix 1. Variables and its measurement

Variables		Notation	Measurement	Expected effect
Dependent	Leverage	LEV	Total debt to Total Asset	
Independent	Liquidity	LIQ	Current asset to current liability	Negative
	Profitability	PROF	EBIT to total asset	Negative
	Tangibility	TANG	Fixed asset to total asset	Positive
	Size	SIZE	Natural logarism of total asset	Positive
	Inflation	INF	Inflation of the countries	Negative
	Gross domestic product	GDP	GDP of the countries	Negative
	Currency exchange rate	EXCH	Currency exchange rate of the countries	Positive
	Risk	RISK	Volatility of sales	Negative

Appendix 2 Data regressed

Firms	Years	Leverage	Liquidity	Inflation	Profitability	GDP	Tangibility	Firm Size	Exchange rate	Risk
1	2002	0.576909604	0.980110971	0.01654	0.056166718	-0.046191228	0.619741889	2.421399591	8.568	0.163489075
1	2003	0.441405845	1.694431229	0.17762	0.104231169	0.098448566	0.476612372	2.543704897	8.6	0.163489075
1	2004	0.637304252	1.500269829	0.03256	0.05259809	0.174808957	0.66432508	2.785276279	8.636	0.163489075
1	2005	0.679567845	1.311363607	0.12945	0.058229656	0.224050458	0.65784746	2.894255972	8.666	0.163489075
1	2006	0.680101367	1.065546879	0.1231	0.039463515	0.232221335	0.668324778	2.923650553	8.699	0.163489075
1	2007	0.667001907	1.176676686	0.17238	0.038544561	0.289688435	0.62970557	2.926521976	8.966	0.163489075
1	2008	0.673917548	1.444931379	0.44391	0.067553954	0.373424466	0.523103801	2.991893215	9.6	0.163489075
1	2009	0.600954373	1.593876638	0.08468	0.129994783	0.198415777	0.528263652	2.977086714	11.778	0.163489075
1	2010	0.705896877	1.662946497	0.08137	0.077474537	-0.077182512	0.639907925	3.194872828	14.41	0.163489075
1	2011	0.712733265	0.961213132	0.33224	0.048834555	0.067448837	0.738409508	3.268767415	16.899	0.163489075
1	2012	0.810714845	1.020930528	0.2277	0.035213685	0.355458677	0.770610319	3.405060753	17.705	0.163489075
1	2013	0.770045469	0.981640829	0.08078	0.052511408	0.100148462	0.7369715	3.459533498	18.4948	0.163489075
1	2014	0.77370003	0.968668294	0.07392	0.060017305	0.167141676	0.719487836	3.542744613	19.3685	0.163489075
1	2015	0.773846691	0.803487237	0.10134	0.057080032	0.106539572	0.782786332	3.610891537	20.3885	0.163489075
2	2002	0.619155926	1.117720143	0.09164	0.149229214	0.049528395	0.545299469	3.176544228	10.541	0.36104866
2	2003	1.08595307	0.392488532	0.05859	-0.3983928	0.517609192	0.735969142	3.313061083	7.565	0.36104866
2	2004	1.159708652	0.503818858	0.01385	-0.510451827	0.304335918	0.558595369	3.417319985	6.46	0.36104866
2	2005	0.864369635	0.796547177	0.03339	0.056309734	0.127644645	0.595543922	3.412169432	6.359	0.36104866
2	2006	0.915719494	0.637702324	0.04642	0.030381014	0.05379078	0.625419973	3.315069721	6.772	0.36104866
2	2007	0.89654718	0.796080261	0.07098	-0.040195045	0.102258663	0.550342646	3.33327632	7.045	0.36104866
2	2008	0.85615491	0.951523676	0.11536	-0.041436146	-0.042235552	0.41516828	3.322316917	8.261	0.36104866
2	2009	0.844214014	0.891724826	0.0713	0.048840349	0.031962897	0.451221009	3.284045854	8.474	0.36104866
2	2010	0.850507697	0.923981703	0.04257	0.043760236	0.268346534	0.444218801	3.319126402	7.321	0.36104866
2	2011	0.797479686	0.944026341	0.05	0.06631318	0.109416986	0.447183584	3.301029996	7.261	0.36104866
2	2012	0.970576514	0.68568445	0.05654	-0.080366631	-0.048247078	0.520257705	3.263366449	8.21	0.36104866
2	2013	1.056065574	0.55334891	0.05752	-0.064196721	-0.074948023	0.534098361	3.198517566	9.655	0.36104866
2	2014	1.223892701	0.551836243	0.06067	-0.141921397	-0.043022279	0.42819713	3.169383719	10.853	0.36104866
2	2015	1.649270913	0.414350623	0.04588	-0.358403684	-0.095322516	0.51008163	3.071321389	12.1623	0.36104866
3	2002	0.660881053	0.628900733	0.01961	0.057856134	0.012140108	0.987254629	2.445209262	78.749	0.198260292
3	2003	0.69746444	0.736878994	0.09816	0.033189033	0.133620329	0.86641325	2.504353562	75.936	0.198260292
3	2004	0.711807097	0.782403771	0.11624	0.093445814	0.079895334	0.662403826	2.567973653	79.174	0.198260292
3	2005	0.724688769	0.742046317	0.10313	0.148632368	0.164184576	0.826329331	2.773233769	75.554	0.198260292
3	2006	0.750959679	0.742358646	0.14454	0.118581695	0.37824943	0.999874255	2.982754344	72.101	0.198260292
3	2007	0.720004658	0.737303816	0.09759	0.10215172	0.237466845	0.99879988	3.059975245	67.318	0.198260292
3	2008	0.663024225	0.720851784	0.2624	0.087236259	0.12319217	0.988418878	3.04529894	69.175	0.198260292
3	2009	0.612665271	0.586274081	0.09234	-0.042405109	0.031377454	0.907328975	3.093704674	77.352	0.198260292
3	2010	0.727379441	0.756248038	0.03961	0.056727134	0.080445147	0.853592085	2.965978598	79.233	0.198260292
3	2011	0.705978758	0.699956805	0.14022	0.08106769	0.048842866	0.99879	2.947574187	88.811	0.198260292
3	2012	0.702668148	0.718036471	0.09378	0.045033061	0.201576034	0.919052029	2.961909608	84.53	0.198260292
3	2013	0.74563963	0.766838365	0.05718	0.103776814	0.093048629	0.562695462	3.153711255	86.123	0.198260292
3	2014	0.810106487	0.800641746	0.06877	-0.016393443	0.114237906	0.464677834	3.228087806	87.922	0.198260292
3	2015	1.032752399	0.688893405	0.06582	-0.137194268	0.032618079	0.509077381	3.294500375	92.4105	0.198260292

Appendix 3 Regression result

Dependent Variable: LEV
Method: Panel Least Squares
Date: 12/12/17 Time: 17:24
Sample: 2002 2015
Periods included: 14
Cross-sections included: 3
Total panel (balanced) observations: 42

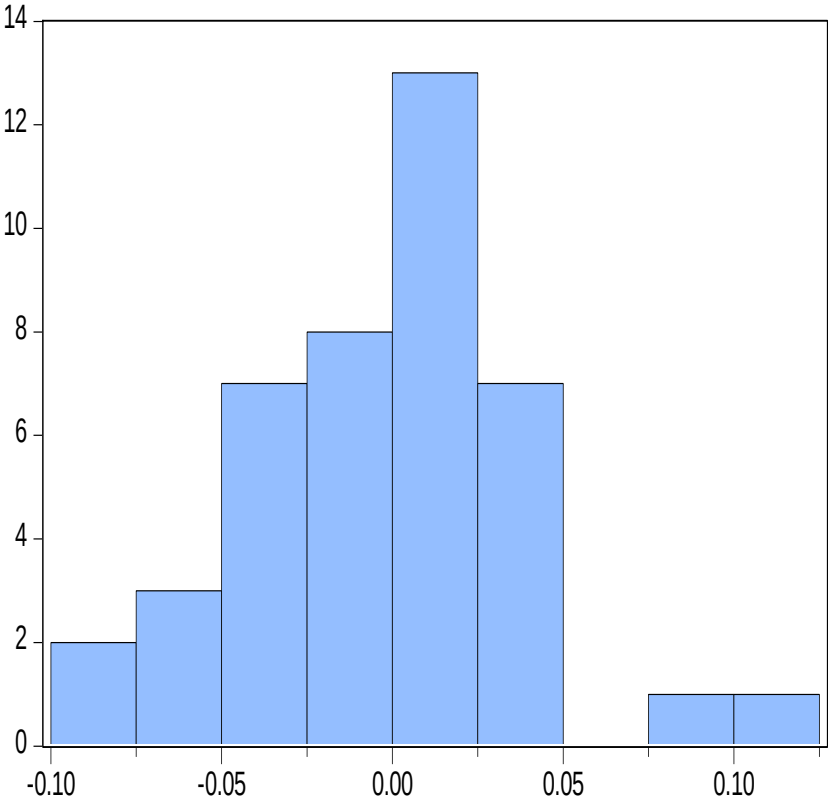
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIQ	0.009922	0.089244	0.111184	0.9126
PROF	-0.883088	0.138271	-6.386646	0.0000
RISK	1.464817	0.325199	4.504371	0.0002
SIZE	-0.208564	0.064280	-3.244603	0.0043
TANG	0.251772	0.117699	2.139111	0.0456
INF	0.456581	0.218827	2.086498	0.0506
GDP	-0.042131	0.113186	-0.372224	0.7138
EXCH	-0.000548	0.000573	-0.956374	0.3509
KQ2009DUMM	-0.212136	0.088357	-2.400894	0.0268
C	0.903791	0.255354	3.539366	0.0022

Effects Specification

Period fixed (dummy variables)

R-squared	0.788789	Mean dependent var	0.799041
Adjusted R-squared	0.741070	S.D. dependent var	0.208743
S.E. of regression	0.062250	Akaike info criterion	-2.413319
Sum squared resid	0.073625	Schwarz criterion	-1.461738
Log likelihood	73.67970	Hannan-Quinn criter.	-2.064527
F-statistic	20.09257	Durbin-Watson stat	1.883971
Prob(F-statistic)	0.000000		

Appendix 4 Normality test



Series: Standardized Residuals
Sample 2002 2015
Observations 42

Mean	-1.03e-20
Median	0.001493
Maximum	0.108228
Minimum	-0.094818
Std. Dev.	0.042376
Skewness	0.054992
Kurtosis	3.384394
Jarque-Bera	0.279746
Probability	0.869469

Appendix 5. Correlation result among dependent and independent variables

	Leverage	Liquidity	Profitability	RISK	Tangibility	Inflation	GDP	Firm Size	Exchange rate
Leverage	1								
Liquidity	-0.604352	1							
Profitability	-0.793748	0.515647	1						
RISK	0.646504	-0.470416	-0.500927	1					
Tangibility	-0.346638	-0.245389	0.257010	-0.492739	1				
Inflation	-0.314678	0.344956	0.277819	-0.407777	0.154123	1			
GDP	-0.149279	0.091851	-0.087394	-0.219706	0.246915	0.321396	1		
Firm Size	0.431884	-0.207846	-0.298852	0.412949	-0.283050	-0.055634	0.066682	1	
Exchange rate	-0.212265	-0.360662	0.222023	-0.398619	0.594016	-0.014685	-0.027865	-0.337464	1