

**THE FACTORS THAT INFLUENCE CAPITAL
STRUCTURE DECISIONS ON NON- FINANCIAL
INSTITUTION LISTED IN NAIROBI SECURITIES
EXCHANGE IN KENYA**

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ABSTRACT

In attempt to restructuring the firms' capital structure, managers employ the use of debt. The proportion of debt to be used in the firms may be dependent on a number of factors such as profitability, tangibility, firm size, growth rate, volatility of a firm's earnings and Non-debt tax shields. The specific objectives of the study were to examine the relationship between profitability and financial leverage; To investigate the relation between tangibility and the financial leverage; To determine the effect of size on the financial leverage; To investigate the relation between non-debt tax shields and the financial leverage; To establish the effect of growth rate on the financial leverage and to establish the effect of volatility of earnings on the financial leverage. The study was based on the based of trade-off and pecking order theory which explained the relationship between the financial leverage and their determinants. The study adopted an explanatory non-experimental research design to investigate the effect of the determinants of financial leverage of non-financial companies listed in the Nairobi securities Exchange. The population of the study had 57 firms' listed Nairobi securities Exchange but only 39 non-financial firms were included in the study. Given the small number of firms, a census study was conducted where all the 39 non-financial firms currently in operation were considered

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for the period covering period 2008 to 2012. The study used secondary panel data contained in the annual reports and financial statements of all the firms listed at the Nairobi Security Exchange. Descriptive statistics such as mean, range and standard deviation was used. The study used fixed effects model of panel regression to investigate the magnitude and directions of the relationship between leverage and determinants of financial leverage. Pearson's correlation coefficient was used to check on the collinearity of the variables. The results showed that listed firm in Kenya, finances their investment activities using 62% total debt and 38% equity on average. Cross correlation terms for all the independent variables were quite low, hence giving little cause for concern about multicollinearity problem. Result from fixed effects model of panel regression indicated that profitability had a negative regression coefficient of 0.264 which implied that as profitability increases by 1%, the use of debt reduces by 26.4%. Non-debt tax shield had a positive regression coefficient of 0.980 which implied that as non-debt tax shield increases by 1%, use debt increases by 98%.

KEY WORDS: capital structure, non-financial companies, trade-off and pecking order theory

INTRODUCTION

Background of the study

Newly born or an ongoing business requires funds to carry out its activities since no success is achievable in the absence of funds. The needed funds may be for the daily running of the business or for expansions (Salazar 2012). Whenever funds have to be raised to finance investment, a financing decision is involved. In the financing decision, the manager is concerned with determining the best financing mix or capital structure of his firm (Wahome 2014). Corporate sources of financing are dependent on how firms make financing decisions (maître 2014). Deciding the suitable capital structure is an important decision of the financial management because it is closely related to the value of the firm (Pandey 2005). Capital structure decision has for long been regarded as an important parameter from a financial economics standpoint since it is linked with a firm's ability to meet the demands of various stakeholders (Jensen, 1986). Proper capital structure leads the firm to achieve the better performance and ensures the sustainability in its operation (Pralalathan 2010). Capital structure decision is

therefore very critical and fundamental in the life of a business.

Capital structure decision will involve an analysis of the existing capital structure, dividend decision and financial leverage (Pandey 2005). The term Capital structure refers to ‘the mix of debt and equity maintained by the firm’ (Gitman 2012). The capital structure is a mix of a company's debt and equity that a firm uses to finance its overall operations and growth (Abor, 2005). It could also be defined as a mix of sources of financing that appears in the balance sheet (Keown et al., 1985). Romano et al. (2000) categorize capital structure into four main parts: capital and retained profits, family loans, debt, and equity. Alternatively, Gibson (2002) suggests five types of source of finance, namely owner equity, related person debt, trade credit, bank loan, and other debt or equity such as credit cards, venture capital, and government loans. On the other hand, Burns (2001) classifies sources of finance into two categories: long-term finance such as equity from private investment and other people's money, bank loans, leasing, and hire purchase and short-term finance, for instance, bank overdrafts, short-term loans, and factoring. Therefore, capital structure is the debt-equity mix of business finance composed of either external or internal sources.

Financial leverage is a measure of how much firms use equity and debt to finance its assets. A company can finance its investments by debt and equity. The company may also use preference capital. The rate of interest on debt is fixed irrespective of the company's rate of return on assets. The financial leverage employed by a company is intended to earn more on the fixed charges funds than their costs. As debt increases, financial leverage increases (Chinedu 2014).

Financial leverage refers to long term financing of the firm's assets, bearing fixed financing charges. The higher the financial leverage, the higher the financial risk, and the higher the cost of capital. Cost of capital rises because it costs more to raise funds for a risky business. Financial leverage refers to the proportion of debt in the capital structure (Tariq 2014). Financial leverage is the use of fixed- charges sources of funds, such as debt along with the owners' equity in the capital structure. Financial leverage therefore provides the potential of increasing the shareholders' earning as well as creating the risks of loss to them.

Financial leverage is influenced by capital intensity, tangibility, profitability, firm size and non-debt tax shield (Pahalathan 2010). Profitability plays an important role in leverage decisions. It is a measure of the earning power of a firm. Ever-since the Modigliani and Miller's (1958) work, many theoretical work and empirical studies have not given a consistent relationship between profitability and leverage. The static trade-off and pecking order theories suggested a positive and negative relation with capital structure choice respectively on the effect of firm's profitability. The two conflicting results on profitability create a big problem for the authors and researchers to resolve and explain the capital structure behavior of firms.

The static trade-off theory and pecking order theory suggested a positive relation with capital structure while agency cost theory and suggested negative effect on the firm's tangibility. The above conflicting results on the relationship between asset tangibility and corporate financing decision led to dilemma in the actual capital structure theory adopted by companies in developed and developing nations.

The effect on firm size is still a question although past studies dominantly evidenced a positive association with capital structure choice. The positive relation is in compliance with the static trade-off theory. However, the negative relation of firm size with capital structure choice is in compliance to the pecking order theory.

Non-debt tax shields is another firm specific factor commonly examined by past researchers and like the other factors, the effect on non-debt tax shields is still a question although trade – off theory and other past studies dominantly evidenced a negative association with capital structure choice. The negative result of non-debt tax shields was confirmed by De Angelo and Masulis (1980).

The static trade-off and pecking order theories suggested a negative and positive relation with capital structure choice respectively on the effect of firm's Growth opportunity.

The trade-off theory predicts a negative relationship between leverage and the volatility of a firm's earnings. The pecking order theory allows the same prediction, but the reasoning is different.

Statement of the Problem

While most firms listed in the NSE have an improvement in performance, others have experienced declining fortunes and some have even been delisted from the NSE over the last decade. Significant efforts to turn around such companies or even liquidate them have focused mainly on financial restructuring. In attempt to restructuring the firms, managers employ the use of debt. The proportion of debt to be used in the firms may be dependent on a number of factors such as profitability, tangibility, firm size, growth rate, volatility of a firm's earnings and Non-debt tax shields. The trade-off theory and pecking order theory have shown conflicting effects of these factors and therefore the managers have a problem of deciding which theory to use when making financing decisions. It is therefore necessary to test the pecking order and trade-off theories in the Kenyan context on the effects of profitability, tangibility, size, non-debt tax shield, growth opportunity and volatility of earning on the financial leverage of non-financial companies listed in the NSE in Kenya

Objectives of the study

The general objective of study was to empirically examine the determinants of financial leverage of financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya. The specific objectives of the study were;

1. To examine the effect of profitability on the financial leverage of non-financial firms listed in Nairobi Securities Exchange Kenya.
2. To investigate the relation between tangibility and the financial leverage of non-financial firms listed in Nairobi Securities Exchange Kenya.
3. To determine the effect of size on the financial leverage of non-financial firms listed in Nairobi Securities Exchange Kenya.
4. To investigate the relation between non-debt tax shields and the financial leverage of non-financial firms listed in Nairobi Securities Exchange Kenya.

5. To establish the effect of growth rate on the financial leverage of non-financial firms listed in Nairobi Securities Exchange Kenya.
6. To establish the effect of volatility of earnings on the financial leverage of non-financial firms listed in Nairobi Securities Exchange Kenya.
7. To analyze the determinants of capital structure for each market segment for non-financial firms listed in the Nairobi Securities Exchange Kenya .

1.4 Research Hypotheses

A total of six variables have been used in this study. The only dependent variable of the study was financial leverage and independent variables were hypothesized as follow:

H₀₁: There is no significant relation between profitability and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

H₀₂: There is no significant relation between Asset tangibility and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

H₀₃: There is no significant relation between size and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

H₀₄: There is no significant relation between non-debt tax shields and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

H₀₅: There is no significant relation between growth rate and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

H₀₆: There is no significant relation between volatility of earnings and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

LITERATURE REVIEW

Introduction

This chapter will present a review of relevant literature on the determinants of financial leverage/ capital structure decision across industries.

Capital structure theories

The Miller and Modigliani theory

Modigliani and Miller (1958) rejected the traditional view and came up with the new propositions to explain the capital structure theory and here starts the birth of modern capital structure theory. MM introduced the capital structure irrelevancy propositions in their famous work on the “cost of capital, corporation finance and the theory of investment”. They used cross-section equations on data taken from 43 electric utility companies between 1947 and 1948 and 42 oil companies during 1953 to find out whether the choice of capital structure affects the cost of capital.

MM argued that to increase the value of firm, the company can only do it on the left hand side of the balance sheet, which is to invest in positive NPV assets. The right hand side of the balance sheet, which is known as financing side, do not contribute anything to the firm value, so taking debt or no debt has nothing to do with increasing firm value according to MM.

MM found that the cost of capital and the value of the firm are independent of the capital structure. The cost of capital and the value of firm are constant for all degrees of leverage. The overall cost of capital increases in a manner to offset exactly the use of lower expensive debt financing, and therefore, average cost of capital remains constant irrespective of the capital structure used by a company.

Modigliani and Miller (1963) introduced corporate taxes into their earlier model by setting free the first assumption of no taxes. They argued that optimal capital structure can be obtained for firms with 100 percent debt financing by having the tax shield benefits of using debt. With tax introduced the value of levered firm become higher. This was their correction model.

Modigliani and Miller (1958) made a breakthrough development on establishing the first important theory of the capital structure. When financial managers are trying to find the particular combination that maximizes the market value of the firm, Modigliani and Miller’s (MM’s) famous proposition 1 states that no combination is better than any other in a perfect market. The firm’s value is determined by its real assets, not by the securities it issues. It implies the financing choices do not affect the firm’s investment, borrowing, and operating policies. It also implies the choices of long-term versus short-term debt should have no effect on the overall

value of the firm. Furthermore, the MM's proposition 2 states that the capital structure does affect the expected rate of return on the common stock. According to the weighted-average cost of capital (WACC) developed by MM, return on equity increases in proportion to the debt-equity ratio, but any increase in expected return is exactly offset by an increase in risk and therefore leaving stockholders no better or worse off.

Trade-off Theory

According to the static trade-off hypothesis, a firm's performance affects its target debt ratio, which in turn is reflected in the firm's choice of securities issued and its observed debt ratios (Hovakimian et al., 2004). This theory also states that optimal capital structure is obtained by balancing the tax advantage of debt financing and leverage related costs such as financial distress and bankruptcy, holding firm's assets and investment constant. The standard presentation of static trade-off theory is provided by Bradley et al. (1984). They concluded that an increase in the costs of financial distress reduces the optimal debt level, an increase in non-debt tax shields reduces the optimal debt level, an increase in the personal tax rate on equity increases the optimal debt level, at the optimal capital structure, an increase in the marginal bondholder tax rate decreases the optimal level of debt and the effect of risk is ambiguous, even if uncertainty is assumed to be normally distributed. The relationship between debt and volatility is negative.

According to Myers (1984), the static trade-off theory also suggests that higher profitable firms have higher target debt ratio (this contradicts with the pecking order hypothesis which suggests higher profitability firms have lesser debt). Higher profitability firms ensure higher tax savings from debt, lower probability of bankruptcy and higher over-investment and these require a higher target debt ratio.

Dynamic trade-off theory stated the negative relation of profitability with leverage. The argument is firms passively accumulate earnings and losses letting their debt ratios to deviate from the target as long as the costs of adjusting the debt ratio exceed the costs of having a sub-optimal capital structure (Fischer et al. 1989). Therefore, firms that were highly profitable in the past are likely to be have lesser gearing (Hovakimian et al., 2004).

In a dynamic framework, firms' target debt ratio varies over time along with its investment opportunity set. In a dynamic framework, two incidents can make the stock return to impact leverage ratio. The stock return changes every day, so it can affect the target leverage ratio. In general, the dynamic framework reveals two reasons for the deviation from their target debt level. First, leverage moves and firms do not adjust, and secondly, target moves and firm do not adjust.

Pecking Order Theory

According to this hypothesis, the company follows a specific order of preferences in financing decisions (Myers, 1984; Myers and Majluf, 1984). The most popular mode of financing is retained earnings. The advantage of financing through retained earnings is that it has no related flotation costs. Additionally, retained earnings do not require external supervision by the provider of capital. When the internal accruals are not adequate to finance the proposed investment, then the company resorts to debt financing. The issue of debt does not result in dilution of equity capital and has no implications on stock ownership. The next way of financing in the hierarchy is the issuance of preference capital. This was followed by a variety of hybrid instruments like convertible instruments. The least preferred mode of financing is issue of equity (Donaldson, 1961; Myers, 1984; Myers and Majluf, 1984). Pecking order theory is a behavioural approach to capital structure. This is based on the principle that financing decisions are made in a way that causes the least difficulty to the management.

Determinants of financial leverage

Profitability

Capital structure theories have different views on the relationship between financial leverage and profitability. Modigliani and Miller (1963) argue that firms generally prefer debt for tax considerations. Profitable firms would, therefore, employ more debt because increased leverage would increase the value of their debt tax shield and therefore a positive relationship between profitability and leverage. Modigliani and Miller (1963), however, ignore the agency and bankruptcy costs of debt which may outweigh the tax benefit of debt, and therefore reduce the firms' incentive to generate more debt.

In a trade-off theory framework, when firms are profitable, they should prefer debt to benefit from the tax shield. In addition, if past profitability is a good proxy for future profitability, profitable firms can borrow more as the likelihood of paying back the loans is greater. From the trade-off theory point of view more profitable firms are exposed to lower risks of bankruptcy and have greater incentive to employ debt to exploit interest tax shields. According to the trade-off theory, agency costs, taxes, and bankruptcy costs push more profitable firms toward higher book leverage. First, expected bankruptcy costs decline when profitability increases. Second, the deductibility of corporate interest payments induces more profitable firms to finance with debt. Finally, in the agency models of Jensen and Meckling (1976), Easterbrook (1984), and Jensen (1986), higher leverage helps to control agency problems by forcing managers to pay out more of the firm's excess cash. The trade-off theory predicts that leverage increases with profitability. Since the market value also increases with profitability, this positive relation does not necessarily apply for market leverage.

The pecking order theory of Myers and Majluf (1984) and Myers (1984) predicts a negative association between leverage and profitability because high profitable firms will be able to generate more funds through retained earnings and then have less leverage. Compared with debt and equity, retained earnings have no adverse selection problem, and hence, they are the cheapest source of finance. However, when outside funds are necessary, firms prefer debt to equity because of lower information costs associated with debt issues.

Booth et al. (2001) conducted a study on finding the determinants of corporate capital structure on 10 developing countries. They used return on assets as a proxy for profitability. The results indicated that the more profitable the company is, the lower the debt would be. So, the more profits the company has, the less it was expected to use the debt. Among the studies evidenced the negative relationship were Titman and

Omet and Mashharawe (2001) examined the determinants of the capital structure choice of Jordanian, Kuwaiti, Omani and Saudi non-financial listed companies. Pooled ordinary least squares, fixed effects and random effects models were applied using data of 51, 30, 38 and 29 Jordanian, Kuwaiti, Omani and Saudi Arabian companies respectively over the period 1996 to

2001. They found that the coefficient of profitability was negative and significantly in all countries

Munyo (2002) analyzed the determinants of the source of funding in Uruguay firms. Through Antoniou et al. (2002) carried out research on the determinants of corporate capital structure of European countries. The firms from the UK, France and Germany for the period from 1969 till 2000 were analyzed. Inverse relations were noted between profitability and market to book ratio with leverage respectively in France and the UK. Bhaduri (2002) studied the capital structure decision in developing countries by taking the Indian corporate sector as the main focus. The balance sheets from 1989 till 1995 from 363 manufacturing firms in India with nine types of industries were collected from the Centre for Monitoring Indian Economy (CMIE) database. The measure of profitability or cash flow factor seemed to be significant for the short-term and total borrowings but not for long-term borrowing.

Berger and Wharton (2002) in the same vein, studied on the capital structure and firm performance testing agency cost theory hypothesis with a complete attention on the banking sector. Findings here are as well consistent with the agency costs hypothesis – higher leverage or a lower equity capital ratio is associated with higher profit efficiency.

Çağlayan and Şak (2010) examined the capital structure of banks, from the perspective of the empirical capital structure literature, for non-financial firms by using the panel data analysis method; investigated which capital structure theories could explain the capital structure choice of the banks; and identified two sub-periods to determine the differences across determinants of capital structure in the different periods for Turkish banks after the financial crises and restructuring periods. Their findings showed that profitability was found to have negative effect on the book leverage.

Tariq (2011) analyzed the determinants of capital structure in sugar and allied industry in Pakistan. The study took 33 firms in the sugar sector, listed at the Karachi Stock Exchange for the period 1999-2004 and analyzed the data by using pooled regression in a panel data analysis.

Profitability was found to be statistically and therefore a negative relationship between profitability and leverage.

Tangibility

The tangibility of assets represents the effect of the collateral values of assets on the firm's leverage level. The underlying argument behind the use of tangible assets as collateral for debt is the higher liquidation value of these assets in the event of financial distress or bankruptcy (Rajan and Zingales, 1995).

From a pecking order theory perspective, firms with few tangible assets are more sensitive to informational asymmetries. These firms will thus issue debt rather than equity when they need external financing (Harris and Raviv, 1991), leading to an expected negative relation between the importance of intangible assets and leverage.

According to trade-off hypothesis, tangible assets act as collateral and provide security to lenders in the event of financial distress. Hence, the tradeoff theory predicts a positive relationship between measures of leverage and the proportion of tangible assets. On the relationship between tangibility and capital structure, theories generally state that tangibility is positively related to leverage. Tangibility is almost always positively correlated with leverage. This supports the prediction of the trade-off theory that the debt-capacity increases with the proportion of tangible assets on the balance sheet.

Ferri and Jones (1979) too found a negative relationship between asset tangibility and leverage. Rajan & Zingale (1995) concluded that there is significant relationship between tangibility of assets and the capital structure. Omet and Mashharawe (2001) examined the determinants of the capital structure choice of Jordanian, Kuwaiti, Omani and Saudi non-financial listed companies. The coefficients of tangibility were positively significant only in the case of Jordanian companies. Devic and Krstic (2001) conducted an empirical study on Poland and Hungary. Four firm specific factors namely, firm size, profitability; growth opportunities and tangibility were examined to see the effect on leverage. Asset tangibility became significant only when the ratio of total debt to market value of capital used in Hungary. Munyo (2002) analyzed the

determinants of the source of funding in Uruguay firms through cross-section econometrics models and found that size, tangibility and profitability are influencing variables in the financial structure such as the theories suggest. The firms with bigger proportions of tangible assets have easier access to long-term banking credit.

Antoniou et al. (2002) carried out research on the determinants of corporate capital structure of European countries. Tangibility of assets with leverage appeared positive in Germany, insignificant in France and negative in the UK. This suggested that asset tangibility was an important element for borrowing in Germany.

The firm's Size

According to tradeoff theory, first, large firms don't consider the direct bankruptcy costs as an active variable in deciding the level of leverage as these costs are fixed by constitution and constitute a smaller proportion of the total firm's value. The trade-off theory predicts an inverse relationship between size and the probability of bankruptcy.

The pecking order theory of the capital structure predicts a negative relationship between leverage and size, as larger firms exhibiting increasing preference for equity relative to debt.

In a study done by Ferri and Jones (1979), two additional interesting proxies' namely average level of total assets over current and preceding four years of total assets and average level of sales over the current and preceding four periods were examined in addition to the common proxies for firm size which are total assets and total sales. It was felt that the average measures might give a clear picture of the indication of the firm size than a single period. They used data gathered from the dataset of 233 firms' from 1969 till 1976. As expected, the results indicated a positive relationship between firm size and leverage with average measures to have better coefficient.

Pandey (2001) examined the determinants of capital structure of Malaysian companies using data from 1984 to 1999. The results of pooled OLS regressions showed that size variable had positive significant influence on all types of book and market value debt ratios.

Antoniou et al. (2002) carried out research on the determinants of corporate capital structure of European countries. The firms from the UK, France and Germany for the period from 1969 till 2000 were analyzed. In their study, Leverage was positively affected by the size of the firm for all the three countries.

Bhaduri (2002) studied the capital structure decision in developing countries by taking the Indian corporate sector as the main focus. The factors include asset structure, non-debt tax shield, firm size, financial distress, growth, profitability, age, signaling and uniqueness. From the analysis, it is interesting to note that firms with large size depend more on the long-term borrowing while the small firms depend more on short-term borrowings.

Huang and Song (2002), which contains the market and accounting data from more than 1000 Chinese listed companies up to the year 2000. On the relationship between size and leverage, if size was interpreted as a reversed proxy for bankruptcy cost, it should have less or no effect on Chinese firms' leverage because the state kept around 40% of the stocks of these firms and, because of soft budget constraint, state-controlled firms should have much less chance to go bankrupt. They argued that although the state was still a controlling shareholder for most listed firms, these firms were limited corporations; it was unlikely that the state would bail them out, even in case of trouble, because the central government was only a legal representative of state shareholder.

Sogorb-Mira and López-Gracia (2003) tested leverage predictions of the trade-off and pecking order models. They used panel data to test the empirical hypotheses over a sample of 6482 Spanish SMEs during the five-year period between 1994 and 1998. Their results showed firm size and leverage were positively related. They explained that this relationship could come from the fact that small-medium enterprise (SMEs) had to face higher bankruptcy costs, greater agency costs and bigger costs to resolve the higher informational asymmetries.

Non-debt tax shields

The trade-off theory suggests that the main advantage of borrowing is the tax advantage of interest payment. Therefore, firms that are subject to corporate tax will increase their leverage in

order to reduce their tax bill (Modigliani and Miller, 1963). According to the MM theory, the main incentive to borrow is to take advantage of interest tax shields or tax deductible of interest. The presence of other non-debt tax shields like depreciation and amortization reduces this incentive. In other words, non-debt tax shields were substitute for the tax benefit of debt financing. A firm with larger non-debt tax shields was expected to use less debt. Therefore, the existence of non-debt tax shields should discourage leverage and a negative relationship between non-debt tax shields and leverage is expected.

Chaplinsky and Niehaus (1993) used the ratio of depreciation expense plus investment tax credits to total assets to represent non-debt tax shields. This result was too showed an inverse relationship between non-debt tax shield and leverage. Wald (1999) confirmed this result with the ratio of depreciation over total assets taken a proxy for non-debt-tax shields. Similar results were obtained from the research conducted by Buferna et al. (2000) from the Libya dataset.

Prasad et al. (2001) found that in Thailand the non-debt tax shield has no significant influence on the leverage but surprisingly in Malaysia the non-debt tax shields resulted in positive relationship with leverage. The argument for positive relationship was when the company has more non-debt tax shields, depreciation was higher and the company employed more long-term debt. Depreciation increase was due to the increase in tangibility of asset. So, the tangibility of asset will appear as collateral to obtain further long-term debt. The positive relations between non-debt tax shields and leverage was also evidenced by Bradley et al (1984). Titman and Wessels (1988) argued that non-debt tax shield was not significant in effecting. Huang and Song (2004) examined more than 1,000 large Chinese listed companies up to the year 2000 and concluded that non-debt tax shields appeared positively related to leverage. The result could due to the argument that the more depreciation is charged by the company, the higher the fixed assets the company could have. Tendency to take debt financing happen as the fixed assets used a collateral. Further to that, Scott (1976), Moore (1986) and Gardner and Trzcinka (1992) found a positive effect of non-debt tax shields with leverage.

Growth opportunities

According to Jensen and Meckling (1976), firms with high growth opportunities were more likely to have higher agency costs due to higher debt prices. When managers plan to invest in more risky projects, creditors will take chance to increase the amount of interest and these will lead to shift of corporate control to creditors. Consequently, most of the cash flow generated can't be utilized for good investments as cash flow gets committed to the interest payment. As a result, the firms with good growth opportunities would maintain a lower leverage in order to minimize the constraints imposed by the creditors and maximize the potential gains. Hence, a negative relationship was seen between growth opportunities and leverage.

The pecking order theory of Myers and Majluf (1984) and Myers (1984) predicts that leverage and growth are positively related. For growing firms, internal funds may be insufficient to finance their positive investment opportunities and, hence, they are likely to be in need of external funds. According to the pecking order theory, if external funds are required, firms will prefer debt to equity because of lower information costs associated with debt issues. This results in a positive relationship between leverage and growth opportunities.

Rajan&Zingale (1995) concluded that there is insignificant relationship between growth rate and the capital structure. Chen and Jiang (2001) found less significant relationship of growth opportunities with leverage in the Dutch dataset. Pandey (2001) examined the determinants of capital structure of Malaysian companies using data from 1984 to 1999. He classified data into four sub-periods that corresponded to different stages of the Malaysian capital market. Debt was decomposed into three categories: short-term, long-term, and total debt. Both book value and market value debt ratios were calculated. The results of pooled OLS regressions showed that growth rate had positive significant influence on all types of book and market value debt ratios.

Devic and Krstic (2001) conducted an empirical study on Poland and Hungary. Four firm specific factors namely, firm size, profitability; growth opportunities and tangibility were examined to see the effect on leverage. Growth rate variable appeared insignificant for both countries.

Antoniou (2002) conducted study to find out the determinants of corporate debt decision of French, Germany and the UK firms. Growth opportunity was one of the factors examined. The proxy used for growth opportunity is the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. A negative relation between growth opportunities and leverage was noted.

Earning Volatility

Firms with high earnings volatility face a risk of the earnings level dropping below their debt servicing commitments, thereby incurring a higher cost of financial distress (Bhaduri, 2002). Accordingly, these firms should reduce their leverage level to avoid the risk of bankruptcy or to rearrange their funds at high cost. Therefore, the trade-off theory predicts a negative relationship between leverage and the volatility of a firm's earnings.

The pecking order theory allows the same prediction, but the reasoning is different. In the context of this theory, firms with high earnings volatility try to accumulate cash during good years to avoid under-investment problems in the future (Myers, 1977). As DeAnglo and Masulis (1980) point out, an adverse selection problem is more severe to firms with highly volatile earnings. To avoid adverse selection problem, firms with financial surpluses should retire debt or invest in cash or marketable securities, to preserve their debt capacity for future financing needs or to avoid issuing equities at higher costs (Myers, 1984). This results in a negative association between leverage and earnings volatility.

DeAnglo and Masulis (1980) point out; an adverse selection problem is more severe to firms with highly volatile earnings. To avoid adverse selection problem, firms with financial surpluses should retire debt or invest in cash or marketable securities, to preserve their debt capacity for future financing needs or to avoid issuing equities at higher costs (Myers, 1984). This results in a negative association between leverage and earnings volatility. The study tests the prediction of both theories by examining the relationship between leverage and earnings volatility.

Deesomsak et al. (2004). Carried out research on firms operating in four countries in the Asia Pacific region, namely Malaysia, Thailand, Singapore and Australia were sampled in this study. Earnings volatility appeared to be insignificant for all the countries.

Barakat and Roa (2004) investigated the influence of tax on the choice of capital structure in 12 tax and non-tax Arab countries. The coefficient of earnings volatility was negative and significant.

Shah and Khan (2007) examined the determinants of capital structure of listed non-financial firms for the period 1994-2002 using two variants of panel data analysis. Their results showed that the earning volatility variables failed to confirm to trade-off theory which is negative.

METHODOLOGY

Research Design

This study adopted an explanatory non-experimental research design to investigate the effect of the determinants of financial leverage of non-financial firms listed in the NSE, Kenya. Explanatory research seeks to establish causal relationship between variables (Saunders *et al.*, 2009 & Robson 2002,).

Study Area

The research was carried out in 39 out of 43 non-financial firms listed companies in Kenya according to NSE handbook (2012-2013). The target population of the study comprised of all non-financial firms listed in the Nairobi Securities Exchange (NSE). The NSE had 57 firms as at 31st December 2012 but only 39 Firms were included in the study. This is because the other 18 firms failed to meet the criteria of the study i.e. complete data availability.

Sample and Sampling techniques

The study adopted a census approach where all the 39 Firms non-financial companies listed at the Nairobi Security Exchange from year 2008 to 2012 were used. This is because of the small number of non-financial companies in the NSE.

Data Collection

The study used secondary panel data contained in the annual reports and financial statements of all the firms listed at the Nairobi Security Exchange. The data were extracted from the Nairobi Securities Exchange hand books for the period 2008 to 2012. The data set used in this study was a panel data set as sample data was based on observations from non-financial companies listed at the Nairobi Security Exchange in time series.

The study relied purely on accounting data of firms listed at Nairobi stock exchange for the period of 2008 to 2012. The data for all the variables in the study were extracted from published annual reports and financial statements of the listed companies in the NSE covering the years 2008 to 2012. The data was obtained from the NSE hand books for the period of reference. Data were extracted include the income statement, statement of financial position and notes to the accounts.

Data Analysis

Two different analytical techniques were employed in the study for the period 2008 to 2012; they included the descriptive statistics and inferential statistics (panel data econometric techniques).

Variables Measurement

The following are the measurements of the research variables. The research variables are including Financial Leverage as dependent variables, while profitability, asset tangibility, firm size; non-debt tax shields, growth opportunities and volatility of earnings.

Dependent Variables

Financial Leverage (Dependent Variable).

The dependent variable of this study was the financial leverage. In literature, several definitions of leverage were used to investigate its associations with firm-specific characteristics. Rajan and Zingales (1995) used the leverage as the ratio of total debt to net assets, where net assets are total assets less accounts payable and other liabilities instead of the ratio of total liabilities to total assets or the ratio of debt (short term and long term) to total assets. Financial leverage can be calculated with the help of the following formula:

$$FL = \frac{\text{Total debt at the end of the fiscal year}}{\text{Total assets at the end of the fiscal year}}$$

$$FL = \frac{TD}{TA}$$

Independent Variables

Profitability

The proxy used to measure profitability is the net income after tax and dividend to total assets.

Profitability = net income after tax and dividend to total assets.

Tangibility

The tangibility of assets represents the effect of the collateral value of assets of the firm's gearing level. This study also uses the "common" ratio of fixed assets to total assets as proxy to measure asset tangibility.

Tangibility = fixed assets divided by total assets.

Size

Firm size provides a measure of the agency costs of equity and the demand for risk sharing. Firm size is likely to capture other firm characteristics as well. This study the natural log of total assets was used to measure firm size

Size = the natural logarithm of total assets.

Non-Debt Tax Shield

According to Modigliani and Miller (1963), if interest payments on debt are tax deductible, firms with positive taxable income have an incentive to issue more debt.

Non-debt tax shields = the ratio of annual depreciation to total assets.

Growth opportunities

Growth is defined as the annual percentage growth in the firms total assets between two successive years divided by the preceding year. An increase in growth rate is regarded as an indication of a firm's financial strength. Firms with large volume of growth rate need to raise additional financial support to back up their capital expenditure strategies.

Growth opportunities = Percentage change in total assets

Volatility of earnings

Following Titman and Wessel (1988), we use the standard deviation of return on assets as measure of volatility of earnings, where the return on assets for each year is measured by the ratio of earnings before interest and taxes to the total assets.

Volatility (VOL): the standard deviation of earnings before interest and taxes.

Model Specification

This study employed the panel data regression model similar to what was used by Antoniou et al. (2002) and Abor (2007) in their study of capital structure determinants. Panel data is actually pooling of observations on a cross section of units over the prescribed time periods. According to Antoniou et al. (2002), panel data approach have several advantages than the cross sectional data as the panel data gives higher degrees of freedom, larger number of observations, reduces the multi collinearity among the explanatory variables and gives more efficient estimates

Fixed effect model

The study used fixed effect model to capture the individual firm effect on leverage. The fixed effect model allows control for unobserved heterogeneity which describes individual specific effects that are not captured by observed variables. The term “fixed effects” is attributed to the idea that although the intercept may differ across individuals (firms), each individual’s intercept does not vary over time; that is, it is time invariant. The fixed effects model:

$$Y_{it} = \alpha + \beta'X_{it} + e_{it} \dots \dots \dots (2)$$

With the subscript i denote the cross-sectional dimension and t representing the time-series dimension. Y_{it} , represents the dependent variable in the model, which is the firm’s debt ratios. X_{it} contains the set of explanatory variables in the estimation model, α is the constant, β represents the coefficients and e_{it} represent Error term. In order to derive the existing relationship between dependant and a set of independent variables taken in the study a typical procedure of ordinary least square (OLS) regression is undertaken. The financial leverage was

the dependant and was associated with the number of independent variables to study what actually determines the financial leverage of a firm. Therefore the equation for the model was:

$$FL_{it} = \beta_0 + \beta_1 (PRO)_{it} + \beta_2 (TAN)_{it} + \beta_3 (SZ)_{it} + \beta_4 (NDT)_{it} + \beta_5 (GR)_{it} + \beta_6 (VOL)_{it} + \mu_{it}$$

..... (3)

Where,

FL_{it} = Financial Leverage i at time t

PRO_{it} = Profitability i at time t

TAN_{it} = Tangibility of assets i at time t

SZ_{it} = Size i at time t

NDT_{it} = Non debt tax shield i at time t

GR_{it} = Growth Opportunities i at time t

VOL_{it} = volatility of earnings i at time t

μ_{it} = error of the firm i in time t

RESULTS AND DISCUSSION

Descriptive statistics of the determinants and leverage

The descriptive statistics are reported for the pooled data of firms listed in Nairobi securities Exchange (NSE) over the period of 2008-2012. The study was confined to 39 non-financial firms that have been continuously listed in Nairobi securities Exchange (NSE) during the period of study. The data collected was for firms that had published data continuously for at least 5 years.

The descriptive statistics considered include; minimum and maximum values, the mean and standard deviation. Table 1 shows the descriptive statistics of the determinants and leverage summary for pooled sample of firms listed in Kenya. The table indicates a strongly balanced panel with a sample of 195 observations. The table also indicates that on average a listed firm in Kenya finances its investment activities using 62% total debt and 38% equity. Generally, the mean total debt ratio of non-financial firms listed in Nairobi securities Exchange (NSE) shows very much lower mean than of developed nations. Omet and Mashrow (2004) quoted that the mean total debt ratio in the US, Japan, Germany and UK was 58%, 69%, 73% and 54% respectively. The total debt had standard deviation of 0.6031. The variation is very large due to differences that exist within different sectors.

The measure of profitability (PF), reported mean ratio of 0.1409. The average profitability of firms is about 14% which is quite low by any given standards and this explains why they supplement their internal financing sources with external sources. From the data the minimum and maximum value of profitability (PF) were -0.71 and 1.49 respectively and a standard deviation of 0.63056.

The measure of tangibility (TG), reported a mean ratio of 12.1351.. This enables them to have easy access to credit facilities because fixed assets have high collateral value. From the data the minimum and maximum value of tangibility (TG) were 0.1 and 726.48 respectively and a standard deviation of 66.7722.

The measure of size (S), reported mean ratio of 9.6980. From the data the minimum and maximum value of size were 7.58 and 11.21 respectively and a standard deviation of 0.77033.

The measure of non-debt tax shields (NDTS) of the firm, reported mean of 0.395. This shows that earning after interest and tax amount to about 39.5 % of the total assets of non - financial firms listed in Nairobi securities exchange. From the data the minimum and maximum value of non-debt tax shields (NDTS) were -1.28 and 13.23 respectively and a standard deviation of 1.4494.

The measure of growth rate (G), reported mean ratio of 0.1455. This shows that there was about 14.55% change in total assets of Non- Financial Firms Listed in Nairobi securities Exchange. From the data the minimum and maximum change in total assets were -0.55 and 2.29 respectively and a standard deviation of 0.31225.

Finally, it is observed that the mean of volatility (v) 0.177. This shows that there was about 17.72% change in total assets of Non- Financial Firms Listed in Nairobi securities Exchange. From the data the minimum and maximum change in total assets were 0.00 and 1.98 respectively and a standard deviation of 0.19653.

Table 1: Descriptive statistics of the variable for the period 2008-2012

	N	Min	Max	Mean	Std. Deviation
TD	195	0.01	5.97	0.6228	0.63056

PRO	195	-0.71	1.49	0.1408	0.22702
TAN	195	0.01	726.48	12.1351	69.57222
SZ	195	7.58	11.21	9.698	0.77033
NDT	195	-1.38	13.23	0.3950	1.44941
GR	195	-0.55	2.29	0.1455	0.31225
VOL	195	0.00	1.98	0.1772	0.19653
valid N (listwise)	195				

Source: study data (2013)

It is possible that the selected explanatory variables may be correlated, so the chosen proxies may actually measure the effects of several different variables. To address this problem the study tests for the multicollinearity (which is generally referred to the correlation among two or more independent variables). The presence of multicollinearity, makes the estimation and hypothesis testing about individual coefficients in regression not possible (Gujarati, 2003). This is because multicollinearity makes the regression coefficients undefined or unstable and the standard errors for the coefficients wildly inflated, making these coefficients significantly not different from zero. Moreover, variables may be dropped from the regression, not because they have no effects, but because the sample is inadequate to isolate the effect precisely. In other words, it becomes difficult to identify the separate effects of the variables. This result occurs despite possibly high R^2 and highly significant F statistic.

Correlation Matrix

An assessment of the extent of correlation among the variables used in the study has been done using a correlation matrix. The table 2 shows that most cross correlation terms for all the independent variables are quite low, hence giving little cause for concern about multicollinearity problem. A high correlation between two of the independent variables may indicate the presence of collinearity. However, the problem here is that there is no agreement when correlation is too high. Kennedy (1998) claims that an absolute correlation coefficient of 0.80 or 0.90 is a high correlation. Brayman and Cramer (2001) consider independent variables in excess of 0.80 may be suspected of exhibiting multicollinearity.

Table 2: Correlation Matrix

	FL	PRO	TAN	SZ	NDT	GR	VOL
FL	1						
PRO	0.041	1					
TAN	-0.005	0.174	1				
SZ	-0.289(**)	0.027	0.192(**)	1			
NDT	0.461(**)	0.253(**)	0.006	-0.393(**)	1		
GR	0.097	0.177(**)	0.000	-0.023	0.156(*)	1	
VOL	0.494(**)	0.388	-0.010	-0.094	-0.109	0.018	1

* Correlation significance at the 0.05 level (2-tailed)

** Correlation significance at the 0.01 level (2-tailed)

Source: study data (2013)

Panel Data regression Results

Table 3 shows the statistics of fixed effect regression without industry dummy. Analysis of Non-Financial Firms Listed in Nairobi securities Exchange indicated that about 82.1% of the variability of total debt ratio is explained by profitability, tangibility, size, non-debt tax shield, growth and volatility of earnings of the firm. The F-statistic of 142.439 suggested that the model fitted the data significantly ($p < 0.05$).

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.906	0.821	0.815	.27224

a Predictors: (Constant), VOL , GR, SZ , PRO , TAN, NDT

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.343	6	10.557	142.439	0.000

	Residual	13.786	186	0.074		
	Total	77.129	192			

a Predictors: (Constant), VOL , SZ , GR , PRO , TAN , NDT

b Dependent Variable: Financial leverage

Table 5: Coefficients

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	2.629E-02	0.287		0.092	0.927
	PRO	-0.733	0.092	-0.264	-7.954	0.000
	TAN	-2.143E-05	0.000	-0.002	-0.072	0.943
	SZ	5.612E-02	0.029	0.068	1.936	0.054
	NDT	0.426	0.016	0.980	27.361	0.000
	GR	-2.593E-02	0.064	-0.013	-0.403	0.687
	VOL	-5.219E-02	0.105	-0.016	-0.499	0.618

a) Dependent Variable: financial leverage

Source: study data (2013)

The beta coefficient for profitability (PRO) was negative and statistically significant as indicated by T-value (-7.954). It explained only 26.4% of the variance. The effect of tangibility was such that a 1% increase in profitability (holding other variables constant) would increase debt by 26.4 %.

The beta coefficient for tangibility (TAN) was negative and statistically insignificant in explaining the financial leverage as indicated by T-value (0.943). It explained 7.2 % of the variance. Therefore, the alternative hypothesis which indicated that there was significant relation between tangibility and financial leverage was rejected.

The beta coefficient for size (SZ) was positive but statistically insignificant as indicated by T-value (1.936). It explained 6.8 % of the variance. It meant that there was no relationship between size (SZ) and financial leverage. Therefore, the alternative hypothesis which indicated that there was significant relation between size and financial leverage was rejected.

The beta coefficient for non-debt tax shield (NDT) was positive and statistically significant in explaining the financial leverage as indicated by T-value (27.361). It explained 98 % of the variance. The effect of non-debt tax shield was such that holding other variables constant, a 1% increase in non-debt tax shield would increase debt by 98%. Therefore, the alternative hypothesis which indicates that there was significant relation between non-debt tax shield and financial leverage was accepted.

The beta coefficient for growth rate (G) was negative but statistically insignificant as indicated by T-value (-0.403). It explained only 1.3% of the variance. It meant that there was no relationship between growth rate and financial leverage. Therefore, the alternative hypothesis which indicated that there was significant relation between growth rate and financial leverage was rejected.

The beta coefficient for volatility of earnings (VOL) was negative but statistically insignificant in explaining the financial leverage as indicated by T-value (-0.499). It explained 1.6% of the variance. Therefore, the alternative hypothesis which indicated that there is significant relation between volatility of earnings and financial leverage was rejected.

4.4 Discussion of the findings

This section tend to show whether to accept or reject the hypothesis formulated in the study based on the analysis carried out on overall overview of non-financial firms.

H₀₁: There is no significant relation between profitability and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

The coefficients results indicated a negative and statistically significant relationship between profitability and leverage as indicated by the t-value (-7.954) and corresponding p-value of 0.000

which is less than 0.05. It means that there is negative relationship between profitability and leverage. Therefore, the null hypothesis was rejected.

These results indicated that with the increase in profitability of firms, leverage level reduces. This result supports the prediction of pecking order theory which suggested that high profitability firms borrow less because such firms have more internal financing, while firms with lower profitability require external funding and the consequence was debt accumulation (Sugiarto, 2009).

H₀₂: There is no significant relation between tangibility and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

The results indicated a negative and statistically insignificant relationship between tangibility and leverage as indicated by the t-value (-0.072) and corresponding p-value of 0.943 which is higher than 0.05. It implies that the null hypothesis was accepted. These results were contrary to the findings of the pecking order theory and trade-off theory. According to the pecking order theory and the trade-off theory, a firm with a large amount of fixed asset can borrow at relatively lower rate of interest by providing the security of these assets to creditors. Having the incentive of getting debt at lower interest rate, a firm with a higher percentage of fixed assets was expected to borrow more than a firm which cost of borrowing was higher because of having less fixed assets.

H₀₃: There is no significant relation between size and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

The results shows a positive but statistically insignificant relationship between size and leverage as indicated by the t-value (1.936) and corresponding p-value of 0.054 which is higher than 0.05. It implies that the null hypothesis was accepted. Even though the beta coefficient showed positive coefficient as hypothesized by Trade-off, it was statistically insignificant. It suggested that, size of a firm did not matter in determining the financial leverage.

H₀₄: There is no significant relation between non-debt tax shields and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

The coefficients results indicated a positive and statistically significant relationship between non-debt tax shield and leverage as indicated by the t-value (27.361) and corresponding p-value of

0.000 which is less than 0.05. It means that there is positive relationship between non-debt tax shield and leverage. Therefore, the null hypothesis was rejected. These results indicated that with the increase in non-debt tax shields of firms, leverage level increases. This result was consistent with the prediction of the trade-off theory where non-debt tax shields were found to be negatively related to financial leverage and statistically significant at the 5 % level. The trade-off theory suggested that the main advantage of borrowing was the tax advantage of interest payment. Therefore, firms that were subject to corporate tax would increase their leverage in order to reduce their tax bill (Modigliani and Miller, 1963).

H₀₅: There is no significant relation between growth rate and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

The results indicated a negative and statistically insignificant relationship between growth rate and leverage as indicated by the t-value (-0.403) and corresponding p-value of 0.687 which is higher than 0.05. It implies that the null hypothesis was accepted.

Even though the beta coefficient showed negative coefficient as hypothesized by Trade-off, it was statistically insignificant. It suggested that, growth rate of a firm did not matter in determining the financial leverage. According to the pecking order theory hypothesis, a firm will first use internally generated funds which may not be sufficient for a growth firm.

H₀₆: There is no significant relation between volatility of earnings and financial leverage of non-financial firms listed in Nairobi Securities Exchange in Kenya.

The results indicated a negative but statistically insignificant relationship between volatility of earnings and leverage as indicated by the t-value (-0.499) and corresponding p-value of 0.618 which is higher than 0.05. It implies that the null hypothesis was accepted. The finding indicated that the earning volatility of Kenyan firms exerts do not impact on their ability to issue debt. This contradicts the view that firms with high earnings volatility carry the risk of bankruptcy or financial distress, reducing their desire to raise debt. As the obligatory bankruptcy occurs if the firm cannot pay its obligation, firms with high earnings volatility may carry the risk of bankruptcy or rearrange the funds at a high cost. For these considerations, firms may keep their leverage ratio low to avoid the bankruptcy risk.

Conclusion of the study

The study was carried out to investigate the determinants of capital structure of non-financial firms listed in Nairobi securities Exchange from 2008 to 2012. Generally the results from the Kenyan data seem to confirm the theoretical postulations. The following results were found using fixed effect model of panel data analysis.

1. There is an inverse relationship between profitability and leverage. The results confirmed the pecking order postulation that more profitable firms use or prefer less debt as compared to less profitable ones.
2. There is no relationship between tangibility and leverage.
3. There is no relationship between size and leverage.
4. There is a positive relationship between non-debt tax shield and leverage.
5. There is no relationship between growth opportunities and leverage.

There is no relationship between volatility of earnings and leverage