ASSESSMENT OF FACTORS THAT AFFECTS CAPITAL STRUCTURE OF MEDIUM AND LARGE - SIZED ENTERPRISES IN EASTERN ZONE OF TIGRAY REGION, ETHIOPIA

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Abstract

The purpose of the study is to assess the factors affects capital structure in medium and large-size business enterprises in eastern zone Tigray Tegion. Secondary source of data audited financial statements from 2014-2018 G.C were used and multiple regression analysis were used. The fining indicated that age and size were positively and significant determinant factors for capital structure. Tangibility, ROA and Growth were positively related to debt to equity ratio. And earning volatility variables was found negatively and insignificant related to debt to equity ratio.

Keyword: Leverage, ROA, earning volatility, and Tangibility
1. INTRODUCTION

1.1. Background of the Study

Capital structure refers to ‘the mix of debt and equity maintained by the firm’ (Margaretha, F. 2014). Nawi, H. M. (2015) categories capital structure into four main parts: capital and retained profits, family loans, debt, and equity. Alternatively, Freeman. (2013) 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, Joseph, E., et al. (2018) 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. Nawi, H. M. (2015) categories it into three types: private investment (e.g. personal monies and funds from friends and families), public investment (e.g. government loans, grants, and public equity finance) and private external finance (e.g. bank loans and overdrafts, asset finance and asset-based finance).

Different study confirms a significant association between the availability of finance and medium and large-size firm’s growth (Zeneli, F., & Zaho, L. 2014). Leading to the notion of a finance gap. The finance gap refers to ‘a situation where a firm has profitable opportunities but there are no, or insufficient, funds (either from internal or external sources) to exploit those opportunities’ (Daskalakis, N. 2012).

According to Abdullah and Manan (2010), accessibility and sufficiency of funds is the major barrier to the growth of medium and large size enterprises. Kira, A. R. (2013) suggests that financial accessibility of medium and large size enterprises’ could be achieved through improving understanding of their financial practices. Hence, it is important to investigate the determinants of capital structure of medium and large size enterprises’ to understand their financial practices further.

Most capital structure studies to date are based on data from developed countries’ firms and very few studies provide evidence from developing countries. The capital structure of medium and large size
enterprises has not also been investigated; there is no clear understanding on how banks construct their capital structure and what internal (firm-specific) factors influence their corporate financing decision. Therefore, given the unique financial features of medium and large enterprise and the environment in which they operate, there is a strong ground to conduct separate study on capital structure determinants in banks. Ethiopia differs from other developing countries previously studied in such a way it has no secondary capital market which makes things easier for firms to raise funds and choose the best mix of debt and equity sources (Kibrom, M. (2010). This study, therefore, tried to examine determinants of capital structure of the medium and large sized firms by using its firm-specific determinant factors.

1.2. Statement of the Problem

Any kind of business activity depends on finance to meet its plant assets and working capital requirements, as well as finance is accelerating engine of business activities. Whether the businesses are big or medium, they need fund to fulfill their business activities. Accordingly, the capital structure decision of a company is at the heart of other decisions in the area of corporate finance. Capital structure is one of the most intriguing fields in financial management (Muhammed, A. 2014).

A number of factors have been identified to have an influence on a firm’s capital structure of the medium and large size enterprises’ in different countries according their economic developments. Existing theoretical frameworks from finance and strategic management set out to explain the determinants of the capital structure of medium and large size enterprises’. These include pecking order theory (Donaldson, 1961; MYERS, S. C. 1984), trade-off theory (Jensen, M.C. and Meckling, W.H. 1976); MYERS, S. C. 1984), agency theory ((Jensen, M.C. and Meckling, W.H. 1976 ; MYERS, S. C. 1984), and financial growth cycle theory (Berger and Udell, 1998) from the finance paradigm, and theoretical frameworks developed by several authors in the strategic management paradigm. Although numerous empirical studies have been undertaken to examine the determinants of capital structure on the basis of these theories, there is still no agreement among scholars and economists as to which of the existing theories present the best description of the actual behavior of firms.

In addition, while there is a broad and growing body of empirical studies investigating the influence of these factors on firms’ capital structure, the findings are not always consistent in terms of direction
of the association between capital structure and its determinants. Graham, J. R., & Leary, M. T. (2012) established that, although a lot of studies had been done in investigating capital structure of the firms, the results obtained are still unclear. They asserted that it might be due to wrong measurement of key variables, investigation on the wrong models or issues, misspecification of managerial decision process, or unresponsive of owner-managers.

Most of studies on capital structure theories in different countries are conducted using the data set of large firms. These studies have contributed a lot to these theories, i.e., evidence based upon these firms tends to support these theories. Little evidence obtained through empirical investigation of Medium and large Enterprises firms in developed nation. Here in our country Ethiopia there is no any study conducted on determinants/ factors that affect/ of capital structure in Medium and large Enterprises specifically in Eastern Zone of Tigray Region. This fact reveals a great need for study to update the existing evidence. And attempts to test the validity of these theories to Medium and large Enterprises Eastern Zone of Tigray Region with available data set.

1.3. Objectives of the Project:

1.3.1. General objective of the study
The main objective of the study was to find out the factors that affect capital structure in medium and large -sized enterprises in Eastern Zone of Tigray Region.

1.3.1. Specific objective of the study
1. To find out the variability of capital structure with the size of the firms.
2. To investigate the influence of tangibility of firms’ assets on capital structure.
3. To find out extent to which profitability influences the capital structure of the firms.
4. To examine the influence of earnings volatility on firms’ capital structure.
5. To investigate the variability of capital structure with the growth of the firms; and
6. To find out the influence of firms’ age on its capital structure.

2. Literature Review
According to Harris and Raviv (1991), theories of capital structure have identified a large number of potential determinants that might have an impact on debt levels. Among these factors, which have been found by a large number of studies to influence the firms’ capital structure are size, tangibility, profitability, risk, non-debt tax shield, growth, uniqueness, dividends, free cash flow, liquidity, age, and regulation.
2.1. Size
Kashefi-Pour, E., & Lasfer, M. (2012). Basing on the panel data they found size being positively related to leverage across firms’ sizes (small, medium, and large firms). Thus, they concluded that large firms use more debt in their capital structure compared to small companies. Bas et al. (2009) also by examining the differences in the determinants of capital structure decisions of private and listed firms, and small and large firms in developing countries, found size being positively related to leverage. Thus, they concluded that as firms get larger, their debt increases. This conclusion indicates that large firms have positive association with leverage, while small firms have negative association.

Daskalakis, N., & Thanou, E. (2012) by examining a number of hypotheses relating to the capital structure decision in relation to the firms’ size, i.e., distinguishing among micro, small and medium firms they found size of the firm being positively related to leverage. And, concluded that larger firms are associated with higher debt, as found by other studies and supported by theoretical considerations.

2.2. Tangibility
Agency theory suggests that equity-holders of leveraged firms have an incentive to invest in risky investment to expropriate wealth from the firm’s debt-holders. If debt can be collateralized, the borrowers are restricted to use the funds for a specified project. Since no such guarantee can be used for projects that cannot be collateralized, creditors may require more favorable terms. This reveals a positive relation between debt ratios and the capacity of firms to collateralize their debt (Jensen, M.C. and Meckling, W.H. 1976)

According to Bulletin, A. E. (2015) firms with high collateralizable tangible assets tend to have easier access to debt by pledging those assets as collateral. Anwar, W. (2012) suggest that firms with large amount of fixed assets tend to incur debt at relatively lower rate of interest by providing these assets to creditors as an assurance. Thus, firms with higher percentage of fixed asset tend to borrow more as compared to firms whose cost of borrowing is higher because of having less fixed assets.

In contrary, Buferna, F., et al. (2005) suggest a negative relationship between tangibility and leverage, i.e., support the pecking order theory. Daskalakis, N., & Thanou, E. (2012) in examining a number
of hypotheses relating to the capital structure decision in relation to the firms’ size, i.e., distinguishing among micro, small and medium firms they found tangibility being negatively correlated with leverage. This result leads them to the conclusion that firms view tangible assets as a stable source of return which provides more internally generated funds and leads firms to use less debt, following the pecking order theory.

2.3. Profitability

The pecking order theory explains the relationship between firm profitability and capital structure. It suggests that firms prefer internal finance first, and then, if external financing is required, they issue the safest security first. That is, they start with debt, then possibly hybrid securities such as convertible bonds, then perhaps equity as a last resort (MYERS, S. C. 1984). According to this theory, firms that are profitable and therefore generate high earnings use less debt capital than those generate low earnings, thus it suggests an inverse relationship between profitability and leverage. Consistent to this theory, Titman, S. and Wessels, R. (1988) suggest that firms with high profit tend to maintain relatively lower debt ratios since they generate funds from internal sources (retained earnings).

In contrast, trade-off theory predicts that profitable firms have more debt since bankruptcy costs are lower and interest tax shields are more valuable for profitable firms (Murray, Z., & Vidhan, K. 2010). Profitable firms are more attractive to financial institutions as lending prospects; therefore they can always take on more debt capital (Chiang, Y., et al. 2010) This theory suggests a positive relationship between profitability and debt.

Daskalakis, N., & Thanou, E. (2012) by examining a number of hypotheses relating to the capital structure decision in relation to the firms’ size, i.e., by distinguishing among micro, small and medium firms they found profitability being negatively related to leverage. Having this result, they concluded that firms that generate relatively high internal funds tend to avoid debt financing.

2.4. Earnings Volatility

Tradeoff theory suggests that earnings volatility is a proxy for the probability of financial distress and firms are expected to pay risk premium to outside fund providers. Thus, it predicts an inverse relationship between earnings volatility and leverage. The pecking order theory also predicts the same and it suggests that to reduce costs of capital caused by earnings volatility, firms tend to use internally generated funds first and then outside funds.
According to Cassar, G. and Holmes, S. (2003) if firms are likely to be exposed to agency and bankruptcy costs, they tend to reduce the level of debt within their capital structure. One factor that impacts such exposure is firms operating risk, i.e., the more volatile firms earnings streams, the greater the chance of the firms defaulting and being exposed to such costs. Consequently, these firms with relatively higher operating risk will have incentives to have lower leverage than firms with more stable earnings.

Anwar, W. (2012) also suggest that the magnitude of earnings volatility is a sign of expected bankruptcy. Firms with higher volatility are considered risky because they can go bankrupt. The cost of debt for such firms should be more and thus these firms tend to employ low level of debt within their capital structure.

2.5. Growth

The pecking order theory suggests that firms with higher growth opportunities need external finance to cover their investments when they do not generate enough internal funds (MYERS, S. C. (1984). Moreover, this theory predicts that firms with more investments should accumulate more debt over time (Frank and Goyal, 2008). Thus according to this theory, growth and leverage are expected to be positively related.

In contrast, both the trade-off and agency theories predict a negative relation between leverage and growth. The former suggests growth firms lose more of their value when they go into distress, and the later suggests as growth options increase, asset substitution problems also become more severe. In high growth firms, it is easier for equity-holders to increase project risk and it is harder for debt-holders to detect such changes. Thus, debt is more costly for firms with high growth opportunities. MYERS, S. C. (1984) referring to agency theory, holds the view that firms with growth opportunities will have a smaller proportion of debt in their capital structure. This is because conflicts of interest between debt and equity holders are especially serious for assets that give the firm the option to undertake such growth opportunities in the future.

Daskalakis, N., & Thanou, E. (2012) in examining a number of hypotheses relating to the capital structure decision in relation to the firms’ size, i.e., distinguishing among micro, small and medium
firms they found growth being positively related to debt for all groups of firms. The result leads them to the conclusion that high-growth firms are most likely to exhaust internal funds and use debt as a good alternative in their search for additional capital, as raising equity may be difficult and time-consuming for smaller firms.

2.6. Age
It is believed that as firms continue longer in business, they establish themselves as an ongoing business, thus increase their capacity to access more debt. Esperanca et al. (2003), referring to agency theory suggest that financiers use reputation of the firms as a measure of their creditworthiness. Reputation refers to the good name firms have built up over the years (historical) and which is understood by the market, which has observed their ability to meet their obligations in a timely manner. Managers concerned with a firms’ reputation tend to avoid riskier investments in favor of safer investments, even when equity-holders do not approve the safer investment, thus reducing debt agency cost.

Johnson, S. (1997) also argues that the reputational capital of older firms is sufficient to ensure they will avoid actions harmful to lenders even though they are unmonitored, and thus can borrow in public debt markets. These arguments indicate a positive association between age of the firm and leverage. In contrast, referring to pecking order theory, Macan Bhaird, C., & Lucey, B. (2010) suggests that older firms are able to accumulate funds and need less to borrow either long-term or short-term. In other words, a new firm will not have had time to retain funds and may be forced to borrow. Esperança et al. (2003), however, found age being negatively related to both long-term and short-term debt. Hutchinson (2003) also found age being negatively related to short-term debt, but insignificant.

3. RESEARCH METHODOLOGY
3.1. Research Design
The researchers was used a mixed research approach which is quantitative and qualitative research approach. But the tendency this research were on quantitative research approach beside to the qualitative research approach. And the study was employed a survey design administered through structured record review.

3.2. Sampling Design
In this study, a list of Medium and large business Enterprises in Eastern Zone of Tigray Region which
were Adigrat, Wukro, Freweyni (including Endaga hamus), and Hawzeni towns from 1, 204 total population 175 were taken as a population of the study those who fulfil the five year /2014-2018 G.C/ financial statement data and based on the following sample size determination, but the selection of the areas/towns/ from Eastern Zone of Tigray were be based on purposive sampling because the researchers believe that those who have a large number of medium and large size enterprises’ can provide a good information and degree of collaboration.

Table 3.1. Sample size for ±3%, ±5%, ±7% and ±10% Precision Levels Where Confidence Level is 95% and P=.5

<table>
<thead>
<tr>
<th>Size of Population</th>
<th>Sample Size (n) for Precision (e) of:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±3%</td>
<td>±5%</td>
<td>±7%</td>
<td>±10%</td>
</tr>
<tr>
<td>500</td>
<td>a</td>
<td>222</td>
<td>145</td>
<td>83</td>
</tr>
<tr>
<td>600</td>
<td>a</td>
<td>240</td>
<td>152</td>
<td>86</td>
</tr>
<tr>
<td>700</td>
<td>a</td>
<td>255</td>
<td>158</td>
<td>88</td>
</tr>
<tr>
<td>800</td>
<td>a</td>
<td>267</td>
<td>163</td>
<td>89</td>
</tr>
<tr>
<td>900</td>
<td>a</td>
<td>277</td>
<td>166</td>
<td>90</td>
</tr>
<tr>
<td>1000</td>
<td>a</td>
<td>286</td>
<td>169*</td>
<td>91</td>
</tr>
<tr>
<td>2000</td>
<td>714</td>
<td>333</td>
<td>185*</td>
<td>95</td>
</tr>
<tr>
<td>3000</td>
<td>811</td>
<td>353</td>
<td>191</td>
<td>97</td>
</tr>
<tr>
<td>4000</td>
<td>870</td>
<td>364</td>
<td>194</td>
<td>98</td>
</tr>
<tr>
<td>5000</td>
<td>909</td>
<td>370</td>
<td>196</td>
<td>98</td>
</tr>
<tr>
<td>6000</td>
<td>938</td>
<td>375</td>
<td>197</td>
<td>98</td>
</tr>
<tr>
<td>7000</td>
<td>959</td>
<td>378</td>
<td>198</td>
<td>99</td>
</tr>
<tr>
<td>8000</td>
<td>976</td>
<td>381</td>
<td>199</td>
<td>99</td>
</tr>
<tr>
<td>9000</td>
<td>989</td>
<td>383</td>
<td>200</td>
<td>99</td>
</tr>
<tr>
<td>10,000</td>
<td>1000</td>
<td>385</td>
<td>200</td>
<td>99</td>
</tr>
<tr>
<td>15,000</td>
<td>1034</td>
<td>390</td>
<td>201</td>
<td>99</td>
</tr>
<tr>
<td>20,000</td>
<td>1053</td>
<td>392</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>25,000</td>
<td>1064</td>
<td>394</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>50,000</td>
<td>1087</td>
<td>397</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>100,000</td>
<td>1099</td>
<td>398</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>&gt;100,000</td>
<td>1111</td>
<td>400</td>
<td>204</td>
<td>100</td>
</tr>
</tbody>
</table>

a = Assumption of normal population is poor (Yamane, 1967). The entire population should be sampled
*= the researcher was taken a sample in between 169* and 185*

Source: University of Florida sample size determination

3.3. Method of Data Analysis
Multiple regression analysis were used to determine whether there exists a relationship between the multiple independent variables (Determinants = Profitability, Tangibility, Size, Growth, Age, Earning) and the dependent variable (Leverage = Debt to Equity Ratio). One regression equation was used to test the hypotheses constructed in relation to firm-specific determinants (Profitability, Tangibility, Size, Growth, Age and Earning) and the leverage (Debt-Equity Ratio).

Data were regressed using STATA application software and the resulted (or obtained) regression outputs are analyzed. On top of this, Ms Excel 2013 were also used to compute and feed convenient data into the STATA employed.

The data were used and hypotheses was tested and analysis of the result is were made based on the multiple regression output. First, data is tested to ensure the validity of classical linear regression model (CLRM) assumptions. Second, test of the hypotheses was developed here and made based on the general estimated model which was examined the relationship between the leverage ratio and its determinants for the medium and large enterprises firms.

\[
\text{LEV} = \alpha + \beta_1 (SZ) + \beta_2 (TG) - \beta_3 (PR) - \beta_4 (EV) - \beta_5 (GR) + \beta_6 (AG) + u
\]

Where \( \alpha \) = constant term

\[\beta_s \] = regression parameters

\( u \) = an error term

\( SZ \) = size of the firm

\( TG \) = Tangibility of the firm (asset)

\( PR \) = profitability of the firm

\( EV \) = earnings volatility of the firm

\( GR \) = Growth of the firm

\( AG \) = Age of the firm
With the above multiple regression equation/ since it is panel data /, the impact of each explanatory variable on leverage were assessed in terms of the statistical significance of the coefficients ‘βs’. Using a 1%, 5%, and 10% level of significance, an estimated coefficient were also statistically significant tested: at 1%, if p-value ≤ 0.01, at 5%, if p-value ≤ 0.05 and at 10%, if p-value ≤ 0.1. It is conventional to use a 5% significance level, but 10% and 1% are also commonly used (Brooks 2008). The signs in the model reveal the expected relationship between the dependent variable, and independent variables.

### 3.4. Hypothesis

Based on these theories and studies, the researchers hypothesizes that:

**Hypothesis 1:** There is a positive relationship between size of the firm and debt ratio.

**Hypothesis 2:** There is a positive relationship between tangibility of the firm’s assets and debt ratio.

**Hypothesis 3:** There is a negative relationship between profitability of the firm and debt ratio.

**Hypothesis 4:** There is a negative relationship between earnings volatility of the firm and debt ratio.

**Hypothesis 5:** There is a negative relationship between growth of the firm and debt ratio.

**Hypothesis 6:** There is a positive relationship between age of the firm and debt ratio.

### 3.1. Conceptual Framework

![Conceptual Framework Diagram]

- **Size**
- **Tangibility**
- **Profitability**
- **Growth**
- **Age**
- **Earnings volatility**
- **Leverage**

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![Conceptual Framework Diagram]

- **Size**
- **Tangibility**
- **Profitability**
- **Growth**
- **Age**
- **Earnings volatility**
- **Leverage**
3.1. Summary of variables and their definition/measurements

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition/ measurements</th>
<th>Relationship with leverage which expected</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Leverage = total debt / Total assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanatory variables</td>
<td>Total asset</td>
<td>+</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>fixed asset/total asset</td>
<td>-</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>Earning before tax/ total asset</td>
<td>-</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>% change in total asset</td>
<td>-</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>subtracting the business year of establishment from each year</td>
<td>+</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>standard deviation of earnings before tax (EBT)</td>
<td>-</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Sources: organized from different literatures 2018/19

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics
The average (mean) leverage of firms was 0.4126977 and this indicates that the firms financed (leveraged) with debt at approximately 41% of the asset. Even the standard deviation show that 0.2245105 the firms had in the last five years, focused more on debt financing than on equity financing.

The average annual profitability /ROA/ of the firms under investigation was 0.0728817. And the dispersion was 0.1000582 which indicated that the individual firm had constant profitability rate every year.

The mean of asset composition were 0.3942559. This indicated that the firms fixed assets represent only 39 percent of the total assets. The standard deviation were 0.230063.

The firm’s total assets have an average growth rate of 0.9498715 that is 95 percent for the five years of study period. The standard deviation was 3.489979.
The age of the firms was vary from 7 year to 19 years. The mean was 3.559556 and standard deviation also was 12.97518.

Lastly, during the five years of the study period, the earning volatility variable values show that the firms mean value of 504195.5 and standard deviation also was 4.05.

**Chart 4.1. Descriptive Statistics**

Sources: from STATA result 2018/19

### 4.2. Correlations between the Variables

Table 4.1 below depicts a correlation matrix of the variables. The table revealed that size, profitability’s, age, and sales growth had a positive correlation with leverage. This implied that large-sized firms and firms with high levels of ROA tend to use more debt. In contrast, tangibility’s and earning volatility had an inverse relationship with leverage. This implied that tangibility’s and earning volatility use less debt.

Table 4.1 also reveals a little evidence for multicollinearity (a problem that occurs when the explanatory variables are very highly correlated with each other). The highest correlation (nearly 39 %) observed between firm size variable and leverage variable is not even significant enough to cause multicollinearity. According to Brooks (2008), in any practical context, the correlation
between explanatory variables will be non-zero, i.e., a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision.

Table 4.1. Correlation Matrix of Variables

<table>
<thead>
<tr>
<th></th>
<th>Leverage</th>
<th>tangibility</th>
<th>Sales Growth</th>
<th>firm size</th>
<th>ROA</th>
<th>Age</th>
<th>Earning VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(obs=175)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.0755</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales Growth</td>
<td>0.0716</td>
<td>-0.0400</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.2749</td>
<td>-0.1549</td>
<td>-0.1438</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.0996</td>
<td>-0.0790</td>
<td>-0.1402</td>
<td>0.1216</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.1542</td>
<td>-0.4173</td>
<td>0.1492</td>
<td>-0.0134</td>
<td>-0.0674</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>Earning Volatility</td>
<td>-0.0542</td>
<td>0.3155</td>
<td>-0.1331</td>
<td>-0.0040</td>
<td>-0.0148</td>
<td>-0.1162</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Sources: STATA result 2018/19

Table 4.2. Linear Regression

<table>
<thead>
<tr>
<th>Source</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>Numbers of obs = 175</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1.02214444</td>
<td>6</td>
<td>.170357407</td>
<td>F(6,168) = 3.81</td>
</tr>
<tr>
<td>Residence</td>
<td>7.50578941</td>
<td>168</td>
<td>.044677318</td>
<td>Prob&gt;F = 0.0014</td>
</tr>
<tr>
<td>Total</td>
<td>8.52793386</td>
<td>174</td>
<td>.049011114</td>
<td>R-square = 0.1199</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adj R-square = 0.0884</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Root MSE= .21137</td>
</tr>
</tbody>
</table>

| leverage          | Coef. | Std.err. | t    | p>|t| | 95% conf. interval |
|-------------------|-------|----------|-----|-----|-------------------|
| Tangibility       | .0685537 | .0912447 | 0.76 | .447 | -.1105803 .2496877 |
| Sales Growth      | .0035347 | .002704  | 1.31 | .193 | -.0018035 .0088728 |
| Firm Size         | .0562508 | .0144827 | 3.88 | .000 | .0276594 .0848423 |
| ROA               | .1893574 | .1485168 | 1.27 | .204 | -.1038423 .4825571 |
| Age               | .009226  | .0043366 | 2.13 | .035 | .0006647 .0177874 |
| Earning Volatility| -3.76e-10 | 7.42e-10 | -0.51 | .613 | -1.84e-09 1.09e-09 |
| _cons.            | -.7084598 | .2777889 | -2.55 | .012 | -1.256867 .1600531 |
Table 4.2 presents the regression results of determinants of Leverage MLs between 2014 and 2018. The regression summary statistics pane (Table 4.9 upper right) results and analyses are discussed as follows. The R squared is 0.119 which indicates that about 12 percent of the variability of Leverage ratio is explained by the selected firm variable (Profitability, Tangibility, Size, Growth, Age and earnings volatility). In other words, about 12 percent of the change in the dependent variable is explained by the independent variables that are included in the model.

**4.3. Hypothesis Testing and Discussion of Results**

Table 4.3 presents the summary of the regression results for the equation of firms leverage using the determinants of capital structure as explanatory variables.

Results obtained from analysis, expressed in terms of the signs and statistical significance of the coefficients for the selected six independent variables, are presented in Tables 4.10. The conducted hypotheses testing and discussed results are categorized on the basis of these independent variables and focused on their relationships with capital structure theories.

**Table 4.3: Firm Specific Analysis of Determinants of Capital Structure**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Dependent variable</th>
<th>Value of the coefficient</th>
<th>t-test</th>
<th>Significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibility</td>
<td>Leverage</td>
<td>0.695537</td>
<td>0.76</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.47)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales Growth</td>
<td>Leverage</td>
<td>0.0035347</td>
<td>1.31</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.193)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>Leverage</td>
<td>0.0562508</td>
<td>3.88</td>
<td>Significant 1% level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>Leverage</td>
<td>0.1893574</td>
<td>1.27</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Leverage</td>
<td>0.009226</td>
<td>2.13</td>
<td>Significant 5% level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.035)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earning Volatility</td>
<td>Leverage</td>
<td>-3.76e-10</td>
<td>-0.51</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.613)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Number of observations** = 175  
**F-Statistics** = 3.81  
**Prob > F** = 0.0014  
**R²** = 0.1199

*Source: STATA result 2018/19*
In addition, to verify if capital structure decisions that are made in the firms in provide empirical support for existing theories, regression results of this study, summarized in Table 4.3, are compared with the following table, Table 4.4, of summary of hypothesized, expected and observed theoretical signs of independent variables.

Table 4.4: Hypothesized, Expected and Observed Signs of the Independent Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition/ measurements</th>
<th>Relationship with leverage which expected</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Leverage = total debt / Total assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanatory variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>Total asset</td>
<td>+ Significant</td>
<td>+ Significant</td>
</tr>
<tr>
<td>Tangibility</td>
<td>fixed asset/total asset</td>
<td>+ Significant</td>
<td>+ Insignificant</td>
</tr>
<tr>
<td>Profitability</td>
<td>Earning before tax/ total asset</td>
<td>- Significant</td>
<td>+ Insignificant</td>
</tr>
<tr>
<td>Growth</td>
<td>% change in total asset=</td>
<td>- Significant</td>
<td>+ Insignificant</td>
</tr>
<tr>
<td>Age</td>
<td>subtracting the business year of establishment from each year</td>
<td>+ Significant</td>
<td>+ Significant</td>
</tr>
<tr>
<td>Earnings volatility</td>
<td>standard deviation of earnings before tax (EBT)</td>
<td>- Significant</td>
<td>- Insignificant</td>
</tr>
</tbody>
</table>

Source: Researcher’s own computation 2018/19

Test of the research hypotheses were made based on the relationship of dependent variable and the explanatory variables. Therefore, the following subsections deal with hypothesis testing and the interpretation of the regression results presented above.
I. LEVERAGE WITH PROFITABILITY

Research hypothesis one was formulated for the assessment of the relationship between leverage and profitability based on pecking order theory. Beta coefficient associated with profitability (PR) accepted the first null hypothesis.

In this study, profitability is estimated to be positively related with firms leverage ratio and this relationship is found statistically insignificant. It implies that profitable firms in firms maintain high debt to equity ratio. This result is consistent with predictions of Pecking order theory which states that firms prefer to finance first with internal funds before raising external financing. Further this outcome is also consistent with the most previous studies (Titman, S. and Wessels, R. 1988; Rajan, R. G. et al., 1994; and Booth et al., 2001). Hence, with inverse relationship between profitability and financial leverage, it can be concluded that highly profitable firms maintain high debt to equity ratio and they utilize more equity source compared to debt for making their capital structure.

II. LEVERAGE WITH TANGIBILITY

Research hypothesis two was formulated to estimate the relationship between tangibility and leverage based on static trade-off theory. Beta coefficient associated with Tangibility (TN) accepted the second null hypothesis and proved that there is a positive relationship between tangibility and capital structure of firms.

In this study, the sign of tangibility variable coefficient were positive, but not statistically significant. This result, tangibility being insignificant variable, contradicts with various previous research findings. However, the observed sign coincides with Static tradeoff theory, pecking order theory and agency cost theory that theorize positive relationship between leverage and tangibility.

III. LEVERAGE WITH SIZE

Research hypothesis three was formulated to estimate the relationship between size and leverage based on static trade-off theory. The result of beta coefficient linked with size (SZ) accepted the third null hypothesis and proved that there a positive relationship between leverage and size of commercial banks.

This study found size to be highly statistically significant at the 1 percent level and have positive impact on the commercial bank’s leverage. This suggests that larger commercial banks in Ethiopia tend to have higher leverage ratios and borrow more capital than smaller commercial banks do. To
express it in figure, assuming other determining factors constant, for 1 unit increase in size, there is a 1.95 unit positive increase in debt to equity ratio. The observed result is consistent with the result of static trade-off theory. Major empirical studies also found a positive relationship between size and leverage. For instance: Titman, S. and Wessels, R. (1988), Rajan, R. G. et al., (1994), and Booth et al., (2001) provided the evidence of significant and direct relationship between size and capital structure measure. Since the result of size variable indicated a significant statistics, it is estimated that size does have significant role in making debt ratio and determining the capital structure of Ethiopian commercial banks.

IV. LEVERAGE WITH GROWTH
Research hypothesis predicted that a positive relationship exists between capital structure and growth, but the regression result of beta coefficient linked to growth (GR) rejected the fourth null hypothesis favoring the alternate hypothesis that infer negative relationship between capital structure and growth variable. The negative result contradicts with POT but supports STT and ACT. To conclude, growth is found to be insignificant factor for deciding the capital structure issues in MLs.

V. LEVERAGE WITH AGE
The result of beta coefficient linked to age variable accepted the fifth null hypothesis and proved the positive relationship between capital structure and age of commercial banks in Ethiopia.

In this study, age is estimated to have significant positive relationship with leverage of commercial banks. The positive relationship is statistically significant at 5 percent significance level. This implies that older commercial banks use more debt than younger or newer ones do. Numerically, the 0.036 coefficient of age variable (making the other variables constant) implies that every additional 1 year increases the leverage measure (DER) by 0.036.

This result in turn indicates that older banks have a reputation of credit and build a good relationship with creditors; thus, they have better conditions to obtain debt and younger commercial banks rely more on equity financing, as they are constrained by debt financing. The observed sign coincides with Static trade-off theory but opposes pecking order theory. Accordingly, with 10 percent significance level and direct relationship between age and leverage,
it is expected that aged commercial banks in Ethiopia maintain high debt to equity ratio and utilize more debt source compared to equity source.

VI. LEVERAGE WITH EARNING VOLATILITY
The last research hypothesis, hypothesis was developed to assess the relationship between leverage and earning volatility. The result of beta coefficient associated with earning volatility variable accepted the null hypothesis and proved that there is a negative relationship between capital structure and earning volatility of MLs.

In this study, MLs is found to have a negative relationship with leverage and is not statistically significant. This result is consistency only with STT for short term financing because banks are having more advantage from the tax-shields by using more interest paying deposits. Operating in a developing country, most MLs use short term financing due to macroeconomic factors, and the characteristics of the firm.

5. Conclusion and Recommendations

5.1. Conclusion
Capital structure remains an important and significant issue for academicians and corporate managers. This area has been researched by many prominent scholars, namely Modigliani and Miller, Stewart Myers, Stephen Ross, Michael Jensen and William Meckling. However capital structure has extensively been studied in the developed countries, but only few researches focus on developing countries like Ethiopia. In this research project, the main objective is to study the significant firm-specific determinants of capital structure in the context of MLs.

Scholars in trying to understand and decipher capital structure have come up with many theories. Among the famous theories are Modigliani and Miller propositions, Static tradeoff, Pecking order and Agency Cost. After reviewing the theories involved in capital structure, Titman, S. and Wessels, R. (1988), Harris and Raviv (1991) and Frank and Goyal (2003) also researched the determinants of capital structure. In this study, firm-specific determinants (internal factors) were examined in the context of Ethiopia.
The regression results of the capital structure model verified that 12 percent of the change in the dependent variable (capital structure measured by debt to equity ratio) is explained by the independent variables that are selected and included in the model. This implies that the leverage ratio of MLs is highly explained by the selected firm specific variables. The result also showed two of the explanatory variables (size, age and size) are the significant firm-specific determinant factors of capital structure in the firms and Tangibility, ROA and Growth found to be positively related to debt to equity ratio. On the other hand, both earning volatility variables was found to be negatively related to debt to equity ratio.

As a result, profitability variable attained an inverse relationship with capital structure measure that supports, Static trade-off theory but opposes the Pecking order theory. This suggests that highly profitable commercial banks in Ethiopia maintain high debt to equity ratio and they utilize more equity sources as compared to debt sources for making their capital structure. Tangibility variable has direct relationship with financial leverage but the researcher could not get enough statistical significance. That is, tangibility variable does not have influence on MLs decisions but has positive relationship. This relationship is consistent with the three theories of capital structure.

Size variable displayed a positive relation with financial leverage and is found to be a most important determinant of firms financing pattern. Larger firms in the firms sector maintain high leverage ratios. Therefore, size’s relationship with financial leverage supports Static trade-off theory and Agency cost theory but contradicts with Pecking order theory. Negative relationship between growth and leverage was also found out as insignificant determinant variable of firms’ financing decision. The negative relationship between growth and financial leverage supports Static trade-off and Agency cost theories of capital structure. The positive and significant relationship between age and leverage strongly supports the Static trade-off theory but go up against Pecking order theory. Lastly, tax shield variable displays a positive relation with financial leverage. This positive relation verifies that banks with high tax-shield use more debt than equity. This evidence is consistent with Static trade-off theory for only short term debts.
From the test of consistency of capital structure relevancy results, the researcher asserted that all the capital structure relevancy theories: Static trade-off, Pecking order and Agency cost theory are partially accepted in firms, though there is more evidence for Static trade-off theory.

As a concluding remark, this research project found that profitability, size, age, tangibility and growth are some among the firm-specific factors that determine MLs capital structure and are also found to be similar to the factors that influence the capital structure of firms in developed and other developing counties that are studied by different researchers. However, in acknowledging the influence of other pertinent factors, like corporate governance, legal framework and institutional environment of the countries; that are not included in this study, capital structure decision is not only the product of firm’s own characteristics but also the macroeconomics environment in which the firm operates.

5.2. Recommendation

The findings of the study are deemed to benefit investors, professional managers, lenders, academicians and policy makers in the country.

- External investors and shareholders should appreciate the discussed variables that determine the capital structure of a particular firms and observe its performance before making decisions of whether or not to buy or sell its particular inventory.
- Before lenders seek to protect themselves from excessive use of corporate leverage through the use of protective covenants, they should consider the capital structure determinant variables studied above to evaluate and predict the risk associated with lending capital to their respective borrowers.
- The lack of high-quality databases might constitute the major barrier on conducting capital structure research in Tigray regional state. Consequently, there is a need, for policy makers at different levels, to design policies which guide organizations to develop validated databases as more data becomes available in future. Using such databases can help examining and identifying additional variables that could influence the financing behavior of Tigray firms and other studies.

References


