The Determinants of Capital structure in Ethiopian Private Commercial Banks: A Panel Data Approach

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A R T I C L E   I N F O

A B S T R A C T

A wrong capital structure decision causes business frailer. However, still, what determinants optimal capital structure decision of companies remain the puzzles of many research scholars. This study is, therefore, aimed to investigate the determinants of the capital structure decision of private commercial banks in Ethiopia. The secondary data were obtained from audited annual financial reports of ten private commercial banks and the National Bank of Ethiopia covering the period of 2010-2018. The panel data were analyzed with a clustered robust random effect regression model. The study reveals that there is a significant positive relationship between earning volatility, size of banks, and taxation with leverage while profitability and asset tangibility are found to have a significant negative effect on the banks' leverage decision. The empirical findings of the study imply that the two capital structure theories, static trade-off and pecking order, are essentially explaining the capital structure decision of Ethiopian private commercial banks. Private commercial banks in Ethiopia should pay due attention to the microeconomic variables without overlooking the macroeconomic condition while articulating their optimal capital mix which can minimize the weighted average cost of capital and enhance the value of the company.

A B S T R A K

Keputusan struktur modal yang salah menyebabkan lemahnya bisnis. Namun, tetap saja penentu keputusan struktur modal optimal perusahaan menjadi teka-teki banyak sarjana penelitian. Oleh karena itu, penelitian ini bertujuan untuk mengkaji faktor-faktor penentu keputusan struktur modal bank komersial swasta di Ethiopia. Data sekunder diperoleh dari laporan keuangan tahunan yang diaudit dari sepuluh bank komersial swasta dan Bank Nasional Ethiopia yang mencakup periode 2010-2018. Data panel dianalisis dengan clustered robust random effect regression model. Penelitian ini mengungkapkan bahwa ada hubungan positif yang signifikan antara volatilitas pendapatan, ukuran bank, dan perpajakan dengan leverage sedangkan profitabilitas dan tangibilitas aset ditemukan memiliki efek negatif yang signifikan terhadap keputusan leverage bank. Temuan empiris dari penelitian ini menyiratkan bahwa dua teori struktur modal, trade-off statis dan pecking order, pada dasarnya menjelaskan keputusan struktur modal bank komersial swasta Ethiopia. Bank-bank komersial swasta di Ethiopia harus memperhatikan variabel-variabel ekonomi mikro tanpa mengabaikan kondisi ekonomi makro sambil mengartikulasikan bauran modal optimal mereka yang dapat meminimalkan biaya rata-rata modal tertimbang dan meningkatkan nilai perusahaan.

1. INTRODUCTION

Financial institutions in general and banks in particular play a dynamic role in the economic resource distribution of countries. They channel funds from depositors to investors continuously. For sustainable mediation functions, banks need to be profitable and financially healthy (Assfaw, 2019a). Since capital plays a crucial role in the profitability and existence of banks, the determination of capital that can absorb risk and also make banks remain competitive is a crucial function of financial managers. Therefore, the policymaking process

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concerning the financing choice of a company on a mix of debt and equity has a substantial significance in corporate governance and its future successful development (Mokhova & Zinecker, 2014). The banks' capacity to carry out the needs of their stakeholders is closely related to their capital mix. A good capital structure decision enables a banking company enterprise to go ahead successfully on its path and attain gradual growth. Therefore, banks should have optimal leverage to capitalize on the value of the firm (Salawu, 2007).

The capital structure of a firm refers to the intermingling of debt and equity funding a firm undertakes to meet its financing needs (Liyanage et al., 2019). Capital structure decisions affect the cost of capital and capital budgeting decisions (Thippayana, 2014). The risk and return of stockholders, and finally, the value of a firm is also highly influenced by the capital structure decision of financial managers (Jaafar et al., 2017). Evidence showed that the major cause of business frailer is due to the absence of the right capital structure decision. Therefore, the use of an optimal mix of funding is important since it reduces the cost of capital of the firm and maximizes its value. Thus more profitable investment opportunities are available for the firm (Al-Qudah, 2014)**.** Achieving the right capital structure by defining the composition of debt and equity for an organization to finance its operations and investments has challenged academics and practitioners alike (Guo et al., 2018). However, what determinants optimal capital structure decisions of companies remain the puzzles of many research scholars for a long period (Sheikh & Qureshi, 2017). It still has not come to a conclusive result and remains a controversial issue. There is relatively little empirical evidence on how companies select between financing alternatives at a given point in time despite the continuing theoretical debate on capital structure decisions (Marsh, 1982).

Despite the heterogeneity of findings, many empirical studies have been undertaken on determinants of the capital structure of a firm (Tripathi, 2018; Hussein et al., 2019; Mateev et al., 2013; Muthama et al., 2013; Mokhova & Zinecker, 2014; Karadeniz et al., 2009; Gaud et al., 2005; Bassey et al., 2014; Cevheroglu-acar, 2018; Chang et al., 2009; Handoo & Sharma, 2014; Kabeer & Rafique, 2018; Ainna et al., 2019; Thippayana, 2014; Bilgin & Dinc, 2019; Güner, 2016; Proença et al., 2014; Jõeveer, 2013; Neves et al., 2019). These studies, however, are largely relating to firms operating in developed countries, and it is not clear how these facts relate to

firms in different geographical locations (Moradi & Paulet, 2019). Besides, the focus of most of these investigations was on non-financial firms and the financial firms have been excluded from their analysis because of the reasons that their decisions are the by-product of various regulations thought banks are an important element of the financial system of an economy. Although policy decisions made by the regulatory authorities provide a broader framework to the bank managers, they may make decisions of their own choice to create value for the shareholders (Sheikh & Qureshi, 2017).

Despite the existence of several studies on the capital structure determinants of non-financial companies that are operating in developed countries, empirical studies on capital structure in financial institutions operating in developing countries, especially in Ethiopia, are very scanty. Moreover, most of the previous authors did not address macro-economic variables in their model. Instead of these, the present study attempts to fill this literature gap by directly examining the factors that can affect the capital structure decisions in the private commercial banking sector within the context of developing economies, Ethiopia.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

This part of the study highlights theoretical and empirical reviews of the literature on capital structure. It begins with tracing the predictions of different capital structure theories as a theoretical review, and it further states empirical literature on important variables that may affect the capital structure of banks.

The Theories of Capital Structure

Capital structure decision refers to the way the company finances its operations with various sources of funds, i.e. liabilities and owners' equity (Karadeniz et al., 2009; Kabeer & Rafique, 2018). For minimizing the cost of capital and maximize the firm's value, the highest effort exerted on the financial decision-making process is the determination of the optimal capital structure of a firm. Consequently, the market value of the share may be affected by the capital structure decision (Tripathi, 2018). The question of optimum capital structure decision remains a continuous debate in corporate finance (Salawu, 2007). For resolving this continuous debate, different capital structure theories have emerged over periods. For probing the factors that can influence capital structure decisions, alternative theories of the financial

structure have been developed over the years (Karadeniz et al., 2009).

The capital structure theories have been used as the starting point for many empirical studies on capital structure decisions in different contexts. Therefore, when developing hypotheses for the variables employed in our model and comparing our empirical findings, these theories will provide theoretical foundations in the study supplemented with reviewing of empirical results of previous research papers.

Modigliani and Miller (M-M) Theory
The first capital structure theory is the Modigliani and Miller (1958) theory of capital structure which is the springboard of optimal capital structure theories. This theory is the starting point for the rest of modern capital structure theories, perhaps the most controversial or most celebrated piece of research in corporate finance. Modigliani and Miller (1958) illustrated that given certain conditions such as the absence of financial market imperfections (information asymmetry), tax, funding costs and signaling effect of firms' financial policy, the worth of the company is independent of its financing decisions. That means debt policy is irrelevant to the company's value. To this end, Modigliani and Miller (1958) advocates that the firm's market value is determined by its earning power and the risk of its underlying assets, not the financing policy of the firm. Currently, empirical research shows that Modigliani and Miller (1958) theorem fails due to the non-practicality of its assumptions.

Modigliani and Miller (1963) reviewed their earlier proposition to include taxes and other market imperfections and contended that capital structure matters and firms could maximize value by using more debt in their operations to take advantage of the tax shield benefits of leverage. Modigliani and Miller's preposition gave birth to other important theories of capital structure, namely, trade-off theory, agency, signaling, and pecking order theories.

Trade-off Theory
The second theory of capital structure is the trade-off theory which argues that the firm weighs the cost and benefit related to different financing plans. The firm following trade-off theory sets a target capital mix by balancing the benefits of tax shields against costs related to bankruptcy (Modigliani & Miller, 1984). That is the optimum level of leverage obtained by balancing the benefits obtained from tax shields against the costs of debt, such as bankruptcy costs

and agency costs (Kjellman & Hansen, 1995). Since the cost of debt is a tax-deductible disbursement, they decrease the tax obligations, thus providing cash savings. Therefore, firms will use a higher level of debt to take advantage of tax benefits when higher tax rates exist.

In general, this theory portrayed that optimal financial structure of a firm can be achieved by balancing (trading-off) between the benefits of debt (tax shield from interest) and the cost of debt (bankruptcy, agency and other direct and indirect costs) related to asset substitution (Modigliani & Miller, 1984). The theory ascertained that there are pros and cons of debt financing and companies, therefore, need to evaluate as merits outweigh demerits of debt while deciding their financial plan.

Pecking Order Theory
Advocated by Myers (1984), Myers and Majluf (1984), the pecking order theory states that firms follow a hierarchy of financial decisions when establishing their financial structure. This theory suggests that firms prefer internal funding over external financing since internal funding does not incur any transaction costs. That means there is a cost associated with the information asymmetry that created amongst managers of the firm and outside market participants that makes external funding expensive.

Myers and Majluf (1984) pointed out that due to this information asymmetry, investors would infer that the management would issue stock only when it is overpriced. Thus, the newly issued equity might be sold at a discount. Thus, according to this theory, companies that earn higher profits restrain themselves from issuing debt securities as they have adequate internal funds in the form of retained earnings for this purpose (Kjellman & Hansen, 1995). Only if the internal financial source is not sufficient enough to finance its investment projects, a firm needs to prefer debt (less risky first then riskier) over equity. Usually, equity shares are issued only if they are overvalued. New investors will understand and interpret the signal negatively as equity of a firm is overpriced, and the upcoming environment is inferior if a firm issues equity instead of debt for financing its new projects. Thus, investors need a high return to compensate this perceived overvalued price of equity which in turn increase the cost of issuing equity. Therefore, if internal financial sources are not sufficient to finance activities of a firm and simultaneously, equity shares are undervalued, debt will be taken as the last financial resort.

Agency Cost Theory

Agency cost theory focuses on the costs that are created due to conflicts of interest between shareholders and managers and conflict of interest between shareholders and creditors. Agency cost theory advocated by Jensen & Meckling (1976) considered a debt to be a necessary factor that creates conflict between equity holders and managers. Jensen & Meckling (1976) suggested that, given increasing agency costs with both the equity-holders and debt-holders, there would be an optimum combination of outside debt and equity to reduce total agency costs.

Most often, managers have an incentive to consume their privileges in the form of compensation and promotion by putting less effort on maximizing profit for shareholders while shareholders need investment projects that can increase dividend payments and firm's value, conflicts between shareholders and managers can arise. Therefore, by increasing the level of debt, this agency cost of managerial discretion can be mitigated as debt issues can be used as discipline measures over managers.

The agency cost between equity-holders and debt-holders also arise due to shareholders' incentive to invest in sub-optimal projects. Shareholders would receive most of the gain if an investment earns a return well above the face value of the debt yet debt-holders will bear all the cost if the investment fails because the maximum amount that shareholders can lose is the number of their investments (limited liability). Thus, the agency cost theory predicts that an optimal capital mix can be obtained by trading-off the agency cost of debt against the benefit of debt (Harris & Raviv, 1991).

Measurements of Banks Capital Structure

There is no single measurement that can be used as a proxy for capital structure. Researchers agree that measures of capital structure should vary depending on the purpose of analysis. However, most studies including the current study used total debt ratio (TDR) to measure leverage level of a firm (Sheikh & Qureshi, 2017; Sritharan, 2014; AL-Mutairi & Naser, 2015; Güner, 2016; Proença et al., 2014; Neves et al., 2019). The total debt ratio is the ratio of total liabilities (current and non-current) to total assets (Handoo & Sharma, 2014; Cevheroglu-acar, 2018). In this research, book leverage is used rather than the market value leverage.

Determinants of Banks Capital Structure and Hypotheses Development

In this section, potential factors that may affect the capital structure decision of Ethiopian private commercial banks are discussed, and alternative hypotheses are developed based on earlier prominent capital structure theories and findings of different empirical studies of capital structure.

Profitability (PROF)

Operating profit rate of return (ROA) is used as a measure of profitability in different empirical studies (Titman & Wessel, 1988; Sritharan, 2014; Güner, 2016; Neves et al., 2019). For this study, it is measured as the ratio of earnings before interest and tax to the total asset. Al-Mutairi and Naser (2015) examined the determinants of the capital structure of banks listed on the Gulf Cooperation Council (GCC) throughout 2001-2010. They found that profitability hurts the liquidity of banks. The study of Amidu (2007) also showed that profitability has an adverse influence on the bank's leverage. The Static Trade-off Theory expects a positive relationship between profitability and leverage that the profitable firm will opt for the cheapest sources of funding, namely debt instead of equity (Kjellman & Hansen, 1995). The studies of Salawu and Agboola (2008), Avci and Çatak (2016) also revealed that profitability is positively associated with total debt. Contrary to these, the Pecking Order Theory expects exactly the negative relation between profitability & leverages which is in line with the findings of previous studies (Ali et al., 1959; Caglayan & Sak, 2010; Sritharan, 2014; Karadeniz et al., 2009; Gaud et al., 2005; Fauziah & Iskandar, 2015; Jõeveer, 2013; Antoniou et al., 2008; Anarfo, 2015).

In dynamic trade-off models, however, leverage and profits can be negatively related (Frank & Goyal, 2009). The past profitability of a firm, and hence the number of earnings available to be retained, should be an important determinant of its current capital structure (Cevheroglu-acar, 2018; Chang et al., 2009; Lutfi et al., 2020). The pecking order theory opts for a negative, while the trade-off theory opts for a positive relationship between the two variables (Modigliani & Miller, 1984; Myers & Majluf, 1984).

H₁: *Profitability has a significant positive effect on the leverage level of Ethiopian private commercial banks.*

Growth Opportunity (GROW)

Growth is measured by the percentage change of assets as hired on some empirical studies (Handoo & Sharma, 2014; Sheikh & Qureshi, 2017; Sritharan, 2014). Consistent with the pecking order theory, other empirical evidence also showed as a positive relationship between growth opportunities and debt level (particularly small firms) (Modigliani & Miller, 1984; Myers & Majluf, 1984; Fauziah & Iskandar, 2015; AL-Mutairi & Naser, 2015; Proença et al., 2014; (Jaafar et al., 2017) since funds available internally may not be sufficient enough to finance such growing investment projects which require huge finance in addition to the retained earnings.

Agency cost theory suggests that a company with better growth opportunity which has more flexibility in its choice of future investments is encouraged to invest in riskier projects that increase the shareholders' wealth. However, creditors are either unwilling to lend to risky projects or lend with a high cost of borrowing, and firms tend to avoid debt and divert into equity financing. Likewise, trade-off theory also suggests that the cost of financial distress increases with growing firms, and these forcing managers to reduce the proportion of the debt. Consistent with agency and trade-off theories, the study of Salawu and Agboola (2008) conducted on large non-financial listed firms in Nigeria revealed that growth opportunities are negatively associated with total debt. This is also further supported with the findings of several empirical studies (Ali et al., 1959; Sheikh & Qureshi, 2017; Rajan & Zingales, 1995; Gaud et al., 2005; Chang et al., 2009; Güner, 2016; Antoniou et al., 2008; Neves et al., 2019; Titman & Wessel, 1988).

H$_2$: *Growth opportunity has a significant positive effect on the leverage level of Ethiopian private commercial banks.*

Assets Tangibility (TAN)

It refers to the physical assets (e.g. land, building, machines, and equipment) that possess some degree of debt capacity. It is measured by the ratio of fixed assets to total assets as employed in previous studies (Sheikh & Qureshi, 2017; Sritharan, 2014; Cevheroglu-acar, 2018; Proença et al., 2014; Neves et al., 2019). Previous empirical evidence shows that firms that have more tangible assets tend to have more leverage (Frank & Goyal, 2009; Gaud et al., 2005; Kabeer & Rafique, 2018; Bilgin & Dinc, 2019; Antoniou et al., 2008). That means the availability of tangible assets makes it easier to get loans from creditors. The static trade-off theory also states since

fixed assets are accepted as collaterals in debt contracts, the firm having a large number of fixed assets can easily raise debt at cheaper rates by pledging its tangible fixed assets as collateral (Myers & Majluf, 1984; Harris & Raviv, 1991; Cevheroglu-acar, 2018; Jaafar et al., 2017). An agency cost theory also states there is a positive relationship between collateral and leverage since a potential conflict of interests between shareholders and creditors will be minimized when creditor's main tangible assets as requiring collateral. The study of Handoo and Sharma (2014) done in India also showed that asset tangibility has a positive effect on the leverage level of a firm.

On the other hand, the pecking order theory predicts that firms holding more tangible assets will be less prone to asymmetric information problems and thus less likely to issue debt and more likely can issue equity at fair prices. Amidu (2007) on his study also revealed that asset tangibility is negatively affecting the leverage of commercial banks in Ghana. Furthermore, the study of Kusi et al. (2016) conducted on capital structure dynamics of listed banks in Ghana indicated that asset tangibility of banks has a negative influence on the bank's leverage. This is also supported by the findings of other research scholars (Caglayan & Sak, 2010; Sheikh & Qureshi, 2017; Sritharan, 2014; Ali et al., 1959).

H$_3$: A*sset tangibility has a significant positive effect on the leverage level of Ethiopian private commercial banks.*

Bank Size (BS)

The measure of a firm's size is the natural logarithm (Ln) of its total assets which was also employed by previous empirical investigations (Handoo & Sharma, 2014; Sritharan, 2014; Cevheroglu-acar, 2018; Lutfi & Suyatno, 2019; Neves et al., 2019; Assfaw, 2019b; Wardhani & Mongid, 2019). The study of Tin and Diaz (2017) investigates the important factors influencing capital structure decisions in Vietnamese commercial banks. The result shows that there is a significant positive effect of the bank's size on the leverage of banks, which means that larger banks acquired more debt. The empirical findings of Amidu (2007), Avci and Çatak (2016) also confirmed that bank size has a positive effect on the leverage of banks in Ghana. Furthermore, a study of Kusi et al. (2016) conducted on the capital structure dynamics of listed banks in Ghana indicated that the size of banks has a direct impact on a bank's leverage. For the Static Trade-off

approach, the larger the firm, the greater the possibility of issuing debt, resulting in a positive relationship between debt and size. Large firms have more credibility in the debt market and have a lower bankruptcy probability. Thus, their cost of debt is lower, compared to small, unknown firms (Bilgin & Dinc, 2019; Moradi & Paulet, 2019). Banks with large total assets are also capable of diversifying their investments and subsequently, are less vulnerable for bankruptcy and insolvency (Siam et al., 2005). The static trade-off theory also establishes a positive relationship between firm size and debt ratio by stating that larger firms are better diversified and have a lower probability of experiencing financial distress. This is similar with the findings of other empirical studies (Antoniou et al., 2008; Jaafar et al., 2017; Anarfo, 2015; Ali et al., 1959; Gaud et al., 2005; Caglayan & Sak, 2010; Sritharan, 2014; Proença et al., 2014; Jaafar et al., 2017; Titman & Wessel, 1988).

The study of Handoo and Sharma (2014) conducted in India showed that a firm's size hurts the leverage level of a firm. This finding is also supported by the empirical results of other previous researchers (AL-Mutairi & Naser, 2015; Güner, 2016; Moradi & Paulet, 2019; Fauziah & Iskandar, 2015; Güner, 2016). The prediction of the Pecking Order Theory also establishes a negative relationship. This is because, there is less asymmetrical information about the larger firms, reducing the chances of undervaluation of the new equity issue, encouraging large firms to use equity financing.

H$_4$: The size of banks *has a significant positive effect on the leverage level of Ethiopian private commercial banks.*

Earnings Volatility (VOLT)
It shows the uncertainty of future income streams and the risk. It can be measured using profit before taxes t1 – profit before taxes t-1)/profit before taxes t-1, which was also employed in a previous study (Sheikh & Qureshi, 2017). Mangafic & Martinovic (2015) conducted a study on the firm-specific determinants of the target capital structure of non-financial firms in Bosnia and Herzegovina in the period 2003 – 2012. The finding of this study revealed that the volatility of earnings negatively impacts the level of capital leverage. This implies that firms reduce their use of total debt in their capital mix when they are facing high earning volatility in their business activities. The trade-off theory confirms that as the firm's earnings volatility increases, it increases the probability of default on the firm's debt payment. This reduces the

confidence level amongst creditors to extend new loans to risky firms and finally ends up with a higher financial cost. Pecking order theory also emphasizes that firms with high earning volatility are considered as risky business by creditors and debt financing, in this case, becomes very costly. Hence, firms tend to accumulate their internal funds during profitable periods and use them during unstable periods resulting in a negative relationship between earning volatility and financial leverage. On the other hand, when earnings volatility is high, firms are relatively incapable of issuing debt or equity because investors and lenders are unwilling to put their money in a firm with high risks of default and bankruptcy (Neves et al., 2019; Titman & Wessel, 1988). But, if the retained earnings are not sufficient to finance new projects, it is better to issue debt than equity.

However, the studies of Sheikh and Qureshi (2017), Kabeer and Rafique (2018) identified a direct relation that asserts that risky firms borrow more debt. That is earning volatility has a positive impact on the leverage of the firm. On the other hand, the debt level of a firm cannot directly affect this indicator (Moradi & Paulet, 2019).

H$_5$: *Earning volatility has a significant negative effect on the leverage level of Ethiopian private commercial banks.*

Taxes (TAX)
As noted by some authors (example, Moradi & Paulet, 2019; Jaafar et al., 2017)), the tax-deductibility of corporate debt positively influences the debt issuance. The proxy for this variable is taken as tax paid/ EBIT. Amidu (2007) investigated the determinants of the capital structure of 19 banks in Ghana over 1998-2003, and the result of the study noticed that tax has a significant positive impact on a bank's leverage. The prediction of trade-off theory also suggests a positive relationship between effective tax rates and debt ratio. The reason for this positive relationship is that deduction of interest expenses from taxable income diminutions the effective cost of debt. But, the studies of Karadeniz et al., (2009), Antoniou et al., (2008) stated tax shields have a negative influence on leverage stating that firms that are low leveraged pay higher tax. It also has a negative but insignificant effect on the bank's leverage position, as reflected in the study of Anarfo (2015).

H$_6$: *Tax has a significant positive effect on the leverage level of Ethiopian private commercial banks.*

Economic Growth (GDP)
Growth domestic product indicates a country's overall economic performance (Muthama et al., 2013). The study investigated Tin and Diaz (2017) on Vietnamese commercial banks indicated that economic conditions measured by GDP have negative effects on bank's leverage, which implies that in good economic conditions, banks lessen their debt loads. The studies of Frank and Goyal (2009) and Jaafar et al. (2017) also reflected that companies intend to rely on debt issues when GDP is expanding and grows. In other words, companies depend on higher debt levels in their financing when the country has higher economic growth (Ainna et al., 2019). The pecking order theory postulates that at the time of the economic growth of a country, the level of debt in the capital mix of a firm will decline due to the availability of sufficient funds internally. That means when the economy of a country is enhanced, and consequently, growth in GDP results in an increase in companies' profits. This implies that the GDP growth rate was found to have a negative influence on the total debt ratio as also supported by views of other previous researchers (Muthama et al., 2013; Mokhova & Zinecker, 2014; Avci & Çatak, 2016). However, it has also a positive and insignificant effect on the leverage of a firm (Anarfo, 2015).

H_7: *GDP has a significant negative effect on the leverage level of Ethiopian private commercial banks.*

Inflation (INF)
It is defined as the annual consumer price index percentage. Theoretically, the effect of inflation on the debt level depends on the economic conditions of a country. Empirical evidence showed that inflation has a statically positive effect on corporate financial decisions on debt (Neves et al., 2019). Empirical studies indicated that companies issue high debt when inflation is expected to be high (Frank & Goyal, 2009; Ainna et al., 2019; Muthama et al., 2013; Avci & Çatak, 2016). The studies of Bilgin and Dinc (2019), Jõeveer (2013), Anarfo (2015) also indicated that the annual inflation rate is found to have a strong negative relationship with leverage ratios.

H_8: *The inflation rate has a significant positive effect on the leverage level of Ethiopian private commercial banks.*

Conceptual Framework of the Study
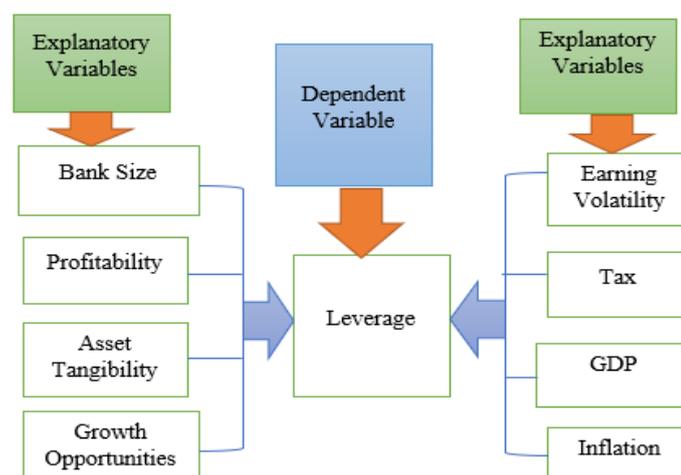
Source: Researcher's Formulation, 2020

Figure 1. Determinants of Capital Structure Decision of banks

3. RESEARCH METHOD
Research Design, Source of Data and Method of Data Collection
This study employed a quantitative research approach and an explanatory research design. There was a critical review of the secondary panel data obtained from audited annual financial statements, particularly balance sheet and income statement, of the selected Ethiopian private commercial banks and audited annual reports of National Bank of

Ethiopian (NBE) over the nine years' study periods (2010- 2018 (G.C)). In addition to the above core data sources, previous related empirical studies were discussed to make the study robust.

Study Population, Sampling Method and Sample Size

As per the National Bank of Ethiopia annual report of 2017/18, 16 private commercial banks have been found in operation. Consequently, these 16 private banks were taken as the target population of the study to which generalization could be made. Among 16 private commercial banks, ten banks were purposively selected, considering that these banks have adequate data during the study periods. Hence, the study period for the model was between 2010 to 2018 taken from ten private commercial banks (i.e. Dashin Bank (DB), Nib International Bank (NIB), Oromia International Bank (OIB), Awash International Bank (AIB), Bank of Abyssinia (BOA), Wegagen Bank (WB), United Bank (UB), Lion International Bank (LIB), Zemen Bank (ZB) and Cooperative Bank of Oromia (CBO)). Though the period of establishment for these selected banks varies, they all have well documented and convenient data for analysis for the study periods. But, the rest six (6) banks were excluded from the investigation because they did not have sufficient data at the time of the investigation.

Methods of Data Analysis and Interpretation

After the data collection process has been accomplished, descriptive, and inferential data analysis methods were customized. For the current study, the panel regression model was employed. Stata software version 13 was used for processing and analyzing the data. The diagnostic tests of the classical linear regression model were also conducted at a five percent level of significance. After synthesizing different empirical and theoretical literature in the literature review, the study specifies eight independent variables such as profitability (PROF), growth opportunity (GROW), assets tangibility (TAN), bank size (BS), earnings volatility (VOLT), taxes (TAX), Economic Growth represented by the rate of real growth domestic product (GDP) and annual inflation rate (INF) into its model for investigating the determinants of capital structure decision in Ethiopian private commercial banks.

Table 1 summarizes the dependent (response) variable and explanatory (predictor) variables, including their measurements, representations, and expected effect (sign) for the current study.

Table 1. Description of variables, measurements, and their likely sign

	No	Variables	Measurements (Proxies)	Conception	Expected sign
Dependent Variables	1	Leverage	Total Liabilities / Total Assets	LEV	NA
Independent Variables	1	Tangibility of Assets	Fixed assets / Total Assets	TAN	+
	2	Profitability	Earnings Before Interest and Taxes / Total Assets (EBIT/ Total Asset)	PROF	-
	3	Bank Size	Ln of Total Assets	BS	+
	4	Taxes	Tax Payment / EBIT	TAX	+
	5	Earning Volatility	$(EBIT_t - EBIT_{t-1}) / EBIT_{t-1}$	VOLT	-
	6	Growth Opportunity	$(Total\ Assets_t - Total\ Assets_{t-1}) / Total\ Assets_{t-1}$	GROW	+
	7	Economic Activity	The annual growth rate of real gross domestic product	GDP	-
	8	Inflation	Annual Rate of Inflation	INF	+

Source: Researcher's formulation, 2020

Specification of the Regression Model

To examine the determinants of the capital structure in the sampled banks, a panel regression model was formulated as follows:

$$Y_{it} = \alpha + X_{it}'\beta + u_{it}$$

Where Y_{it} represents dependent variable (banks' leverage ratio i at time t), X_{it} was predictor variable for bank i at time t; α was intercept/constant term, β was coefficient which represents predictor variables' slope, and *uit* was the error term (scalar). While i denotes cross-sections (banks), t represents time-series dimensions (years). The general model specified for the study was:

LEV$_{it}$ = a + β1 (PROFit)+ β2 (BSit)+ β3 (TAXit) + β4 (TANit) + β5 (GROWit) + β6 (VOLTit)+ β7 (INFit)+ β8 (GDPit) + uit------ Pooled OLS (1)

LEV$_{it}$ = a + β1 (PROFit)+ β2 (BSit)+ β3 (TAXit) + β4 (TANit) + β5 (GROWit) + β6 (VOLTit)+ β7 (INFit)+ β8 (GDPit)+ δi + uit------ FE and RE (2)

Where LEV - the ratio of the total debt to the total asset; α - constant; δi – specific fixed effect; u$_{it}$ - error term; β1, β2, ...coefficient of predictors; GROW$_{it}$ - growth opportunity; BS$_{it}$ - Bank's size; PROF$_{it}$ - profitability; TAN$_{it}$ - asset tangibility; TAX$_{it}$ – tax paid; VOLT$_{it}$ - earning volatility; INF$_{it}$ - general inflation rate; GDP$_{it}$ – annual rate of a real gross domestic product; i- bank index; t – time in a year; OLS- Ordinary Least Square Model; FF- Fixed Effect Regression Model; RE- Random Effect Regression Model.

4. DATA ANALYSIS AND DISCUSSION
Diagnostic Tests of the Regression Model
Normality Test

To check the normality distribution of residuals, Jarque-Bera test statistics were applied. Table 2 presents the statistical test results of normality. In this case, Jarque-Bera test statistics exhibits insignificant p-values (i.e., chi2(2) = 0.9462, Prob > chi2 = 0.6231). Therefore, all data employed were consistent with normal distribution assumptions.

Likewise, the Shapiro-Wilk W test was also conducted, and the result revealed as the data were normally distributed as the p-values were greater than the significance level of 5% (i.e. z =1.1660, Prob > z= 0.1219).

Heteroscedasticity Test

As Table 2 reveals, the Heteroscedasticity issue was checked with the Breusch-Pagan/Cook-Weisberg test. The test result signposted that there was an issue of Heteroscedasticity since the p-values were less than five percent level of significance (chi2 (1) = 4.1700, Prob > chi2= 0.0412). Besides, the Modified Wald test for GroupWise heteroskedasticity of the regression model was also performed, and there is strong evidence for the presence of heteroskedasticity at less than five percent level of significance (chi2 (10) = 18.6400, Prob> chi2 = 0.0451).

Test of Autocorrelation

To detect the autocorrelation problem of the study, the Durbin and Watson (d) tests were undertaken whose value starts from 0 and ends with 4. The value more approaching to 0 indicates positive autocorrelation. According to Kassa (2013) cited in the study of Assfaw (2019b), the autocorrelation problem decision rules stated that there is no positive or negative autocorrelation when the value is 1.765 < d < 2.235 and positive autocorrelation will not be an issue when the value lies 1.335 ≤ d ≤ 1.765. The result of the test exhibited the presence of positive autocorrelation in the model (Durbin-Watson d-statistic (9, 90) = 0.7863). Besides, Wooldridge test for autocorrelation in panel data was also conducted, and the result revealed that there was an autocorrelation effect in the model since the p-values were less than five percent level of significance (F (1, 9) = 12.5010, Prob > F = 0.0064). Moreover, the Breusch-Godfrey LM test for autocorrelation was conducted, and the result revealed as there was autocorrelation problem as the p-values were less than five percent level of significance (chi2 (1) = 33.4720, Prob> chi2= 0.0000).

Hence, this heteroscedasticity and autocorrelation problem in the model was solved by applying clustered robust standard error estimations.

Table 2. Tests of Normality, Heteroscedasticity, and Autocorrelation

Test	Tests Performed	Test Statistics	p-value	Remark
Normality	Jarque-Bera test statistics (chi2$_{(2)}$)	0.9462	0.6231	Normal distribution
	Shapiro-Wilk W test (z)	1.1660	0.1219	Normal distribution

Heteroscedasticity	Breusch-Pagan/Cook-Weisberg test (chi2$_{(1)}$)	4.1700	0.0412*	Heteroscedastic
	Modified Wald test for Group-Wise heteroskedasticity (chi2$_{(10)}$)	18.6400	0.0451*	Heteroscedastic
Autocorrelation	Durbin and Watson (d) test (d$_{(9, 90)}$)	0.7862		Autocorrelation Problem
	Wooldridge test (F$_{(1, 9)}$)	12.5010	0.0064**	Autocorrelation Problem
	Breusch-Godfrey LM test (chi2$_{(1)}$)	33.4730	0.0000**	Autocorrelation Problem

Note: ** *relates test statistic is significant at p<1%, * indicates test statistic is significant at p<5%*
Source: Researcher's computation with Stata, 2020

Multicollinearity Test

As presented in Table 3 and Table 4, the multicollinearity issue of explanatory variables of this study was checked with the Pearson correlation coefficient and Variance Inflation Factor (VIF).

Multicollinearity problem exists if the correlation coefficients between two explanatory variables are more than 0.75 (Assfaw, 2019b) and variance inflation factor (VIF) of the predictor variable is greater than 10 (Assfaw, 2019a).

Table 3. Correlation Matrix Between Predictor Variables

Variables	**TAX**	**PROF**	**TAN**	**BS**	**GROW**	**VOLT**	**GDP**	**INF**
TAX	1.0000							
PROF	0.4215	1.0000						
TAN	-0.4320	-0.0738	1.0000					
BS	-0.3317	-0.0601	0.4336	1.0000				
GROW	-0.0575	-0.2293	0.0403	-0.4257	1.0000			
VOLT	0.1436	0.1287	0.0230	-0.3325	0.6614	1.0000		
GDP	0.2380	0.0485	-0.3197	-0.3048	0.1021	0.1311	1.0000	
INF	0.2301	0.2233	-0.1297	-0.1367	-0.1572	-0.0672	-0.2381	1.0000

Source: Researcher's computation with Stata, 2020

Table 4. Variance Inflation Factor

Variables	**VIF**	**1/VIF**
GROW	2.5795	.3877
VOLT	2.1250	.4706
BS	1.8323	.5458
TAX	1.629	.6139
TAN	1.5610	.6406
PROF	1.4742	.6783
GDP	1.3296	.7521
INF	1.2729	.7856
Mean VIF	1.7254	.

Source: Researcher's computation with Stata software, 2020

Both tables 3 and 4 confirm that a multicollinearity problem does not exist since the Pearson correlation coefficients of predictors were less than 0.70, and VIF was less than 3.

Descriptive Statistics Analysis

Table 5 demonstrates the analysis of the results of the descriptive statistic of the tested variables over the study period from 2010 to 2018.

Table 5. Descriptive Statistics

Variables	Obs	Mean	Std.Dev.	Min	Max
LEV	90	0.8653	0.0289	0.8048	0.9205
TAX	90	0.1472	0.0569	0.0000	0.2725
PROF	90	0.0586	0.0119	0.0250	0.1005
TAN	90	0.0257	0.0151	0.0004	0.0723
BS	90	9.1723	0.8797	6.9619	10.9200
GROW	90	0.3331	0.3015	-0.0729	2.4846
VOLT	90	0.2183	0.1518	-1.3248	1.0789
GDP	90	0.0967	0.0120	0.0770	0.1140
INF	90	0.1277	0.0870	0.0280	0.3410

Source: Researcher's computation with Stata software, 2020

As Table 5 presents, the mean value of leverage is 86.53%, which means 86.53% of the assets of the banks were financed through debts having short and long maturity, with 0.8048 minimum, 0.9205 maximum values, and the standard deviation of 0.0289. It is also observed that the minimum portion of leverage from the total capital sources of the banks during the study periods was 80.48% while the maximum amount was 92.05%. It has a relatively low deviation from the mean value, which accounts for 2.89% on both sides. These show that the banks are highly leveraged. This leverage level might mainly come from the very nature of banks in Ethiopia; they mobilized and collected deposits from the public. The profitability (PROF) is 0.0586 on average, which shows that around 6 cents before tax were generated from 1 ETB investment on assets of banks, with 0.0250 minimum and 0.1005 maximum value with the standard deviation of 0.0119. This implies that over a particular study period, there was a bank generating a minimum profit of around 3 cents and generating a maximum profit of 10 cents before interest and tax while investing 1 ETB on total assets and the value of profit before interest and tax deviate from the mean value to both sides by 1.19%. Further, Bank size (BS) measured as Ln of total assets has a very high mean of 9.1723 with a range of 6.9619 minimum and 10.920 maximum values while the standard deviation is 0.8797. The mean asset tangibility (TAN) is 0.0257, confirming that the mean percentage of tangible assets to total assets is 2.57 % and the standard deviation of 0.0151. The mean value of growth opportunity (GROW) is 0.3331 with a minimum value of -0.0729 and the maximum value of 2.4846 and a standard deviation of 0. 3015. This indicates that, on average, the total asset of sample commercial banks was increased by 33.31% over the study periods. The minimum growth rate of an asset was negative 7.29%, and the maximum growth rate recorded during the study period was 248.46% which deviates highly from its mean value to both sides by 30.15%. While the mean value for tax charge (TAX) was 0.1472, which ranges between 0.2725 of highest and 0 of lowest value with a low standard deviation of 0.0569. This means that on average, 14.72% of the profit of banks was disbursed for the government in the form of tax over the study periods. The minimum percentage of tax paid from banks' profit was 0%, and the maximum paid amount was 27.25% of generated profit and deviating from the mean value on both sides by 5.69%. On average, earning volatility (VOLT) is 0.2183, and its standard deviation is 0.1518 and ranging between -1.3248 to 1.0789 of maximum and minimum value. This revealed that the average growth rate of earnings before interest and tax of banks during the study periods was 21.83%. The minimum and maximum growth rate of earning was -132.48% and 107.89% respectively, over the study period. These earning deviates highly from its mean to both sides by 26.5%. The average GDP for the period of 2010-2018 was 9.67% with a 7.7% minimum and 11.4% maximum value which deviates from the mean value by 1.2% on both sides. Lastly, the annual general inflation (INF) has an average value of 12.77% ranging from 2.8% to 34.1%, which deviates from the mean value by 8.7% on both sides.

Model Specification Tests (Fixed Effect Versus Random Effect Versus Pooled OLS)

In many financial studies utilizing panel data, pooled ordinary least square (OLS), fixed effect model (FEM), and the random effect model (REM) are the three commonly applicable panel data estimator models. Which model has the best estimation power, however, depends on the results of different model specification tests such as the Hausman model specification test and Breusch and pagan Lagrangian Multiplier (LM) test.

Fixed Effect versus Random Effect Models

The Hausman model specification test (see Table 6) was conducted, and the test result suggested that the Random Effect model was preferable over the Fixed Effect model as the test result was insignificant at 5% level of significance (chi2(8) = 0.1400, Prob>chi2 = 1.0000).

Random Effect versus Pooled Ordinary Least Square (OLS) Models

Breusch and pagan Lagrangian Multiplier (LM) test (see Table 6) was performed to decide on the selection decision of random effect and simple pooled OLS regression models. Accordingly, the test result revealed that there was very strong evidence as random effects regression model was superior over the Pooled OLS model being significant at less than 1% significant level (Breusch and Pagan Lagrangian multiplier test for random effect; chibar2(01) = 65.9200, Prob > chibar2 = 0.0000).

Table 6. Summary of Regression Results of FE, RE and Pooled OLS

Predictor Variables	FE		RE		OLS	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
TAX	0.0674*	1.58	0.0638	1.58	0.0145	0.31
PROF	-0.7485***	-2.91	-0.7384***	-3.08	-0.6218***	-2.89
TAN	-0.3493**	-2.44	-0.3516**	-2.56	-0.3908**	-2.23
BS	0.0154***	4.75	0.0153***	5.01	0.0161***	4.95
GROW	-0.0168*	-1.89	-0.0162*	-1.90	-0.0059	-0.52
VOLT	0.0230**	2.50	0.0227**	2.58	0.0192	1.66
GDP	0.0146	0.09	0.0159	0.10	0.0699	0.34
INF	0.0259	1.22	0.0263	1.29	0.0370	1.35
Constant	0.7674***	18.51	0.7675***	19.24	0.7528***	17.43
Observations (N)	90		90		90	
R-squared	0.3550				0.3330	
F-test	4.9529				5.0550	
Prob > F	0.0000				0.0000	
Overall r-squared			0.3154			
Chi-square			43.9040			
Prob > chi2			0.0000			
R-squared within			0.3549			
Hausman Test chi2	0.1400					
Prob>chi2	1.0000					
LM test statistic chibar2			65.9200			
Prob > chibar2			0.00000			

Note: ***, **, * indicate significant at 1 percent, 5 percent and 10 percent significance level respectively.
Source: Researcher's computation with Stata software, 2020

The results in Table 6 indicate that the result of the Breusch and Pagan Lagrangian Multiplier (LM) test and Hausman test confirmed as the random effect model was the most preferred model of estimation over fixed effect (FE) and pooled OLS regression models for this study.

Summary of Findings and Discussions

As explained earlier, there were problems with heteroscedasticity and autocorrelation. To mitigate these issues, clustered robust standard error estimations on the random effect model were applied. Hence, the estimation results of the regression model on the determinants of capital structure decisions in Ethiopian private commercial banks are presented in Table 7.

Table 7. Summary Results of Clustered Robust Random Effect Regression Model

Predictor Variables	Coef.	Robust St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
TAX	0.0638	0.0289	2.21	0.027	0.007	0.120	**
PROF	-0.7384	0.3898	-1.89	0.058	-1.502	0.026	*
TAN	-0.3516	0.1732	-2.03	0.042	-0.691	-0.012	**
BS	0.0153	0.0048	3.20	0.001	0.006	0.025	***
GROW	-0.0162	0.0136	-1.20	0.232	-0.043	0.010	
VOLT	0.0227	0.0089	2.56	0.011	0.005	0.040	**
GDP	0.0159	0.0956	0.17	0.868	-0.172	0.203	
INF	0.0263	0.0210	1.26	0.209	-0.015	0.067	
Constant	0.7675	0.0593	12.95	0.000	0.651	0.884	***

Mean dependent var	0.8702	SD dependent var	0.0233	
Overall R-squared	0.3154	Number of obs	90.0000	
Chi-square	1261.7815	Prob > chi2	0.0000	
R-squared within	0.3549	R-squared between	0.2798	

Note: ***, **, * *indicate significant at 1 percent, 5 percent and 10 percent significance level respectively.*
Source: Researcher's computation with Stata software, 2020

Table 7 shows that the explanatory power of the models was measured using the R-square within whose value was 35.49%. F-statistics for the model was also significant at a 1% level of significance, suggesting that all predictor variables can jointly influence the rate of 35.49% over variation on the capital structure of the banks. The intercept of the model is 0.7675, which indicates that the leverage level of sampled private commercial banks becomes 76.75% in the absence of changes in predictor variables of banks' leverage.

In line with the expectation of the study, the size of banks has a significant positive effect on the leverage level of banks at less than 1% level of significance. The results of clustered robust random effect regression model indicate that an increase in an asset of banks by 1%, being other factors held constant, results in a 1.53% increase in banks' leverage position. The finding is consistent with the postulates of trade-off theory which advocates that when the company becomes large, it can diversify its line of business and are less prone to bankruptcy cost which in turn induces them to issue more debt to tap tax shield advantage of the debt financing. This positive relationship also reflected in the study of other scholars (Anarfo, 2015; Sheikh & Qureshi, 2017; Cevheroglu-acar, 2018; Al-Qudah, 2014). However, this finding is contradictory with the empirical evidence of other authors (Neves et al., 2019; Rajan & Zingales, 1995) and the predictions of pecking order

theory.

The profitability of banks was adversely and significantly affecting the leverage position of banks at less than 10% level of significance. The result of clustered robust random effect regression model shows, being other factors held constant, a one ETB increase in profit before tax of banks leads around a 74 cent decrease in banks to leverage level. This negative relationship is also similar with the insight of pecking order theory and empirical findings of other studies (Sheikh & Qureshi, 2017; Al-Qudah, 2014; Tripathi, 2018; Bilgin & Dinc, 2019; Proença et al., 2014; Frank & Goyal, 2009; Mateev et al., 2013). However, the finding is contrary to the trade-off theory and the study of Jaafar et al. (2017) that suggest when the company becomes profitable, its probability of bankruptcy and bankruptcy cost will be lower. Therefore, to capture the advantages of a tax shield of interest, companies prefer debt financing over equity.

Asset tangibility was found to have a negative and significant influence on the leverage position of banks at less than a 5% level of significance. The estimation result of the model revealed that a 1% increase in banks' fixed assets from a total asset would have a 35.16% decreasing effect on banks' leverage level. This is similar to the prediction of pecking order theory, which states that firms with high fixed assets are big and thus less prone to information asymmetry and hence they depend on equity financing. It is also consistent with the findings of other authors

(Karadeniz et al., 2009; Chang et al., 2009; AL-Mutairi & Naser, 2015; Proença et al., 2014; Anarfo, 2015). However, the finding is inconsistent with the predictions of agency theory, static trade-off theories, and empirical findings of other investigators (Neves et al., 2019) who stated that when firms have a tangible asset as collateral, they can get debt easily with the cheap cost of debt.

Persistent with the hypothesis, the tax was found to have a positive and significant impact on the leverage of banks at less than a 5% level of significance. The result of clustered robust random effect regression model indicates that a 1% increase in the tax rate of banks, being other factors held constant, had a 6.38% increment of banks leverage level. This is also supported by the predictions of static trade-off theory (Modigliani & Miller, 1984; Modigliani & Miller, 1963) which suggests that since the cost of debt (i.e. interest) is tax-deductible, it encourages firms to issue debts over equity.

The result of the study shows that the earning volatility of banks has a significant positive effect on the leverage level of banks at less than a 5% level of significance. The estimation result of the model shows that a 1% rate change earning level of banks; other factors remain constant, resulting in a 2.27% increment in the leverage position of banks. This finding is similar to the prediction of the pecking order theory and the findings of Vijayakumaran & Vijayakumaran (2018). But it is contrasting with the arguments of trade-off theory. Finally, it was portrayed from the study that there was no strong evidence that growth opportunity, real GDP and annual inflation rate have a significant influencing effect on the capital structure of private banks in Ethiopia.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

The study was intended to investigate the determinants of the capital structure in private commercial banks of Ethiopia using secondary data for the study period of 2010-2018. The Clustered Robust random effect regression model was adopted comprising of leverage of banks (the ratio of total liability to total asset) as a dependent variable and eight independent variables (profitability, banks size, the tangibility of assets, tax charge, earnings volatility, growth potential, rate of real GDP and annual inflation rate).

It was noticed from the study that, on average, 86.53% of the total assets of banks were financed with debts having both short and long maturity periods. The findings of the study proved that the size of banks has a positive impact on the banks' leverage position, suggesting that larger banks have the potential to employ more debt. This is consistent with the trade-off theory of capital structure. However, the finding is contradictory to the predictions of the pecking order theory. The profitability of banks affects the banks' debt level negatively. This negative relationship is also similar to the insight of the pecking order theory. However, the finding is conflicting to the trade-off theory of capital structure that suggests when the company becomes profitable, its probability of bankruptcy and bankruptcy cost will be lower. Therefore, to capture the advantages of a tax shield of interest, companies prefer debt financing over equity. It was also found out from the study that tax paid by banks has a positive and significant effect on the leverage level of banks. This is also supported by the predictions of static trade-off theory which suggests that since the cost of debt (i.e. interest) is tax-deductible, it encourages firms to issue debts over equity.

Moreover, it was confirmed from the study that the influence of asset tangibility on the bank's debt ratio was negative, i.e. the higher the ratio of a tangible asset, the more encouragement of banks to hold more debt in their capital mix. The finding, however, is inconsistent with the predictions of agency and static trade-off theories. The study also indicates that banks' leverage position was influenced positively with earning volatility of banks. This finding is similar to the prediction of pecking order theory, but it is contrasting with the arguments of trade-off theory. Finally, the study shows that there was no strong evidence that growth opportunity, real GDP, and annual inflation rate have a significant influencing effect on the capital structure of private banks in Ethiopia. Therefore, private commercial banks in Ethiopia should pay due attention to the microeconomic variables without overlooking the macroeconomic condition while articulating their optimal capital mix which can minimize the weighted average cost of capital and enhance the value of the company.

The results of the study offer some implications to bank managers and other policymakers. The empirical findings of the study imply that the two capital structure theories, static trade-off, and pecking order, are essentially explaining the capital structure decision of Ethiopian private commercial banks. The study conveys an insight to bank managers of Ethiopian private commercial banks that due attention needs to be paid on the bank-specific variables without overlooking the

macroeconomic variables while formulating their optimal capital mix which can minimize weighted average cost of capital and enhance the value of the company. This study may also give a lesson to the National Bank of Ethiopia on determinants of sound capital structure decisions beyond the existence of its tight capital regulation on banks that can boost the profitability and financial health of banks.

The study has some limitations. The study employed eight determinants of the leverage level of Ethiopian private commercial banks, and there might be other variables that were not held by the model and indeed ought to be incorporated. Besides, due to the absence of sufficient data during the investigation, the study considers nine years and ten banks in its model. Moreover, the focus of the study was on quantitative data, and non-financial measures that may have influence were not treated and may need further investigation. Finally, the study does not take other financial institutions like insurance companies and governmental banks into consideration.

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