Chapter 1
Print ISBN: 978-81-977712-2-4, eBook ISBN: 978-81-977712-4-8

The Relationship of Assets with Liabilities and Capital or Owners Equity: Evidence of Companies Listed on Dar es Salaam Stock Exchange, Tanzania

Ntui Ponsian Prot [a*]

DOI: https://doi.org/10.9734/bpi/bmerp/v2/2980G

Peer-Review History:
This chapter was reviewed by following the Advanced Open Peer Review policy. This chapter was thoroughly checked to prevent plagiarism. As per editorial policy, a minimum of two peer-reviewers reviewed the manuscript. After review and revision of the manuscript, the Book Editor approved the manuscript for final publication. Peer review comments, comments of the editor(s), etc. are available here: https://peerreviewarchive.com/review-history/2980G

ABSTRACT

The accounting equation shows the equality or relationship between company assets, liabilities, and capital or owner's equity. This article attempts to explain how an accounting equation evolves due to the complex behaviors of managers in decision-making making specifically capital structure decisions. The article looks at the accounting equation by using trade-off theory and positive accounting theory lenses. The accounting equation is viewed as living or dynamic and changes according to human behavior or managers of a company's behavior. The article focuses on all 15 companies listed on the Dar Salaam Stock Exchange (DSE) from the year 2005 to 2008 when Tanzania effectively adopted IASs. Annual reports of companies were used to obtain data from 2005 through 2008. The values of total assets, liabilities, and owners' equity or capital were obtained from the companies' statements of financial position and regressed together. The regression model and descriptive statistics were used to show the relationship between total assets, liabilities, and owners' equity. The model was then used to show a new form of the accounting equation, rates of change of liabilities, and owners' equity. In this article, the new approaches or look at the accounting equation and the rates of change of liabilities and capital in relation to assets were found and shows the proportion of the two components of assets i.e. liability 64% and capital 36% to the asset. Finally, the author explains the constant term which is not explained by other authors of the accounting field. This article shows for the first time a new form of accounting equation, different rates of change for the two components of assets, and finally proportions of the owners' equity/ capital and liabilities components on assets. Future researchers should find out how the accounting equation evolves, how total liabilities of companies (L) and companies' owners' equity (C) change in relation to total

[a] *St. Augustine University of Tanzania, Mwanza, Tanzania.*
**Corresponding author: E-mail: ntui.proti@saut.ac.tz, ponsianproti@yahoo.com;*

assets as well as the proportion of L and C to the total assets in specific industries and should also define the optimal point where capital equals to liability.

Keywords: Accounting equation; capital structure; assets; liabilities; capital; owners equity; rates of change; proportions; Tanzania.

1. INTRODUCTION

The accounting profession trains accountants and auditors in the foundation of the profession and defines the accounting equation as an equation that shows the equality or relationship between the assets of the company, liabilities, and capital [1]. This is also known as the basic accounting equation or balance sheet equation. It is a statement that a company's total asset is the sum of its liability and its shareholder's equity [2,3]. The accounting equation is highly applied as a balance sheet or in the statement of financial position and is a basis for financial accounting, [4]. The accountants, auditors, and authors of accounting literature and the professional bodies both international and local simply give an accounting equation as $A=L+C$, where A equals to total assets of the company, L is the total liabilities or obligations of the company and C is the company's owner's equity or capital. This equation implies that liabilities and capital change at the same rate to affect assets and also a business owner or company's assets are the function of liabilities and capital only [5].

Demiraj et al. [6] indicate that the relationship between liability and total assets termed as optimal capital structure is 29% implying that the optimal relationship between capital and total assets is 71% while [7] shows that optimal capital structure occurs where the marginal benefit of debt equals the marginal cost of debt. These findings are inconsistent with the normal accounting equation taught to accounting and auditing beginners. The normal equation shows that assets are equally contributed by liabilities and capital at a ratio of 1:1. This may not be the case since decisions made by managers to choose either liabilities or capital to finance the assets may be complex.

The researcher suggests that the accounting equation should have a different form expressed as, $\boldsymbol{A = f\ (L, C, \beta_0)}$ **i.e.** $\boldsymbol{A = \beta_0 + \beta_1 L + \beta_2 C + \varepsilon}$ as shown in the statistical results. Where β_0 is the constant term, β_1 is the rate of change of assets per unit change in liabilities and β_2 is the rate of change of assets per unit change in capital or owners' equity [5]. Here the constant term may explain so many business activities, for example, type or nature of business, type of assets, loan and capital location, and human capital. These make an important part of business and show that even when **L** is zero (no liability and **C** is zero (before obtaining capital or loan) a businessman or woman may have an idea, a place to do business, skills, and even how to get funds. These variables and more which are unexplained make an important part of β_0 which is ignored in traditional accounting equations, professional bodies, and literature.

Since accounting equations may change as the company changes in age, management, and business situation, the article determines the way accounting equations change or evolves over time due to the complex behaviors of

managers in decision-making specifically capital structure decisions. The evolution of the accounting equation may result in different rates of change between liabilities and capital to affect assets and also the contribution of liabilities and capital to assets may be different in the company's capital structure. This evolution of accounting equation may give different rates, ratios, and look of an accounting equation. At the end of this article the researcher would like to solve the following problems: what may be a new accounting equation, what are rates of change of assets as liabilities and capital change and what are proportions of total liabilities and total capital to total assets [5].

1.1 Justification and the Statement of the Problem

The motivation for this article is driven by the behavior of managers to maximize their utility (*positive accounting theory*) which results in ensuring that they meet the targets of debt finances they set (*trade-off theory*). These two theories focus on the protection of the interests of the decision-makers specifically managers may change the capital structure or accounting equation in different ways so long as their interests are met. The strategy to meet managers' or agents' interests affects accounting arrangements and plans where the accounting equation may be different from the traditional one, the rates of change of assets may be different as liabilities change from capital change and finally, the proportions of capital and liabilities may be different to meet managers' interests.
The article is particularly interesting in the Tanzanian environment where there are limited sources of funds and companies strive to obtain finances mostly from debts regarding the importance of banks in the firm's external financing. The reliance heavily on a single source of finance may be due to weak capital markets in Tanzania and hence a heavy reliance on bank loans [8]. The article, therefore, establishes how the accounting equation changes in the situation of limited sources of funds and managers' behavior to protect their interests.

Studies done to date explain that more debt than capital is preferred but they don't give specific figures, factors affecting the choice of capital structure, unresolved in the accounting profession, inclusion of human capital and skills in the balance sheet or statement of financial position, technical and conceptual ambiguity and how to translate foreign currencies [5]. There is no study talking about how these variables change as well as the proportions of variables (i.e. liability and owners' equity) and finally how the accounting equation changes as time goes on or as managers protect themselves.

This study bridges this gap by determining how the accounting equation changes from its traditional form to the new form as managers make decisions in this complex business world, the proportions of total liabilities and total capital to total assets, and finally rates on how assets change as liabilities and capital change as managers make decisions on the choice between equity and liabilities.

2. LITERATURE REVIEW

The description of the accounting equation in accounting literature is simply stated in its simplicity as an accounting equation: ***A = C + L*** [5]**.** Accounting literature does not explain explicitly accounting equations but focuses on capital

structure. Since the capital structure is the composition of firms' liabilities and owners' equity [9], and the accounting equation is the equation that shows the relationships or equality among assets, liabilities, and owners' equity [1,4], the capital structure literature is used in this study to describe accounting equation.

2.1 How Accounting Equations Behave Overtime

Capital structure in any organization or company is determined by various factors as indicated by the following authors who found varying factors influencing capital structure: [10] determines profitability, firm size, growth rate, market-to-book value, and liquidity, [9] determines the effective tax rate, the tangibility of assets, and return on assets, [11] determine ownership structure and corporate governance as factors influencing capital structure decisions and [12] shows firm age, size, profitability and growth as factors influencing managers to choose the capital structure. [11] explains the volatility in earnings, assets tangibility, dividend payout ratio, and profitability as factors affecting the choice of capital structure. These factors may make the choice of a capital structure complex indicating that it is not just the accounting factor of debit-DR and credit-CR i.e. double entry action and hence changes the accounting equation [5].

The literature and previous studies explain the relationship between capital structure and firms' performance in that capital structure influences or affects firms' performance. The study by [13] argues that capital structure choice decision has weak to no impact on a firm's performance and is supported by [14] who claim that the value of the firm is not affected by capital structure but rather its real assets. These studies contradict [15-21] which show a positive relationship between capital structure and a firm's performance. In contrast [22-24] show that capital structure has a negative influence on a firm's performance. Due to these mixed results, finding an optimal capital structure is not one way to go [25,26].

The study by [27] indicates that a firm's capital structure is aimed at reducing agency costs and it influences a firm's performance. This is supported by [28], where capital structure and profitability are positively related as well as [29] who states that higher leverage reduces agency costs of outside equity [5]. The tax shield benefit is also shown as an influence on companies' performance and companies therefore should use as much debt as possible to maximize their value [30]. These results lead us to the point that one of the important financial decisions confronting a firm is the choice between debt and equity [31]. The question is what is the acceptable level/proportion of capital and liabilities?

Capital structure debate is closely related to the work of [14] quoted in [10] who suggest that in a world without friction, there is no difference between debt and equity financing as regards the value of the firm. In 1963 M&M maintained that the interest payments of debt decrease the tax base thus the cost of debt is less than the cost of equity. Although optimal capital has been a widely investigated topic for years no model has been found to fully explain the optimal capital structure of the firm [9,5].

Capital structure decisions are largely influenced by corporate governance and ownership structure. Managerial shareholdings positively and significantly influence the choice of long-term debt over equity and Board size significantly influences capital structure choice [11] though capital structure is voluntarily chosen by managers.

The ownership impact on the capital structure was also confirmed by [32-34] who show that managerial ownership is negatively related to debt ratio [35] and maintain that better corporate governance framework benefits firms through greater access to financing, lower cost of capital, better performance and more favorable treatment of stakeholders and corporate governance correlates with financing decisions and capital structure of firms [16,36,37,5].

To show that ownership structure and corporate governance have an impact on capital structure, [34] indicates that there is a U-shaped relationship between leverage and managerial ownership, [38] states that insider ownership does not affect debt when the interests of owners and managers (agents) are aligned. This means that where interests are not aligned insider ownership affects debt. [39] show that family ownership reduces the cost of debt financing and [34]) indicates that firms with external block holders have less debt while [40] shows that leverage increases with ownership concentration. The studies by [41,42,37] still insist that the higher board is associated with larger debts. Other pieces of literature show that there is a negative relation between CEO tenure and leverage to reduce performance pressures as shown by [41,43,44]. This is opposed by [45] and [37] who show a positive relation between capital structure and CEO duality and there is more debt as duality increases.

These studies show that the capital structure or accounting equation is affected by many factors which result in complex decisions in choosing either debt or equity to finance the total assets. This leads us to the hypothesis one, which states:

H1: *The accounting equation overtime does not have the form of Assets = Capital + Liabilities*

2.2 The Rates of Change of Total Assets to Change in Total Liabilities and Capital

The question of whether the companies manage their capital structure knowingly (trade-off theory) or observed capital structure is a result of a random process determined by historical profitability, investment options, dividend policy, and capital market conditions (pecking order and market timing theories) is not answered as there is still no consensus reached [46,5].

Neither of the two theories provides a satisfactory description of capital structure choices in practice [47,48] and also companies do have a target leverage ratio which they pursue in the long run since pecking order dominates in the short run [49,50,51]. The speeds of adjustment to attain a targeted level of leverage (trade-off theory) vary from different studies as shown here. [51]

shows an adjustment speed of 19% - 48%, [52] 33% per year, [53] speed of 11% -21% per year (book value) and 16% - 22% per year market value. The slow adjustment speed back pecking order theory than target leverage models, [54], had an average speed of 17% in 2000-2001, [55] had 19.4% in 1997-2001 all these studies including [56] support target leverage ratios or trade-off theory.

Jo˜eveer et al. [57], states that the profitability of unlisted firms leads to lesser credit which is consistent with the pecking order theory, and finds that business size has a positive impact on observed leverage. Also, the younger firms are more leveraged than the old ones [58,57]. The evidence showing that the trade-off theory followed is weak [46]. The reasons are high adjustment costs of capital restructuring which affect the capital structure choices or low level of specific knowledge of corporate finance which makes it difficult to sufficiently explain the investment projects to credit providers, [59,47,60,5]. The management of capital structure in either way i.e. knowingly or randomly as well as adjustment speeds to attain a target level of leverage may result in different rates of change in liabilities and capital. This leads us to the second hypothesis stating,

H2: *The rates of change of total assets due to changes in total liabilities and capital or owner equity in the accounting equation are different.*

2.2 Proportion of Liabilities and Capital to Assets

Studies on capital structure [10,9,11,12,32,33,34] show that managerial ownership is negatively related to debt ratio and [35,16,36,37] show that, the decision to choose capital structure is influenced by many factors like profitability, firm size, growth rate, market-to-book value and liquidity. The effective tax rate, tangibility of assets, return on assets, ownership structure, corporate governance firm age and volatility in earnings, assets tangibility, and dividend payout ratio are also factors affecting the decision to choose capital structure. These factors therefore cause managers to choose either debt or owners' equity to finance business assets. These decisions may result in different proportions of capital and liabilities to total assets [5].

The speeds of adjustment to attain a targeted level of leverage as shown in [51,52,53,54,55,56] also cause more debt finance components than owners' equity. Due to these mixed results, finding an optimal capital structure is not one way to go [25,26,61] indicates that the target capital structure changes proportionally to the percentage of tax and varies inversely to the cost of debt.

Since these factors affect managers' decisions either to have more debt or owner's equity in the capital structure, the two components i.e. capital and liabilities should have different proportions depending on managers' interests. This leads us to the third hypothesis which says:

H3: *Total liabilities and capital or owner's equity in the accounting equation have different proportions to total assets.*

3. METHODOLOGY

The article uses figures and values of total assets, liabilities, and capital or owner equity available in the annual reports statement of financial position or balance sheet to investigate how accounting equation changes and the form of accounting equation after so many factors are involved. The traditional accounting equation is so simplified and may not explain real-world situations/ problems as it is complex with full of uncertainties and intangibles.

The article's analysis of data is quantitative in which the regression analysis model is used to show how variables have evolved over time. The Ordinary Least Square (OLS) regression model is chosen over other techniques to obtain computer output for statistical interpretations. The graph and pie chart are used to show the rates of change and proportions of liabilities and capital to total assets respectively.

3.1 Sample

The article focuses on all (15) companies listed on the Dar Salaam Stock Exchange (DSE) from the year 2005 to 2008 when Tanzania effectively adopted IASs. The adoption of IASs made financial statements to be comparable and also of high quality. Since the sample was small, the article used panel data to ensure a higher number of observations were attained. The total observation in this article was 60 which gives the accuracy of the results obtained. Listed companies are selected due to the World Bank report (2005) that they adhere to quality reporting IAS and their wide base of inventors as well as the role they play in the national economy [5].

3.2 Data Collection

The company's annual reports were used to obtain data from 2005 through 2008. The values of total assets, liabilities, and owners' equity or capital were obtained from the companies' statements of financial position and regressed together. The financial statements of the years 2005 through 2008 were used because Tanzania effectively started to use International Accounting Standards (IAS) in 2005 and the annual reports of companies for 2009 and 2010 for some companies are not available.

3.3 Model

Due to the lack of models used to describe the accounting equation, the researcher uses a regression analysis tool to achieve the objectives. This tool is justified by [62,63,64] who agree that the regression equation is a measure of the significance of the variables and it is also a powerful model [5].

The regressed equation is the accounting equation as per the accounting professional teachings and preparations of financial statements especially statements of financial position or balance sheet. The equation is defined as:

A = ƒ (L, C), this statistically means that the total assets of the company are a function of owner's equity and liabilities. Where:

A is the Total assets of the company
L is the total liability of the company
C is the total owner's Equity

According to [65], Assets are a company's properties and resources that have future benefits for the company. Based on the accounting period concept, assets are classified as current and fixed assets. Liabilities are obligations to pay cash or provide goods or services in the future and Capital is the investment of saving by owners of business.

3.4 Data Analysis

Minitab computer software was used to determine the relationship between variables (assets, liabilities, and capital or owners' equity) and the interpretation of the results. The correlation matrix was used to show how variables correlate to one another, P values for each variable and model as well as the F-test were also shown to reveal the significance of the model. The variables were also shown to indicate the power of presentation (of A by C and L) and VIF was shown to show if the problem of multicollinearity exists. The graph and Pie chart were then drawn to show how the liabilities and capital share and rates of change in financing companies' assets.

4. FINDINGS

This section presents how the accounting equation is different from the traditional one after managers' decisions, rates of change of assets as per changes in liabilities and capital, and finally the proportion of assets and liabilities to total assets. The following are the details of the findings of the article focusing on answering the research questions:

4.1 Evolution of Accounting Equation

The results in *Table 1* show that, the accounting equation changes over time from its traditional form to the new form. The form of the accounting equation is no longer ***A = L+C*** but rather ***A = β0+ β1L + β2C***. This indicates that as time changes the accounting equation changes also due to varying decisions made by managers. The two equations show that A has a positive correlation with C and L as supported by [4] and [1] meaning that as liabilities and capital increase, the total assets also increase [5].
All the variables (liabilities and capital or owners' equity) are statistically significant at 1%. The justification of the new form of accounting equation is evident as even the constant term is also highly significant at 1%. The VIF then confirms that there is no multicollinearity and hence variables are independent of one another as indicated in the regression results in Table 1 and Table 2 [5].

Table 1. Regression Analysis

The regression results: A = 44802 + 1.10L + 0.147 C S = 92698.2

Predictor	Coef	SE Coef	T	P	VIF
Constant	44802	14182	03.16	0.003	
L	1.10	0.022	48.84	0.000	1.1
C	0.15	0.047	03.11	0.003	1.1

R-Sq = 98.0% R-Sq (adj) = 97.9%

Table 2. Analysis of Variance (ANOVA)

Source	DF	SS	MS	F	P
Regression	2	2.36	1.18	1373.73	0.0000
Residual Error	57	4.90	8592963201		
Total	59	2.41			
Durbin-Watson statistic = 1.80667					

Table 2 measures the significance of the model. P value and F-test confirm that the model is statistically highly significant at 1% and hence explains significantly the research problem. The significance of the model is also measured by high R.Sq in Table 1 indicating that the model used is appropriate for the analysis [5].

The correlation matrix in Table 3 indicates that there are low correlations (0.307) between liabilities and capital showing that the two variables are independent of one another. The two variables i.e. liabilities and capital are highly correlated with total assets (0.988) and (0.359) respectively meaning that, they are associated with, and thisconfirms that assets are the function of capital and liabilities.

Table 3. Correlation matrix

	A	***L***	***C***
A	1		
L	0.988	1	
C	0.359	0.307	1

Pearson correlation. Where A=Total Assets, L=Total Liabilities and C=Total Capital or Owners Equity

4.2 Rates of Change of Assets for Change in Liabilities and Capital

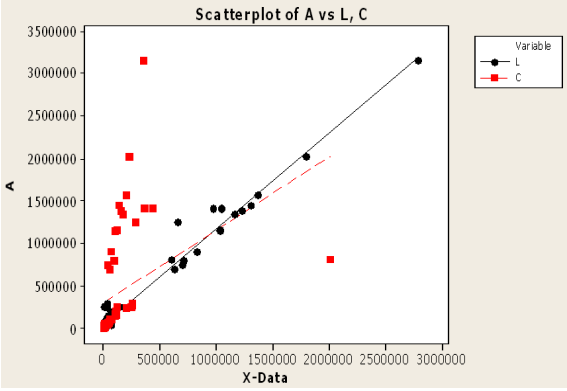
Results in Table 1 supported by Graph 1 show that rates of change of liabilities are higher than rates of change of capital. These rates indicate that changes in either of the two variables affect assets differently. As shown in this result by the coefficients of L and C, for every single unit change in liability and capital assets change by 1.1 times and 0.147 times respectively. This also may be shown by the slopes of Graph 1 and the trend also, the graphs show that capital increases at lower rates than liabilities.

The graph of liabilities and capital in Graph 1 indicates how they differ in the rates of changing assets. Assets seem to increase at a very high speed as liabilities

increase; this is proved by the steeper slope of liabilities as compared to the capital's slope.

The graph reveals that initially, companies start with higher capital or owners' equity than debt or liabilities. The change in time therefore shows how these two components vary. The results here support the trade-off theory which states that managers choose a capital structure to attain the targeted level of leverage in the long run [51,52,53,54,55,56]. The higher levels of capital in the beginning and lower levels as time goes on or the company grows are in line with the conclusions thatpecking order dominates in the short run [49,50,51].

The liabilities start to increase faster than capital and reach a time when it becomes equal to capital or owner's equity. Thereafter, the increase in liabilities dominates owners' equity to attain the targeted level of leverage (trade-off theory). The important point discovered in this result is the point where owners' equity is equal to liabilities. The question is what is this point and when is it reached?



Graph 1. Rate of Changes of Assets in Relation to Changes in Liabilities and Capital

4.3 Proportion of Liabilities and Capital to Assets

The author finds that it is important to know the average proportion of **L** and **C** to the total assets in the accounting equation. This was simply done by computing total assets, total liabilities, and total owners' equity and using a pie chart to determine out of 100% as the total of **L** and **C** which means it is the total **A** what proportion each variable occupies [5].

According to [51,52,53,54,55,56] businesses prefer more debt than debt-equity. The findings below support more debt than owners' equity on average by showing the proportions of total liabilities and total capital to total assets.

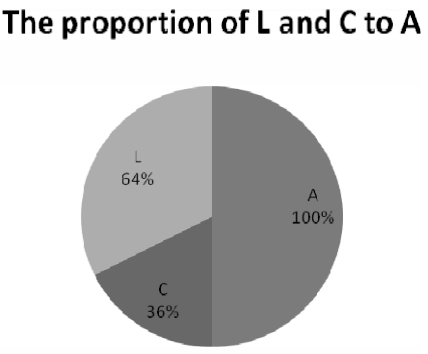


Chart 1. Proportion of Liabilities and Capital to Assets

Based on the concept of accounting equation that total assets equal to the sum of liabilities and capital and assuming the new accounting equation holds to include other elements in the accounting equation, the total assets form 100% of the equation in the left hand and the other elements both included and un-included liabilities and capital form another 100% in the right hand of the equation. The chart therefore shows the proportion of liabilities to assets is 64% and capital is 36%. Since these are cumulative results for all 15 companies for four years making 60 observations, the proportions therefore may bring us to answer the question of what is the proportion of capital and liabilities to the total assets [5]. The capital structure is therefore composed of 64% of liabilities and 36% capital financing 100% of total assets. This supports the literature that companies use more debt than capital [51,52,53,54,55,56].

5. DISCUSSION

The result confirms the hypothesis that in a complex business environment and decision-making mixed in managers' interest, the accounting equation changes over time from a simple bookkeeping equation to a complex one. The change in the accounting equation may be due to managers' complex decisions to maximize their welfare. Though the accounting profession and the literature do not show a constant term, this article indicates its existence. The new accounting equation therefore takes the form of $\boldsymbol{A = \beta 0 + \beta 1L + \beta 2C}$ instead of the traditional accounting equation $\boldsymbol{A = C + L.}$ These results are in line with [66] who finds that there are still things that are not involved in the balance sheet unlike off-balance sheet disclosure and propose that there should be the involvement of the value of skills in the balance sheet. [66] insists also that, if we cannot explain goodwill and potential goodwill in asset terms then they do not make sense. [67] shows clearly that there is a need to develop of balance sheet model. The study by [67] found that the development of a balance sheet model seems to make sense but is still unclear if it makes a company better and seems to challenge the (elite) social order in an organization.

These findings propose a new approach to the accounting equation as supported by [68] who call for a new approach to making accounting for an enterprise an ongoing conversation rather than a monologist process of closing down on a single meaning. A new direction in looking at accounting equations should be taken to present real-world problems as also stated in [69] and recent research has begun to demonstrate a critical and interpretive tendency and suggest directions in which this research might develop as accounting and its history enters the 21st century [5].

Total liabilities and total owners' equity change total assets at different rates as indicated in the regression results. Assets change at the rate of 1.1 units for each unit change in liability and at 0.147 for every unit change in owners' equity. These different rates may be attributed to factors affecting the choice of capital structure [10,9,11,12,32,33,34] showing that managerial ownership is negatively related to debt ratio and [56,35,16,36,37] indicate that, the decision to choose capital structure is influenced by many factors like profitability, firm size, growth rate, market to book value and liquidity. The effective tax rate, the tangibility of assets, return on assets, ownership structure, and corporate governance firm age and volatility in earnings, assets tangibility, and dividend payout ratio are also factors affecting the decision to choose the capital structure and also by the speeds set to attain a targeted level of leverage [51,52,53,54,55,56].

The accounting literature does not show a clear proportion of equity and liabilities in the capital structure but rather suggests that more debt is better for maximizing firms' value [30]. Other studies show how capital structure influences firms' performance, [13], and [14] showing no impact, [16,17,18,19,20,21,21] showing a positive influence and [22,23,24] showing a negative influence on firm's performance, [27,28,29,27] but no explanation on how much should be in owners' equity and liabilities or debt to ensure good company's performance. This article specifically shows that on average the proportion of liabilities to total assets in the capital structure is 64% and capital covers the rest proportion of 36% of total assets [5].

These results lead us to the point that one of the important financial decisions confronting a firm is the choice between debt and equity [31]. The question of what is an acceptable level/proportion of capital and liabilities is not answered by literature and this article gives an answer as on average liabilities cover 64% and capital 36% of funds provided to fund or finance total assets. The small proportion of capital compared to liabilities is in line with [1] which defines capital or equity as the residual interest in the assets of the entity after reducing all its liabilities hence this small percentage of 36% indicates that C is just a residual not a large component in accounting equation.

The proportions of liabilities and capital to total assets can be compared with their T and P values. The L has T and P values of 48.84 and 0.000 respectively showing that it is highly statistically significant compared to C with T and P values of 3.11 and 0.003 respectively. The results of C are very close to those of the constant term $\beta 0$ with T and P values of 3.16 and 0.003 respectively showing that

β0 is statistically significant and hence should not be ignored in the presentation of the accounting equation.

The constant term β0 is useful in these results as it indicates that before any businessman/woman starts a business or takes loans or injects capital there are efforts and qualitative valuables [5]. These may be an idea, strategic location, human capital, creativity, and plans documented and undocumented. These valuables are there and build up as time goes on in the daily operations of the business. All these are not quantified in any statement in business reports. It is important to note that using the conservative equation, A = L+ C; where L=0, C= 0, then A= 0 is narrow and ignores a lot of efforts before even establishing the physical business. This expression is not realistic as business is a combination of complex processes including the human brain and efforts. In reality, as proved by this study, when ***L=0, C=0, A = β0*** means that an idea, human brain, form of business, and other intangibles are there.

6. CONCLUSIONS

It is evident that the accounting equation evolves and changes from a simple double entry or bookkeeping equation to a complex statistical equation. The new equation shows that out of owners' equity and liabilities assets are the function of other factors indicated by the constant term β0. These may be business ideas, strategic locations, human capital and skills, and other intangibles that may have not been included or quantified in the normal accounting equations, capital structure, or statement of financial position/balance sheet. Therefore since the results reveal that the β0 is as significant as C it should be taken into consideration and not ignored. Though L seems to be more significant than C and β0, the two i.e. C and β0 are important to make the accounting equation balanced [5].

Differences in rates of change between capital and liability may be caused by many factors and complex decisions made by managers to maximize their utility (welfare) or to meet their targets (trade-off theory). The choice of one component is driven by its effect on managers' interests. Managers prefer capital structure which reduces the cost of capital and risks so as to ensure that they are protected in their jobs and increase their tenure. The findings also show how the optimal capital structure may be perceived by managers or decision-makers of capital structure. Liabilities cover the highest proportion 64% while owners' equity covers only 36%. This may be due to the benefits associated with debt financing like tax shields and risks of company failures [5].

These results therefore should help accounting professional bodies like the National Boards of Accountants and Auditors (NBAA) Tanzania and the International Accounting Standards Board (IASB) to review their teaching and training of new accounting equations, investors, managers, and owners of companies to know the proportions of owners' equity (36%) and liabilities (64%) in the company's capital structure and in the accounting equation. Future researchers should find out how the accounting equation evolves, how L and C

change in relation to total assets as well as the proportion of L and C to the total assets in specific industries, and should also define the point where capital is equal to liabilities.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

The author hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during the writing or editing of manuscripts.

COMPETING INTERESTS

The author has declared that no competing interests exist.

REFERENCES

1. BPP Learning Media. Financial accounting: ACCA study text for exams in December 2009 to June 2010, BPP Learning media London; 2009.
2. Warsono S. The accounting equation and revisiting the theory of double-entry bookkeeping. Accounting and Mathematics: Revisiting the Theory of Double Entry"(Warsono); 2017.
3. The Economic Times. Accounting Equation; 2024. Available:https://economictimes.indiatimes.com/definition/accounting-equation
4. Strathmore University. Financial accounting: CPA study text, Strathmore University, Nairobi-Kenya; 2009.
5. Prot NP. Evolution of Accounting Equation: evidence of companies quoted on Dar es Salaam stock exchange-Tanzania. Journal of Finance and Accounting. 2013;1(4):55-63
6. Demiraj R, Labadze L, Dsouza S, Demiraj E, Grigolia M. The quest for an optimal capital structure: An empirical analysis of European firms using GMM regression analysis, EuroMed Journal of Business, Vol. ahead-of-print No. ahead-of-print; 2024. Available:https://doi.org/10.1108/EMJB-07-2023-0206
7. Christopher RS. HLS Forum on Corporate Governance and Financial Regulation; 2011. Available:Optimal Capital Structure (harvard.edu)
8. DSE, DSE Hand Book, Dar Es Salaam Stock Exchange, Dar Es Salaam.
9. Karadeniz E, Kandir SY, Balcilar M, Onal YB. Determinants of capital structure: Evidence from Turkish lodging Companies. International Journal of Contemporary Hospitality Management. 2009;21(5):594-609.
10. Al-Najjar B, Taylor P. The relationship between capital structure and ownership Structure new evidence from Jordanian panel data. Managerial Finance. 2008;34(12):919-933.
11. Bokpin GA, Arko AC. Ownership structure, corporate governance and capital structure decisions of firms Empirical evidence from Ghana. Studies in Economics and Finance. 2009;26(4):246-256.

12. Abor J, Biekpe N. How do we explain the capital structure of SMEs in sub-Saharan Africa? Evidence from Ghana. Journal of Economic Studies. 2009;36(1):83-97.
13. Ebaid IE. The impact of capital-structure choice on firm performance: Empirical evidence from Egypt. The Journal of Risk Finance. 2009;10(5):477-487.
14. Modigliani F, Miller MH. The cost of capital, corporation finance and the theory of investment. American Economic Review. 1958;48:261-97.
15. Harris M, Raviv A. The theory of capital structure. Journal of Finance. 1991;46:297-355.
Available:http://dx.doi.org/10.1111/j.1540-6261.1991.tb03753.x.
16. Graham JR, Harvey C. The theory and practice of corporate finance: Evidence from the field, Journal of Financial Economics. 2001;60:187-243.
17. Brav A, Graham J, Harvey C, Michaely R. Payout policy in the 21st century. Journal of Financial Economics. 2005;77:483-527.
18. Roden D, Lewellenb W. Corporate capital structure decisions: Evidence from leveraged buyouts. Financial Management. 1995;24:76-87.
19. Champion D. Finance: The joy of leverage. Harvard Business Review. 1999;77:19-22.
20. Ghosh C, Nag R, Sirmans C. The pricing of seasoned equity offerings: Evidence from REITs. Real Estate Economics. 2000;28:363-84.
21. Hadlock C, James C. Do banks provide financial slack? Journal of Finance. 2002;57:1383-420.
22. Fama E, French K. Taxes, financing decisions, and firm value. Journal of Finance. 1998;53:819-43.
23. Gleason K, Mathur L, Mathur I. The interrelationship between culture, capital structure, and performance: Evidence from European retailers. Journal of Business Research. 2000;50:185-91.
24. Simmerly R, Li M. Environmental dynamism, financial leverage and performance: A theoretical integration and an empirical test. Strategic Management Journal. 2000;21:31-49.
25. Myers S. Capital structure. Journal of Economic Perspectives. 2001;15:81 102.
26. Eldomiaty T. Determinants of corporate capital structure: Evidence from an emerging economy. International Journal of Commerce and Management. 2007;17:25-43.
27. Kyereboah CA. The impact of capital structure on the performance of microfinance institutions. The Journal of Risk Finance. 2007;8(1):56-71.
28. Chiang YA, Chang PCA, Hui CME. Capital structure and profitability of the property and construction sectors in Hong Kong. Journal of Property Investment and Finance. 2002;20(6):434-53.
29. Berger AN, Bonaccorsi di Patti E. Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. Journal of Banking and Finance. 2006;30(4):1065-102.
30. Modigliani F, Miller M. Corporate income taxes and the cost of capital: A correction. American Economic Review. 1963;53:433-43.

31. Glen J, Pinto B. Debt or equity? How firms in developing countries choose, discussion paper. International Financial Corporation, Washington, DC; 1994s.
32. Bajaj M, Chan Y, Dasgupta S. The relationship between ownership, financing decisions and firm performance: A signaling model. International Economic Review. 1998;39(3):723-44.
33. Mehran H. Executive incentive plans, corporate control, and capital structure. Journal of Financial and Quantitative Analysis. 1992;27:539-60.
34. Brailsford J, Timothy B, Oliver R, Sandra L. On the relationship between ownership structure and capital structure. Journal of Accounting and Finance. 2002;42:1-26.
35. Claessens S, Djankov S, Fan J, Lang L. Disentangling the incentive and entrenchment effects of large shareholdings. Journal of Finance, American Finance Association. 2002;57(6):2741-71.
36. Litov LP. Corporate governance and financing policy: New evidence manuscript, Stern School of Business, New York University, New York, NY; 2005.
37. Abor J. Corporate governance and financing decisions of Ghanaian listed firms. Corporate Governance. 2007;7:83-92.
38. Pindado J, De la Torre C. A complementary approach to the financial and strategy views of capital structure: Theory and evidence from the ownership structure, Working Paper No. 666167, Social Science Research Network; 2005.
39. Anderson R, Reeb D. Founding-family ownership, corporate diversification, and firm leverage. Journal of Law and Economics. 2003;46:653-84.
40. Cheng S, Nagar V, Rajan M. Identifying control motives in managerial ownership: Evidence from antitakeover legislation. Review of Financial Studies. 2005;18:636-72.
41. Wen Y, Rwegasira K, Bilderbeek J. Corporate governance and capital structure decisions of Chinese listed firms. Corporate Governance: An International Review. 2002;10(2):75-83.
42. Anderson R, Mansi S, Reeb D. Board characteristics, accounting report integrity and the cost of debt. Journal of Accounting and Economics. 2004;37(3):315-42.
43. Kayhan A. Managerial Entrenchment and the Debt – Equity Choice, Working Paper, University of Texas at Austin, Austin TX; 2003.
44. Bertrand M, Mullainathan S. Enjoying the quiet life? Corporate governance and managerial preferences. Journal of Political Economy. 2003;111:1043-75.
45. Fosberg RH. Agency problems and debt financing: Leadership structure effects and Corporate Governance. International Journal of Business in Society. 2004;4(1):31-8.
46. Seppa R. Capital structure decisions: Research in Estonian non-financial companies. Baltic Journal of Management. 2008;3(1):55-70.
47. Gaud P, Hoesli M, Bender A. Further evidence on debt-equity choice, Research Paper No. 114, University of Geneve, Geneva. 2004;38.

48. Graham JR, Harvey CR. The theory and practice of corporate finance: Evidence from the field, AFA 2001 New Orleans, Duke University working paper. 1999;48,
Available:http://ssrn.com/abstract ¼ 220251.
49. Mayer C, Sussman O. A new test of capital structure, AFA 2005 Philadelphia Meetings. 2004;47.
Available:http://ssrn.com/abstract ¼ 643388
50. Tucker J, Stoja E. Target gearing in UK. 2004;40.
Available:http://ssrn.com/ abstract ¼ 710325.
51. Farhat J, Cotei C, Abugri BA. The pecking order hypothesis vs. the static trade-off theory under different institutional environments. Preliminary draft. 2006;39.
Available:http://wehner.tamu.edu/finc.www/seminar/papers/CovFinance31Jan2007.pdf.
52. Flannery M, Rangan J, Kasturi P. Partial adjustment toward target capital structures, AFA 2005 Philadelphia Meetings. 2004;50.
Available:http://ssrn.com/ abstract ¼ 467941.
53. Huang R, Ritter JR. Testing theories of capital structure and estimating the speed of adjustment. 2007;46.
Available:http://ssrn.com/abstract ¼ 938564.
54. De Haas R, Peeters M. The dynamic adjustment towards target capital structures of firms in transition economies, EBRD Working Paper. 2004(8):32.
Available:www. ebrd.com/pubs/econo/wp0087.pdf.
55. Nivorozhkin E. Financing choices of firms in EU accession countries, BOFIT Discussion Papers. 2004(6):48.
56. Sander P. Capital structure choice in Estonian companies: A survey, Management of Organizations: Systematic Research. 2003;27:122-35.
57. Jo˜eveer K. Sources of capital structure – evidence from transition countries. Working Paper Series. 2006;29.
Available:www.cerge-ei.cz/pdf/wp/Wp306.pdf.
58. Klapper LF, Sarria-Allende V, Sulla V. Small- and medium-size enterprise financing in Eastern Europe, World Bank Policy Research Working Paper No. 2933; 2002.
Available:http://ssrn.com/abstract ¼ 636295
59. Leary MT, Roberts MR. Do firms rebalance their capital structure. Journal of Finance. 2005;60(6):2575-619.
60. Ju N, Parrino R, Poteshman AM, Weisbach MS. Horses and rabbits? Optimal dynamic capital structure from shareholders and managers perspective. 2002;45,
Available:http://ssrn.com/abstract ¼ 345821.
61. Dao TTBm, Le TH. Optimal capital structure of Vietnamese listed firms-finance industry and consumer discretionary Industry. Contingent Sciences. 2023;9(2).
Available:https://doi.org/10.1080/23311886.2023.2245238
62. Ntui P, Waweru N, Mangena M. Determinants of different accounting methods choice in Tanzania: A positive accounting theory approach. Journal of Accounting in Emerging Economies. 2011;1(2):144- 159.

63. Missonier-Piera F. Economic determinants of multiple accounting method choices in a Swiss Context. Journal of International Financial Management and Accounting. 2004;15(2).
64. Inoue T, Thomas W. The choice of accounting policy in Japan. Journal of International Financial Management and Accounting. 1996;7(1):1–23.
65. Pandey IM. *Finance:* A management guide for managing company funds and profits, Prentice –Hall of India, New Delhi; 2007.
66. Sheedy-Gohil K. Putting the asset value of skills on the balance sheet'. Managerial Auditing Journal. 1996;11(7):16 – 20.
67. Grojer J. Employee artefacts on the balance sheet: Model illustration and implications. Journal of Human Resource Costing and Accounting. 1993;2(1):27 – 53.
68. Macintosh NB, Baker CR. A literary theory perspective on accounting: Towards heteroglossic accounting reports. Accounting, Auditing and Accountability Journal. 2002;15(2):84 – 222.
69. Carnegie GD, Napier CJ. Critical and interpretive histories: Insights into accounting's present and future through its past. Accounting, Auditing and Accountability Journal. 1996;9(3):7 – 39.

Biography of the author

Ntui Ponsian Prot (Lecturer)
St. Augustine University of Tanzania, Mwanza, Tanzania.

Research and Academic Experience: I have 10 years of academic career training, teaching, research, and coaching experience.

Research Area: My areas of research mainly include accounting, finance, business, strategic planning, and social market economy.

Number of Published papers: I have published more than 10 papers in reputed journals.

DISCLAIMER
This chapter is an extended version of the article published by the same author(s) in the following journal.
Journal of Finance and Accounting, 1(4): 55-63, 2013. DOI: 10.11648/j.jfa.20130104.11

Peer-Review History:
This chapter was reviewed by following the Advanced Open Peer Review policy. This chapter was thoroughly checked to prevent plagiarism. As per editorial policy, a minimum of two peer-reviewers reviewed the manuscript. After review and revision of the manuscript, the Book Editor approved the manuscript for final publication. Peer review comments, comments of the editor(s), etc. are available here: https://peerreviewarchive.com/review-history/2980G