

Impact of Operational Efficiency and Financial Performance on Capital Structure using Earnings Management as a Moderator Variable

Dr. Nevine Sobhy Abdel Megeid, PhD, CMA
Associate Accounting Professor
College of Management and Technology
Arab Academy for Science, Technology and Maritime Transport
nevinesobhy2@hotmail.com

Dr. Mohamed Hassan Abd-Elmageed, PhD
Assistant Accounting Professor
Faculty of Commerce - Ain Shams University
dr.mohamedabdelmageed@bus.asu.edu.eg

Nouran Magdy Ahmed Hamdy Riad
Assistant Accounting Lecturer
Faculty of Business, Ain Shams University
nouran.magdy3@bus.asu.edu.eg

Abstract

This research aims to investigate the association between operational efficiency and financial performance of the company on capital structure which is indicated in terms of the relative balance of the company financing sources using the earnings management as a moderator variable in the process of management decision making regarding the enhancing the balance of the firm capital structure. We use a sample of 65 listed non-financial companies in the Egyptian Stock Exchange (EGX) during the 7 years (2013-2019). Three panel models for estimating the three multiple linear panel regression equations used in this research to test the impact of operational efficiency, ROA, ROE, gross profit margin, current ratio, asset turnover, inventory turnover, Tobin's Q ratio and firm size on capital structure using the earnings management as a moderator variable. Findings indicate that ROE, gross profit margin and firm size have a positive significant impact on company' capital structure, while operational efficiency, ROA, Tobin's Q ratio and all liquidity ratios used in the first regression model (current ratio, asset turnover and inventory turnover) have a significant negative relationship with capital structure. Moreover, findings indicate that the firm' operational efficiency, gross profit margin and Tobin's Q ratio have a positive significant impact on company' earnings management, while ROA, ROE and all liquidity ratios used in the second regression model (current ratio, asset turnover and inventory turnover) have a significant negative relationship with earnings management. Finally, the statistical results shows that all the variables used in the third regression model namely, earnings management, Tobin's Q ratio and firm size have a significant negative relationship with the capital structure of the firm.

Keywords: Operating Efficiency - Financial Performance - Capital Structure - Earnings Management - Egypt

Introduction

Operational efficiency is seen as the few methods and techniques used to achieve the essential goal of conveying quality products and services to clients within the most cost-effective and opportune way (Neil, 2019). According to the researchers, asset utilization, production, dispersion and inventory management are the foremost common perspectives of operational efficiency. Operational efficiency is additionally clarified as the capability of an organization to diminish the unwelcomed and maximize asset capabilities so as to provide quality goods and services to clients (Ghosh, S. and Sanyal, B., 2019). Operational efficiency is the key determinant of the

long-term dissolvability of businesses (Ndolo, 2015). In reality, micro-economic or firm-specific indicators of corporates' monetary health evolve around operational efficiency (Ndolo, 2015). Been in pair with the opinion of Ndolo (2015), hypothesized that, progressing operational efficiency has a direct effect on the profit margins of organizations. Operational efficiency is frequently accomplished by streamlining firms' center operations in purpose of viably react to persistently changing market forces in a more cost-effective way. In other words, firms can achieve operational efficiency by decreasing repetition and squander whereas leveraging their assets that contribute generally to their victory; additionally, utilizing the best of their workforce, innovation and business operations. Decreased inner costs that result from operational efficiency assist firms to be more effective in profoundly competitive markets, in this manner accomplishing higher profit margins. The association between operational efficiency and firms' financial performance has been broadly considered (Vangie, 2019) .

Firms' financial performance points to an environment of how beneficially firms utilize their assets, for illustration capital structure, to produce incomes. By measuring financial performance, it shows the outcome of firms' systems and operations in money related terms. These outcomes are reported through the firms' return on assets, return on equity. Thus, it is a pointer of firms' financial wellbeing over a given period of time (Mohammad and Bujang, 2019).

In connection to this, capital structure relates to firms' financing choices. Firm can finance its processes either by choosing debts, equity, or a mix of these two sources (Ross et al., 2001; Abor, 2005; Brealey et al., 2009). Debt involves long-term obligation and short-term obligation, where equity alludes to common equity and preferred equity. There are preferences and drawbacks related with each source of financing. Firms may issue debt in order to gain tax advantages i.e., interest installments are tax-deductible and in addition debt permits the firm to hold possession. In expansion, in cases of low interest rates, debt is inexhaustible and simple to get to; subsequently debt gets to be an elective to raise capital within the capital markets. In Contrast, the excessive utilize of debts may raise the probability of financial distress and downsizing of the firms' credit rating (Addae et al., 2013). As an alternate to debt, the firm can increase capital using equity. Equity is generally costly than debt particularly when interest rates are low and the high rate of return that the potential investors anticipate from the firm in purpose of attracting more investments. Inevitably, the correct ratio between debt and equity lead to ideal capital structure which eventually upgrades firms' financial performance (Nirajini and Priya,

2013). Thus, the possible impact of capital structure policy is that it can raise both gains and losses of the firm according to the situation (Ross, Westerfield, & Jordan, 2001).

Earnings management philosophy is taking advantage of the standard method flexibility and accepted accounting principles. Of course, a variety of interpretations that can be taken from executive procedures of a standard accounting can be another reason of earnings management. Principles of conservative and matching can also be resulted in benefit of earnings management. Earnings management is one important feature of the quality of financial reporting and the main issue among all stakeholders of the company. Because the profit is one of the important criteria for performance evaluation, thus any involvement that makes the accuracy of the reports deform, could be affective on users' decisions of financial reports (Zengin and Ozkan, 2010).

Research Aim, Questions

The main aim of this research is to investigate the impact of operating efficiency and financial performance on capital structure using earnings management as a moderator variable. **The research addresses the following three main questions:**

1. What is the impact of operating efficiency on capital structure using earning management as a moderating variable?
2. What is the impact of financial Performance on capital structure using earning management as a moderating variable?
3. What is the relationship between capital structure and earning management?

Literature Review and Hypotheses Development

Operating Efficiency, Financial Performance and Capital Structure

Operational Efficiency and Financial Performance

The term “efficiency” is viewed in both the manufacturing firm and strategic management collected works as the item of firm-specific variables such as management skills, innovation, cost control and market share as determinants of current firm performance and its constancy. Based on Kalluru & Bhat (2009) views, Operational efficiency is the capability of an organization to abridge the unwelcome and boosts asset capabilities so as to convey quality goods and services to clients. An

organizational operational efficiency depends on components like skillful and capable specialists, legitimate innovative movement, appropriate acquirement carry out, return to scale of the businesses, supply chain controlling among numerous others.

Financial performance is a proxy for how well a firm can utilize its assets from its most essential processes to create returns. It is the degree to which a set objective is or has been achieved. Financial performance is a reflection to corporation's wellbeing and in the long run its continuing existence.

Elevated routine in performance mirrors expanding management effectiveness and efficiency in making benefit of company's assets. A fine calculated and utilized management of day-to-day costs is expected to include emphatically to the formation of a firm's wealth. This in turn contributes to profitability and subsequently to development of the country's economy at huge. For a firm to enhance overall performance, it ought to point at minimizing risk and well prepare for uncertainty at this time it could be a prerequisite for firm to know around the Determinants of working capital and the suitable concentration (Naser and Mokhtar, 2004).

Four classifications are used to divide financial performance measures, which are profitability, liquidity / working capital, gearing and investor ratios. Alamro et al. (2012), put forward that nowadays, various analysts utilize different methods to measure financial performance. For example, return on capital employed (ROCE) may be a key proxy for profitability which reflects the net income that's created from each one dollar of resources utilized. Return on equity (ROE) shows the degree net income repaid as a rate of shareholders equity by uncovering how much benefit a company creates with the money shareholders have contributed. ROE is expressed as a percentage and calculated as the proportion of Net income to Shareholder's equity. Another measure of financial performance is Return on Assets (ROA) which clarifies a firm's capability to benefit from of its assets and Return on sales (ROS), uncovers how much a company gains from its sales. Financial ratios express associations between financial statement items. In spite of the fact that they give chronological records, management can benefit from these ratios to state the firm's inner weaknesses and strengths and thereby can ultimately predict future financial performance.

Ranjan and Bishnu (2017) dug into the determinants of the financial performance of textile sector firms listed in the Dhaka Stock Trade. Operational efficiency measured by assets turnover had a significant positive impact on the firms' financial performance as measured by ROA and EPS based on the study's findings.

The impact of turnover ratios on the Jordanian service sector was tested by Warrad and Rania (2015). Operational efficiency represented by asset turnover, fixed asset turnover and working capital turnover had no vital effect on firms' profitability within the sector as measured by ROA and ROE as found by various studies. Blameless, Mary and Matthew (2013) conducted a study to test the profitability determinants of the Nigerian pharmaceutical industry for the period 2001 to 2011. The results of this study showed that there is an insignificant adverse relation between profitability and the firms' total asset turnover ratio, debt turnover ratio and creditors velocity. Despite that a significant inverse relationship was concluded between inventory turnover ratio and the firms' profitability.

In purpose of accomplishing specific performance objectives, organizations are anticipated to create changes based on finest operational practices to their basic and infrastructural components, if internal aspects of a firm are primarily responsible for its financial performance variation. The operating efficiency of a business in connection to the efficient utilization of the resources is reflected in net profit margin. Furthermore, in spite of the fact that high return margin reflects superior performance; a lower margin does not consequently show a lower rate of return on assets turnover. The overall operational efficiency of a firm hence can be evaluated on the premise of a combination of both. Firms are on performance curves based on the assets they utilize, yet, new manufacturing know-hows, counting management-related ones, might put firms on new performance curves (Ndolo, P. S. , 2015).

Capital Structure

Capital structure to the company decision and choice regarding the mix of different securities, it is the ratio of equity and long-term debt financing (Brealey, Myers, and Marcus, 2009). The capital structure decisions mainly aim to reach the optimal level of capital financing that maximizes the profitability of the company and in turn the shareholders' value. There are many capital structure theories like the trade-off, pecking order and agency theories can be used when deciding the optimal debt/equity ratio (Abor, 2005). Capital structure decision is the choice of a firm's blend of sources of financing, made up of debt and equity financing (Ross, Westerfield and Jordan 2001). It was contended that capital structure could be a reflection of a firm's borrowing policy. It points to the blend of long-term debt and equity financing (Kudzai Marandu and Athenia Sibindi, 2016).

Profitability and Capital Structure

The trade-off theory of capital structure states that ideal capital structure can be accomplished in the event that the benefit of debt financing is equal to the debt-related costs. The trade-off between the costs and benefits of borrowing decides the ideal proportion of debts. Cases of debt-related costs are bankruptcy costs, taxes, agency costs and non-debt tax shield. Bankruptcy costs are anticipated to extend when profitability decreases and thus the less profitable firms will target lower debts (Jimba Kareem, 2019).

Later studies anticipated that debt was conversely related to the level of non-debt tax shields and this model did not as it were center on non-debt tax shields but also presented a general estimation around leverage and profitability. They utilized asymmetric taxation of profits and losses as their argument. The government tax policy centers more on its taxes on profit instead of subsidizing the firm's losses. This will cause firms with higher profit to confront more taxes whereas for lower levels of profit, dynamic corporate tax rates fortify the interface between the estimated tax rate and estimated profitability. Thus, the anticipated payoff from interest tax shields is greater for more profitable firms and firms with lower unstable profit. In this manner, the deductibility of corporate interest will cause more profitable and less unstable firms to have greater level of debt (Hapsah S. Mohammad, 2019). Another approach to the ideal capital structure research is the pecking order theory. In applying the pecking order theory, administration favors internal produced funds to external created ones. On the off chance that external debt is ever required, debt finance is favored to equity finance. In other words, directors rank their order of financing in order of inside produced fund, and after that outside produced fund with debt ranking before equity (Braeley, Myers and Marcus, 2009).

Managers utilize this ranking or positioning in an endeavor to protect the value of the firm and more importantly to counter the incorrect signals of issuing equity within the first place. Managers must rank the order of producing funds this way since, when a firm requires capital; issuing shares may send the incorrect signals that can lead to a drop in firm value. When new shares are issued, investors suspect the shares may be overrated and deny purchasing, in this way bringing down the value of the shares (Braeley, Myers and Marcus 2009). This is often as a rule caused by a misconception of the current profitability and future prospects of the firm. Investors get this signals from the issue of shares since, rational individuals would not sell anything for less than its value, so the true value of the shares (within the perception of the shareholder) may well be lower than what management is selling presently, Ehrhardt and Brigham (2009). Managers attempt to dodge such (likely

incorrect) signals to shareholders by utilizing inner funds as much as conceivable. Managers are driven to prioritize their source of funds since of this signaling theory, to maximize profitability and value (Addae, 2013). Another thing that this theory considers in its financing decision is debt. This theory proposed that, in a perfect world, debt would increase when the investment was higher than retained earnings and decrease when investment was lower than retained earnings. Hence, on the off chance that profitability and investment outlays or proceeds, investment is fixed, debt is lower for more profitable firms and given the profitability, debt is higher for firms with more investments.

Liquidity and Capital Structure

Previous researches that were exploring the effect of liquidity on the capital structure of the firms appeared that in a few nations liquid assets increases leverage of the firms whereas in a few nations the more liquid firms are more financed with its own capital and so less leveraged as Lipson and Mortal (2009) appeared in their study based on American companies.

Previous study had the objective of examining the effect of liquidity on the capital structure of Croatian firms. The results of that study reveals that there's a negative relationship between liquidity and capital structure, which is in contradiction with American companies from past researches (Sibilkov, 2007), but confirms Akdal's discoveries on a sample of British companies which illustrated negative relationship between liquidity and leverage of the firms (Akdal, 2011) .

There's moreover a negative relationship, between the proportion of cash in current assets and short-term leverage. Money, as the foremost liquid form of assets incorporates a critical part in financing. The more prominent the sum of cash, the less could be a firm's leverage. It employs its working capital to fund its commitments. In this way a firm keeps up the liquidity and gives sources of financing in case of sudden require. This conclusion underpins Anderson's research about on British companies which illustrated a negative relationship between short-term borrowings and liquid assets of the firm. Long-term leveraged firms are more liquid, accepting that managers or business owners are not attached to high-risk investments and short-term borrowing that will decrease liquidity of the firms. Expanding inventory levels leads to increase of leverage, expecting that firms borrow in order to boost supply, which implies that the Croatian business people borrow in purpose of purchasing raw materials or finished goods for advance propagation. This can lead to a negative trend, as the increase in illiquid assets diminishes liquidity. It is hence vital to form a smart choice about short-term leverage in purpose of jeopardize the business operations and liquidity and within the long term beware of the financial stability of

the firm. For this reason, finance maturity ought to be regarded, short-term assets to be financed by short-term resources and fixed assets to be financed from long-term resources (Nataša Šarlija and Martina Harc, 2012).

Based on the previous illustrated literature, the researchers formed the following three hypotheses:

H₁: Operating efficiency has significant impact on capital structure.

H₂: Profitability has significant impact on capital structure.

H₃: Liquidity has significant impact on capital structure.

Operating Efficiency, Financial Performance and Earnings Management

Profitability and Earnings Management

In the latest years, the issue of earnings management has been extensively scrutinized in the literature, earnings management has also received significant awareness from those in practical positions within the business world. In terms of how the concept of earnings management can be described, plentiful definitions have been provided. The fundamental conclusion to draw from an examination of these definitions is that earnings management is mainly concerned with manipulating a firm's financial data specifically, reported earnings in such a way as to mislead stakeholders concerning its real performance.

Previous researches pointed to several definitions of creative accounting, income and earning management practiced by various parties in firms. Earnings management is known as a process to manipulate data and numbers legally exploiting elasticity of the International Accounting Standards (IAS) to exhibit the content of financial statements in unreal image and in contrary with the real condition of the company's performance with the purpose of achieving own management interests. The process of earnings management is more realized when anticipating earnings of companies leading to practices of earnings management to become a frequent process (Al-Halabi and Al-Abbadi, 2014). Another study discussed the using of earnings management considerably when companies confronting solvency and failure therefore manipulating their earnings in a cosmetic way in order to avoid moreover financial crises (Rosner, 2003). Auditors' perspective and behavior were also elaborated in relationship with earnings management and included real earnings

management in their audit reports to alleviate business risks (Greiner, Kohlbeck, and Smith, 2013). Another study, on the other hand, concentrated on the connection of enhanced audit quality and changing practices of real earnings management leading to more quality of audits which results in greater real earnings management in companies (Chi, Listic, and Prezner, 2011). While another study examined the incidence issues (in terms of creating accounting treatments to fulfill own management purposes and ethical issues in dealing with economic conditions confronting companies (Amat, O., 2004). It appears that earnings management process is prevailed by auditing studies, with little studies focusing elements of human behavior, such as perceptions and attitudes of both management and accountants who are the interested parties that are acting and dealing, on daily basis, with the process and practices of earnings management in companies. Further, the role of governance is also studied in mitigating negative effects of earnings management practices on financial statements in firms (Tanjitprom, 2013).

The literature pointed out several researches utilizing mathematic models to identify earnings management by differentiating between discretionary accruals, aggregate accruals and mandatory accruals. According to these models, for example as in Healy's model of 1985, earnings management is examined by dividing aggregate accruals on average assets and comparing results during a series period of time with each other, so if the result was greater than zero, then there is proof of earnings management. Accordingly, these models utilized operating cash flows (OCF) based on the cash basis emanated from the statement of cash flows, and net profits based on the accounting accrual basis, to reveal earnings management in firms (Arens, Elder, and Beasley, 2014).

Profitability is the capability of a company to achieve a profit. In order to attain high levels of profitability, the company needs to own more assets which will in turn encourage investors to undertake capital investment in the company. On the other side, fluctuation in the profitability will provides signals that the company has risk in distributing dividends to investors, so as to raise the confidence of the market manager will attempt to maintain profitability in order to remain consistent and stable. Profitability is measured using Return on Assets (ROA). Return on Assets (ROA) is a ratio of profitability that is used to indicate the company's ability to manage a profit based on assets that are used. Each company claimed to manage and use its assets as fully as possible. The more efficient company in the utilization and management of assets, the greater the option it will be gaining corporate profits, so the return on assets has pushed the motivation management in performing actions

create a profit. As for one of the managers own interest in getting a reward, he will be motivated and have much incentive to do everything possible to regulate the company profits. The greater the profits the company brings, the greater the desire of investors to infuse capital. When profitability is stable, this will provide the investor confidence that the firm has good operational performance in generating sustaining profits. Purnama and Nurdiniah (2018) investigated the influence of profitability and firm size on earnings management with managerial ownership as moderation, they use 60 companies registered in Indonesia Stock Exchange in the period 2012-2016. Findings indicate that profitability has a significant positive impact on earnings management while, firm size negatively affects earnings management.

Liquidity and Earnings Management

The liquidity has been known as the capability of company to act short-term obligations, in other words, the liquidity is ease of converting assets into cash. A company with sufficient liquidity has sufficient current assets to cover its current obligations. As a result, if a company has adequate liquidity, may decrease the risk of bankruptcy because reserve sufficient cash to cover its obligations. Liquidity is also a vital factor in the costs of the financial crisis (Sibilkov, 2009). If there is no adequate liquidity of a company in the long term, this may result in the liquidation and as a result threaten the survival of the company. This will boost the costs of the financial crisis. Liquidity is an important factor in the capital structure discussion, because if firms confronted threat of bankruptcy, better able to utilize more debt, assuming adequate cash assets are owned (Rao et al., 2007). With the threat of bankruptcy, the company can more easily transform its liquid assets to cash requirements.

The presence of high liquidity makes it potential the management in the absence of proper corporate governance structure; endeavor to manipulate earnings, especially in those companies with low investment opportunities and low growth (Ahmadi, 2015). Gombolaa et al. (2016) conducted a research entitled the effect of financial leverage and liquidity on capital and profit (earnings) management, evidence of American banks. Their research period was between 1999 and 2013. The results indicated that after the 2008 financial crisis, leverage and liquidity ratios have a significant positive influence on earnings (profit) management of banks.

Moghaddam and Abbaspour (2017) investigate the impact of financial leverage and liquidity on capital and earnings management of banks listed in the Tehran Stock Exchange during the period 2010-2015. Findings indicates that both

financial leverage and liquidity has significant positive impact on earnings management, through increasing the degree of financial leverage and bank liquidity by using discretionary accruals and earnings management. Findings also show that financial leverage has a significant negative influence on the bank's capital adequacy ratio and with increasing financial leverage bank capital adequacy ratio is decreased.

Based on the previous illustrated literature, the researchers formed the following three hypotheses:

H4: Operating efficiency has significant impact on earnings management.

H5: Profitability has significant impact on earnings management.

H6: Liquidity has significant impact on earnings management.

Earnings Management and Capital Structure

Shareholders of the firms run by proficient managers may endure misfortune due to the struggle of interface between shareholders and managers. As a result, these firms tend to be related with more severe earnings manipulation because opaque firm disclosure policy can help managers retain private control and extract benefits (Gopalan, R., Jayaraman, S., 2012). In this manner, earnings management may encourage corporate managers to participate in sub-optimal investment and/or tunneling exercises since it makes information about cash flow private to the internal ones in the corporate (Zhe An et al., 2016).

An et al., (2016) highlighted the firms' capital-structure choices by employing a comprehensive sample of 25,777 firms across 37 countries over two decades. The authors concentrated on the link between earnings and financial leverage and the role of institutional environments in reshaping this connection. Two results appeared from this research. First, they detect robust evidence that firms engaging in higher earnings management activities on average have higher financial leverage. Combined with the notion that a firm's earnings management reflects the agency conflicts between insider managers and outside investors, these results support the disciplining role of debt in decreasing the agency cost of free cash flow. Second, they proved that the positive relationship between earnings management and financial leverage is much less pronounced in countries with better institutional environments.

Talebniya and Ravanshad (2011) examined the relationship between capital structure and earnings management indicated by discretionary accruals, findings shows that that earnings management and profitability return on equity (ROE) have a significant negative association with capital structure. Zamri et al. (2013) investigated

the relationship of financial leverage and earnings management. Results show that there is a negative relationship real earnings management activities and debt/equity ratio; that is lower leveraged firms have a higher level of earnings management, which in turn, will impact the quality of financial accounting earning.

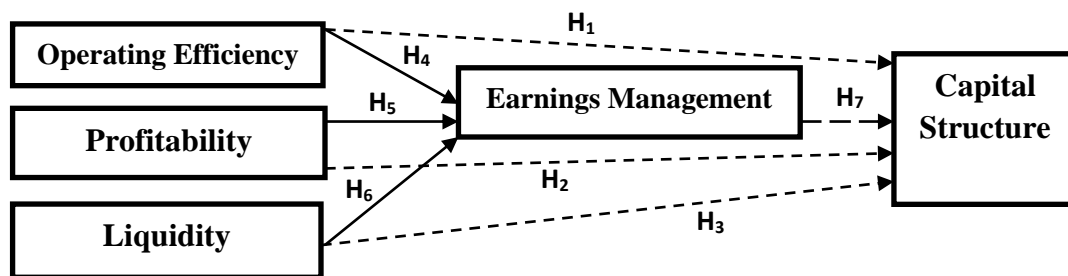
Based on the previous illustrated literature, the researchers formed the following hypothesis:

H7: Earnings management has significant impact on capital structure.

Research Conceptual Framework

In figure (1), we present the research conceptual framework to show the relationships between the research variables and hypotheses. The left side shows the operational efficiency and the financial performance in terms of the profitability and liquidity of the company (independent variables). The right side shows the capital structure of the firm (dependent variable) and earnings management as a moderating variable.

Figure (1): Research Conceptual Framework



Research Methodology

This research conducted using data from 65 publically listed non-financial companies listed in the Egyptian stock exchange (EGX) from the year 2013 till 2019. We exclude those financial firms due to their distinct financial nature. Financial and secondary data were obtained from the financial statements and the published annuals reports.

Research Variables and Regression Model

The statistical relationship between the firms' operational performance and financial performance (profitability and liquidity) on capital structure using earnings

management as a moderator variable was tested using the following *three multiple regression models*:

First regression model, used to examine the relationship between operating efficiency and financial performance on capital structure

$$CS_{it} = \beta_0 + \beta_1 OE_{it} + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 GPM_{it} + \beta_5 CR_{it} + \beta_6 AT_{it} + \beta_7 IT_{it} + \beta_8 TQ_{it} + \beta_9 FS_{it} + \varepsilon_{it}$$

Where:

Dependent variable = Capital Structure (CS) measured by Debt to equity (D/E).

β_0 = denotes a constant of the regression equation.

$\beta_1 = OE$ denotes regression coefficient of operating efficiency.

$\beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ = denotes regression coefficient of ROA, ROE, GPM, CR, AT, IT denotes regression coefficient of return on assets, return on equity, gross profit margin, current ratio, asset turnover, inventory turnover as measures for financial performance (profitability and liquidity).

β_8 and β_9 = denotes control variables, regression coefficient of Tobin's Q and firm size (FS).

It = Firm i in period t.

T_i = Year fixed effect.

ε = Standard error term.

Second: regression model, used to examine the relationship between operating efficiency and financial performance on earnings management.

$$EM_{it} = \beta_0 + \beta_1 OE_{it} + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 GPM_{it} + \beta_5 CR_{it} + \beta_6 AT_{it} + \beta_7 IT_{it} + \beta_8 TQ_{it} + \beta_9 FS_{it} + \varepsilon_{it}$$

Where:

Dependent variable = Earnings management (EM).

β_0 = denotes a constant of the regression equation.

$\beta_1 = OE$ denotes regression coefficient of operating efficiency.

$\beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ = denotes regression coefficient of ROA, ROE, GPM, CR, AT, IT denotes regression coefficient of return on assets, return on equity, gross profit margin, current ratio, asset turnover, inventory turnover as measures for financial performance (profitability and liquidity).

β_8 and β_9 = denotes control variables, regression coefficient of Tobin's Q and firm size (FS).

I_t = Firm i in period t.

T_i = Year fixed effect.

ε = Standard error term.

Third: regression model used to examine the relationship between capital structure and earnings management.

$$CS_{it} = \beta_0 + \beta_1 EM_{it} + \beta_2 TQ_{it} + \beta_3 FS_{it} + \varepsilon_{it}$$

Where:

Dependent variable = Capital Structure (CS) measured by Debt to equity (D/E).

β_0 = denotes a constant of the regression equation.

β_1 = EM denotes regression coefficient of Earnings Management.

β_2 and β_3 = TQ and FS denotes control variables, regression coefficient of Tobin's Q and firm size.

I_t = Firm i in period t.

T_i = Year fixed effect.

ε = Standard error term.

The definition and measurement of the variables used in this research are listed in Table (1) as follows.

Table (1): Research Variables, Definitions and Measures

Variables / Type			Definition	Measure
Independent Variables: Operating Efficiency, Financial Performance (profitability and liquidity)	Operating Efficiency	OE	Operational efficiency is a relationship between the outputs obtained from a given amount of inputs. Improvement in operational efficiency occurs when the output to input ratio improved.	Operational efficiency ratio is calculated by dividing the sum of (operating expenses + cost of goods sold) by net sales revenue.
	Return on Assets	ROA	Return on assets reflects how a firm effectively and efficiently utilizes its available resources.	ROA is the ratio of net income divided by average total assets.
	Return on Equity	ROE	ROE means how the company' management is able to generate income from the investment of shareholders through increasing productivity and profits in a sustainable way.	ROE measured as a ratio by dividing the net income by average shareholder's equity.
	Gross Profit Margin	GPM	Gross profit margin ratio is used to evaluate the company's financial position. High gross profit margin ratio indicates is a signal effective and efficient management practices.	Gross profit margin ratio is measured by dividing net income by net sales.
	Current Ratio	CR	Current ratio is a liquidity ratio that indicates the ability of the company to pay its short-term obligations and debts when come due.	Current ratio is calculated by dividing current assets to current liabilities.
	Asset Turnover	AT	Asset turnover ratio is used to show how well the companies effectively using their assets to generate revenue.	Asset turnover ratio is measured by dividing the net sales by the average total assets during a given period.

	Inventory Turnover	IT	Inventory turnover ratio indicates the average times the company has sold the entire inventory it has and then replaced it again and again during a given period.	Inventory turnover ratio is measured by dividing the cost of goods sold by the average inventory.
Dependent Variable Cost Structure (CS)	Debt to Equity	D/E	Capital structures the balance or the ratio between debt and equity that a business depends on in financing its assets, daily operations, and expansion for future growth.	Debt-to-equity (D/E) ratio is used to calculate the capital structure. D/E calculated by dividing total debt (current and long-term liabilities) by total equity.
Moderator	Earning Management	EM	Earnings management occurs when the company adjust and manipulate its earnings in a way that make the financial statements accounting figures match with the predetermined target.	In this research, we use as a proxy for earnings management the modified Jones model - discretionary accruals.
Control Variables	Market Performance	Tobin's Q (TQ)	Tobin's q measures the degree in which the company generates for its shareholders. It compares the book value of its assets to how much more a company is worth.	Tobin's Q = Market value of equity + Book value of short term liabilities) ÷ Book value of total assets.
	Firm Size	FS	The total assets of the company.	Natural log of total assets.

Earnings Management: Modified Jones model in measuring discretionary accruals

In order to calculate the discretionary accruals, first we measure the non-discretionary accruals as a portion of the total accruals using the Modified Jones model as follows.

Step 1: We calculate the total accruals as follow:

$$TACC_t = \Delta CA_t - \Delta Cash - \Delta CL_t + \Delta DCL_t - DEP_t$$

Where,

$TACC_t$ = Total accruals in year t ,
 ΔCA_t = Change in current assets in year t ,
 $\Delta Cash$ = Change in cash and cash equivalents in year t ,
 ΔCL_t = Change in current liabilities in year t ,
 ΔDCL_t = Change in short-term debt included in current liabilities in year t ,
 DEP_t = Depreciation and amortization expense in year t .

Step 2: We estimate the Modified Jones Model as follows:

$$\frac{TACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t$$

Where,

$TACC_t$ = Total accruals in year t divided by total assets in year $t - 1$,
 ΔREV_t = Sales revenues in year t less revenues in year $t - 1$,
 ΔREC_t = Net receivables in year t less net receivables in year $t - 1$,
 PPE_t = Gross property plant and equipment in year t ,
 A_{t-1} = Total assets in year $t - 1$,
 $\alpha_1, \alpha_2,$ and α_3 = Parameters to be estimated, namely alphas,
 ε_t = Residuals in year t .

Step 3: We calculate the discretionary accruals as follows:

$$DACC_t = TACC_t - NDACC_t$$

Step 4: The non-discretionary accruals can be calculated as follows:

$$\frac{NDACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t$$

Where,

$NDACC_t$ = Non-discretionary accruals divided by total assets in year $t - 1$,
 ΔREV_t = Revenues in year t less revenues in year $t - 1$,
 ΔREC_t = Net receivables in year t less net receivables in year $t - 1$,
 PPE_t = Gross property plant and equipment in year t ,
 A_{t-1} = Total assets in year $t - 1$,
 $\alpha_1, \alpha_2,$ and α_3 = Parameters to be estimated, namely alphas,
 ε_t = Residuals in year t .

Statistical Results and Analysis

Linear OLS Panel Regression Model:

Model Structure View:

Typically, data set has a cross sectional observations among different companies and re-sampled at a certain period of time, so a balanced Panel data regression will be most applicable to represent such a linear relationship and the model equation will be written as the following:

$$\hat{y}_{it} = \hat{\beta}_0 + \hat{\beta}_1 x_{1t} + \dots + \hat{\beta}_i x_{it} + \epsilon_{it}$$

Where:

$\hat{\beta}_0$: The estimated constant term.

$\hat{\beta}_i$: The estimated independent parameter coefficient.

y : The dependent variable.

x : The independent variable.

i : The firm number.

t : Referring to the year.

ϵ : Model white noise error.

Steps of constructing a Panel Regression Model:

- Set the time series variable and the cross-section variable in order to identify the panel regression model.
- Run a pooled Panel Regression in order to indicate the model significance results.
- Apply F-test to determine which more significant pooled or fixed model is.
- Apply Breusch-Pagan test to determine which is more significant Pooled or Random model is.
- Apply Hausman test to determine which is more significant Fixed or Random model is.

“In the three tests: Hausman test, F-test and Breusch-Pagan test if the p-value less than 0.05, then alternative hypothesis is accepted”.

- **Pooled OLS:** is used as a simple estimator for panel data as it provides a baseline for comparison with more complex panel data estimators.

- **Fixed Effects** across individuals are constant, and **random effects** vary. A model with random intercepts a_i and fixed slope b corresponds to parallel lines for different individuals, or the model: $y_{it} = a_i + b_t y_{it} = a_i + b_t$.
- Run normality to make sure that Residuals variance is normal within your model.
- **Performing the model diagnostics tests:**
 - **White Stability test for random error variation:**
The regression models and the OLS method are based on several assumptions, including the constancy of homoscedasticity by which the mean should be equal to zero, and if the Heteroscedasticity variation is used, some methods are used to overcome this problem, such as the White test. The null hypothesis is that the model has a problem of random error instability if p-value is greater than 0.05.
 - **Normality of residuals:**
The residuals of the forecasting model must follow the normal distribution normal distribution in the long run with mean equals zero and variance equals one, a Chi-square test is used for testing the normality with the criteria that if the p-value is greater than 0.05 this means that the residuals are normally distributed.
 - **Ramsey RESET test for model specification:**
This test is used to determine whether the model contains all the appropriate variables and excludes all irrelevant variables to ensure that the model estimated coefficients are not biased. This is done through the Ramsey RESET Test, and the decision criterion is to accept the null hypothesis that the study model includes all the appropriate variables P-value was greater than (0.05).
 - **Variance Inflation Factors:**
Minimum possible value = 1.0 and the values > 10.0 may indicate a collinearity problem.
 - **Goodness of fit tests:**
There are many measures of accuracy and performance of the forecasts. The most commonly used measures are the mean absolute error (MAE), root mean squared error (RMSE) and mean absolute percentage error (MAPE).
- Show the graphical representation of your forecasted values within the standard error of the model.

The three panel models for estimating the three Multiple Linear Panel Regression equations

After applying the pooled panel regression for the three model and performing the panel models diagnostics it's found that the most fitted linear panel model for estimating Capital Structure (CS) in both model (1) and (3) is the Pooled linear panel model and the Random Effect linear panel model is the most appropriate for estimating Earnings Management (EM) in model (2).

The two Pooled linear panel model for estimating Capital Structure (CS) and the Random Effect linear panel model for estimating Earning Management (EM) showed a high level or residuals stability for long run by using white test for Heteroscedasticity and Chi-square test for normality of residuals, Also the three models independent variables and controlling variables have showed a low level of VIF which means that the they don't suffer from multicollinearity, and finally Ramsey Reset test for irrelevant variables showed that all variables are relevant and there is no need for adding or removing variables from any of the three models.

The following tables (2), (3) and (4) summarize the three linear panel models.

Table (2) shows the statistical results for the first regression model used to examine the relationship between operating efficiency and financial performance on capital structure.

Table (2): Pooled Linear Panel Model for Estimating CS

Model	<i>Pooled Linear Panel</i>	Dependent variable		CS	VIF Test
		<i>Coefficient</i>	<i>t-ratio</i>	<i>p-value</i>	
const	-5.76449	-0.2567	0.7976	Insignificant	
OE	-0.189599	-4.3509	0.0029	Significant	1.003
ROA	-0.856942	-3.5818	0.0312	Significant	4.461
ROE	0.598877	2.5028	0.0156	Significant	4.598
GPM	0.465560	2.4840	0.0288	Significant	1.149
CR	-0.106992	-4.2621	0.0025	Significant	1.038
AT	-1.16259	-2.173	0.0419	Significant	1.058
IT	-0.117455	-6.245	0.0003	Significant	1.010
TQ	-0.231191	-2.317	0.0290	Significant	1.010
FS	0.203224	2.2731	0.0320	Significant	1.065
Adjusted R-squared			81.35%		
Ramsey RESET overall Test			F-test	P – value	
			119.55988	0.066101	
Overall test of Heteroscedasticity			Chi-square	P – value	
			6616.294581	0.000000	
Normality of Residuals			Chi-square	P – value	
			3.078	0.04699	

Source: Prepared by the researchers.

From the previous table it is concluded that:

- The overall fixed effect model is significant with adjusted R-squared value of 81.35% which means that the significant independent variable and the controlling variables explain the change in the CS by 81.35%.
- All the independent variables and the controlling variables have significant impact on CS except the constant should be dropped from the equation as its p-value is 0.7976 which is greater than 0.05.
- ROE, gross profit margin and firm size have a positive significant impact on company' capital structure, while operational efficiency, ROA, Tobin's Q ratio and all liquidity ratios used in the model (current ratio, asset turnover

and inventory turnover) have a significant negative relationship with capital structure.

- The overall equation for forecasting the *CS* is:

$$CS_{it} = -0.189599 OE_{it} - 0.856942 ROA_{it} + 0.598877 ROE_{it} + 0.465560 GPM_{it} - 0.106992 CR_{it} - 1.16259 AT_{it} - 0.117455 IT_{it} - 0.231191 TQ_{it} + 0.203224 FS_{it}$$

Table (3) shows the statistical results for the second regression model used to examine the relationship between operating efficiency and financial performance on earnings management.

Table (3): Stepwise Random Effect Linear Panel Model for Estimating EM

Model Independent variables	Stepwise Random Effect Coefficient	Dependent variable		EM Significance	VIF Test
		t-ratio	p-value		
OE	0.350033	9.338	<0.0001	Significant	1.003
ROA	-0.100477	-4.104	0.0021	Significant	4.461
ROE	-0.00601522	-2.745	0.0166	Significant	4.598
GPM	0.812154	2.478	0.0139	Significant	1.149
CR	-0.0234462	-3.530	0.0005	Significant	1.038
AT	-1.28038	-4.789	<0.0001	Significant	1.058
IT	-0.0533533	-7.223	<0.0001	Significant	1.010
TQ	0.0715000	2.7347	0.0032	Significant	1.010
FS	-2.29217	-4.209	<0.0001	Significant	1.065
Adjusted R-squared			70.98%		
Ramsey RESET overall Test			F-test	P – value	
			112.6144	0.061186	
Overall test of Heteroscedasticity			Chi-square	P – value	
			161.209434	0.00129	
Normality of Residuals			Chi-square	P – value	
			3.807	0.06300	

Source: Prepared by the researchers.

From the previous table it is concluded that:

- The overall fixed effect model is significant with adjusted R-squared value of 70.98% which means that the significant independent variable and the controlling variables explain the change in the *EM* by 70.98%.
- All the independent variables and the controlling variables have significant impact on *EM*.
- Operational efficiency, gross profit margin and Tobin's Q ratio have a positive significant impact on company' earnings management, while ROA, ROE and all liquidity ratios used in the model (current ratio, asset turnover and inventory turnover) have a significant negative relationship with earnings management.
- The overall equation for forecasting the *EM* is:

$$EM_{it} = 0.350033 OE_{it} - 0.100477 ROA_{it} - 0.00601522 ROE_{it} + 0.812154 GPM_{it} - 0.0234462 CR_{it} - 1.28038 AT_{it} - 0.0533533 IT_{it} + 0.0715000 TQ_{it} - 2.29217 FS_{it}$$

Table (4) shows the statistical results for the third regression model used to examine the relationship between capital structure and earnings management.

Table (4): Pooled Linear Panel Model for Estimating CS

Model	Pooled Linear Panel	Dependent variable		CS	VIF Test
Independent variables	Coefficient	t-ratio	p-value	Significance	
const	8.38362	0.5025	0.6158	Insignificant	
EM	-0.00354632	-2.753	0.0063	Significant	1.210
TQ	-0.0611050	-4.117	<0.0001	Significant	1.010
FS	-0.103017	-2.729	0.0350	Significant	1.065
Adjusted R-squared			95.94%		
Ramsey RESET overall Test			F-test	P – value	
			1.7683	0.17300	
Overall test of Heteroscedasticity			Chi-square	P – value	
			14.4551448	0.004889	
Normality of Residuals			Chi-square	P – value	
			4.896	0.07210	

Source: Prepared by the researchers.

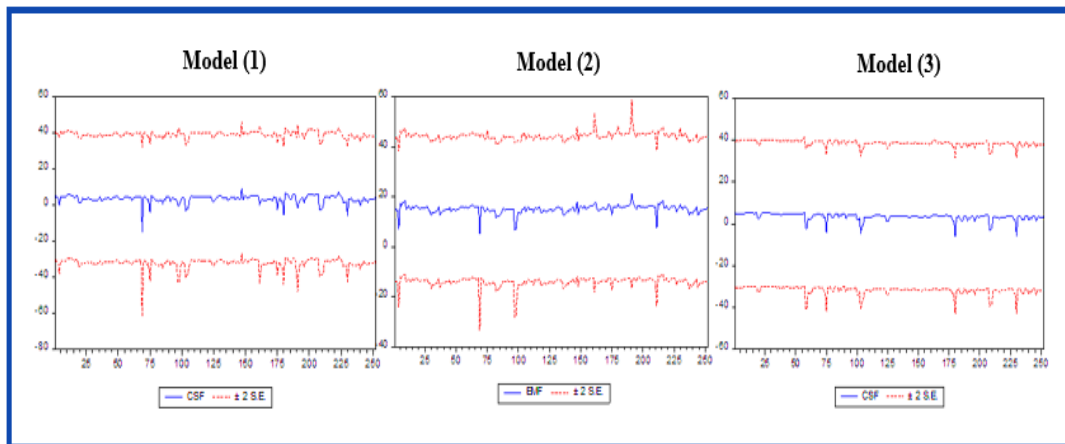
From the previous table it is concluded that:

- The overall fixed effect model is significant with adjusted R-squared value of 95.94% which means that the significant independent variable and the controlling variables explain the change in the *CS* by 95.94%.
- All the independent variables and the controlling variables have significant impact on *CS* except the constant should be dropped from the equation as its p-value is 0.6158 which is greater than 0.05.
- All the variables used in this model, earnings management, Tobin's Q ratio and firm size have a significant negative relationship with the capital structure of the firm.
- The overall equation for forecasting the *CS* is:

$$CS_{it} = -0.00354632 EM_{it} - 0.0611050 TQ_{it} - 0.103017 FS_{it}$$

The following charts presents the forecasting of the capital structure and earning management in the three models for the entire time series period from 2013 till 2019 for the 65 cross section company of sample.

Figure (2): The Forecasting Charts of the Three Linear Panel Models



Source: E-views software.

Table (5) summarizes the results of the three linear panel regression models and their hypotheses.

Table (5): Summary of the Results of the Three Linear Panel Regression Models and their Hypotheses

Variable	Model					
	First		Second		Third	
	Type	Significance	Type	Significance	Type	Significance
OE	Independent	Significant	Independent	Significant		
ROA	Independent	Significant	Independent	Significant		
ROE	Independent	Significant	Independent	Significant		
GPM	Independent	Significant	Independent	Significant		
CR	Independent	Significant	Independent	Significant		
AT	Independent	Significant	Independent	Significant		
IT	Independent	Significant	Independent	Significant		
TQ	Controlling	Significant	Controlling	Significant	Controlling	Significant
FS	Controlling	Significant	Controlling	Significant	Controlling	Significant
EM			Dependent		Independent	Significant
CS	Dependent				Dependent	
Overall Hypothesis	Accept the hypothesis		Accept the hypothesis		Accept the hypothesis	
	Significant Relationship exists		Significant Relationship exists		Significant Relationship exists	
Sub Hypothesis	Accept H ₁ : Operating efficiency has significant impact on capital structure.		Accept H ₄ : Operating efficiency has significant impact on Earning Management.		Accept H ₇ : Earning Management has significant impact on capital structure.	
	Accept H ₂ : Profitability has significant impact on capital structure.		Accept H ₅ : Operating efficiency has significant impact on Earning Management.			
	Accept H ₃ : Liquidity has significant impact on capital structure.		Accept H ₆ : Operating efficiency has significant impact on Earning Management.			

Source: Prepared by the researcher.

Conclusion

This research examines the impact of operational efficiency and financial performance in terms of profitability and liquidity on capital structure using earnings management as a moderating variable in the Egyptian listed companies. Using a research sample of 65 non-financial listed firms during the period 2013-2019, we run a three multiple regression models to test the impact of operational efficiency, ROA, ROE, gross profit margin, current ratio, asset turnover, inventory turnover, Tobin's Q ratio and firm size on capital structure using the earnings management as a moderator variable. Consistent with some of previous literature, we found that ROE, gross profit margin and firm size have a positive significant impact on company' capital structure, while operational efficiency, ROA, Tobin's Q ratio and all liquidity ratios used in the first regression model (current ratio, asset turnover and inventory turnover) have a significant negative relationship with capital structure. Moreover, findings indicate that the firm' operational efficiency, gross profit margin and Tobin's Q ratio have a positive significant impact on company' earnings management, while ROA, ROE and all liquidity ratios used in the second regression model (current ratio, asset turnover and inventory turnover) have a significant negative relationship with earnings management. Finally, the statistical results shows that all the variables used in the third regression model namely, earnings management, Tobin's Q ratio and firm size have a significant negative relationship with the capital structure of the firm.

References

1. Abor, J., (2005). "The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana". *The Journal of Risk Finance*, 6(5), 438-445.
2. Ahmadi, M.M. (2015). "Relationship between restrictions on financing, financing decisions and risk of free cash flow with a variety of earnings management". Accounting master's thesis, University of Semnan.
3. Ajay, R. and Madhumathi,R., "Do corporate diversification and earnings management practices affect capital structure?". *Journal of Indian Business Research*, 7 (4), 360-378.
4. Akdal, S. (2011). "How do firm characteristics affect capital structure? Some UK Evidence", available at: <http://ssrn.com/abstract=1775706> (1 February 2012).
5. Alamro, S. H., Almajali, Y. A., and Al-Soub, Y. Z. (2012). "Factors affecting the financial performance of Jordanian insurance companies listed at Amman stock exchange". *Journal of Management Research*.
6. Albert Amponsah Addae, Michael Nyarko-Baasi and Daniel Hughes, (2013). "The effects of capital structure on profitability of listed firms in Ghana". *European Journal of Business and Management*, 5(31), 215.

7. Al-Halabi,N.B.and Al-Abbadi,H.I., (2014). "The impact of applying financial performance indicators on earnings management in manufacturing companies". *European Journal of Business and Management*, 6(24), 80-86.
8. Amat, O., (2004). "Creative accounting nature, incidence and ethical issues". *Journal of Economic Literature Classification*, 41(1), 1210-1245.
9. Arens. A., Elder, R., and Beasley M, (2014). "Auditing and assurance services" 14th ed., Pearson. Dubai- UAE.
10. Brealey, R.A., S.C. Myers and A.J. Marcus, (2009). "Fundamentals of corporate finance". Mc GrawHill/Irwin, 6, 440-463.
11. Chi, W., Listic, L., and Perzner, M., (2011). "Is enhanced audit quality associated with greater real earnings management?". *Accounting Horizons*, 25(2), 315-335.
12. Ehrhardt, M. C., and Brigham, E. F. (2009). "Corporate Finance: A focused approach". Cengage Learning Inc.
13. Ghosh, S. and Sanyal, B. (2019). "Determinants of operating efficiency of commercial banks in India: Insights from panel regression model". Das, R.C. (Ed.), the impacts of monetary policy in the 21st Century: Perspectives from Emerging Economies, Emerald Publishing Limited, 253-263.
14. Gombolaa, M., Yueh-Fang, H.A., Huangb, C. (2016). "The effect of leverage and liquidity on earnings and capital management: Evidence from U.S. commercial banks". *International Review of Economics and Finance*, 43(1), 35-58.
15. Gopalan, R., Jayaraman, S., (2012). "Private control benefits and earnings management: evidence from insider-controlled firms". *Journal of Accounting Research* 50, 117-157.
16. Greiner, A., Kohlbeck, M., and Smith, T., (2013). "Do auditors perceive real earnings management as a business risk?". Working Paper, Florida, Atlantic University, UAS.
17. Hapsah S. Mohammad, Imbarine Bujang and Taufik Abd Hakim (2019). "Capital structure and financial performance of Malaysian construction firms". *Asian Economic and Financial Review*, 9(12): 1306-1319.
18. Haron, R., (2014). "Capital structure inconclusiveness: evidence from Malaysia, Thailand and Singapore". *International Journal of Managerial Finance*, 10(1), 23-38.
19. Harvey, C.R., Lins, K.V., Roper, A.H., (2004). "The effect of capital structure when expected agency costs are extreme". *Journal of Financial Economics*, 74, 3-30.
20. Jimba Kareem, (2019). "Effect of capital structure on the performance of quoted manufacturing firms in Sub-Saharan Africa". A Thesis submitted in partial fulfilment of the requirements for the award of Doctor Philosophy Degree in finance to the department of accounting and finance, Kwara State University, Malete, Nigeria.
21. Kalluru, S., and Bhat, K. (2009). "Determinants of cost efficiency of commercial banks in India". *ICFA Journal of Bank Management*, 8(2), 32-50.

22. Kudzai Raymond Marandu and Athenia Bongani Sibindi (2016). "Capital structure and profitability: An empirical study of South African banks". *Corporate Ownership and Control*, 14(1), 8-19.
23. Lipson, M. L. Mortal, S. (2009), "Liquidity and capital structure". *Journal of Financial Markets*, 12(4), 611-644.
24. Moghaddam,A. and Abbaspour,N., (2017). "The effect of leverage and liquidity ratios on earnings management and capital of banks listed on the Tehran stock exchange". *International Review of Management and Marketing*, 7(4), 99-107.
25. Mohammed Musah, Yusheng Kong, Isaac Adjei Mensah (2019). "Exploring the link between operational Efficiency and firms' financial performance: An empirical evidence from the Ghana stock exchange (GSE)". *International Journal of Trend in Scientific Research and Development (IJTSRD)*, 3(4), 842-848.
26. Naser, K., and Mokhtar, M. (2004). "Determinants of corporate performance of Malaysian companies". Fourth Asia Pacific Interdisciplinary Research in Accounting Conference, Singapore, 1(1), 16-25.
27. Nataša Šarlija and Martina Harc, (2012). "The impact of liquidity on the capital structure: a case study of Croatian firms". *Business Systems Research*, 3(1), 30-36.
28. Ndolo, P. S. (2015). "The relationship between operational efficiency and financial performance of firms listed at the Nairobi Securities Exchange". A Research Project Presented in Partial Fulfillment of The Requirements for the Award of the Degree of Master of Science Finance, School of Business, University of Nairobi.
29. Neil, K. (2019). "What is the meaning of operational efficiency?" available at: <https://smallbusiness.chron.com/meaning-operational-efficiency-67982.html>.
30. Nirajini, A. and K. Priya, (2013). "Impact of capital structure on financial performance of the listed trading companies in Sri Lanka". *International Journal of Scientific and Research Publications*, 3(5), 1-9.
31. Purnama,I. and Nurdiniah, D. (2018). "Profitability, firm size, and earnings management: the moderating effect of managerial ownership". *Advances in Economics, Business and Management Research*, 73, 41-46.
32. Ranjan, K. M., & Bishnu, K. A. (2017). "Determinants of financial performance: Empirical evidence from the textile sector in Bangladesh". *Journal of Accounting and Finance*, 17(8), 110-120.
33. Rao, N.V., Mohamed, A.Y.K., Syed, L.A.M. (2007). "Capital structure and financial performance: Evidence from Oman". *Indian Journal of Economics and Business*, 6(1), 1-14.
34. Rosner, R. (2003). "Earnings management in failing firms contemporary", *Accounting Research Journal*, 20(2), 361-408.
35. Ross, S.A., R.W. Westerfield and B.D. Jordan, (2001). "Essentials of corporate finance". 3rd Edn., New York: McGraw-Hill.

36. Sibilkov, V. (2007). "Asset liquidity and capital structure", available at: <https://pantherfile.uwm.edu/sibilkov/www/liquidity.pdf> (1 February 2012).
37. Sibilkov, V. (2009). "Asset liquidity and capital structure". *Journal of Financial and Quantitative Analysis*, 44(5), 1173-1196.
38. Talebniya, G.H., Ravanshad, M. (2011). "Earning management and capital structure". *Financial knowledge of security analysis. Financial Studies*, 3(8), 103-118.
39. Tanjitprom, N., (2013). "The role of corporate governance in reducing the negative effect of earnings management". *International Journal of Economics and Finance*, 5(3).
40. Vangie, B. (2019). "Operational efficiency", available at: https://www.webopedia.com/TERM/O/operational_efficiency.html
41. Warrad, L., and Rania, A. O. (2015). "The impact of turnover ratios on Jordanian services sectors' performance". *Journal of Modern Accounting and Auditing*, 11(2), 77-85.
42. Zamri, N., Rahman, R.A., Isa, N.S.M. (2013). "The impact of leverage on real earnings management". *Procedia Economic and Finance*, 7, 86-95.
43. Zengin, Y., Ozkan, S. (2010). "Audit quality and earnings management in interim financial reports". Available from: <http://www.SSRN.com>.
44. Zhe An, Donghui Li, Jin Yu (2016). "Earnings management, capital structure, and the role of institutional environments". *Journal of Banking & Finance*, 68, 131-152.