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Determinants of Shareholders' Value Creation in the Listed Egyptian Commercial Banks (2012-2021)

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Abstract **Purpose:** The Egyptian Commercial banking sector is considered crucial for Egyptian economic growth through providing sources of finance for various sector either being public or private. Additionally, creating shareholder value is the main goal for any business. Accordingly, this paper will empirically address main determinants of shareholder value creation in the Egyptian commercial listed banks in terms of bank-specific, industry-specific and macroeconomic factors. **Research methodology:** The study is quantitative in nature and relies on descriptive analytical approach to analyze the gathered data. It used balanced panel data of 100 observations for 10 Egyptian commercial banks listed on Egyptian Stock Exchange during (2012 – 2021), and the data was analyzed using Generalized Least Square (GLS) method of estimation where fixed and random effect was estimated while Hausman test revealed that random effect model is more reliable. **Main Findings:** The analysis of the study revealed that the model is significant at 1% level of significance and the independent variables of the study explained around 66% of the variations in the shareholders' value created of listed Egyptian commercial banks. Additionally, the analysis suggests that five of the independent variables of the study including Bank efficiency, income diversification, level of capitalization, Credit risk, and liquidity risk are strongly significant in determining the shareholders' value creation of listed Egyptian commercial banks while the remaining five independent variables including deposits growth rate, loans growth rate, bank concentration, GDP growth, and inflation are moderately significant. **Implications:** Banks' management should give attention to determinants that have strong effect on their stock price especially enhancing profit efficiency through comprehensive strategy to work on different areas in the bank to maximize received income and minimize cost, in addition to adopting strong credit management policies with proactive practices for any detected deterioration in loan portfolio and determine required level of capital for these risks to avoid bankruptcy. Also, given importance of commercial banks for economic growth, government and regulatory bodies (i.e., CBE) should support these banks through incentives especially during economic shocks to minimize their negative effects on performance of banks and their market value. **Limitations and Future Work:** The study used Market Value Added which requires banks to be listed and in turn small population and sample size for 12 and 10 banks simultaneously, while further studies can rely on other measures, such as Economic Value Added, that don't require banks to be listed to be able to include all Egyptian banks and increase sample size. Accordingly, sensitivity analysis can be conducted to assess effect of devaluation for Egyptian pound. Moreover, Environmental, Social and Governance factors weren't taken into consideration due to unavailability of ESG scores in Egyptian banking sector, however; following its availability future studies can include ESG factors to assess its effect on shareholders' value created.

Keywords: *Shareholder value creation, Market Value Added, Egyptian banks, Globalization.*

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1. Introduction

During the last few decades, the approach of shareholder value has significantly shaped the way of business decisions. In fact, shareholder value has become the dominant indicator for companies' performance, and maximizing shareholder value represents the ultimate directive for managerial decisions in all industries and in banking industry particularly.

Banks play an important role in the economic development of a country; their performance determines the pace of economic development. Accordingly, it is crucial to help banking sector to grow and maintain confidence of their shareholders. Banks' management should rely on enhancing the long-term financial performance and create value for the shareholders.

This is particularly relevant for the Egyptian banking sector which plays an important role in the financial system and economic growth of the country. The Egyptian banking system engages in the money transactions including accepting deposits from the customers and lending them to the needy ones in the form of loans. It is also considered a major source of finance for public and private investments. This is evidenced by growth of total deposits at banks reaching EGP 5,178 Bn in Jun. 2021 as opposed to EGP 3,028 Bn in Jun. 2017 with a growth rate of 71%. Similarly, credit increased by 75% during the same period to reach EGP 2,493 Bn in Jun. 2021 as opposed to EGP 1,426 Bn in Jun. 2017. Based on that, the flourishing of the banking sector is necessary for macroeconomic stability and growth.

The Egyptian banking sector is considered one of the most regulated sectors in Egypt through Central Bank of Egypt to ensure its stability given its importance for the economic development. Previously, there were barriers of competition and existence of inefficient banks, However, the CBE carried a reform program during (2004 – 2012) to ensure stability of financial intermediaries in a competitive environment, by containing the level of risk underwritten. The reform program allowed to achieve several benefits including: financial stability, competitiveness, better allocation of financial resources to different segments of the economy (i.e., mainly to small and medium enterprises) along with higher protection of savers and investors [21].

Shareholder value is created when the returns generated for an investment exceed the cost of capital invested over time. Creation of value for shareholders will be reflected in growing periodic total return which are measured by the combination of dividends and capital gains achieved. Such value created should be compared to overall market returns or the returns achieved by competitors. The shareholder value is considered as the concept for the corporate success and it is linked to the basis of economic value [53].

Banks' executives and investors have relied on traditional performance measures including earnings per share growth, return on equity, balance sheet growth, market capitalization, and the efficiency ratio to assess whether bank performed well for its shareholders or not. However, these performance measures failed to assess if the bank management was able to increase value of shareholders invested capital and by how much? Moreover, they mentioned that maximizing shareholders' wealth totally differs from maximizing the total market value of a company. The total market value of a company can be increased either by increasing the market value of each invested dollar or by increasing the invested capital. While increasing shareholders value will be achieved by increasing spread between capital market value and invested capital which is called Market Value Added (MVA). MVA is an indicator to net present value for forecasted cash flow of a firm. Based on that, the management's success to create shareholder value can be measured by maximizing MVA [94].

Despite performance evaluation methods are usually used for manufacturing industries easily [11] [26], they are considered difficult to be measured in service sector such as the banking field [81].

Criticism to shareholder value creation have increased and those opponents said that management should not rely only on maximizing shareholder wealth (i.e., increasing paid dividends and ensure higher stock prices) even if the shareholders are the risk-takers. They called for stakeholder approach which include shareholders, suppliers, customers, employees, lenders, government, public opinion, and other groups especially related to Environmental, Social and Governance (ESG) issues [85].

The changing business environment along with its associated risks has changed the way of how companies create value. Societal changes and trends including COVID-19, climate change, energy transition, social inequality, changing demographics, changing consumer behavior, and more attention for environmental issues. Accordingly, sources of value creation are shifting to stakeholders' perspective which is a long-term value creation for both shareholders and other relevant stakeholders (i.e., Environment, employees, consumers, etc.) rather than shareholders' perspective which is a short-term value creation for shareholders only. Group of U.S. business leaders in 2019 confirmed their commitment to all stakeholders including environment to achieve success for their companies, communities and country [43].

Following to stakeholders' perspective of value creation, top management of companies will need to identify future societal trends that can affect the long-term competitive advantages of their business then to draw long-term vision to reshape their business for these future changes & disruptions [63].

1.1.Research Gap

The extensive review of literature undertaken in the field of shareholder value creation in the banking sector and its main determinants revealed that empirical studies on shareholder value of banks are limited in general and scarce for the Egyptian Commercial banks. Therefore, the current study will investigate the main determinants of shareholders' value creation for listed Egyptian Commercial Banks.

1.2.Research Objective

The study aims first to define the main determinants of shareholders' value creation in Egyptian banking sector, then to measure and assess the impact of value drivers on shareholder value. The study incorporated quantitative drivers of shareholder value of commercial banks without taking into consideration the qualitative factors. More focus was given to internal drivers, since these drivers are specific to the individual bank and can be influenced by bank management, while the external value drivers (i.e., industry factors and macroeconomic factors) will be limited to major variables in our analysis. Accordingly, the study objectives can be summarized as follows:

- To empirically analyze and interpret the impact of bank specific factors of listed Egyptian commercial banks and shareholder value creation.
- To examine effect of Industry factors on shareholder value creation of listed Egyptian commercial banks.

- To examine effect of macroeconomic factors on shareholder value creation of listed Egyptian commercial banks.

1.3.Research Questions

The study has been planned and conducted to find the answer to the following research questions:

- What are the major determinants of shareholders' value creation for listed Egyptian commercial banks
- To what extent does bank efficiency affect shareholders' value of listed Egyptian commercial banks?
- To what extent does income diversification between interest-based income and fees-based income affect shareholders' value of listed Egyptian commercial banks?
- To what extent does deposits growth affect shareholders' value of listed Egyptian commercial banks?
- To what extent does loans growth affect shareholders' value of listed Egyptian commercial banks?
- To what extent does bank level of capitalization affect shareholders' value of listed Egyptian commercial banks?
- To what extent does level of credit risk affect shareholders' value of listed Egyptian commercial banks?
- To what extent does level of liquidity risk affect shareholders' value of listed Egyptian commercial banks?
- To what extent does concentration of banking industry affect shareholders' value of listed Egyptian commercial banks?
- To what extent does macroeconomic factors affect shareholders' value of listed Egyptian commercial banks?

1.4.Research Significance

The study is important from both academic and practical perspectives owing to the importance of shareholder value creation in banking sector and the contribution of this sector in economic growth of a country. This study addresses drivers of shareholders' value creation in banking sector of Egypt. This research is significant to different stakeholders of banking sector in following ways:

- The study shall be significant to the management of operating banks in Egypt, as it will provide a strong conceptual foundation for deeper understanding of the factors that lead to shareholder value creation in banking sector.
- Study has major implications for the banking and business organizations in analyzing the conceptual impact of drivers for shareholder value creation that would help them to align their practices in order to improve the created shareholder value.
- It will be useful to the organization in designing their value creation strategies and aligning them with the overall corporate strategy in order to enhance the value creation.
- It shall be equally important to bank investors, as it can help in designing a measure for evaluating the competitive strengths and weaknesses of investment alternatives.
- It will benefit all stakeholders of banking sector emphasizing the essence of enhancing and improving the value creation matrix.

The remainder of the paper is organized as follows. Section 2 presents literature review. Section 3 illustrates the methodology and the sample used. Section 4 presents the empirical findings and Section 5 concludes the paper and provides recommendations for future studies.

2. Literature Review

Studies addressed determinants of shareholders' value in the banking sector can be split into two main categories: a) studies that addressed several determinants of shareholders' value, and b) studies that focused on effect of certain determinant of shareholders' value.

Reference [45] investigated the impact of internal & quantitative value drivers on the creation of shareholder value of banks using a sample of 139 retail banks during (1998 – 2003). The study identified four value drivers represented in a) business mix, b) branch structure, c) cost efficiency, and d) risk capabilities. The result of the study confirmed that there is strong evidence for the cost efficiency and risk capabilities as drivers for banks' shareholder value. For the business mix and the branch structure, results are ambiguous.

Reference [32] carried study to assess impact of cost efficiency, income diversification, growth of total loans, and funding costs on bank profitability in Switzerland. The study relied on 372 commercial banks during (1999 – 2009) and that period was separated into the pre-crisis period (1999 – 2006) and the crisis years (2007-2009). The finding of the study revealed that income diversification and cost efficiency enhance bank profitability before and during crisis periods. Moreover, credit risk taking is negative and significant on the profitability only in the crisis period.

Reference [24] assessed effect of several factors on bank financial distress, such factors include: a) Bank level (liquidity and credit risks, asset size, income diversification and market power), b) Industry level (banking concentration) and c) Macro-level (real GDP growth) using an unbalanced panel of 308 European commercial banks between 1996 and 2009. The results showed that credit risk, liquidity risk and bank market power are the most influential determinants of distressed Shareholder Value Ratio. Moreover, increasing degree of income diversification significantly decrease probability of bank distress.

Reference [39] assessed the determinants of shareholder value creation through bank-specific variables (i.e. cost and revenue efficiency changes, income diversification, adjusted deposit and loan growth rates, operational risk exposure, credit risk losses, market risk exposure, liquidity risk exposure, financial leverage, bank asset size),

industry-specific variables (i.e. domestic banking industry concentration) and macroeconomic variables (i.e. GDP per-capita) for a large sample of European banks between 1998 and 2005. The results showed that shareholder value has a positive relationship with cost efficiency changes, while economic profits are linked to revenue efficiency changes. Credit losses, market and liquidity risk and leverage are also significant for bank performance.

Reference [79] extended study of [39] through investigating determinants of shareholder value in Japanese banking sector using sample of banks during (1999-2011). The study included bank-specific factors such as shareholder value efficiency, revenue, cost, and profit efficiencies, credit risk, liquidity risk, market risk, income diversification, and bank size, along with macroeconomic variables such as GDP growth and inflation. The findings revealed that a) cost efficiency gains, credit risk and bank size are the major determinants of shareholder value creation in Japanese banking sector, b) cost efficiency, credit risk and macroeconomic variables have positive effect on shareholder value creation. While bank size, income diversification and revenue efficiency have negative effect on shareholder value creation, and c) cost efficiency has significant effect on cost of equity.

Reference [3] assessed the performance of retail banking in terms of link between shareholder value creation and operational value drivers in Greek commercial banks during (2006-2010). The study incorporated the effects of the Greek crisis primarily characterized by the sovereign debt factor. The results showed that the specific diversification and increasing lending spread has significant & positive relation with creation of value, however it doesn't hold during crisis period. Moreover, increasing credit risk & inefficient cost management significantly destroys value.

2.1. Bank Efficiency

Efficiency is the comparison between achieved and optimum values of a bank's inputs and outputs [40]. Given that banks act as financial intermediaries, they transform inputs (i.e., labor, physical capital, deposits, and financial capital) into earning assets. Inputs can be measured by wages, physical capital expenses, provisions for doubtful loans, and interest expenses. Output can be measured in terms of the annual increase in average total assets and either the total income from interest and non-interest activities (X-e fficiency) or profits (P [23].

The majority of the studies found that efficiency indicators appropriately explain variations in stock returns including [23] in Singapore, [41] in Asia-Pacific economies, [9] in Saudi Arabia, [66] in China, [89] in Gulf Cooperation Council (GCC) countries, [60] in Australia, [56] in Asian and Latin American countries, [16] in European countries, [65] in 15 EU countries, [48] in Indonesia, [59] in Turkey, [92] in Malaysia, [67] in China. On the contrary, other studies including [37] in Istanbul, found that changes in the economic efficiency have insignificant relation with stock price return movements.

Reference [23] assessed share performance in relation to cost efficiency and pro fit efficiency using data envelopment analysis (DEA) tool for six banks in Singapore during (1992 - 1996). The result of the study found that there's insignificant correlation between share performance and cost efficiency and significant relation between share performance and profit efficiency indicating overreaction from market to changes in profit e ficies. Result revealed a conclusion that shareholders are interested in dividends which are distributed from profits and not income.

Reference [41] addressed the relationship between shareholder value and efficiency for 14 Asia-Pacific economies during (2003 – 2010), it was unbalanced panel sample comprising 688 commercial banks and 3901 observations. Shareholder value is measured by Tobin's Q and EVA while cost and profit efficiency levels are estimated using the parametric stochastic frontier approach (SFA). The result indicated that shareholder value is positively linked to both cost and profit efficiency using Tobin's Q as an indicator of shareholder value. However, Tobin's Q is found to be positively correlated by 1-year lagged profit efficiency improvements and 2- and 3-year lagged cost efficiency benefits indicating that enhancements in cost efficiency takes more time to affect shareholder value. EVA as a measure of shareholder value showed same results as Tobin's Q with exception to negative correlation with the 1-year lagged cost efficiency changes.

Reference [59] addressed relation between bank efficiency and its stock performance for 13 listed commercial banks in the Turkish stock exchange during (1998-2008) using three measures of bank efficiency such as technical efficiency, scale efficiency and total productive efficiency through data envelopment analysis (DEA) and Malmquist TFP index approach. The result revealed that there is positive and significant relationship between efficiency and stock returns for the three measures of efficiency.

Reference [92] addressed the relationship between bank efficiency and performance of stock returns for nine Malaysian listed banks in Kuala Lumpur Stock Exchange during (2002–2003) using Data Envelopment Analysis. The result revealed that both cost and profit efficiencies are positively linked to stock prices. In addition, stock prices react more to improvements in profit efficiency than to improvements in cost efficiency.

H01: There is no correlation between profit efficiency and shareholders value creation

H1: There is positive correlation between profit efficiency and shareholders value creation

2.2. Income Diversification

Banks should choose the optimum activity mix that maximize shareholder value. There are two major approaches for banks either to rely on core business operation or diversify bank services and source of income. Core banking operation is reflected in interest spread between interest income and interest expense; however, income diversification includes services that generate fees either through introduction of new services and/or the development of internet-based banking services. Efficient allocation of banking activities will diversify bank

risk, so banks should diversify their activities till reaching optimal risk-return combination that maximize shareholder value [40].

Financial market for traditional lending activities is very competitive which lead banks to earn low interest margin. Accordingly, banks went for income diversification to benefit from economies of scale in the production, marketing, securitization, and servicing of consumer loans [28] [29].

There are several motives for income diversification as presented in previous studies:

- It reduces insolvency risk that might lead to financial distress [84]
- It enhances banks' operational efficiency and profitability [80]
- It reduces risk and boost operating revenue through reducing revenue volatility resulting from macroeconomic fluctuations. However, adopting income diversification strategy beyond a certain point will be inefficient, as it will decrease bank profits [84]
- It can create value for stakeholders [84]
- It allows to meet needs of different customers that enhance customer base which is important for a competitive environment [64]
- Activities generating non-interest income are considered less capital intensive with low startup cost. Based on that, it is considered low-cost strategy to enhance banks' income [87].

On the other side, there are several causes explained why diversification wasn't beneficial:

- Reference [30] suggested three reasons why non-interest income may increase volatility of bank earnings:

  First, generating interest income from lending process rely on customer relationships and in turn has high switching cost. On the other side, Fee-based income has low switching cost as it is not based on customer relationship. Accordingly, interest income from traditional activities will be less volatile compared to fee-based activities given high switching cost for traditional activities.

  Second, fee-based activities are more operating leverage compared to traditional activities that make bank earnings more vulnerable to declines in bank revenues. This is backed to the reason that the main input of the former is staff which is a fixed cost while that of the latter is interest expenses which is a variable cost.

  Finally, most fee-based activities like trust services, mutual fund sales, and cash management are subject to little or no required capital unlike traditional activities like portfolio lending which requires high level of capital. Accordingly, fee-based activities will employ greater financial leverage and higher risk than lending activities.
- According to the portfolio theory, banks could enhance its performance through income diversification to benefit from economies of scope. However, these sources of income should be uncorrelated to avoid profit volatility. Reference [91] concluded that high correlation between interest income and non-interest income may be backed to cross-selling of different activities to the same client.
- Unfortunately, some banks expand in non-interest activities with higher associated risks compared to traditional income sources which lead benefits of diversification to be offset by its costs and expose banks to higher level of risk and instability [18] [74] that's why it is called ''the dark side" of diversification [91].

Unfortunately, literature studies addressing effect of income diversification on shareholder value in banking sector are very limited. Most studies carried on income diversification assessed either its effect on banks' profitability or banks' level of risk.

Empirically, despite there's no consensus on the impact of income diversification on the bank profitability and risk, most studies carried on developing and emerging countries concluded that income diversification will enhance bank performance through higher profitability since margins in fee income are usually higher than margins in interest operations. Additionally, it reduces risk given that fee income has no credit risk which reduces capital charges which is required for operational risk only.

Reference [84] addressed effect of income diversification on bank performance and risk using sample of 226 listed banks from 11 emerging economies during (2000 -2007). The result revealed that diversification within and across both interest and non-interest income activities will boost bank profitability and reduce insolvency risk especially for banks with moderate risk exposures.

Reference [47] investigated the effect of income diversification on risk-adjusted bank performance for 26 Turkish banks during (2005-2011). The result revealed that there is a positive relationship between income diversification and risk-adjusted return on assets and equity which may be due to increasing bank income or reducing operating costs of the bank from diversifying operations. Since non-interest income are not perfectly correlated with net interest income, an increase in income diversification lowers the variations in operating income. Such result is interpreted to fact that the degree of income diversification in Turkish deposit banks is not high enough and in turn it didn't reach its peak yet.

Reference [19] addressed effect of income diversification on bank performance in terms of profitability for 14 Turkish banks during (2010-2017) and found that revenue diversification has a positive effect on bank performance in terms of ROA.

Reference [87] investigated the impact of income diversification on bank performance for 169 banks from BRICS countries during (2001-2015). The result revealed that there is positive relationship between income diversification and bank performance in terms of bank risk and returns for medium and large size banks only while the relationship is negative for small banks.

Reference [76] investigated effect of income diversification on bank performance in terms of profitability for 13 Jordanian commercial banks during (2009-2017). The result revealed that income diversification has positive effect on bank profitability in

terms of ROA while it negatively affected net interest margin to be increased.

Reference [8] studied effect of the income diversification on bank performance along with mediating ownership structure for 10 listed Tunisian banks on Tunis Stock Exchange (BVMT) during (2008–2017) and found that increasing income diversification enhance bank performance in terms of increasing profitability, market value of the bank and level of risk, however the increased exposure to volatile non-interest income will offset the benefits of income diversification.

Reference [10] studied effect of income diversification on bank performance in terms of profitability and risk for 275 banks from fourteen MENA countries during (1990–2011) and found that income diversification positively affects bank profitability, however increasing income diversification toward and within non-interest income will worsen bank insolvency risk and in turn its stability. The study also assessed the effect for components of non-interest income on bank performance and found that the trading revenue, including foreign exchange, private securities or financial futures/options and contracts, is the most component contributing to enhance bank performance other components like commissions, fees and other non-interest income activities, increases level of insolvency risk.

Reference [72] carried a study to assess effect of income diversification on banks performance in terms of stock return, profitability and risk for 10 listed Tunisian banks during (1997-2006) and found the following:

- Using RAWR as measure of market return and HHI as measure of diversification, the share return is higher for banks have diversified activities between interest and non-interest income compared to those concentrating on conventional activities. However, relying on ratio of net-interest income to net operating income as a measure of diversification revealed negative and significant effect on market return and much diversification in favor of higher non-interest income will decrease market profitability and increase systematic risk.
- Using Q-Tobin as measure of market return and HHI as measure of diversification, the effect was insignificant with decline in market return with increasing diversification. Relying on ratio of net-interest income to net operating income as a measure of diversification revealed insignificant effect. Also, using loan to assets ratio as a measure of diversification revealed positive and significant relation indicating that the market expects lower return for more diversified banks.
- Using market Beta as a measure of market risk and HHI as measure of diversification, the effect was positive and significant indicating that higher level of diversification will lead to higher levels of economy-wide shocks or market risk because of their reliance on investment banking. On the contrary, income diversification has insignificant effect on specific risk and total risk.
- Using ROA and interest margin as a profitability measure, indicated that banks with less diversification have higher levels of ROA and interest margin than those with higher level of income diversification.

Reference [1] addressed effect of diversification on bank stability for 107 listed and unlisted banks of Gulf Cooperation Council (GCC) countries banking system during (2001-2014) and found that income and asset diversification using both accounting and market-based measures did not support bank stability in the GCC region based on the following conclusions:

- Income diversification has negative effect on bank solvency risk and credit risk
- There is positive and significant relationship between bank asset size and Z-score revealing that larger banks have lower solvency and credit risk. However, fast asset growth will lead to higher NPL and in turn credit risk which is backed from reducing the screening process of lenders. However, relying on market-based measures, bank size has negative and significant effect on bank stability indicating that larger banks are less stable and have higher probability to default given that they are subject to higher price volatility compared to their expected return.

H02: There is no correlation between income diversification and shareholders value creation
Ha2: There is positive correlation between income diversification and shareholders value creation

2.3. Deposits and Loans Growth

Reference [1] addressed effect of both loan to total assets ratio and deposits to total assets ratio on bank stability for 107 listed and unlisted banks of Gulf Cooperation Council (GCC) and found that there is positive relation for loan to total asset ratio using accounting measure revealing that a higher proportion of loans on the balance sheet results in higher solvency risk, less stability and more NPL but the result of market-based measure didn't affect bank stability which is inconsistent with result of accounting measure. Deposits to total assets ratio has negative effect on bank stability risk using both accounting and market-based measures indicating that higher proportion of deposits on the balance sheet reduce credit risk and increase bank solvency.

Reference [19] investigated the effect of deposits to total assets on bank performance for 14 Turkish banks and found that there is negative effect for deposits to total assets on banks' profitability.

Reference [10] assessed effect of the deposits to total assets ratio on bank performance for MENA banks and found that it has positive effect. Such result indicates that increasing deposits ratio to total assets will increase access to less expensive source of capital which increase banks' stability (i.e., lower insolvency risk) and guarantee the sustainability of their revenues.

Reference [84] addressed effect of loan to total assets ratio on bank performance for 226 banks in 11 emerging economies and found that increasing loans to assets ratio has positive effect on banks' profitability.

Reference [58] addressed relation between bank loans and stock prices in Malaysia using Granger non-causality test relying on both monthly and quarterly data during

(1999-2009) and found that bank loans have no correlation with stock price.

Reference [55] assessed relation between bank loans and stock prices in Malaysia during (Q1-1978 to Q2-1997) and adopting a vector autoregressive framework consisting of six variables using (bank loans, stock price, real output, the price level, the interest rate, and the exchange rate) and found that bank loans have no effect on stock prices while stock prices have positive effect on bank loans. Actually, the decline of stock prices may lead bank's non-performing loans to increase and in turn contracting in lending activity. Moreover, GDP has positive effect on bank loans which is matching with standard investment theory which states that real GDP growth motivate investments and, accordingly, loan demand. Such conclusion reveals that sound banking system rely on stable stock market and real output growth.

Reference [98] addressed effect of changing bank loan portfolio on bank market value on quarterly basis using a sample of 352 bank holding companies during (Q3 1987 – Q4 2011) and found that in non-crisis period, growth of commercial loan portfolio has positive effect on stock price of banks with high than expected income level while it has negative effect on stock price of banks with low than expected earning level given that the market will convey the announcement of new loans by low performance banks as a way to hide future losses. On the other hand, in crisis period, announcement of loan portfolio growth will have no effect on banks' market valuation regardless of income level. Moreover, [98] found that announcement of new loans in large banks will not affect bank value however it affects small banks given that investors expect that these loans will be securitized by large banks and in turn will have no effect on market valuation while small banks don't have the option of securitization and in turn it affects market valuation. Finally, the study concluded that growth of loan portfolio is considered one of bank value drivers after controlling for income and credit risk.

H03: There is no correlation between deposits growth rate and shareholder value creation
Ha3: There is negative correlation between deposits growth rate and shareholder value creation

H04: There is no correlation between loans growth rate and shareholder value creation
Ha4: There is positive correlation between loans growth rate and shareholder value creation

2.4. Capitalization

Capital structure is the composition of debt and equity used to finance the bank's assets. There are usually difficulties in determining the optimal capital structure with a minimum weighted average cost of capital in order to maximize the organizational value. Since banks act as financial intermediaries, they rely more on debt and have higher financial leverage compared to non-financial companies [40]. There are 3 dimensions should be considered to reach for optimum capital structure which are economic risk, regulations, and practice. Banks should quantify their risk exposure to assess level of capital at risk. Then to compare capital at risk with level of capital required as per banking regulation "Basle Capital Accord" [27].

There are usually debate on level of capital to be maintained by banks, such debate is raised between numerous banking stakeholders (i.e., bankers, regulators, politicians, and academics). On one hand, regulators and academicians call for higher level of capital to enhance banks' ability to absorb any potential losses and prevent society from negative consequences of bank failures. The reduction of debt in capital mix will lead invested equity to be less risky and the risk premium required by shareholders will be lower that will lead cost of fund to decline. On the other hand, bankers argue that raising capital will increase cost of fund given that cost of equity is higher than cost of debt that will lead to higher cost of borrowing and in turn less credit. Accordingly, it will negatively affect growth in real economy and harm the society [17].

Empirical evidence on effect of capital structure on bank performance in terms of profitability, market value and level of associated risk is inconclusive. As presented below, there are two major point of views one of them support higher level of capital that reduces level of risk and in turn cost of equity which led to higher market value. And the other view support lower level of capital given that its cost is higher compared to cost of debt which represents deposits in case of banks.

Reference [19] investigated the effect of capitalization on bank performance for 14 Turkish banks and found that there is positive and significant effect of equity to total assets ratio on banks' profitability.

Reference [72] investigated the effect of capitalization on bank performance in terms of market return for 10 listed Tunisian banks and found that there is positive and significant relation indicating that well-capitalized banks have higher market values.

Reference [61] assessed key profitability drivers of banks along with effect of economic situation on net interest margins, non-interest income and loan loss provisions using sample of 534 banks from 19 emerging countries including Asia, Latin America, central and eastern Europe, South Africa and Israel during (2000-2014) and found that highly capitalized banks are more profitable given lower cost of fund backed from lower bankruptcy costs.

Reference [17] addressed effect of capital on cost of equity in banking sector using sample of listed banks from 62 countries during (1991-2017). The study found that contribution of capital to total assets has negative effect on banks' cost of equity for both developed and developing countries, a one percentage point increase in a bank's equity-to-assets ratio lowers its cost of equity by about 18 basis points. Increasing capital will have higher impact on cost of capital for banks with initial low level of capital. Moreover, sheer equity capital is the form of capital valued by investors while other form of capital is not valued by investors. The paper stated that increasing regulatory capital requirements will has little or no effect on borrowers given that its benefits in terms of financial stability may exceeds the costs.

Reference [84] addressed effect of capitalization on bank performance for 226 banks in 11 emerging

economies and found that such ratio has negative effect on banks' profitability given that equity is costly source of capital and bank shareholders may prefer less risky investment choices. Additionally, regulations related to capital adequacy may lead banks to decrease loans level that in turn will affect performance.

Reference [1] addressed effect of capital structure on bank stability for 107 listed and unlisted banks of Gulf Cooperation Council (GCC) countries banking system and found that highly capitalized (EQUITY) banks are less stable using market-based measure.

Reference [82] investigated impact of capital structure on performance of Pakistani bank during (2007-2011) for banks listed at Karachi stock exchange. Capital structure measured by total debt to equity ratio, short-term debt to equity ratio, and long-term debt to equity ratio while profitability measured by return on assets, return on equity and earnings per share. Result of study reveals that there is positive relation between capital structure and bank performance.

Reference [51] addressed effect of capitalization on bank performance using sample of 10 Tunisian banks during (1990-2013). The study used equity to total assets ratio as an index for capitalization and net interest margin as a proxy for bank performance. The result revealed that capitalization has significant negative effect on bank performance.

H05: There is no correlation between capital structure and shareholder value creation
Ha5: There is positive correlation between capital structure and shareholder value creation

2.5. Major Banking Risks

Banks are faced with various kinds of risks, including the possibility that debtors do not pay their loans (credit risk), withdrawing money suddenly by the customers (liquidity risk), changing interest rates (interest rate risk), and the operational activities of buying and selling securities that run slowly (operational risk) [20]. Banks often face distinct risks such as credit and liquidity risks, despite these risks may exist independently, in reality they are often dependent on each [49]. According to the classical financial intermediation theory, there exists a connection between credit and liquidity risks. When banks have a high level of liquidity, banks' managers will ease procedures of lending activities in order to increase loans volume [2]. And credit default will decrease cash inflow and increase depreciations in loan assets which in turn will increase liquidity risk [31].

2.5.1. Credit Risk

Credit risk is the probability that bank's borrowers become unable to meet their contractual obligations (i.e., loan or bond) that lead banks to face losses from lending activities [14]. The borrowers' inability to repay their obligations may be due to specific or general factors that affect the expected generated cash flow. The specific factors are related to the bank itself and in this case the credit risk can be managed through diversification of credit portfolio. On the other side, the general or economic factors are caused by the changes in the economy [71]. Reference [5] stated that banks will monitor regularly the lenders promptness for loans settlement and may ask for additional guarantee such as mortgage insurance. Based on that, cost of lending will be affected by borrowers' level of default risk.

Reference [49] mentioned that when banks have high credit risk reflected in high level of NPLs, most probably they will negatively affect the stability of the banking industry and the whole financial system. Accordingly, credit management is an art which requires appropriate policies to assess the amount of collateral required [52], and managing credit risk, particularly loan monitoring, is vital given its significant effect on banks' performance [15]. Moreover, banks' managers should learn from previous experiences how to detect, identify, and manage credit risk, along with determining the appropriate level of capital to mitigate these risks [14].

Most studies revealed that credit risk has negative effect on bank performance, and despite various measures used for credit risk, the most common measures are non-performing loans ratio and loan loss provisions ratio.

References [19] [72] [86] [49] [35] [5] [95] and [42] used non-performing loans ratio as credit risk proxy and found negative effect on bank performance either in terms of profitability, stability, or market value. References [97] and [83] used loan loss provision ratio as credit risk proxy and found negative effect on bank performance in terms of profitability. References [10] [12] and [73] used both ratios (i.e., non-performing loans ratio and loan loss provision ratio) and found negative effect by both ratios on bank performance in terms of profitability and shareholder value with exception to study of [73] which found negative effect for non-performing loans ratio and positive effect for loan loss provisions ratio on bank stock return revealing that investors perceive banks with higher loan loss provisions as more cautious banks for any future losses.

Other studies including [52] assessed effect of calculated credit risk in terms of loans after provisions for doubtful accounts to assets ratio and found positive effect on bank profitability. Moreover, [34] found positive effect of credit risk, operationalized in terms of return of industrial index, on bank profitability and volatility of bank's stock return.

H06: There is no correlation between credit risk and shareholder value creation
Ha6: There is negative correlation between credit risk and shareholder value creation

2.5.2. Liquidity Risk

Measuring and managing liquidity is considered one of the important responsibilities of commercial banks. It is the risk of inability to obtain funds to meet cash flow obligations. Based on that, it will include bank's ability to replace unexpected withdrawal of existing deposit along with compensation for uncollected funds (i.e., performing assets turning into Non-Performing Assets). Liquidity surplus and shortage are the causes behind decreasing and increasing the bank's liquidity risk. In other words, liquidity risk arises from mismatch between assets and liabilities maturities. Banks seek to reduce liquidity risk

by issuing long-term debts to increase their cash balance [69].

Liability Management Theory proposed that banks may raise debt to have sufficient liquidity to meet withdrawals of its depositors and loan demands [5]. Despite banks' insolvency may be backed to insufficient liquidity, however; maintaining liquidity has an opportunity cost of higher returns. Accordingly, liquidity and profitability are inversely related, while profitability and risk are directly related. Based on that, the dilemma in managing liquidity management is to find level of liquidity that will balance between liquidity risk and profitability [68].

The effect of liquidity risk on bank performance is unclear, some studies reveal that liquidity risk has positive effect on bank performance while other studies reveal that there is negative effect. Moreover, the operationalization of liquidity risk is very tricky. Some papers use liquidity ratio which is liquid assets to total assets ratio, liquidity ratio is the inverse of liquidity risk. High liquidity ratio means low liquidity risk and vice versa. Other papers use total loans to total deposits ratio to express liquidity ratio, high ratio of loans to deposits means high liquidity risk and vice versa.

Studies by [97] [5] [83] [49] [68] [95] [51] [7] and [42] concluded that increasing liquidity position has positive effect on bank performance. References [97] justified positive effect of high ratio of liquid assets on bank performance by maintaining banks' stability against liquidity shocks. Reference [5] used liquid assets ratio and reached for a positive effect on bank performance revealing that banks will face liquidity risk if they are not able to liquidate their assets at a fair value. In such case, their financial performance will be negatively affected given that they may borrow from the market at a high rate during liquidity squeeze. While the bank will be less exposed to risk if there are sufficient liquid assets. Reference [49] used total loans to total deposits ratio and stated that banks with insufficient liquidity will not be able to generate new lending activities that negatively affect revenue level and profitability.

On the other side, some studies revealed that increasing liquidity position will have negative effect on bank performance includes [86], in their study they mentioned that increasing ratio of total loans to deposits will generate higher profitability and in turn higher bank stability subject that higher lending activity was controlled with strong capital. Reference [68] found that liquidity in terms of liquid assets to current liabilities has insignificant effect on bank profitability while liquidity risk in terms of total loans to deposits ratio has significant negative effect on bank performance.

H07: There is no correlation between liquidity risk and shareholder value creation

Ha7: There is negative correlation between liquidity risk and shareholder value creation

Reference [19] investigated the effect of credit risk measured by non-performing loans ratio on bank performance for 14 Turkish banks and found that there is in significant effect for credit risk on banks' profitability.

Reference [10] assessed effect of credit risk in terms of non-performing loan ratio and loan loss provision ratio on bank performance for MENA banks. The result revealed that both ratios have negative slim effect indicating that MENA banks are o ffering loans customers with lower losses from their lending activities along with diminishing loan loss provision ratio indicating good quality for credit portfolio with less credit risk and more stability.

Reference [72] investigated the effect of credit risk on bank performance in terms of market return for 10 listed Tunisian banks and found that there is negative and significant relation indicating that banks with lower percentage of nonperforming loans will have higher market values.

Reference [15] addressed effect of credit risk on bank performance for MENA banking sector. The credit risk will be measured through loans and advances to total deposits ratio while bank performance is measured through ROA, ROE and net interest margin using sample of panel data from 135 MENA banks from 14 countries during (2015-2019) and found that credit risk has significant negative effect on bank performance. Based on that, the study directs the banks' managers to handle credit risk efficiently to enhance bank performance and shareholders value.

Reference [52] carried a comparative analysis for Egypt and Lebanon to address effect of credit risk and liquidity risk on bank performance in terms of ROE using sample of 105 banks out of which 62 Egyptian banks and 43 Lebanese banks during (1993 – 1999) and found that lending activities has positive and significant effect on bank profitability. This result indicates that increasing ratio of loans after provisions for doubtful accounts to assets (i.e., higher calculated risk) will generate higher ROE. Moreover, liquidity risk has insignificant effect on bank profitability.

Reference [34] investigated effect of credit risk on the bank performance in terms of profitability and stock return volatility for the Turkish banking sector using sample of weekly data during (18/1/2002-30/11/2015). Return of bank index and bank stocks indicates the performance of banking sector and banks respectively, return of industrial index is used as credit risk proxy, high return of industrial index reveals that companies are highly profitable which increases their debt repayment capacity and in turn lower bank's credit risk. The study found that credit risk has significant positive effect on bank profitability, and significant positive effect on volatility of banks stock return.

References [97] addressed effect of credit risk and liquidity risk on banks' profitability using 12 Palestinian banks during (2010 - 2020). The study employed ROA, ROE and net interest margin as profitability measures with loan loss provisions to total loans ratio as a credit risk indicator, and Liquid assets to assets ratio as a liquidity risk indicator. The result revealed that credit risk has significant negative effect on ROA and NIM with no effect on ROE, and lliquidity has significant positive effect on ROA and NIM with insignificant negative effect on ROE, this result indicate that high ratio of liquid assets reflects banks' stability against liquidity shocks.

Reference [86] investigated effect of credit risk and liquidity risk on bank stability and if there is a reciprocal relationship between credit and liquidity risks using

sample of 28 conventional Indonesian banks during (2013-2017). The study employed Z-Score as stability measures with nonperforming loans to total loans ratio as a credit risk indicator, total loans to total deposits ratio as a liquidity risk indicator. The result revealed that credit risk had a negative effect on bank stability. Liquidity risk had positive effect on bank stability which is backed to high level of credit compared to deposits level that will generate higher profitability, higher lending activity was controlled with strong capital, and in turn higher bank stability. The interaction of credit risk and liquidity risk had positive effect on bank stability which is backed to bank's ability to maintain liquidity along with generating profits from lending activities that increased profitability and in turn strengthen the bank stability. Credit risk and liquidity risk didn't impact each other.

Reference [49] addressed the reciprocal relation between bank's credit risk and liquidity risks, and effect of both risks on bank profitability within the Middle East and North African (MENA) countries using sample of 38 banks from 10 MENA countries during (2004-2015). The study employed ROA and ROE as profitability measures, nonperforming loans to total loans ratio as a credit risk indicator, and total loans to total deposits ratio as a liquidity risk indicator. The result revealed that credit risk and liquidity risk had significant negative effect on bank profitability in terms of both ROA and ROE. Moreover, bank profitability had significant negative effect on level of credit and liquidity risks. The interpretation of result is that increasing nonperforming loans means bank's inability to collect interest along with burdening income statement with loan loss provisions that affect bank profitability, and from the other side, the bank will be very cautious for new lending which lower interest revenues and consequently profitability. Moreover, banks with insufficient liquidity will not be able to generate new lending activities that negatively affect revenue level and profitability.

Reference [35] addressed effect of credit risk on banks performance using sample of 26 Turkish commercial banks during (2005 – 2017). ROA and ROE were used as performance indicators and nonperforming loans (NPLs) ratio was used as credit risk indicator and found that credit risk has negative effect on bank performance. Accordingly, banks should manage credit risk carefully along with more focus on control and monitoring of nonperforming loans.

Reference [83] investigated effect of credit risk and liquidity risk on bank profitability using sample of 13 Jordanian banks during (2010–2018). ROAA, ROAE and NIM were used as performance indicators, loan loss provisions ratio was used as credit risk indicator, and liquid assets ratio was used as liquidity risk indicator. The result revealed that credit risk has negative effect on ROAA and NIM, while it has no effect on ROEA, and liquidity risk has significant negative effect on bank ROAA and ROAE, while its effect is insignificant on NIM.

Reference [12] studied effect of credit risk on the banks' shareholder value using sample of 8 listed Nigerian banks during (2015-2019). The result revealed that non-performing loans ratio has insignificant negative effect on shareholders' value. Loan and advances (LAD) ratio has significant positive effect on shareholders' value. While loan loss provision ratio (LLP) ratio has significant negative effect on shareholders' value.

Reference [5] investigated the effect of liquidity risk and credit risk on the profitability of commercial banks in Iraq using a sample of 18 private commercial banks listed in Iraqi Stock Exchange during (2010 to 2020). ROA used as a profitability indicator, liquid asset to total assets ratio used as liquidity risk indicator, and non-performing loan ratio used as credit risk indicator. The result of the study showed that liquidity risk has significant positive effect on bank profitability revealing that increasing bank liquidity will lower its profitability level. While, credit risk has significant negative effect on bank profitability.

Reference [36] investigated effect of liquidity risk on bank profitability for the banking sector in Egypt using sample of 38 public and private banks during (2013 – 2019). Liquidity asset ratio, cash ratio, current ratio and basic defense ratio were used as liquidity indicators, and return on assets-ROA, return on equity-ROE and Net interest margin-NIM were used as profitability indicators. The study found that there was a significant relationship between liquidity risk and bank profitability. But the relationship varied between being positive and negative according to the indicator used for measuring liquidity and banks profitability as follows:

- There is a positive significant effect of cash ratio, liquidity ratio, and basic defense ratio on ROA, while there is an insignificant effect of current ratio on ROA. Liquidity risk explained 90.4% of the variation in ROA
- There is a positive significant effect of cash ratio, liquidity ratio, and basic defense ratio on ROE, while there is a negative significant effect of current ratio on ROE. Liquidity risk explained 56.6% of the variation in ROE.
- There is a positive significant effect of cash ratio, and basic defense ratio on NIM, while there is an insignificant effect of current ratio and liquidity ratio on NIM. Liquidity risk explained 66.4% of the variation in NIM.

Reference [68] addressed effect of credit risk and liquidity risk on banks' performance using quarterly data sample of South African banks during (1998 and 2014). The study used market liquidity risk in terms of liquid assets to current liabilities and funding liquidity risk in terms of loan-to-deposit ratio as liquidity risk indicators, provision for non-performing loans to total loans as credit risk indicator and net interest margin as bank performance indicators. The Autoregressive Distributed Lag (ARDL) bound approach revealed that there is a negative significant effect from funding liquidity risk on bank profitability. However, there is insignificant effect from market liquidity risk and credit risk on bank profitability. Additionally, the study investigated long-run Co-integration relationship between bank profitability along with credit and liquidity risk and found that there is no evidence of a long-run relationship between bank profitability and credit risk along with no evidence of a long-run relationship between bank profitability and two liquidity measures.

Reference [95] addressed effect of liquidity risk on bank performance along with interaction of liquidity and

credit risks on bank performance using sample of 50 banks from six Sub-Saharan countries during (2011-2019). The study used ROA and ROE as performance indicators, total loan to total deposit as a liquidity risk indicator, and nonperforming loan to total loans as a credit risk indicator. The result revealed that both liquidity risk and credit risk have significant negative effect on bank performance. Additionally, interaction of liquidity and credit risks has significant negative effect on bank performance.

Reference [51] addressed relationship between liquidity risk, credit risk and bank performance using sample of 10 Tunisian banks during (1990-2013). The study used total loans to total deposit ratio as an index for liquidity risk, total loans to total assets ratio as an index for credit risk and net interest margin as a proxy for bank performance. The result revealed that liquidity risk has significant negative effect on bank performance while credit risk has insignificant negative effect on bank performance. Increasing ratio of total loans to total deposit reveals higher liquidity risk due to more level of credit compared to available deposits. Low level of liquidity will decline the generated income from lending activities that will lead interest margin and bank performance to decline and in turn bank reputation will be negatively affected.

Reference [51] stated that an increase of this ratio indicates that banks are more exposed to liquidity risk since they grant more credit than collects deposit. This situation leads to an insufficient liquidity position especially in a massive and unexpected withdrawal of depositors.

Reference [42] addressed the relationship between credit risk and liquidity risk and its impact on bank stability using sample of 49 banks operating from 8 countries in the MENA region during (2006 – 2013). Z-score is used as proxy for bank stability where its increase reflects increase in bank stability, nonperforming loan to gross loans ratio is used as proxy for credit risk, and liquid assets to total assets ratio is used as proxy for liquidity risk. The result revealed that both risks have no causal or meaningful relationship. However, both risks independently impact bank stability and their interaction contributes to bank instability. Credit risk has significant negative effect on bank stability, indicating that higher credit risk raises bank's bankruptcy. Liquidity risk (inverse of liquidity) has significant negative effect on bank stability indicating that more liquid banks are more stable as they will be able to meet unexpected withdrawals of deposit immediately and at low cost. Finally, the effect interaction of credit risk and liquidity risk on bank stability is significantly negative indicating that effect of liquidity risk will be aggressive on bank stability when the credit risk is high and vice versa.

Reference [44] assessed effect of liquidity on bank profitability following implementation of the Basel III regulations. The study relied on multiple proxies of bank liquidity including Liquidity Coverage Ratio (i.e., new measure inspired by the Basel III framework), Loan-to-deposit, and Financing gap ratio, along with traditionally-applied profitability measures as Earnings before Taxes, depreciation and amortization using a sample of 45 European banks with 180 observations during 2014-2017 and 37 observations for 2018 has been analyzed. The result showed that liquidity risk measures have a significant positive impact only on some profitability proxies, and an insignificant effect on others. The Liquidity Coverage Ratio was an insignificant contributor to all return proxies. An increase in bank size and net provision for loan losses decreases profitability proxies.

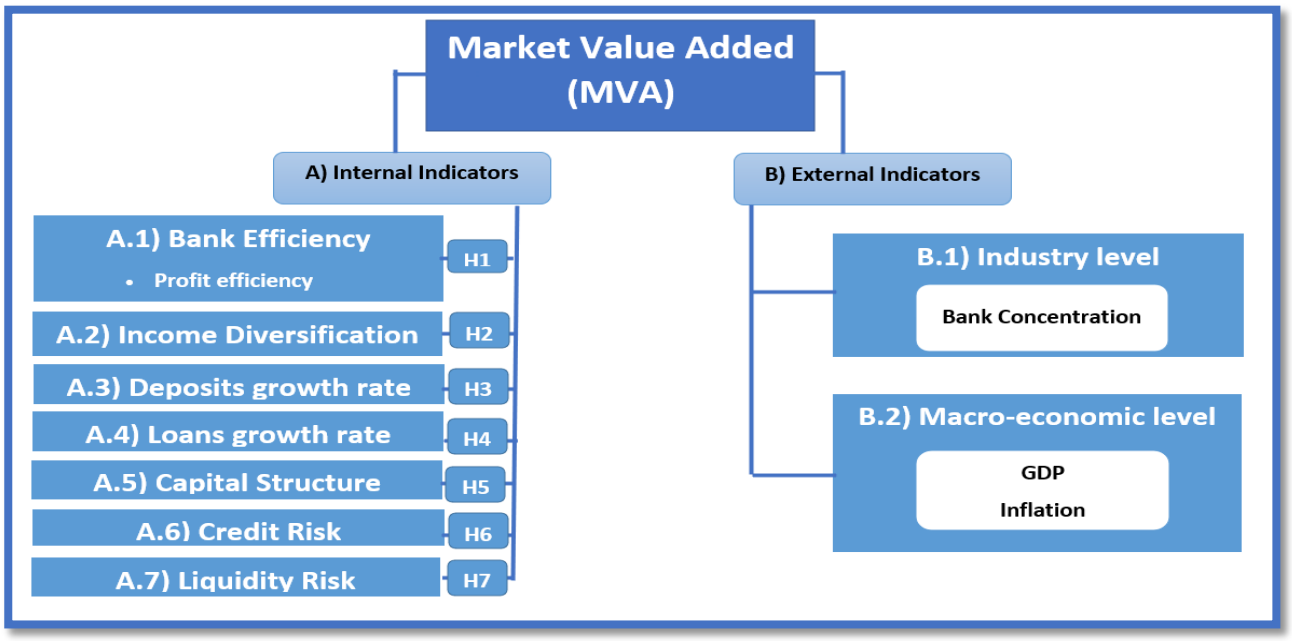

Figure 1. Conceptual framework of the proposed model, Prepared by author

3. Methodology

3.1. Data Collection

The study focuses on Egyptian commercial banks listed on Egyptian Stock Exchange which consists of 12 banks.

The sample of this study relied on 10 banks only as presented in table (1) during (2012-2021) revealing that sample represents 83.3% from population. The study ignored 2 banks namely a) Faisal Islamic bank of Egypt due to specialization of its activity on Islamic products, and b) Banque Du Caire given its recent listing by 2017.

Table 1. Sample Selected of Listed Egyptian Commercial banks

Bank Name	Date of Listing
Abu Dhabi Islamic Bank – ADIB	Jun. 1996
Al Baraka Bank	Dec. 1984
Commercial International Bank – CIB	Feb. 1995
Credit Agricole Egypt	Jul. 1996
Egyptian Guld Bank - EG Bank	Nov. 1983
Export Development Bank of Egypt – EBE	Dec. 1995
Housing and Development Bank	Sep. 1983
Qatar National Bank Al Ahli – QNB AA	Jul. 1996
Societe Arabe Internationale De Banque - SAIB	Nov. 1980
Suez Canal Bank	Sep. 1982

Source: Egyptian Stock Exchange

The time period of 2012–2021 was mainly chosen due to the availability of data along with structural change of the Egyptian banking sector. Data collected for this study is balanced panel data with 100 observations and it is secondary data which has been obtained from various sources as follows:

a) The equity market data on equity price movements of selected banks were collected from Egyptian Stock exchange during (2012-2021). Stock prices were extracted at last working trading day of each year at the Egyptian Stock Exchange with exception to stock price of QNBAA in 2015 given huge jump in stock price during 31st Dec. 2015 then returned back to its normal price, so stock price was extracted as of 30th Dec. 2015.

b) Bank-Specific factors calculated using figures of standalone financial statements which are extracted from annual reports of selected banks during (2012-2021). Closure date of financial statements for all banks in the sample is 31st of December with exception to EBE bank that closes its financial statements by 30th of June. The reporting currency of financial statements is Egyptian pound with exception to SAIB bank that reports by US Dollar, accordingly; the study relied on the EGP against USD exchange rate by end of each financial year as presented in table (2).

c) Industry-Specific factors were collected from global economy during (2014-2021) while figures of 2012 & 2013 were estimated using ARIMA models in order to preserve the sample to be balanced.

d) Macroeconomic variables were collected from annual and monthly publications of Ministry of Finance during (2012-2021) and statistics section of Central Bank of Egypt website.

Table 2. FX rates for EGP against USD

Year	Exchange rate
2011	6.0435
2012	6.3598
2013	6.9286
2014	7.15
2015	7.83
2016	18
2017	18
2018	17.86
2019	15.99
2020	15.69
2021	15.66

3.2. Techniques of Data Analysis

The data was analyzed using Ordinary Least Square (OLS) method of estimation, however, the data failed to meet the assumptions of OLS which required the usage of the Generalized Least Square (GLS) method of estimation where fixed and random effect was estimated. Hausman test was applied to check whether fixed effect model or random effect model is better for analysis. Multiple regression technique was employed on the panel data of the study.

Robustness tests were conducted including autocorrelation test, multicollinearity test, and heteroskedasticity test. The Multicollinearity test assists the researcher to detect if there is strong linear relationship among the independent variables in the study. The data was analyzed using E-views 12 software.

3.2. Variables Operationalization

3.2.1. Shareholder Value creation

References [4] [96] [6] and [62] used Market Value Added as an indicator of shareholder value creation which is calculated as follows:

$$MVA_{i,t} = \text{Total Market Value}_{i,t} (MV_{i,t}) - \text{Invested capital}_{i,t} (IC_{i,t})$$
$$= \{(\text{share price}_{i,t} \times \text{Total shares outstanding}_{i,t}) + \text{Debt}\} - \{\text{Book value of Equity} + \text{Debt}\}$$
$$= \{(\text{share price}_{i,t} \times \text{Total shares outstanding}_{i,t}) - \text{Book value of Equity}\}$$

where MVA i,t is market value added of firm i at the end of year t; MV i,t is the market capitalization of firm i at the end of year t which is the sum of the book value of debt and the market value of equity, while IC i,t is the invested capital of firm i at the beginning of year t which is the sum of the book values of debt and equity.

3.2.2. Bank Efficiency

The small size of our sample for ten listed Egyptian commercial banks forces us to adopt Data Envelopment Analysis (DEA) technique, which was first introduced by [22]. DEA is a mathematical programming technique which forms a non-parametric frontier over the data points to determine the efficiencies of each decision-making units (DMU) relative to this frontier. The methods allow for the decomposition of the efficiency and productivity

differences into one, representing the banks' efficiency and productivity levels relative to their peers' best practice frontiers [92]. Efficiency scores ranging between zero and one.

Defining proxies of inputs and outputs are crucial to carry out an efficiency analysis, however; they are difficult for the banking industry [59]. Following [33] [77] and [78], we choose outputs and inputs on the basis of a profit-oriented approach, which defines revenue components as outputs and cost components as inputs.

Since we have only ten banks in the sample, we kept the number of inputs and outputs as small as possible. Reference [25] state that using a large number of outputs and inputs with a small sample size would result in many firms appearing on the efficient frontier. Following [89], our study will rely on two outputs net interest income (i.e., interest income less interest expense) and other operating income, and three inputs including employee expenses, other operating expenses, and loan loss provisions. The efficiency scores are calculated under the assumptions of Malmquist DEA -output oriented using DEAP version 2.1.

3.2.3. Income Diversification

Following [84] [47] and [90] the study will compute revenue diversification between the two major types of income generating activities of banks through computing the Herfindahl Hirschman Index (HHI) for all banks as follows:

$$\mathrm{HHI}(rev) = \left(\frac{NON}{NETOP}\right)^2 + \left(\frac{NET}{NETOP}\right)^2$$

Non-interest income is captured by NON, net-interest income is captured by NET, and net-operating revenue is captured by NETOP. NON (non-interest income) variable is calculated as the sum of net commission fees, net trading profit/loss and other non-interest income, while NET (net interest income) variable is calculated as total interest revenues minus total interest expenses. NETOP is the sum of the NET and NON variables. HHI varies between 0.50 and 1.00. HHI value of 0.50 indicates complete diversification in a bank, while HHI value of 1.00 represents the lowest level of income diversification.

3.2.4. Deposits Growth rate

Deposits growth rate was computed by means of measuring the percentage of increase or decrease in absolute value of total deposits over the previous year. Deposits growth rate is calculated according to the following equation:

$$\text{Deposits Growth rate (\%)} = \{(\mathbf{D}_t - \mathbf{D}_{t-1})/\ \mathbf{D}_{t-1}\} * \mathbf{100}$$

Where D_t represents absolute value of deposits in current year and D_{t-1} represents absolute value of deposits in the last year.

3.2.5. Loans Growth Rate

Loans growth rate was computed by means of measuring the percentage of increase or decrease in absolute value of total loans over the previous year. Loans growth rate is calculated according to the following equation:

$$\text{Loans Growth rate (\%)} = \{(\mathbf{L}_t - \mathbf{L}_{t-1})/\ \mathbf{L}_{t-1}\} * \mathbf{100}$$

Where L_t represents absolute value of loans in current year and L_{t-1} represents absolute value of loans in the last year.

3.2.6. Capital Structure

Leverage is used to reflect banks' capital structure and it is calculated in terms of equity to total debt as reflected in below equation:

$$\text{Leverage} = \text{Equity} / \text{Total Debt}$$

3.2.7. Credit Risk

Following [10] [12] and [73] this study will measure credit risk through non-performing loans ratio and loan loss provisions ratio.

- Non-performing loans (NPLs) refers to the state of loan obligations falling short of contractual provisions in a way that is detrimental to capital and earnings of a financial institution. In line with empirical studies on credit risk, this study measured credit risk as the ratio of non-performing loans to gross loans.
- Loan loss provision refers to capital, earnings or reserves set aside to safeguard the bank from eventual loss in the event of loan defaults (Floro, 2010). Loan loss provisions ratio is loan loss provisions to gross loans.

3.2.8. Liquidity risk

Following [49] [86] [68] [95] [51] and [44] this study will operationalize liquidity risk as total loans to total deposits ratio.

3.2.9. Industry concentration

Following [93] this study will measure industry concentration through 3-bank concentration which is percent of bank assets held by top three banks.

3.2.10. Macroeconomic variables

Economic growth rate and inflation rate have been employed in this study to measure the effect of the macroeconomic environment on the performance of the banks operating in Egypt. This study uses real GDP growth to measure the economic growth rate and Head line consumer price index as a measure of annual inflation rate.

4. Findings and Data Analysis

4.1. Descriptive Statistics

Sample descriptive statistics during (2012 – 2021) is presented table (3) and revealing the following:

- Average MVA recorded Neg. EGP 2,097Mio indicating that banks destroyed shareholder value of listed Egyptian commercial banks. CIB recorded the highest average MVA for EGP 36,100Mio during 2012-2021 followed by Credit Agricole for

EGP 4,445Mio, while QNB AA recorded the lowest average MVA for negative EGP 36,100Mio.

- Bank efficiency scores recorded an average of 84% with maximum of 100% and minimum of 24.6% indicating that some banks are efficient while other banks need to enhance their efficiency. QNB AA has the highest average efficiency scores for 100% followed by Credit Agricole for 99.6%, CIB for 97.8%, and HDB for 93.8% while the lowest efficiency has recorded by Suez Canal Bank for 52%.
- Income diversification recorded an average of 66.6% with maximum of 96.4% and minimum of 50%. Al Baraka Bank has the highest average income diversification for 74.5% followed by QNB AA for 72%, and EG Bank for 71.5% while the lowest income diversification has recorded by HDB for 57.7%.
- Deposits growth rate recorded an average of 21.4% with maximum of 199% and minimum of negative 16.5%. EG Bank has the highest deposits growth for 32.9% followed by HDB for 31.5%, while the lowest deposits growth rate has recorded by Credit Agricole for 9.9%.
- Loans growth rate recorded an average of 17.9% with maximum of 129% and minimum of negative 22.3%. EG Bank has the highest loans growth for 26.6% followed by SAIB for 35.9% and ADIB for 20.9%, while the lowest loans growth rate has recorded by Credit Agricole for 10.4%.
- Capitalization recorded an average of 10x with maximum of 19.2x and minimum of 4.3x. QNB AA has the highest level of capitalization for 13.2x followed by HDB and Credit Agricole both for 12.9x, CIB for 12.6x and EBE for 12.1x, while the lowest level of capitalization has recorded by Al Baraka Bank for 6.2x.

Table 3. Descriptive Statistics of the Sample

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
MVA	-2097.777	-646.9313	87809.38	-179054.2	30692.23	100
Bank efficiency	0.841590	0.945500	1.000000	0.246000	0.197672	100
Income Diversification	0.666075	0.661013	0.964490	0.500743	0.077374	100
Deposits growth	0.214220	0.160204	1.996929	-0.165415	0.273175	100
Loans Growth	0.179177	0.127689	1.295845	-0.223394	0.220297	100
Capitalization	0.102731	0.099420	0.192837	0.043219	0.036671	100
NPL	0.084491	0.048118	0.562584	0.005635	0.119182	100
Liquidity risk	0.525890	0.511371	0.782136	0.282181	0.122487	100
Bank Concentration	0.620060	0.602600	0.745200	0.558700	0.052438	100
GDP growth	0.038000	0.039000	0.056000	0.022000	0.011228	100
Inflation	0.113075	0.105945	0.232690	0.046627	0.062198	100

- Non-performing loans ratio recorded an average of 8.4% with maximum of 56.2% and minimum of 0.5%. QNB AA has the lowest level of NPL ratio for 2.7% followed by SAIB for 2.8%, Credit Agricole for 3.2% and CIB for 4.7%, while the highest level of NPL ratio has recorded by Suez Canal Bank for 36.1%.
- Liquidity risk represented in loans to deposits ratio recorded an average of 52.5% with maximum of 78.2% and minimum of 28.2%. SAIB has the lowest level of liquidity risk for 39.5% followed by Al Baraka Bank for 40.6%, CIB for 43.4% and EG Bank for 47%, while the highest level of liquidity risk has recorded by QNB AA for 66%. Liquidity risk can be viewed from different perspective as bank ability to lend its deposits to achieve higher level of profitability.

4.2. Robustness Test

In order to arrive at the appropriate model of the study, multicollinearity, autocorrelation, and heteroscedasticity, and Hausman tests were conducted. The following are the results of the tests conducted and their interpretations.

4.2.1. Multicollinearity Test

The multicollinearity among the independent variables of the study was tested using Variance Inflation Factor (VIF) and the result of the test is shown in Table (4). The multicollinearity test result of each variable falls within the acceptable level. The value of VIF should not be more than 10 [46]. In the variables of the research Model, the highest VIF value comes from deposits growth with a value of 0.5760 and the least VIF is 0.0018 for non-performing loans ratio. The VIF mean is 1.6465, which testifies that multicollinearity is not an issue in the Model.

4.2.2. Heteroscedasticity Test

Homoscedasticity of variance is the consistency of the residuals which are randomly distributed through various estimations in the presence of unequal variance [46]. The rule of thumb is to accept the H0 if the p-value is greater than level of significance (1%), indicating that the variance is homoscedastic. The study used the E-views 12 statistical package and tested (Breusch-Godfrey test) for three models to test for heteroskedasticity.

The result of Breusch-Godfrey test for pooled model, fixed effect model, and random effect model as represented in table (4) recorded 0.3997, 0.9899, and 0.9961 simultaneously which are greater than the significance level of 1%, this reveals acceptance of null

hypothesis for the proposed three models and indicates that the variance in the three models is homoscedastic.

4.2.3. Autocorrelation Test

No autocorrelation of observations reveals that they are independently sampled and don't follow systematic patterns [46]. The rule of thumb is to accept the H0 if the p-value is around, indicating that the model doesn't suffer from autocorrelation problem. The study used the E-views 12 statistical package and tested (Durbin-Waston test) for three models to test for autocorrelation.

The result of Durbin-Waston test for pooled model, fixed effect model, and random effect model as represented in table (4) recorded 1.8966, 1.9536, and 2.0155 simultaneously which are around 2, this reveals acceptance of null hypothesis for the proposed three models and indicates that the three models don't suffer from autocorrelation problem.

4.2.4. Hausman Test

Hausman test was conducted in this study in order to determine whether Fixed Effect model of estimation or Random Effect model of estimation is consistent and its results are more reliable. Hausman test p-value (0.2563) is greater than level of significance of 10% indicating that the null hypothesis cannot be rejected and the model should be estimated by using random effect model. Random effect model takes into consideration both time and cross section effect and it assumes that there is homogeneity among the banks of the study as they can be considered as one unit and they have the same intercept and slope. As a result, model number 3 in table (4) is the best and will be used in this study.

4.3. Findings

The presented model is significant as p-value of F-statistics (0.000) is less than level of significance of 1%, therefore the null hypothesis is rejected. The independent variables of the study (bank efficiency, income diversification, loans growth, deposits growth, capitalization, credit risk, liquidity risk, bank concentration, GDP growth, and inflation rate) explained around 66% of the variations in the shareholders' value created of listed Egyptian commercial banks, from the overall coefficient of determination of R2 values of 0.6605. The remaining 34% were explained by other factors which were not captured in the model of this study. Then Hausman test was carried and revealed that random effect model is more appropriate that's why it is used for analysis.

The model is fitted evident by the F-value of 234.011 at 99% confidence level as shown by the p-value of 0.000. This means that the independent variables collectively are good determinants of shareholders' value creation of listed Egyptian commercial banks.

$$\begin{aligned} Ln(MVA)_{it} = {} & \beta_0 + \beta_1 \ln(\text{Bank Efficiency})_{it} + \beta_2 \ln(\text{Income Div.})_{it} \\ & + \beta_3 \ln(\text{Deposit Growth})_{it} + \beta_4 \ln(\text{Loans Growth.})_{it} \\ & + \beta_5 \ln(\text{Capitalization})_{it} + \beta_6 \ln(\text{NPL})_{it} + \beta_7 \ln(\text{Liquidity Risk})_{it} \\ & + \beta_8 \ln(\text{Bank Concen.})_{it} + \beta_9 \ln(\text{GDP Growth.})_{it} + \beta_{10} \ln(\text{Inflation})_{it} + U_{it} \end{aligned}$$

$$\text{Where } i = 1, 2, \ldots 10 \text{ and } t = 2012, 2013, \ldots 2021$$

Table 4. Regression Model

		VIF	Model (1) - LMVA		Model (2)- LMVA		Model (3)-LMVA	
			Pooled Model		Fixed Effect Model		Random Effect Model	
			Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
1	Ln(Bank Efficiency)	0.1366	2.0323	0.0018*	3.7867	0.0164**	3.3655	0.0023*
2	Ln(Income Div.)	0.0567	1.3716	0.0315**	1.3891	0.0608***	2.3655	0.0335**
3	Ln(Deposit growth)	0.5760	4.0285	0.0324**	5.8711	0.0138**	4.0277	0.0335**
4	Ln(Loans growth)	0.0567	1.0056	0.0663***	2.6661	0.0702***	2.0756	0.0026*
5	Ln(Capitalization)	0.0899	2.1012	0.0027*	2.1935	0.0522***	1.0863	0.0115**
6	Ln(Credit risk(NPL))	0.0018	-1.0167	0.0095*	-3.9377	0.0753***	-1.0127	0.0008*
7	Ln(Liquidity risk)	0.0897	2.0625	0.0523***	3.6107	0.0613***	1.0898	0.0657***
8	Ln(Bank Concen.)	0.0515	1.5550	0.0052*	2.3362	0.0102**	4.5411	0.0937***
9	Ln(GDP Growth)	0.0317	1.0743	0.0078*	2.2479	0.0017*	3.0777	0.0001*
10	Ln(Inflation)	0.5560	-0.2832	0.0402**	-0.4875	0.0066*	-3.2780	0.0574***
	R-squared		0.6355		0.6755		0.6605	
	F-Statistic		963.363		635.205		234.011	

	P-value (F-statistic)			0.0000		0.0000		0.0000
	Mean VIF	1.6465						
	Durbin-Watson Test – P-value		1.8966		1.9536		2.0155	
	Breusch-Godfrey Test – P-value		0.3997		0.9899		0.9961	
	Hausman Test				3.25633 (0.2563)			

*, **, *** refers to 1%, 5% and 10% levels of significance respectively

Table 5. Correlation Matrix

	MVA	**Income Div.**	**Loans growth**	**Capitalization**	**Credit risk (NPL)**	**Liquidity risk**	**Bank Concen.**	**GDP Growth**	**Inflation**	**Deposit Growth**	**Bank Efficiency**
MVA	1										
Income Div.	0.7522*** (0.0250)	1									
Loans growth	0.5699* (0.0000)	0.1619** (0.0255)	1								
Capitalization	0.8254* (0.0012)	0.1575 (0.1252)	0.5255** (0.0422)	1							
Credit risk (NPL)	- 0.688* (0.0020)	0.1135*** (0.0985)	0.1288*** (0.0589)	0.2533** (0.0220)	1						
Liquidity risk	0.7289** (0.0320)	0.0652*** (0.0866)	0.3055** (0.0363)	0.4125*** (0.0633)	0.5277*** (0.0636)	1					
Bank Concen.	0.6256** (0.0360)	0.3381*** (0.0752)	0.4122*** (0.0985)	0.4296*** (0.0935)	- 0.2011 (0.1255)	0.0522** (0.0250)	1				
GDP Growth	0.5211** (0.0332)	0.0275*** (0.0911)	0.2533** (0.0442)	0.3255*** (0.0852)	- 0.3001 (0.1044)	- 0.1525 (0.1121)	0.3254 (0.2522)	1			
Inflation	- 0.5366** (0.0120)	0.0525 (0.2522)	0.1021 (0.6352)	0.4586** (0.0236)	- 0.0125 (0.1755)	- 0.0143 (0.1422)	0.3722 (0.1478)	0.3381* (0.0006)	1		
Deposit growth	0.6388* (0.0000)	0.3533* (0.0000)	0.5248** (0.0425)	0.4255** (0.0363)	0.4366 (0.2533)	0.5569 (0.1258)	0.4122 (0.1442)	0.1255 (0.1985)	0.4533 (0.1522)	1	
Bank Efficiency	0.7822* (0.0000)	0.6355 (0.2452)	0.3522*** (0.0520)	0.6355*** (0.0633)	0.0522** (0.0325)	0.0636 (0.1178)	0.3325 (0.1855)	0.4255 (0.3699)	0.5355 (0.2533)	0.6690*** (0.0522)	1

*, **, *** refers to 1%, 5% and 10% levels of significance respectively

The correlation coefficient between MVA and bank efficiency is 0.7822 which indicates that there is a positive strong linear relationship between them at level of significance of 1%, therefore the linear relationship between them is statistically significant. Accordingly, first hypothesis is accepted. Bank efficiency has positive and significant effect on shareholder value creation of Egyptian banks, which means that higher level of profit efficiency enhances Egyptian banks' shareholder value given that it provides signals to shareholders that they will receive higher level of dividends. Such result is consistent with previous studies including [23] [9] [66] [60] [56] [65] [59] [92] [38]. When Ln (Bank Efficiency) increases by 1%, LMVA will increase by 3.3655% holding other variables constant at 1% level of significance revealing that bank efficiency has an impact on MVA.

The correlation coefficient between MVA and income diversification is 0.7522 which indicates that there is a positive strong linear relationship between them at level of significance of 5%, therefore the linear relationship between them is statistically significant. Accordingly, second hypothesis is accepted. Income diversification has positive and significant effect on shareholder value creation of Egyptian banks, which means that banks with higher level of fee-based activities tend to generate higher level of revenue with lower charged interest which lead to

higher level of profitability. Additionally; fees-based activities in Egyptian banks have low risk and in turn it reduces required capital. All these factors enhanced Egyptian banks' shareholder value and the result in considered consistent with studies carried on developing and emerging countries including [84] [47]. When Ln (Income Div.) increases by 1%, LMVA will increase by 2.3655% holding other variables constant at 5% level of significance indicating that income diversification has an impact on MVA.

The correlation coefficient between MVA and deposits growth rate is 0.6388 which indicates that there is a positive moderate linear relationship between them at level of significance of 1%, therefore the linear relationship between them is statistically significant. Accordingly, third hypothesis is accepted. The results indicate significant positive relation between deposit growth and shareholder value creation of Egyptian banks, which is consistent with expectations given that deposits are considered as a low-cost source of funds which boost the shareholder value. When Ln (Deposit growth) increases by 1%, LMVA will increase by 4.0277% holding other variables constant at 5% level of significance indicating that deposits growth has an impact on MVA.

The correlation coefficient between MVA and loans growth rate is 0.5699 which indicates that there is a positive moderate linear relationship between them at level of significance of 1%, therefore the linear relationship between them is statistically significant. Accordingly, fourth hypothesis is accepted. Loans growth has positive and significant effect on shareholder value creation of Egyptian banks, which means that higher growth of loans portfolio will have positive impact on investors' expectation that these new loans are good and profitable opportunity that will enhance interest income and profitability with low associated credit risk which in turn boost shareholder value. Such result is considered consistent with previous studies of [54] [75] and [84]. When Ln (Loans growth) increases by 1%, LMVA will increase by 2.0756% holding other variables constant at 1% level of significance indicating that income diversification has an impact on MVA.

The correlation coefficient between MVA and Capitalization is 0.8254 which indicates that there is a positive strong linear relationship between them at level of significance of 1%, therefore the linear relationship between them is statistically significant. Accordingly, fifth hypothesis is accepted. Despite there is no consensus in literature on capital structure and bank performance, there are two major point of views one of them support higher level of capital that reduces level of risk and in turn cost of equity which led to higher market value and the other view support lower level of capital given that its cost is higher compared to cost of debt, the study supports the former point of view. Bank capitalization has positive and strong effect on shareholder value creation of Egyptian banks, revealing that higher level of capitalization indicates financial soundness of Egyptian banks which allow them to raise funds at cheaper cost due to low bankruptcy rate. Such result is consistent with studies of [19] [72] and [88] . When Ln (Capitalization) increases by 1%, LMVA will increase by 1.0863% holding other variables constant at 5% level of significance indicating that capitalization has an impact on MVA.

The correlation coefficient between MVA and credit risk in terms of non-performing loans ratio is - 0.688 which indicates that there is a negative moderate linear relationship between them at level of significance of 1%, therefore the linear relationship between them is statistically significant. Accordingly, sixth hypothesis is accepted. Credit risk has negative and significant effect on shareholder value creation of Egyptian banks, indicating that poor asset quality leads banks to be more subject to bankruptcy. In such case, banks have to pay higher interest rate on deposits to compensate depositors with higher risk that entailed with refunding their deposits. Higher interest rate reveals higher cost that negatively affect shareholder value. Such result confirms empirical findings of [19] for Turkish banks, [72] for Tunisian banks, [86]for Indonesian banks, [49] for MENA banks, [35] for Turkish banks, [5] for Iraqi banks, [95] for Sub-Sahran banks, and [42] for MENA banks. When Ln (NPL) increases by 1%, LMVA will decrease by 1.0127% holding other variables constant at 1% level of significance which indicates that NPL ratio has an impact on MVA.

The correlation coefficient between MVA and Liquidity risk is 0.7289 which indicates that there is a positive strong linear relationship between them at level of significance of 5%, therefore the linear relationship between them is statistically significant. Accordingly, seventh hypothesis is accepted. Liquidity risk has positive and significant effect on shareholder value creation of Egyptian banks, which means that higher degree of loan exposure to deposits will enhance shareholder value. This result indicates that Egyptian banks are able to grant, manage and monitor good loan portfolios. High quality loans portfolio will be associated with lower cost that enhance shareholder value. Such result is matching with empirical findings of [86] for Indonesian banks. When Ln (Liquidity risk) increases by 1%, LMVA will increase by 1.0898% holding other variables constant at 10% level of significance revealing that liquidity risk has an impact on MVA.

The correlation coefficient between MVA and industry-specific variables represented in bank concentration is 0.6256 which indicates that there is a positive moderate linear relationship between them at level of significance of 5%. Accordingly, higher level of concentration by banks allow them to have control on applied interest rates and to enhance their profitability positions which in turn enhance shareholder value of banks. Such result is matching with empirical findings of [35] for Turkish banks, [51] for Tunisian banks, [70] for banks from diversified countries, [57] for US banks, [13] for Italian banks, [93] for Pakistani and Singapore banks, and [50] for Tunisian banks. When Ln (Bank Concen.) increases by 1%. LMVA will increase by 4.5411% holding other variables constant at 10% level of significance revealing that bank concentration has an impact on MVA.

The correlation coefficient between MVA and GDP Growth is 0.5211 which indicates that there is a positive moderate linear relationship between them at level of significance of 5%, Accordingly, the effect of GDP growth on shareholder value creation of Egyptian banks is

positive and significant. At 1% level of significance, 1% increase in Ln (GDP Growth) will increase LMVA by 3.0777% holding other variables constant. This finding reveals that economic growth allows for opportunities for banks to grow and in turn increase shareholders' value. This result is consistent with empirical findings of most studies that found positive effect from GDP growth on bank's performance. References [49] [5] [80] [95] [51] and [70] found positive impact on bank's profitability, [1] found positive effect on banks' stability, and [49] found negative effect on credit risk.

The correlation coefficient between MVA and inflation rate is – 0.5366 which indicates that there is a negative moderate linear relationship between them at level of significance of 5%, Accordingly, increasing rate of annual inflation erodes shareholders' value of Egyptian banks. At 10% significance level, 1% increase in Ln (Inflation) will lead LMVA to decrease by 3.2780% holding other variables constant. Such result confirms the empirical findings of most studies including [84] [5] [80] [95] [51] and [70] that found negative impact on bank's profitability, along with [1] and [86] that found negative effect on banks' stability.

5. Conclusion and Recommendations

5.1. Conclusion

The analysis of the study revealed that the model is significant at 1% level of significance and the independent variables of the study explained around 66% of the variations in the shareholders' value created of listed Egyptian commercial banks. Additionally, the analysis suggests that four of the independent variables of the study are strongly significant in determining the shareholders' value while the remaining six independent variables are moderately significant as follows:

- Bank efficiency, income diversification, level of capitalization, and liquidity risk has positive and significant effect on shareholder value creation of listed Egyptian commercial banks.
- Credit risk has inverse significant effect on shareholder value creation of listed Egyptian commercial banks.
- Deposits growth rate, loans growth rate, bank concentration, GDP growth has positive moderate effect on shareholder value creation of listed Egyptian commercial banks
- Inflation has inverse moderate effect on shareholder value creation of listed Egyptian commercial banks.

5.2. Implications

The results of the study are important for the different stakeholders of listed Egyptian Commercial banks including banks' managers, shareholders, investors, employees, regulatory bodies and government. Banks management should give attention to determinants that have strong effect on their stock price including profit efficiency, income diversification, level of invested capital, credit risk and liquidity risk.

- Profit efficiency has strong effect given that it provides signals to shareholders that they will receive higher level of dividends and potential investor will have the intention to pay higher price for the bank stock. Enhancing profit efficiency is not linked to one department in the bank while it needs a comprehensive strategy to work on different areas in the bank to maximize received income (i.e. interest income and fees & commissions) and minimize cost (i.e. interest expense, administrative expenses, and loan loss provisions). This strategy should be directly linked to a) increasing net interest income which can be achieved through attracting low cost deposits compared to pricing charged on loans, b) increasing income generated from fees and commissions, in addition to diversifying services provided to clients and enhance these services through working on bundle of benefits and innovate new services that cope with era of digitalization to be able to satisfy all the clients' needs so they will not be in a need to deal with several banks, c) controlling loan loss provisions through enhancing quality of lending portfolio.
- To comply with CBE regulations for capital requirements given its strong effect on stock price of listed Egyptian commercial banks as it provides signals in market for financial soundness of the bank and allow them to raise funds at cheaper cost due to low bankruptcy rate.
- Adopting strong credit management practices to identify level of risk in lending process, assess collateral required, monitoring for loans performance and regular evaluation for their collaterals. The management has to be proactive for any detected deterioration in loan portfolio and determine required level of capital for these risks to avoid bankruptcy.
- Liquidity position should be managed properly through identifying appropriate loans to deposits ratio that will maximize profitability while mitigate risk of bankruptcy due to unavailability of liquid assets to meet clients' unexpected withdrawals.
- Given importance of commercial banks for economic growth, government and regulatory bodies (i.e. CBE) should support these banks through incentives especially during economic shocks to minimize their negative effects on performance of banks and their market value.

5.3. Limitations

- The study used Market Value Added which requires banks to be listed and in turn small population and sample for 12 and 10 banks simultaneously.
- Market Value Added is calculated based on stock price at a specified date 31st Dec. from each year, that may not reflect real market value if there is sharp increase or decline at assessment date.
- Environmental, Social and Governance factors weren't taken into consideration due to

unavailability of ESG scores in Egyptian banking sector. Accordingly, the study addressed only quantitative factors affecting shareholders value.

5.4. Recommendations

- The study used Market Value Added to measure shareholders' value creation while further studies can rely on other measures, such as Economic Value Added, that don't require banks to be listed to be able to include all Egyptian banks and increase sample size. Accordingly, sensitivity analysis can be conducted to assess effect for devaluation of Egyptian pound.
- Calculation of Market Value Added based on average stock price during the year.
- Following availability of ESG scores for Egyptian banks, future studies can include ESG factors to assess its effect on shareholders' value created.

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