Advanced International Journal of Business, Entrepreneurship and SME's
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

ADVANCED INTERNATIONAL JOURNAL OF BUSINESS, ENTREPRENEURSHIP AND SMES (AIJBES)
www.aijbes.com

CONCEPTUALIZATION OF THE INDONESIAN BANKS' PROFITABILITY DETERMINANTS AND THE INFLUENCE OF THE GLOBAL FINANCIAL CRISIS

Nur Liyana Mohamed Yousop[1*], Foo Siong Min [2], Zuraidah Ahmad[3], Lim Mei Ching[4]

1 Faculty of Business and Management, Universiti Teknologi MARA, Johor Branch, Segamat Campus, Malaysia
School of Business and Economics, Universiti Putra Malaysia, Malaysia
Email: nurliyana@uitm.edu.my
2 School of Business and Economics, Universiti Putra Malaysia, Malaysia
Email: gs63550@student.upm.edu.my
3 Faculty of Business and Management, Universiti Teknologi MARA, Johor Branch, Segamat Campus, Malaysia
School of Business and Economics, Universiti Putra Malaysia, Malaysia
Email: zurai692@uitm.edu.my
4 School of Business and Economics, Universiti Putra Malaysia, Malaysia
Email: gs63644@student.upm.edu.my
* Corresponding author

Article Info:

Article history:
Received date: 05.10.2023
Revised date: 19.10.2023
Accepted date: 22.11.2023
Published date: 12.12.2023

To cite this document:

Yousop, N. L. M., Foo, S. M., Ahmad, Z., & Lim, M. C. (2023). Conceptualization Of The Indonesian Banks' Profitability Determinants And The Influence Of The Global Financial Crisis. *International Journal of Business, Entrepreneurship and SMEs, 5* (18), 114-133.

DOI:10.35631/AIJBES.518013.

Abstract:

Profits in the banking sectors have plummeted due to a series of global crises, urging them to focus on improving the efficiency of operations. As both internal and external determinants can undermine the banks' efficiency in generating profits, the ability of banks to anticipate and identify potential downsides is crucial. In the vent of the global financial crisis (GFC), the ability of many banks around the world to increase profits efficiently is hampered by the fact that interest rates are lower and capital levels are higher. Similarly, banks in Indonesia had difficulty improving their financial positions, but past researchers argued that the effects of the GFC were less severe than those of previous crises. With those arguments, through a narrative literature review, this study discusses internal and external determinants influencing Indonesian banking profitability, including GFC impacts. The study then proposes an empirical methodology for examination based on variables identified in preceding profitability analyses.

Keywords:

Banks Profitability, Global Financial Crisis, Cobb-Douglas, Profit Efficiency

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Introduction

Profitable banks are crucial for sustaining a vibrant economy and a stable financial system (Al-Harbi, 2019). Banking sectors that generate substantial profits would be better positioned to withstand short- and long-term shocks, benefiting overall economic growth (Klein & Weill, 2022). As the global economy will remain fragile through 2023 (Deloitte Insights, 2022) and global growth will likely continue to decelerate as more countries enter a recession (World Bank, 2022), banks need to be efficient in many ways, including generating a substantial profit, providing superior customer service, and having sufficient funds to lend to borrowers (Wang et al., 2015). It is crucial to identify the significant determinants influencing bank profitability because it can affect the entire banking system and economic growth. As a result, numerous methods for measuring profitability have been introduced, the most widely accepted of which are the return on assets (ROA) and the return on equity (ROE). This study used profit efficiency (as a proxy of profitability) determinants to determine how well banks can maximize profits based on their inputs, outputs, and price levels (Ariff & Can, 2008).

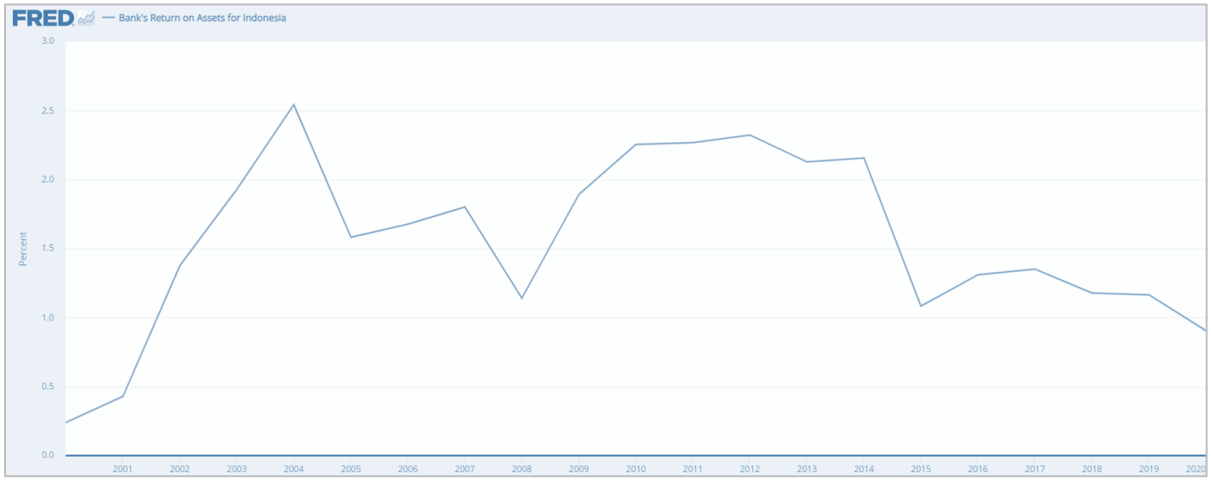
Profit or revenue efficiency provides valuable information on the bank's management system efficiency (Berger & Mester, 2003). Both internal and external determinants are considered in order to determine the determinants of profitability. In general, both the management team and the board of directors of a bank make decisions that collectively influence the bank's various internal and external factors. The financial statements are typically utilized to ascertain almost all the internal factors that impact a company's profitability (Rehman et al., 2018), whereas the macroeconomic variables measure the external factors. Banks can achieve higher profitability and market value through careful planning and management decisions. For this reason, banks need to operate as efficiently as possible in times of crisis.

In order to avoid the downward trend in bank profitability, measurements of profit efficiency should consider both cost and revenue efficiency (Rakshit, 2022). As Berger and Master (2003) found, United States banks maximized profits by increasing revenues and reducing costs. However, low output revenues, rather than high input costs, are the primary cause of inefficiency (Berger et al., 1993). If the banks produce too few outputs given a set of inputs, they may experience revenue inefficiency (Kamarudin et al., 2014, 2016a). For instance, the large bank size with rising labour costs, particularly staff expenditures, will reduce the bank's profitability. As a result, the inefficiencies in the bank are reported as higher costs because of a focus on generating profit rather than handling the most efficient cost. Since banks are not homogeneous, defining and measuring a bank's inputs and outputs is difficult, making efficiency measurement in this sector difficult (Das et al., 2005).

Indonesia has experienced the effects of multiple global crises, including the Asian financial crisis that began in the middle of 1997 and peaked in 1998, the global economic crisis in 2008 and 2009, and the current global health crisis (COVID-19) from 2019 to 2021. Figure 1 shows that after the 2008 GFC, Indonesian banks' profitability (as measured by return on assets, or ROA) rose dramatically, then levelled off until the first few months of 2014. The ROA then declined sharply until the end of 2015, increased slightly over the subsequent few years, and then exhibited a downward trend and became more pronounced following the COVID-19 pandemic. Though the future trends seem unpromising, Fitch (2022) has recently predicted that Indonesian banks' overall profitability will remain healthy, supported by stronger loan growth and improved asset quality. Indonesian banks were ranked among the top 10 best-performing banks by the middle of 2022, indicating a strong performance across the country's banking sector (Long, 2022). The country was also ranked as Southeast Asia's largest economy at the

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

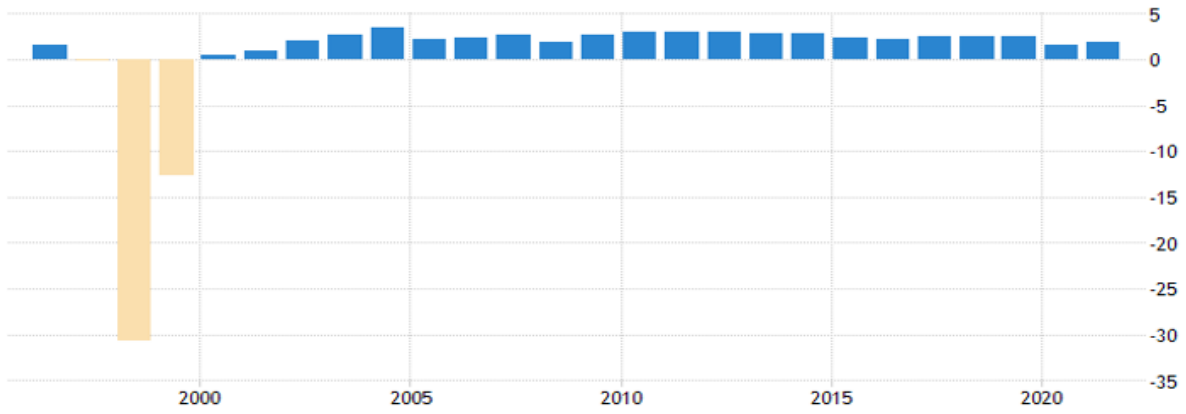
end of the year, with a nominal Gross Domestic Product (GDP) of USD1.05 trillion that was expanding (Ernst & Young. 2022).



Source: FRED and The World Bank

Figure 1: Historical Performance of the Indonesian Bank's Return on Assets

Nevertheless, the current positive trends following the global crisis contrast with previous global crises. According to Tambunan (2010), the Indonesian banking sector underperformed in the years leading up to the Asian financial crisis in 1997 and 1998. As seen in Figure 2, Indonesia was among the nations most severely impacted by the Asian financial crisis and took the longest to recover due to the fragility of its banking system. As a result, many financial institutions were forced to shut down or nationalize, and others were merged without apparent reason (Fane & Mcleod, 2001). In contrast, Tambunan and Thee (2012) found that Indonesia's banking sector suffered a mild impact from the 2007 to 2009 GFC. Chatib Basri (2013) argued that the magnitude of the GFC's impact is smaller than that of previous crises. However, Agustini and Viverita (2013) discovered that the overall profitability of Indonesian commercial banks was reduced during the GFC. In support of this, Lindiasari and Indra (2014) also found that the GFC substantially impacted Indonesia's bottom line, with the country's net profit plummeting dramatically in the years following the crisis.



Source: World Bank | Tradingeconomic.com

Figure 2: Extended Historical Performance of the Indonesian Bank's Return on Assets

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

The divergent outcomes from the Indonesian banking sector led this study to shed significant supplementary light by discussing the internal and external determinants that influence the profitability of the Indonesian banking sector and the influence of the GFC. This study will also propose an empirical methodology based on the variables identified in the literature reviews. The "Cobb-Douglas" production function was utilized as a theoretical foundation to develop a proposed empirical model. Nevertheless, due to limitations from the Cobb-Douglas theory, this study further expands the investigation using a model developed by Berger in 1993, which focused on profit efficiency rather than cost efficiency. Even though many conclusions can be drawn from previous research findings, the fact that profitability determinants differ from country to country or over time and can also come from a broader range of sources (Hosen, 2020) keeps research in this area relevant as knowledge gaps continue to be unfilled.

The narrative literature review method is employed to offer a thorough and unified examination of existing research on the topic, presenting a narrative synthesis rather than a quantitative analysis. To elaborate on the structure and outcomes of this study, the following section will delve into a comprehensive discussion of the central issues pertaining to the profitability of banks. This will include an examination of the literature on internal and external determinants, accompanied by an exploration of their theoretical framework. Subsequently, in the "way forward" section, intricate details concerning the recommended sample and data, along with proposed empirical findings, will be expounded upon. Finally, the conclusion will encompass a discussion on the limitations of the study and offer insights into potential future directions for research in this domain.

Literature Review

Bank efficiency estimates can be measured using a Cobb-Douglas stochastic frontier production model (Battese & Coelli,1992). The Cobb-Douglas production function depicts the associations between the amount of output produced and its inputs (Cobb & Douglas, 1928). Economists frequently use Cobb-Douglas theory because it reasonably approximates the production function process. The function helps firms make rational decisions on the amount of input for each factor to reduce production costs (Amuka et al., 2018). Moreover, the Cobb-Douglas theory is applicable in numerous scenarios, mainly when firms can substitute one cost factor for another to maximize profit or minimize loss. Cobb-Douglas and Leontief's input-output models can be merged theoretically and empirically (Burress, 1994). The input-output model is the most fundamental of the production functions developed to explain the relationship between inputs and outputs. With the Cobb-Douglas theory, the output produced and banks' profitability are determined mainly by their inputs; with Leontief's (1966) input-output theory, if two different inputs are mixed in a fixed amount to produce a given output, increasing one input while keeping the other constant in the next round of production will not change the output level.

Nevertheless, Clark (1984) asserted that other than the simplicity with which the resulting cost function can be estimated and interpreted, the Cobb-Douglas model had few drawbacks, such as (i) there is no economic justification for assuming a Cobb-Douglas production process and (ii) the bank output measure has no impact on estimates of output cost elasticity. This is true for both generalized functional cost functions and log-linear cost functions. Amuka et al. (2018) also mentioned that the Cobb-Douglas model has been criticized for other reasons, such as (i) its assumption of constant returns to scale and (ii) its failure to account for technological change. Meanwhile, Reynès (2019) stated that production inputs mainly influence the Cobb-Douglas assumption on the production process. In this regard, rather than focusing more on

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

cost efficiency, Berger et al. (1993) first applied the profit function and utilized it for US banking data, with the functions allowing for the measurement of output and input inefficiencies. The profit function includes the revenue and cost effects of producing incorrect levels or mixes of outputs and inputs. Similar to Rahman and Mamun (2017), the analysis of this study used a dynamic approach to the Cobb-Douglas production function theory. Some assumptions of the Cobb-Douglas model have been relaxed, which is not limited to internal production input but also considers external factors. The analysis would have covered more aspects with a more comprehensive approach to determining the profitability of the Indonesian banking sector with both internal and external factors of production combined. In this study, profit efficiency serves as a proxy for profitability. Internal determinants of a bank's profitability are identified as bank size, credit risk, capitalization, and liquidity, while external determinants are identified as economic growth, inflation, and the GFC.

Profitability

Past research has typically evaluated a bank's profitability using return on assets (ROA) and return on equity (ROE). This study, however, used profit efficiency[1] as a proxy of a bank's profitability. Profit efficiency is the most appropriate concept of efficiency for evaluating overall firm performance, which refers to a firm's ability to manage its resources and produce higher-value outputs (Arbelo et al. 2021). It measures the impact of a firm's activity in terms of costs, revenues, and their interaction, thus more accurately reflecting the profit maximization objective. In a banking context, profit efficiency measures how close a bank is to producing the maximum possible profit on the frontier as a best-practice bank for a given level of inputs and outputs (Tahir et al., 2010). The creation of banking profit efficiency is expected to increase the banking system's resilience to competition and shocks (Muazaroh, et al., 2012) and increase the bank's ability to raise market shares (Fang et al., 2019). Thus, understanding the key inputs and outputs and improving profit efficiency may increase bank profits and ensure sustainable economic growth (Arsal et al., 2017; Kamarudin et al., 2016a).

The dynamics of bank profitability have been linked to both internal and external determinants (Jumono et al., 2019). Both internal and external determinants have played significant roles in determining banks' profitability (Karimzadeh et al., 2013). Total assets, return on equity, long-term debt, and many more are examples of internal determinants that can be determined by analyzing specific components and financial ratios in their financial statements, while external determinants can be inferred from macroeconomic indicators, the environment, and economic policies. Several studies include total assets (TA), equity over total assets (ETA), and net loans over total assets (LOANSTA), which provide a more comprehensive measure of profitability within the bank assets under consideration (Kadang, 2020, Kamarudin et al., 2016a). Other studies include the macroeconomic determinants to measure the larger scope in examining profit determinants (Bhatia & Mahendru, 2019; Bogdan & Roman, 2015). A more thorough analysis of the economy's current state would aid central banks and the government in enacting more efficient fiscal and monetary policies that accommodate the banking system. In terms of findings, Fang et al. (2019) found that there was a positive impact on revenue efficiency and banks' profitability but that the interaction effect of bank competition and efficiency measures was crucial in China. Staikouras and Wood (2004) discovered that management decisions and macroeconomic changes influenced European banks' profitability from the estimation results.

[1] In this study, the terms profit efficiency and revenue efficiency will be used interchangeably as proxy of profitability.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Bank Size

Total assets (TA) are commonly used to measure a bank's size because they reflect the institution's involvement in the banking industry and its ability to provide a wide range of banking services to its customers. For instance, from a study by El Qorchi (2005), the number of Islamic financial institutions in over 75 countries increased from 75 to over 300 between 1975 and 2005, with estimated total assets of $250 billion, an increase of approximately 15% per year, which is three times the rate of conventional banks. With assets of more than $265 billion in 2006, Dubai Islamic Bank demonstrates growth within the global Islamic banking industry. In the Indonesian context, a current analysis from Fitch (2022) stated that the bank size is expected to increase at the newly formed state-owned PT Bank Sharia Indonesia, which will become Indonesia's largest Sharia bank and the seventh-largest bank overall. In September, the reserve ratio privilege for Islamic banks increased from 3.5% to 5% but is 6.5% lower than for conventional banks. Implementing Sharia financing could increase the banking sector's proportion by 9%, or $28.1 billion. In the near future, this will increase the market share of Islamic banks.

In order to maintain the banking system's stability, efficiency must be prioritized so that banks can remain healthy and profitable. Following the company's objective to maximize profit at a given level of efficiency, it is important to consider the effects of output and scope changes on cost and revenue. Importantly, as profit efficiency is affected by the size of the bank, the anticipated improvement in profit efficiency will result in higher levels of bank profitability for the sustainability of the nation's economic growth. The relationship between bank size and profitability can be both positive and negative but for different reasons. Large banks are more efficient than medium and small ones (Sufian et al., 2012). The larger the banks, regarded as one of the inputs in Cobb-Douglas production theory, the greater the possibility that it will contribute to higher profitability. Banks must be operated efficiently to ensure that the assets will eventually lead to higher profitability (O'Connell, 2022).

In a study conducted by Kamarudin et al. (2016b), the size of the State-Owned Commercial Banks (SCBs) and Private Commercial Banks (PCBs) found a positive relationship and significance with profit efficiency. This means that the larger or smaller the bank, the higher or lower the profit efficiency levels. The argument is supported when large banks benefit from economies of scale to increase profits. Large banks contribute to these higher profit efficiency levels by incurring costs that pay off with higher profits generated by providing quality services. As a result, larger banks gain more advantages when they have better competencies to exploit activities to focus on increasing profit while also having opportunities to cut costs more effectively than smaller banks. Flamini et al. (2009) also stated that large banks can still generate higher profits even in a non-competitive environment with low deposit rates. Additionally, larger banks can indirectly increase their profits by hedging, diversifying their lending, and shifting from interest-oriented to non-interest-oriented business models (Molyneux et al., 2019). In the Indonesian context, Agustini and Viverita (2013) found that bank size and capital positively and significantly affect profitability in all specified models and time periods (pre- and during GFC).

Bank size is unlikely to improve operating efficiency due to small economies of scale (Clark, 1984). A study conducted by Yudistira (2004) on the efficiency level of 18 Islamic banks from 1997 to 2000 revealed that the total assets of large, small, and medium-sized banks exceed $600 million. Large Islamic banks have the most significant degree of scale inefficiency (SIE) based on the firm's size efficiency (SE), which indicates a decrease in return. In addition, due

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013
to the interaction of economic events, the larger a bank is, the less profitable it will be. According to Kosmidou (2008), throughout the period of EU financial integration, the size of Greek banks was always positive but only statistically significant when macroeconomic and financial structure variables were included in the models.

On the other hand, Kamarudin et al. (2016b) discovered that the size of banks with a dummy yields negative results for State-Owned Commercial Banks (SCBs), but the results remain the same for Private Commercial Banks (PCBs). It indicates that large SCBs experience diseconomies of scale when their output increases only marginally while their inputs increase proportionally. Large banks are able to diversify by reducing their credit risk, but doing so will reduce their returns. In the aftermath of the GFC, the size of SCBs negatively correlates with their profitability.

Credit Risk

Credit risk can be measured using a loan-loss provision to total gross loans ratio (LLRGL), which indicates the quality of the bank's earning assets, which comprise each of their loans, and poor asset or loan quality contributes to bank failure (Kosmidou et al., 2007). The failure of a bank's banking system is an indicator of continued high credit risk, which can lead to bad debts, higher operating costs, and reduced profits (O'Connell, 2022). According to Kamarudin et al. (2016b), credit risk has a negative relationship and is significant to the profit efficiency of State-Owned Commercial Banks (SCBs). As a result, increased credit risk in SCBs contributes to lower bank efficiency. The bank will be exposed to the risk of a non-performing loan, which will increase credit risk. When a bank has higher credit risk, it means that it will face unpaid loans while also slightly increasing non-performing loans. Increased screening and monitoring would result in fewer loan defaults and increased profitability.

Later, Yuanita et al. (2018) conducted a study on credit risk analysis based on lending activities, which revealed non-performing loans and the impact of impairment losses on bank profitability. The results show that non-performing loans have a positive and significant effect on income efficiency on operating expenses, but impairment losses have an insignificant effect on operating income efficiency. Even though banks benefit from high default risk due to restrictions on lending or interest rates, fees, and commissions, it can also disrupt bank profitability, resulting in a negative impact (Boahene, 2012). Salman et al. (2016) examine the impact of financial credit risks on the profitability of commercial banks. The findings regarding the short- and long-term effects of financial credit risk on the profit-earning efficiency of commercial banks in Pakistan reveal a significant and negative relationship. This demonstrates that the non-performing loan's credit risk poses a significant threat of financial distress and deterioration. Consequently, significant effort was required to improve financial sectors effectively by controlling risk management. In a similar vein, although the variables used in Angbanzo's (1997) studies were not directly related to profit efficiency, his findings demonstrate significant arguments that are undeniably useful for this study. There was a significant inverse relationship between net interest margin and credit risk, indicating that banks will face more risky loans due to the loan's higher interest rate risk. In addition, his findings indicate that the net interest margins of commercial banks reflect both default and interest rate risk premiums.

During the financial crisis, Ferhi and Ridha (2015) determined that the high exposure risk stems from a significant impact. As a result, if credit risk is not properly managed, it can threaten the bank. The result was consistent with Coyle (2000) findings, which indicate that the credit risk

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013
will increase if the higher concentration is limited to Islamic banks. Their research also revealed a positive effect on loan quality, which was lower for Islamic banks than for conventional ones. Furthermore, Sobarsyah et al. (2020) conducted a study on Islamic banks before and after the 2008 GFC. In the event of a financial crisis, he argued that Islamic banks face a greater credit risk a year out due to higher loan growth, which would subsequently reduce the profitability of the banking sectors.

Capitalization

The bank capital refers to the amount of funds that are available to support the bank's business activities and could act as a safety net on which the banks can fall during times of adversity (O'Connell, 2022). Capitalization in finance refers to the cost of capital in the form of a corporation's stock, retained earnings, and long-term debts. The use of a corporation's retained earnings (RE) to pay a bonus to shareholders in the form of dividends or additional shares is known as capitalization of profits. In accordance with the Cobb-Douglas production theory, equity over total assets (ETA) would be one of the internal inputs of bank profitability, indicating the proportion of total assets financed by shareholders' equity.

In terms of bank profitability, the impact of bank capitalization may be ambiguous. Banks in more competitive markets tend to maintain a higher capital ratio to absorb unexpected losses (Islam et al., 2020). In other words, banks with higher capital ratios are thought to be more resilient in times of uncertainty, which may have an impact on the bank's ability to grow their business and manage profitability. Furthermore, Santoso et al. (2021) stated that bank capitalization is important in strengthening financial stability as bank market power grows. With more equity or a higher level of capitalization, banks can charge higher lending rates without sacrificing credit risk. According to the findings, higher levels of ETA or capitalization have resulted in higher levels of bank profitability. As a result, it has backed up the argument that occurs when there is a positive and significant relationship between capitalization and profitability. Bank capitalization is critical in determining banks' failure and success probability, both on an individual and systemic level. Banks with insufficient capital will be classified as failing (Anginer et al., 2016). From one point of view, capitalization will increase the level of efficiency for larger banks (Anh, 2022). It is reasonable to expect that the higher capital will improve bank efficiency, leading to higher profitability (Chowdhury, 2015; Köster & Zimmermann, 2017).

Liquidity

Liquidity is crucial to banks because it indicates their ability to meet their short-term debt obligations. Banks are vulnerable to liquidity risk because their customers have the option to withdraw funds from their transactions and savings accounts instantly (Bilal & Amin, 2015). The GFC, for instance, led banks to recognize that unmonitored liquidity could serve as an unsavoury accomplice in the distribution of shocks throughout the system or even accelerate the spread of contagion. Banks with a high liquidity ratio (indicating a greater reliance on borrower funding) were more likely to fail to remain solvent due to the instability of their funding sources. Liquidity can be measured using the amount of loans over the deposit (Bourke, 1989), which is then translated in this study as net loans over total assets (LOANSTA). Cash excess and shortage are significant factors in increasing and decreasing a bank's liquidity risk (Saleh & Abu Afifa, 2020). When the proportion of funds invested in cash or cash equivalents increases, the bank's liquidity decreases; thus, a lower ratio is preferable since it increases profit (Chowdhury, 2015). The scenario becomes even worse if an unexpected event such as the GFC occurs. In Indonesia, as a result of the GFC, inter-bank borrowing and

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

lending shrank from Rp206.0 trillion in December 2007 to Rp83.8 trillion in December 2008, a decrease of 59.3 per cent (Gunawan et al., 2009). The risk of insufficient cash or borrowing capacity to cover withdrawals of deposits or new loan applications compels banks to borrow emergency funds at excessive rates. According to El-Kassem (2017), understanding asset quality is critical to assessing the banking industry's health, and lending strategy should be more transparent. She also stated that increased competition resulted from the negative liquidity ratio (loan over total assets).

Meanwhile, the greater the net loans, the higher the liquidity ratio will be. In general, a higher loan will negatively impact profitability (Sarker & Bhowmik, 2021), but Vithessonthi (2023) argued that banks with a higher loan may not necessarily lead to higher profitability but could lead to a higher non-performing loan. In particular vein, a higher net loan to total assets ratio may indicate potential liquidity issues. According to Kumbirai and Web (2010), in the event of a sudden or large deposit withdrawal, banks operating in a tight credit market may struggle to meet their liquidity needs. Despite this, he discovered that the increase in net loans to total assets for South Africa's five banks did not result in any liquidity issues because the banks continued to have access to excess cash reserves at the reserve bank. In addition, Bilal and Amin (2015) discovered that profitability measures revealed Islamic banks to be less profitable than conventional banks, despite the fact that Islamic banks had better liquidity performances and are generally more efficient, but operational efficiency measures are not in their favour.

Economic Growth

Economic growth, as measured by Gross Domestic Product (GDP), is one of the primary economic indicators used to determine the economic stability of a country, with higher GDP values indicating a positive growth rate. The GDP is frequently used as a proxy for the business cycle's effects on bank performance. The ability of banks to facilitate economic transactions is contingent on their capability to make money available. When economic conditions improve, and banks become more profitable, there is an increase in demand for financial products and services, allowing banks to increase portfolio financing at better or higher interest rates. When GDP growth is sluggish, there will be an increase in non-performing loans, which will have a negative impact on bank profitability (Zarrouk et al., 2016).

Numerous conclusions have been drawn from prior research concerning the efficiency and profitability of banks. On one hand, the profitability or efficiency of banks was positively correlated with the GDP (Chen & Lu, 2021; Mahmud 2022; Nugrohowati & Fakhrunnas; Omotayo, 2016). Thee (2012) discovered that Indonesia along with since Indonesia along with China and India, is one of the only three Asian countries experiencing positive growth during the GFC. Similarly, Djalilov and Piesse (2016) discovered that profitability was sensitive to GDP growth, with an increase in the business cycle leading to an increase in loan demand and a decrease in profitability when GDP growth was low due to deteriorating bank credit quality. On the other hand, several studies show contradictory results, as shown above. According to a study by Sharma et al. (2013), from 2000 to 2010, economic growth had no impact on the profitability of Fiji's banks. Tan and Floros (2012) discovered that bank profitability is inversely and significantly related to economic growth in China. This finding lends credence to the notion that rapid economic expansion improves the business climate and reduces barriers to bank entry. As a result of the increased competition, the bank's profitability suffers.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Inflation

The inflation rate can be defined as the increase in the price of goods and services over time. Inflation reduces consumer purchasing power because customers are forced to spend more money on fewer items. Consumers must pay higher prices for goods and services as the value of their currency falls. Concerning banks' profitability, higher inflation rates translate into higher loan interest rates and, as a result, higher bank profitability. The impact of inflation on profitability is determined by how much can be expected as well as how much can be passed on to consumers. Different conclusions can be drawn from empirical data on the relationship between profitability and inflation. Pervan et al. (2015) argue that rising loan interest rates will follow projected inflation, positively impacting bank profitability. Banks may be slow to prepare for unanticipated inflation, causing costs to rise more rapidly than profit margins and negatively affecting profitability.

A higher inflation rate affects borrowers' budgets, threatening their liquidity and reducing their ability to repay loans; consequently, rising interest rates may also increase the risk associated with loan repayment. Their finding was consistent with recent studies by Mahmud (2022) and Nugrohowati and Fakhrunnas (2022), who found that higher inflation led to higher bank profits. In addition, a positive relationship between inflation and profitability may be due to the banks' ability to forecast future inflation, implying that interest rates have been appropriately adjusted to achieve higher profits. This could also be attributed to bank customers' inability to fully anticipate inflation, implying that asymmetric information could result in above-average profits (Athanasoglou et al., 2008).

On the contrary, Caglayan and Xu (2016) discovered a negative impact between inflation and banks' profitability. If inflation expectations were high, bank managers would be more cautious about extending loans. In a low inflationary environment, they would be more likely to approve loans because the return on each loan is more predictable. This is in contrast to a high inflationary environment, where the cost of borrowing can skyrocket quite dramatically in a hyperinflationary environment. Because of its significance, inflation is taken into account by banks when deciding whether or not to grant loans. O'Connell (2022) also found that inflation measured by the consumer price index (CPI) negatively correlates with banks' profitability. This implies that commercial banks in the United Kingdom do not profit from inflation.

More contradictory results have also been found in previous studies, with some discovering that inflation can positively and negatively affect bank profitability (Kosmidou, 2008) and others discovering no significant relationship between inflation and bank profitability (Sharma et al., 2013). Inflation may or may not increase banks' profitability. However, this positive correlation between the inflation rate and a bank's profitability is contingent on whether the bank anticipates inflation rate changes (Kosmidou, 2008). If banks had anticipated the changes, they could have prepared a backup plan to address the issue, such as adjusting interest rates. In the event of unexpected inflation, however, there is a negative correlation between the inflation rate and bank profitability.

The Global Financial Crisis

As a result of the recent GFC, there has been a renewed focus on finding ways to lessen the impact of shocks on the banking sector. Banks' successes or failures were closely watched during the 2008-2009 GFC that started in the United States and spread worldwide, posing long-term challenges to the banking sector. It is well-established that financial crises retard economic expansion, sometimes permanently. In particular, financial crises are harmful to the

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

health of the real economy because they destabilize the financial sector, lowering investment and consumption as a result of lower credit availability and greater uncertainty about future returns. This demonstrates that the banking industry's performance and changes in the real economy are inextricably linked, as macroeconomic factors affect bank performance. Based on Barth et al. (2003), a bank's performance during a particular crisis can be used to predict its behaviour and likelihood of failure during future crises. This demonstrates that banks with poor performance during crises are more susceptible to systemic risk and, consequently, more likely to fail during the next crisis.

In previous studies, the dummy variable was utilized to account for the effects of financial contagion (Le, 2019; Le et al., 2019). The global financial crises can have either a negative (Andries & Ursu, 2016; Le & Ngo, 2020) or no lasting impact (Gulati & Kumar, 2016) on the performance of banks in various countries. According to Gulati and Kumar (2016), although Indian banks' profitability slightly decreased during the GFC, it soon recovered following the crisis. It was also discovered that the GFC had no long-lasting negative effects on the profitability of the Indian banking industry due to more accommodating macroeconomic policies being used and the financial system receiving enough liquidity injections. In contrast, a study by Le and Ngo (2020) indicated that the GFC negatively influenced profitability, suggesting that it decreased profitability. Due to the degree of integration of the sampled nations into the global financial system, their study already anticipates that the GFC will have a detrimental influence on bank profitability.

Proposed Empirical Method

Given the importance of banks to the financial system and the overall economy, creating a healthy and wealthy banking industry is a top priority for the government (Khan, 2022). The recent rapid changes in the environment in which banks operate have created several difficulties for the financial sector (Gulati & Kumar, 2016). Therefore, there has been an ongoing debate between stakeholders and academics about the determinants that affect banks' profitability, which in turn affects the banks' performance. In this regard, the primary objective of this study is to discuss the internal and external determinants that influence the profitability of the Indonesian banking sectors and the influence of the GFC. As discussed, there are four internal determinants: bank size, credit risk, capitalization, and liquidity, while economic growth, inflation, and the GFC are external determinants. The proposed hypothesis and empirical model for the future study will then be developed based on these determinants for the Indonesian banks.

Empirical Model

The following hypotheses are developed based on the above reviews for measuring the empirical findings to examine internal and external determinants that influence the profitability of the Indonesian banking sectors.

Internal Determinants

H_{1a}: There is a significant relationship between the bank size and profitability of banks in Indonesia.
H_{1b}: There is a significant relationship between the credit risk and profitability of banks in Indonesia.
H_{1c}: There is a significant relationship between the capitalization and profitability of banks in Indonesia.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

H_{1d}: There is a significant relationship between the liquidity and profitability of banks in Indonesia.

External Determinants

H_{1e}: There is a significant relationship between the economic growth and profitability of banks in Indonesia.

H_{1f}: There is a significant relationship between inflation and the profitability of banks in Indonesia.

H_{1g}: There is a significant relationship between the GFC and the profitability of banks in Indonesia.

To investigate the interaction between the GFC and the profitability of banks, the following hypothesis can also be developed, which will subsequently be modified to investigate the interaction between each variable used in this study and the GFC.

H_2: There is a significant interaction between the GFC with both internal and external determinants and the profitability of banks in Indonesia.

We observed Indonesian banks from multiple sources, including DataStream and Bank Scope. One of the best ways to choose a bank (e.g., based on performance, customer service, etc.) is to search a reputable website. Table 1 displays Forbes' April 2022 ranking of the top 20 banks in Indonesia.

Table 1: Indonesia Banks List

No	Indonesia Banks	No	Indonesia Banks
1	Bank Central Asia (BCA)	11	Panin Bank
2	Bank DBS Indonesia	12	Bank Rakyat Indonesia (BRI)
3	Bank Mandiri	13	Bank Neo Commerce (BNC)
4	United Overseas Bank (UOB)	14	Maybank
5	Bank Syariah Indonesia (BSI)	15	Bank DKI
6	Citibank	16	OCBC NISP
7	Bank Jago	17	CIMB Niaga
8	BCA Syariah	18	Bank Permata
9	HSBC Holdings	19	Jenius
10	Bank Negara Indonesia (BNI)	20	Bank Tabungan Pensiunan Nasional (BTPN)

Source: https://www.theindonesia.id/unique/2022/04/17/150000/forbes-releases-2022-indonesias-20-best-banks

In this study, the dependent variable is the banks' profit efficiency (or revenue efficiency), which is a proxy for the banks' profitability. Meanwhile, internal determinants (or banks' specific determinants) are bank size, credit risk, capitalization, liquidity, and external determinants (or macroeconomic determinants) are economic growth, inflation, and the GFC were identified as independent variables.

Table 2 shows the description of each determinant with their expected relationship with the banks' profitability (expected signs).

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Table 2: The Expected Relationship

Variable(s)	Indicator	Proxy Description	Expected Sign
Bank Specific Determinants			
TA	Size	The size was computed by total assets	+
LLRGL	Credit risk	Credit risk was computed by loan loss reserve over gross loans	-
ETA	Capitalization	Capitalization was computed by equity over total assets	+
LOANSTA	Liquidity	Liquidity was computed by net loans over total assets	-
Macroeconomic Determinants			
GDP	Economic growth	Economic growth was measured by the gross domestic product	+
CPI	Inflation	Inflation was proxied by the consumer price index	+
DUMCRIS	GFC	A binary variable that takes a value of 1 for the GFC period.	+

The OLS regression model of panel data (or Panel Least Square regression) has been constructed to investigate the relationship between the specific determinants of banks and macroeconomic determinants with Indonesian banks' profitability. The investigation begins with examining the data's characteristics and behaviour, which can be analyzed using descriptive statistics on the raw data. Equation (1) will be used to diagnose the panel OLS assumption that residuals should adhere to a normal distribution, be homoscedastic, exhibit no serial correlation, and investigate multicollinearity variables and the relationship between the variables.

$$RE_{it} = \beta_0 + \beta_1 TA_{it} + \beta_2 LLRGL_{it} + \beta_3 ETA_{it} + \beta_4 LOANSTA_{it} + \beta_5 GDP_t + \beta_6 CPI_t + \beta_7 DUMCRIS_t + \varepsilon_{it} \quad \text{Eq (1)}$$

RE_{it} = Banks' revenue efficiency of the bank i in year t.
TA_{it} = The size of the bank i in year t.
$LLRGL_{it}$ = Credit risk of the bank i in year t.
ETA_{it} = Capitalization of the bank i in year t.
$LOANSTA_{it}$ = Liquidity of the bank i in year t.
GDP_t = Growth of the country j and in year t.
CPI_t = Inflation of country j in year t
$DUMCRIS_t$ = Dummy variable for the GFC
ε_{it} = Error term of the bank i in year t.

Finally, to investigate the effect of the GFC on the profitability of the bank, it is suggested that equation (1) be modified by multiplying each independent variable with the dummy variable in alternating fashion. Equation (2) illustrates the OLS equations used to estimate the effect of bank-specific factors (internal determinants), macroeconomic factors (external determinants) and the GFC on bank profit efficiency (profitability).

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

$$RE_{it} = \beta_0 + \beta_1 TA_{it} + \beta_2 LLRGL_{it} + \beta_3 ETA_{it} + \beta_4 LOANSTA_{it} + \beta_5 CPI_t + \beta_6 GDP_t + \beta_7 (DUMCRIS_t * \Phi_{it}) + \varepsilon_{it} \quad \text{Eq (2)}$$

Φ represents the independent variables that are inserted alternately in accordance with the driven model. DUMCRIS is a dummy (or binary) variable that will be used to measure the GFC. The GFC refers to the period between the middle of 2007 and the beginning of 2009 when global financial markets and banking systems were under extraordinary stress. Given that the crisis had not even lasted a half-year in 2009, the DUMCRIS should instead focus on the two years prior (2007 and 2008), with a value of 1 for the GFC period and 0 otherwise.

Concluding Remarks

The study reviews past research and presents an empirical methodology focused on specific variables outlined in the literature reviews, confined to a single country and the particular global crisis of the GFC. To enhance the future trajectory of this research, expanding the scope to encompass multiple countries, exploring contagion effects, and examining various crises such as the Asian financial crisis and the global COVID-19 health crisis could be valuable directions. Considering the identified issues, the following suggestions are put forth for future research directions.

1. Loan growth has the potential to drive profitability, and as a result, non-performing loans will have a significant impact. An increase in non-performing loans threatens the banking system's stability (Vithessonthi, 2023). Loan growth positively impacts return, which is the return on assets, and is vital in optimizing returns (Wu et al., 2022). In contrast, banks that aggressively pursue loan growth without accounting for non-performing loans may harm their profitability.
2. Since Molyneux et al. (2019) argued and provided evidence that banks' margins and profitability are worse in countries that have adopted negative interest rate policies, this study realized that the interest rate policy on bank margins could impact the banking industry's profitability.
3. The suggested empirical model of this study is limited to internal and external factors of the bank and does not include the complete CAMEL variables, bank supervisory measures and corporate governance factors as the determinants of performance. It is a consensus among scholars that imperfections in bank regulation and supervision were key drivers of the financial crisis.
4. As a result of diversification, many banks are shifting from relying solely on interest income to non-interest income for profitability. Banks tend to profit more when their non-interest income is derived from trading-based activities instead of non-interest income derived from fees (Mostak Ahamed, 2017). This study believes that non-interest income could be utilized as a variable in future research on banks' profitability and provide greater insight into the banking industry's diversification of income sources.

In conclusion, even though this study only presents the conceptual framework for future research, it is anticipated that its findings will eventually meet the initial expectations of the objective. With the end goal of establishing a more secure financial system, the banking industry, the government, the central bank of Indonesia and other country banks are anticipated to benefit from the future results from the theory and previous research-derived factors that either directly or indirectly influence bank profitability. If a nation's banking system and finances are sound, consumer spending, output per worker, and the number of available jobs will all rise, and the nation will grow sustainably.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Acknowledegment

The authors would like to acknowledge to the anonymous reviewers for their meticulous review of the manuscript and for providing numerous insightful comments and suggestions and for the journal publisher for supporting this publication.

References

Al-Harbi, A. (2019). The determinants of conventional banks profitability in developing and underdeveloped OIC countries. *Journal of Economics, Finance and Administrative Science, 24*(47), 4–28. https://doi.org/10.1108/JEFAS-05-2018-0043

Agustini, M., & Viverita. (2013). Factors influencing the profitability of listed Indonesian commercial banks before and during financial global crisis. *Indonesian Capital Market Review*, 29–40.

Amuka, J. I., Asogwa, F. O., Ugwu, C. C., & Ugwu, K. C. (2018). Testing the fit of Cobb-Douglass production function within unrestricted least squares. *International Journal of Economics and Financial Issues, 8*(3), 142-147.

Andries, A.M., Ursu, SG (2016). Financial crisis and bank efficiency: An empirical study of European banks. *Economic Research-Ekonomska Istraživanja, 29* (1), 485-497. http://dx.doi.org/10.1080/1331677X.2016.1175725

Angbanzo, L. (1997). Commercial bank net interest margins, default risk, interest-rate risk and off-balance sheet banking. *Journal of Banking and Finance, 21*, 55-87.

Anginer, D., Demirguc-Kunt, A., Huizinga, H., & Ma, K. (2016). Corporate governance and bank capitalization strategies. *Journal of Financial Intermediation, 26*, 1–27. https://doi.org/10.1016/j.jfi.2015.12.002

Anh, D.V. (2022). Does better capitalization enhance bank efficiency and limit risk taking? Evidence from ASEAN commercial banks. *Global Finance Journal, 53*, 1-21. https://doi.org/10.1016/j.gfj.2021.100617

Arbelo, A., Arbelo-Pérez, M., & Pérez-Gómez, P. (2021). Profit efficiency as a measure of performance and frontier models: A resource-based view. *BRQ Business Research Quarterly, 24*(2), 143-159. https://doi.org/10.1177/2340944420924336

Ariff, M., & Can, L. (2008). Cost and profit efficiency of Chinese banks: A non-parametric analysis. *China Economic Review, 19*(2), 260-273. http://dx.doi.org/10.1016/j.chieco.2007.04.001

Arsal, M., Norhan, I., & Hamid, A. (2017). The profit efficiency: Evidence from Islamic banks in Indonesia. *Jurnal Kemanusiaan, 26*(1), 1-6.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money, 18*(2), 121-136

Barth, J. & Nolle, D. & Phumiwasana, T. & Yago, G. (2003). A cross-country analysis of the bank supervisory framework and bank performance. *Financial Markets, Institutions and Instruments, 12*(2), 67-120. https://doi.org/10.1111/1468-0416.t01-2-00001

Battese, G. E., & Coelli, T. J. (1992). Frontier production functions, technical efficiency and panel data: with application to paddy farmers in India*. *The Journal of Productivity Analysis, 3*, 153–169. https://doi.org/10.1007/BF00158774

Berger, A. N., & Mester, L. J. (2003). Explaining the dramatic changes in performance of US Banks: Technological change, deregulation, and dynamic changes in competition. *Journal of Financial Intermediation, 12*(1), 57-95. http://dx.doi.org/10.1016/s1042-9573(02)00006-2Boubakri

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013
Berger, A. N., Hancock, D., & Humphrey, D. B. (1993). Bank efficiency derived from the profit function*. Journal of Banking and Finance, 17, 317-347. https://doi.org/10.1016/0378-4266(93)90035-C

Bhatia, A., & Mahendru, M. (2019). Financial efficiency evaluation of Indian scheduled commercial banks. *Jindal Journal of Business Research, 8*(1), 51-64. https://doi.org/10.1177/2278682118823308

Bilal, M., & Amin, H. (2015). Financial performance of islamic and conventional banks during and after us sub-prime crisis in pakistan: A comparative study. *Global Journal Al-Thaqafah, 5*(2), 73–87. https://doi.org/10.7187/gjat922015.05.02

Boahene, S.H., Dasah, J. & Agyei, S.K. (2012). Credit risk and profitability of selected banks in Ghana. *Research Journal of Finance and Accounting, 3*(7), 6-15.

Bogdan, F., & Roman, A. (2015). Internal and external determinants of commercial banks profitability: Empirical evidence from Bulgaria and Romania. *Annals of Faculty of Economics, 1*(1), 896-904.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia*. *Journal of Banking and Finance, 13*. https://doi.org/10.1016/0378-4266(89)90020-4

Burress, D. (1994). Homeomorphism between Leontief and Cobb-Douglas input-output models. *Economics Letters, 44*, 49–53. https://doi.org/10.1016/0165-1765(93)00307-A

Caglayan, M., & Xu, B. (2016). Inflation volatility effects on the allocation of bank loans. *Journal of Financial Stability, 24*, 27-39. https://doi.org/10.1016/j.jfs.2016.04.008

Chatib Basri, M. (2013). *A Tale of Two Crises: Indonesia's Political Economy* (No. 57).

Chen, X., & Lu, C. C. (2021). The impact of the macroeconomic factors in the bank efficiency: Evidence from the Chinese city banks. *North American Journal of Economics and Finance, 55*. https://doi.org/10.1016/j.najef.2020.101294

Chowdhury, M. A. F. (2015). Which is more important in terms of profitability of Islamic banks: Bank specific factors or macroeconomic factors? An empirical study on Malaysian Islamic banks. *European Journal of Islamic Finance, 2*(April), 1–10. https://doi.org/10.13135/2421-2172/922

Clark, J. A. (1984). Estimation of economies of scale in banking using a generalized functional form. *Journal of Money, Credit and Banking, 16*(1), 53–68. http://www.jstor.orgURL:http://www.jstor.org/stable/1992648

Cobb, C. W., & Douglas, P. H. (1928). A theory of production. *The American Economic Review, 18*(1), 139-165.

Coyle, B. (2000). Framework for Credit Risk Management, Chartered Institute of Bankers, United Kingdom

Das, A., Nag, A., & Ray, S. C. (2005). Liberalization, ownership and efficiency in Indian banking: A non-parametric analysis. *Economic and Political Weekly*, 1190-1197.

Deloitte Insights. (2022). *2023 Banking and Capital Markets Outlook*. Deloitte. https://www.deloitte.com/global/en/our-thinking/insights/industry/financial-services/financial-services-industry-outlooks/banking-industry-outlook.html

Djalilov, K. and Piesse, J. (2016) Determinants of bank profitability in transition countries: What matters most? *Research in International Business and Finance. 38*. 69-82. https://doi.org/10.1016/j.ribaf.2016.03.015.

El-Kassem, R. C. (2017). Determinants of banks' profitability: Panel data from Qatar. *Open Journal of Accounting, 06*(04), 103–111. https://doi.org/10.4236/ojacct.2017.64009

El Qorchi, M. (2005). Islamic finance gears up, finance and development. *A quarterly magazine for the IMF 42*(4): 1-11.

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Ernst & Young Global Limited. (2022, February 23). *Riding the wave of Indonesia's financial services growth*. Ernst & Young Global Limited. https://www.ey.com/en_id/banking-capital-markets/why-personalization-and-ecosystem-business-models-essential

Fane, G., & Mcleod, R. H. (2001). *Banking Collapse and Restructuring in Indonesia, 1997-2001*. https://elischolar.library.yale.edu/ypfs-documents/9600

Fang, J., Lau, C. K. M., Lu, Z., Tan, Y., & Zhang, H. (2019). Bank performance in China: A perspective from bank efficiency, risk-taking and market competition. *Pacific-Basin Finance Journal, 56*, 290-309. https://doi.org/10.1016/j.pacfin.2019.06.011

Ferhi, A., & Ridha C. (2015). Credit risk and efficiency: Comparative study between Islamic and conventional banks during the current crises. *Journal of Behavioural Economics, Finance, Entrepreneurship, Accounting and Transport, 3*(1), 47-56

Fitch Ratings, Inc. (2022*). Indonesian banks results dashboard: 1H22*. https://www.fitchratings.com/research/banks/indonesian-banks-results-dashboard-1h22-22-09-2022

Flamini, V., Mcdonald, C., & Schumacher, L. (2009). *The determinants of commercial bank profitability in Sub-Saharan Africa* (WP/09/15).

Gulati, R., & Kumar, S. (2016). Assessing the impact of the GFC on the profit efficiency of Indian banks. *Economic Modelling, 58.* 167-181. https://doi.org/10.1016/j.econmod.2016.05.029

Gunawan, Anton H., Helmi Arman, and Anton Hendranata. (2009). *Indonesia 2009 economic outlook: Slowing, not falling*. PT Bank Danamon Indonesia, Jakarta.

Hosen, Md. Z. (2020). Internal factors influencing the profitability of commercial banks in Bangladesh. *International Journal of Economics and Financial Research, 67,* 192-200. https://doi.org/10.32861/ijefr.67.192.200

Islam, M. A., Ebenezer, O. O., Sobhani, F. A., & Shahriar, M. S. (2020). The effect of product market competition on stability and capital ratio of banks in Southeast Asian countries. *Borsa Istanbul Review, 20*(3), 292–300. https://doi.org/10.1016/j.bir.2020.03.001

Jumono, S., Sugiyanto, & Mala, C. M. F. (2019). Determinants of profitability in banking industry: A case study of Indonesia. *Asian Economic and Financial Review, 9*(1), 91-108. https://doi.org/10.18488/journal.aefr.2019.91.91.108

Kadang, J. (2020). Profit efficiency and factors affecting Indonesia banking. *Advances in Social Science, Education and Humanities Research, 477*, 377-381.

Kamarudin, F., Nordin, B.A.A., Muhammad, J. and Hamid, M.A.A. (2014). Cost, revenue and profit efficiency of Islamic and conventional banking sector: empirical evidence from gulf cooperative council countries. *Global Business Review, 15*(1), 1-24. https://doi.org/10.1177/0972150913515579

Kamarudin, F., Sufian F., and Nassir A., M. (2016a). Does country governance foster revenue efficiency of Islamic and conventional banks in GCC countries?. *EuroMed Journal of Business, 11(*2). 181-211. https://doi.org/10.1108/EMJB-06-2015-0026

Kamarudin, F., Sufian F., and Nassir A., M. (2016b). GFC, ownership and bank profit efficiency in the Bangladesh's state owned and private commercial banks. *Science Direct, 61*. 705-745. https://doi.org/10.1016/j.cya.2016.07.006

Karimzadeh, M., Jawed Akhtar, S. M., & Karimzadeh, B. (2013). Determinants of profitability of banking sector in India. *Transition Studies Review, 20*(2), 211-219. https://doi.org/10.1007/s11300-013-0284-4

Khan, H. H. (2022). Bank competition, financial development and macroeconomic stability: Empirical evidence from emerging economies. *Economic Systems*. https://doi.org/10.1016/j.ecosys.2022.101022

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013
Klein, P. O., & Weill, L. (2022). Bank profitability and economic growth. *Quarterly Review of Economics and Finance, 84*, 183-199. https://doi.org/10.1016/j.qref.2022.01.009

Kosmidou, K. (2008). The determinants of banks' profits in Greece during the period of EU financial integration. *Managerial Finance, 34*, 146-159. https://doi.org/10.1108/03074350810848036

Kosmidou, K., Pasiouras, F., & Tsaklanganos, A. (2007). Domestic and multinational determinants of foreign bank profits: The case of Greek banks operating abroad. *Journal of Multinational Financial Management, 17*(1), 1-15. https://doi.org/10.1016/j.mulfin.2006.02.002

Köster, A., & Zimmermann, J. (2017). Bank capitalization and bank performance: a comparative analysis using accounting-and market-based measures. *Banks and Bank Systems, 12*(3).

Kumbirai, M., & Webb, R. (2010). A financial ratio analysis of commercial bank performance in South Africa. *African Review of Economics and Finance, 2*(1).

Leontief, W.W. (1966. *Input-output economics*. Oxford University Press, Oxford.

Le, T.D. (2019). The interrelationship between liquidity creation and bank capital in Vietnamese banking. *Managerial Finance, 45*(2). 331-347. https://doi.org/10.1108/MF-09-2017-0337

Le, T.D., Tran, H., Nguyen, T. (2019). The impact of multimarket contacts on bank stability in Vietnam. *Pacific Accounting Review, 31* (3), 336-357. https://doi.org/10.1108/PAR-04-2018-0033

Le, T. & Ngo, T. (2020). The determinants of bank profitability: A cross-country analysis. *Central Bank Review. 20*. 10.1016/j.cbrev.2020.04.001.

Lindiasari, & Indra, A. Z. (2014). Toughness of Indonesian banking sector facing GFC 2008: Tests on welfare of shareholders. *Corporate Ownership & Control, 11*(4), 131-140.

Long, K. (2022, June 1). *The banker's top 30 ASEAN banks 2022.* The Banker: https://www.thebanker.com/The-Banker-s-Top-30-Asean-Banks-2022-1654070523

Mahmud, A. (2022). Impact of bank regulation on banks' profitability: Cross-country evidence. *European Journal of Business Science and Technology, 8*(2). 217-232. https://doi.org/10.11118/ejobsat.2022.010

Mohd Tahir, I., Abu Bakar, N. M., & Haron, S. (2010). Cost and profit efficiency of the malaysian commercial banks: A comparison between domestic and foreign banks. *International Journal of Economics and Finance, 2*(1), 186-197. https://doi.org/10.5539/ijef.v2n1p186

Molyneux, P., Reghezza, A., & Xie, R. (2019). Bank margins and profits in a world of negative rates. *Journal of Banking and Finance, 107.* 1-20. https://doi.org/10.1016/j.jbankfin.2019.105613

Mostak Ahamed, M. (2017). Asset quality, non-interest income, and bank profitability: Evidence from Indian banks. *Economic Modelling, 63*, 1-14. https://doi.org/10.1016/j.econmod.2017.01.016

Muazaroh, Eduardus, T., Husnan, S., & Hanafi, M. M. (2012). Determinants Of Bank Profit Efficiency: Evidence from Indonesia. *International Journal of Economics and Finance Studies, 4*(2), 1309-8055.

Nugrohowati, R. N. I., bin Ahmad, M. H. S., & Fakhrunnas, F. (2022). Investigating The determinants of Islamic bank's profitability: A cross countries analysis. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan, 23*(2), 254-268. https://doi.org/ 10.23917/jep.v23i2.20409

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013
O'Connell, M. (2022). Bank-specific, industry-specific and macroeconomic determinants of bank profitability: evidence from the UK. *Studies in Economics and Finance, 40*(1),155-174. https://doi.org/10.1108/SEF-10-2021-0413

Omotayo A.A. (2016). The effect of banks profitability on Economic Growth in Nigeria. *IOSR Journal of Business and Management (IOSR-JBM), 18*(3). 1-9. https://doi.org/ 10.9790/487X-18320109

Pervan, M., Pelivan, I., Arneric, J. (2015). Profit persistence and determinants of bank profitability in Croatia. *Economic Research-Ekonomska Istraživanja*, 28, 284-298. https://doi.org/10.1080/1331677X.2015.1041778

Rahman, M. M., & Mamun, S. A. K. (2017). The effects of telephone infrastructure on farmers' agricultural outputs in China. *Information Economics and Policy, 41*, 88-95. https://doi.org/10.1016/j.inteco.2020.02.001

Rakshit, B. (2022). Assessing the effects of cost, revenue and profit efficiency on bank performance: empirical evidence from Indian banking. *International Journal of Organizational Analysis, 31*(5). 1867-1898. https://doi.org/10.1108/IJOA-06-2021-2802

Rehman, Z.-, Khan, S. A., Khan, A., & Rahman, A. (2018). Internal factors, external factors and bank's profitability. *Sarhad Journal of Management Sciences, 4*(2), 246-259. https://doi.org/10.31529/sjms.2018.4.2.9

Reynès, F. (2019). The Cobb-Douglas function as a flexible function: A new perspective on homogeneous functions through the lens of output elasticities. *Mathematical Social Sciences, 97*, 11-17. https://doi.org/10.1016/j.mathsocsci.2018.10.002

Saleh, I., & Abu Afifa, M. (2020). The effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market. *Cogent Economics and Finance, 8*(1). https://doi.org/10.1080/23322039.2020.1814509

Salman, H., Aziz, B., & Nazir, A. (2016). Financial credit risks and earning efficiency: Empirical evidence from banking sector Pakistan. *International Journal of Research in Finance and Marketing, 6* (6), 209-219

Santoso, W., Yusgiantoro, I., Soedarmono, W., & Prasetyantoko, A. (2021). The bright side of market power in Asian banking: Implications of bank capitalization and financial freedom. *Research in International Business and Finance, 56*. https://doi.org/10.1016/j.ribaf.2020.101358

Sarker, N., & Bhowmik, P. K. (2021). Bank liquidity risk: Significance of financial disclosure and governance practice. *Asian Economic and Financial Review, 11*(9), 724–744. https://doi.org/10.18488/JOURNAL.AEFR.2021.119.724.744

Sharma, P., Gounder, N., Xiang, D. (2013). Foreign banks, profits, market power and efficiency in PICs: Some evidence from Fiji. *Applied Financial Economics, 23*(22), 1733-1744, https://doi.org/10.1080/09603107.2013.848026

Sobarsyah, M., Soedarmono, W., Yudhi, W. S. A., Trinugroho, I., Warokka, A., & Pramono, S. E. (2020). Loan growth, capitalization, and credit risk in Islamic banking. *International Economics, 163*, 155-162. https://doi.org/10.1016/j.inteco.2020.02.001

Staikouras, C. K., & Wood, G. E. (2004). The Determinants of European Bank Profitability. *International Business & Economics Research Journal, 3*(6), 57. https://doi.org/10.19030/iber.v3i6.3699

Sufian, F., Kamarudin, F., & Noor, N. H. H. M. (2012). Determinants of revenue efficiency in the Malaysian Islamic banking sector. *Journal of King Abdulaziz: Islamic Economics, 25*(2), 195-224.

Tambunan, T. T. H. (2010). The Indonesian experience with two big economic crises. *Modern Economy, 01*(03), 156–167. https://doi.org/10.4236/me.2010.13018

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 5 Issue 18 (December 2023) PP. 114-133
DOI 10.35631/AIJBES.518013

Tan, Y., Floros, C., (2012). Bank profitability and GDP growth in China: A Note. *Journal of Chinese Economics and Business Studies, 10* (3).

Thee, K. (2012). The impact of the GFC on the Indonesian economy and the prospects for the resumption of rapid and sustained growth. *In Indonesia's Economy since Independence* (pp. 126-136). ISEAS–Yusof Ishak Institute.

The World Bank Group. (2022). *Overview of Indonesia*. The World Bank. https://www.worldbank.org/en/country/indonesia/overview

Vithessonthi, C. (2023). The consequences of bank loan growth: Evidence from Asia. *International Review of Economics and Finance, 83*, 252-270. https://doi.org/10.1016/j.iref.2022.08.025

Wang, R., & Wang, X. (2015). *What Determine The Profitability of Bank? Evidence from The US* [Master's thesis, Simon Fraser University].

World Bank Group. (2022, September 16). *Risk of global recession in 2023 rises amid simultaneous rate hikes*. https://www.worldbank.org/en/news/press-release/2022/09/15/risk-of-global-recession-in-2023-rises-amid-simultaneous-rate-hikes

Wu, S. W., Nguyen, M. T., & Nguyen, P. H. (2022). Does loan growth impact on bank risk? *Heliyon, 8*(8). https://doi.org/10.1016/j.heliyon.2022.e10319

Yuanita, E., N., Suhartono & Kristijadi E. (2018). The effect of credit risk on bank profitability with efficiency as the intervening variable. *Russian Journal of Agricultural and Socio-Economic Sciences, 74*(2), 179-186. https://doi.org/10.18551/rjoas.2018-02.20

Yudistira, D. (2004). Efficiency in Islamic banking: An empirical analysis of 18 banks. *Islamic Economic Studies, 12*(1). 1-19.

Zarrouk, H., Ben Jedidia, K. and Moualhi, M. (2016). Is Islamic bank profitability driven by same forces as conventional banks? *International Journal of Islamic and Middle Eastern Finance and Management, 9*(1). 46-66. https://doi.org/10.1108/IMEFM-12-2014-0120