

CHAPTER I INTRODUCTION

1.1 Research Object

The objective of the research is in the financial sector in Indonesia which focus specifically on Indonesia's banking sector. The study focuses on top tier banks in Indonesia and the effect of digitalization to the financial sector. By analyzing these prominent banks, the research seeks to provide comprehensive understanding of how digital transformation affects a bank's financial performance. The emphasis is on assessing the adoption of digital transformation on bank financial performance and how digital transformation affects the bank's stability through times of crises.

Indonesia is one of the countries in Southeast Asia with some of the most rapid growth in technological advancements, as digitalization has no longer become an option, it is a must for a company to implement digitalization on their product or services to strive or maintain their position in the market. Digital transformation can be implemented in every aspect such as in mobile devices, websites and even transactions. Digitalization creates opportunities for companies to reach out to a wide range of customers. Digital transformation is a business strategy that applies digital technology across all aspects of the organization, modernizing the organization process, products operations and technology. The financial sector in Indonesia is the heart of Indonesia economy; by implementing digitalization specifically in its finance sector, this will enable growth in Indonesia economy. As banks continue to

implement digitalization, some banks implement more digitalization to its services enabling the bank to reach the customer online without any physical interactions.

Top-tier banks are the key players in implementing digitalization because top tier banks hold a huge market capitalization in the Indonesia Stock Exchange (IDX), high influence level and remain a crucial part in a country's resiliency, where capital allocation can shift entirely industries and economies. Financial institutions play a vital part in retaining a country's economy, digital transformation enables banks to create ecosystems, operation efficiency and technological innovation to create an integrated digital economy. Top-tier banks also manage massive pool of funds through deposits, loans, asset management, and other types of services. By using their funds to prioritize digital transformation, banks can create efficiency by implementing models such as improved credit models, cloud-based reduction and transactional fee reduction.

Indonesia's top-tier banks have made a become the foundation in financial trust and reliability. Digitalization plays a crucial role in innovation of technology, and one of the primary outcomes of digitalization is digital banks. The rise of digital banks has become a disruptor for many traditional banking institutions. As traditional banks operate through physical branches where it enables the banks to interact physically with their customers, it is also a way for them to provide financial services such as cash and check transactions, enabling customers to deposit cash or checks, withdrawing

funds and government checks. Traditional banks also provide loans and mortgage applications, consultation and paperwork processing for personal, auto loans mortgage and refinancing. Financial planning with advisors, investment strategies and wealth management. Physical branches enable banks to accept submission or receipts that are not eligible digitally as such notarized forms and original signatures.

Digital banks offer financial services without a network of physical branch offices, utilizing online platforms such as websites and mobile applications. Several banks implement high digital transformation, enabling the banks to offer benefits such as paying higher interest rates or annual percentage yields (APY) on savings, as they focus most of their capital expenditure on their operations. Digital banks also offer better online experience such as user-friendly websites and mobile applications where customers can view balance, transfer funds, pay bills and manage accounts. By implementing digital transformation on banks, banks are able to offer various payment networks, digital wallets, contactless payment and online bill pay. All services such as loan applications, credit cards, recurring payment and more are executed online.

This research will use Indonesia Stock Exchange (IDX) data to identify the top 30 banks Indonesia based on the respective bank's market capitalization. The banks that will be used in this research are based on the top performing banks in the Indonesia stock exchange as they are consistent staying at the top 30 financial sector and is listed on the Indonesia Stock

Exchange throughout the analysis period of 2020-2024. The analysis will be conducted through STATA 15 to analyze the impact of digitalization on bank financial performance of the respective banks, with its control variable including bank size, loan growth, non-performing loans, and GDP growth. The research questions on how banks with higher digitalization adoption enable a stronger performance and resilience against financial distress, conditions such as the 2008 global financial crisis and the Covid-19 pandemic. This research will ensure the performance and longevity of Indonesia's top 30 banks on their investment on digitalization.

1.2 Research Background

In 2008, A global financial service firm also known as the Lehman Brothers, the company branched into mortgaged-backed securities (MBSs) and collateral debt obligations (CDOs) following many other financial firms. In 2003 and 2004 Lehman acquired several mortgage lenders which specialized in Alt-A loans, enabling borrowers to loan without full documentation. Lehman real estate acquisitions generated high revenues enabling a increase to 56% on its capital market during 2004 to 2006 (Chadha, 2016). In February 2007, the Lehman's stock price increase to a record \$86.18 per share, generating a market capitalization of nearly \$60 billion according to PRMIA (2021), assumes their investment would always go up, on the first quarter of 2007, it was apparent that there were cracks in the U.S. housing market as defaults on subprime mortgages risen to a seven-year high. In august 2007, Lehman's stock took a drastic drop as credit crisis erupted with

a failure of two Bear Stearns hedge funds. The company eliminated 1,200 mortgage-related jobs and shut down its BNC unit, suspending its Alt-A lender within that month. As housing market correction gained momentum, Lehman persisted on being a major player in the mortgage market (PRMIA, 2021).

In 2007 Lehman's degree of leverage was 31. On March 17, 2008, the share drops to nearly 48% caused by concerns that the firm will follow the failure of Bear Stearns near collapse. On April, Lehman issued their preferred stock, enabling a conversion into Lehman shares at 32% premium to its current price, a strategy to improve the firm's return. Nevertheless, the stock proceeds to decline as hedge fund managers questioned the valuation of Lehman's mortgage portfolio (Belmont, 2011).

On June 7, 2008, the firm announced its second-quarter loss of 2.8 billion, it was the firm's first loss since the demerger by American Express, it is reported that Lehman raised another \$6 billion for investors on June 9. Over the summer, the stock dropped 77% in the first week of September 2008, creating questions from investors to the firm's CEO which plans to keep the firm independent by selling part of its asset management unit and real estate assets. Lehman's stock price proceeded to drop 45% and at the same time the firm's credit-default swaps rose to a record high of 610 basis points. Hedge funds started to abandon the company, creating a fragile financial position for Lehman Brothers as they report on their third quarter in September.

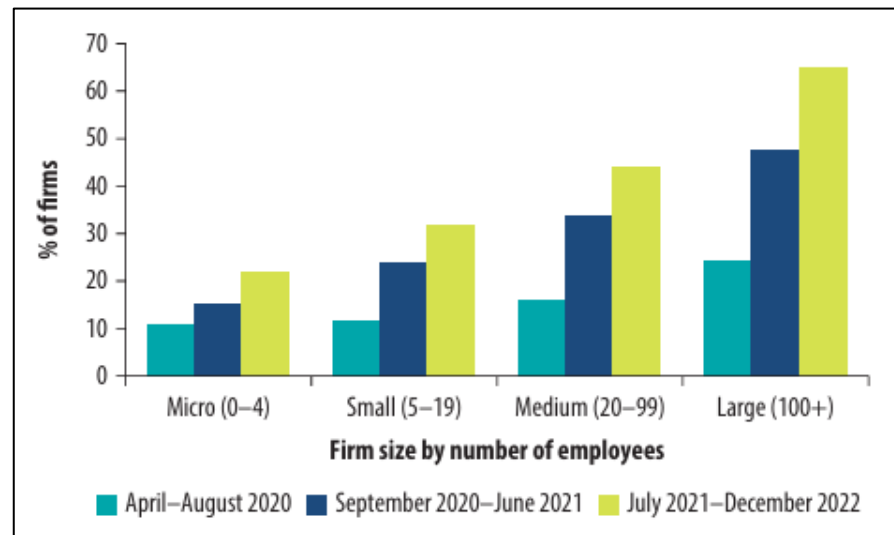
With a \$3.9 billion loss, including a \$5.6 billion write-down, the stock suffers another massive plunge of 42%, with diminishing cash by the end of the week, Lehman made a last-ditch effort to facilitate takeover of the former which had resulted unsuccessful. By September 15, Lehman declared bankruptcy, creating a stock drop of 93% on 12th of September (Jeffers, 2005).

In 2019 the world was hit by Covid-19, a global pandemic which lasted over a year. As technologies get better over the years, the implementation of digital technologies rapidly grows during the pandemic. Digitalization has started to be implemented in Indonesia's banking sector as digitalization allows banks to provide services that can be accessed with an individual's mobile device, through an application or a website, where users are able to open an account, create transaction and manage investment (George & Xie, 2024).

According to World Banks, (2023) a survey was conducted on the impact of the pandemic on business in dozens of countries around the world from April 2020 to December 2022. The survey captured information on how much a firm invest in digitalization before and during the pandemic. The results show a high increase in the share of firms that have invested in digitalization during the pandemic period. Based on BPS about 16% of firms invested in digital technologies during the early phase of the pandemic, the share then increase to 26% during the second phase of the pandemic from September 2020 to June 2021 and increase to 33 percent during the final phase of the pandemic from July 2021 to December 2022, the report also show an

increase on micro firms investing in digital solution which doubled from 10% to 20% , while the percentage of large firms tripled from 20% to 60%

Figure 2-1.2.1 Digital Investments



Source: (World Banks, 2023)

The higher probability of investing in and implementation of digital solutions during the pandemic was predicted by firm's pre-pandemic digital readiness and management practices. Digital practices have been applied across three indicators: online sales and payments, online social media, and usage of enterprise resource planning software and systems. Management practices were measured as the number of structured management practices applied out of the three indicators among firms: targets, advertisements and promotion for employees.

Figure 1.2.2-2 Firm's Investments in Digital Technology

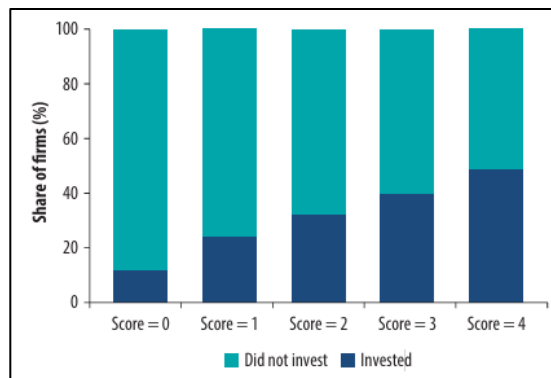
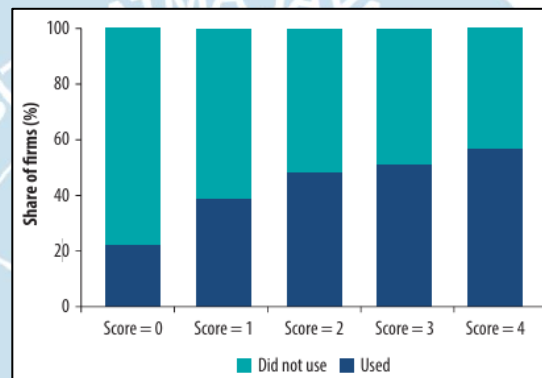


Figure 1.2.2-3 Usage of Digital Technology



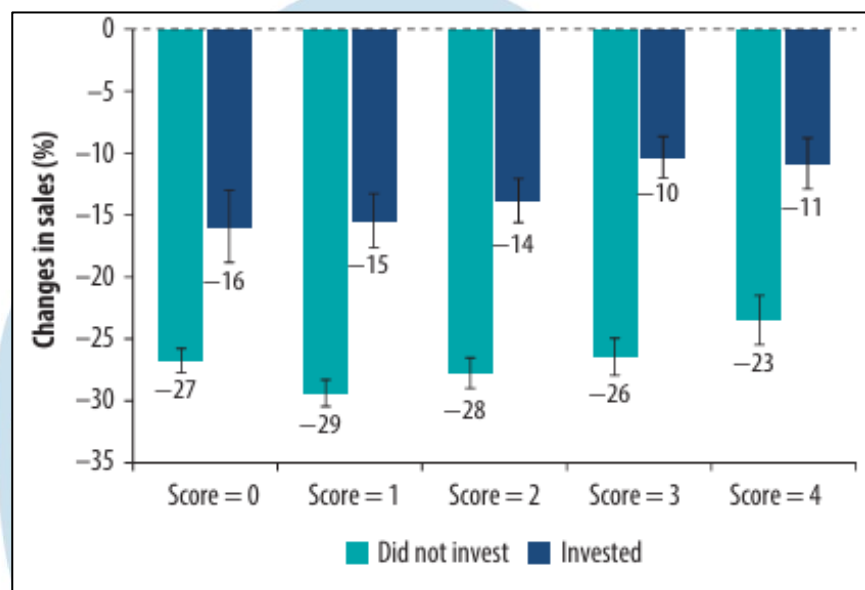
Source: (World Banks, 2023)

The numbers were used to generate firm capability scores. The measurement score of 0 indicates no digital preparedness or poor management practices before the pandemic, a score of 4 indicates the highest digital readiness and best management practices. The BPS result shows firms with higher scores were more likely to invest in and use digital technologies (World Banks, 2023).

The result shows firms with greater digital readiness before the pandemic and those with investment during the pandemic recorded greater

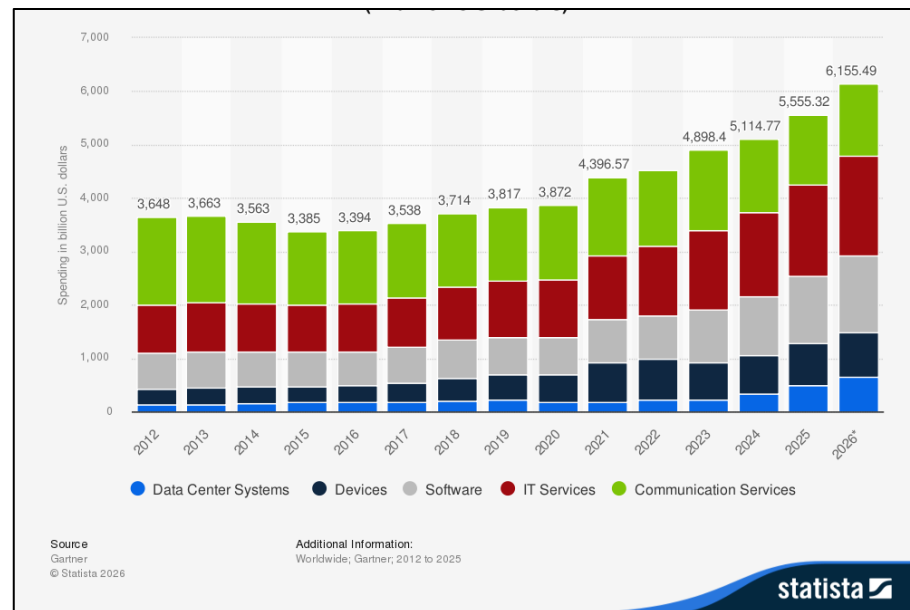
resilience in sales, firms who have invested in digitalization before the pandemic recorded a higher share of sales during the pandemic due to their use of digital platforms. Firms that invest in digitalization during the pandemic have recorded a smaller decline in sales in contrast to firms that did not invest across all levels of pre-pandemic.

Figure 1.2.2-4 Investments to Sales During Pandemic



(source: World Banks, 2023)

Figure 1.2.2-5 IT Spending Worldwide



(source: Gartner, 2026)

According to the table statistical data above, there has been a structural shift in global Information Technology (IT) spending over the last decade. Before the 2019 pandemic, global IT expenditure has a stable growth, with an average threshold of \$3.5 billion through the year of 2012 – 2020. However, digitalization shifted exponentially post-pandemic, initiating a huge compounding expansion in technology expenses. By 2025 global IT investments have reached a record high of \$5,555 billion, almost double the capital investments for IT a decade ago. It is projected in 2026 that the capital investment for Information Technology can reach up to \$6,155 billion.

The data also show that the heavy investment in Information Technology focuses on infrastructure optimization and operational competence. Investment on IT is allocated into several segments, operational

competence such as IT services and communication services receives the largest amount of capital investments. This shows that the distribution of capital allocation highlights the importance of strategies for modern organization. Digital investment has also shifted away from a mere purchase of physical hardware to a complex integration of the company with its software, examples such as software as a service (SaaS) and cloud infrastructure.

In Indonesia, digitalization has risen in Indonesia financial services industry. Banks today are facing various competitions within each other in intermediaries such as payment and advisory services. As Financial Technologies (Fintech) grows, it creates a higher level of competition for the other players in the market. This disruptor creates opportunities for improvement in efficiency, innovation and access to financial services (Vives, 2019).

Creating a stable performance should be a top priority especially in financial sector, nevertheless in Indonesia banking sector where the banks are the heart of Indonesia economy (Navarro-Galera et al., 2016). According to No.12/POJK.03/2021 (Otoritas Jasa Keuangan, 2021), OJK announced a digital resilience guideline for commercial banking industry to increase the bank's resiliency in the digital era, with main aspects including resilience to business dynamics, resilience to disruptors, and customer protection in the digital era

Despite OJK's regulatory support and theoretical benefits of technology, there has been a verifiable gap in Indonesian context. Most research focuses on the adoption of bank digitalization rather than the longevity impact on financial performance. There is a need to determine that digitalization can result in a superior performance in times of financial distress in order to help Indonesia survive and compete in today's digital era (Febriansyah et al., 2025). By implementing the top banks in Indonesia according to their respective market capitalization and data listed in the Indonesia Stock Exchange (IDX), the research will be able to see the impact of digitalization on Indonesia financial sector in the banking industry.

1.3 Research Novelty

This Research Differs from previous research, in contrast to Nguyen-Thi-Huong et al (2023) Where the research focuses on commercial banks in Vietnam, this research solely focus on commercial banks in Indonesia that is listed in the Indonesia Stock Exchange (IDX), This research then utilizes each bank's market capitalization in contrast to using total asset as a measurement for bank size to give a more finance approach to the research. Research period also differs, where this research focuses on the post-pandemic period, from 2020-2024, while Nguyen-Thi-Huong et al (2023) research focused on pre pandemic and post pandemic period, from 2015-2021.

1.4 Problem Statement

According to the background that has been presented, the problem statement in this research is as follows:

How does digital transformation impact Indonesian banks financial performance throughout the research period (2020-2024)?

1.5 Scope of Research

This research focuses on Indonesia's commercial banking sector which are operating under the surveillance of the Otoritas Jasa Keuangan (OJK). The observation period of this study is within the range from 2020-2024, ensuring the relevance of the study to Indonesia's current financial performance. The banks involved are the top 30 banks in Indonesia according to their respective market capitalization.

All 30 banks are listed on the Indonesia Stock Exchange (IDX) and publish their own audited financial statements, ensuring the reliability and availability across the study period. The period of analysis in this study is in 2020-2024 period, the period is chosen to analyze the growth of digital transformation among financial institutions specifically in Indonesia, as rapid growth of digitalization on financial services has increased post-pandemic.

The sample of this research contain 30 banks in Indonesia according to their market capitalization. The selection is necessary to ensure that the

banks selected are comparable within their size and does not create an imbalance between the banks.

This research analyses the relationship between digital transformation and a bank's financial performance measured by the bank's ROA. Digital transformation as the independent variable, bank performance as dependent variable, with Non-Performing Loans, Loan Growth, Market Capitalization and Growth Gross Domestic Product as the control variable in this study. The aim of this research is to analyze the influence of digital transformation on a bank's financial performance.

The measurement of digital transformation is through the frequency of digital related keywords related to digital transformation in banking disclosed in the bank's annual report. Keywords such as Technology, Internet, Digitalization, Fintech, Atm, etc. will be used in this research as they are related to digital transformation. Therefore, the number of words related to digital transformation will represent the level of digital transformation in Indonesia's commercial banks.

This research will use dynamic data regression analysis, implementing Generalized Methods of Moments (GMM) to determine the impacts of digital transformation on bank's performance measured by ROA. Dynamic data regression analysis allows a more in-depth analysis of multiple banks over a certain period and takes account of each individual bank characteristics making it suitable to analyze each bank in a more detail manner (Baltagi, 2021).

1.6 Objective of Research

The study aims to provide empiric evidence on the effect of digital transformation on Indonesian bank's financial performance between the observation period of 2020 to 2024.

1.7 Research Benefits

a. Theoretical Recommendations

The theoretical recommendation for conducting this research is to give readers information about the relationship between digital transformation and financial performance within the banking system. The impact of digitalization to Indonesia's financial sector specifically in the banking sector. It is hoped that the investor among the readers receives insights on digital investments decisions, therefore they may find investment that aligns with their values and financial goals.

b. Practical Recommendations

The practical recommendation is expected to provide information to financial institutions on assistance and help evaluate where digital strategies contribute significantly to the operational efficiency, risk management and financial performance of the company, specifically on banks. It hopes to give insights to financial regulators in Indonesia on providing evidence regarding the stability implications and risk that might acquire on digital banking models.

