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THESIS

The Effect of Enterprise Resource Planning System Implementation and Internal Control System on Firm Value

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The Effect of Enterprise Resource Planning System Implementation and Internal Control System on Firm Value

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ABSTRACT

This study aims to analyze the effect of Enterprise Resource Planning (ERP) system implementation and internal control system on firm value of manufacture sector companies listed on Indonesia Stock Exchange (IDX). The independent variables in this study are ERP system implementation and internal control system measured using the internal control disclosure index (ICDI). The dependent variable is firm value measured by the Price to Book Value (PBV) ratio. The data analysis technique used in this study is multiple linear regression analysis through SPSS 27 program. The data were collected using purposive sampling method from annual reports 2020-2022 with a total sample of 177 firm-years from 63 manufacture companies listed on the IDX. The results of this study indicate that ERP system implementation and internal control system simultaneously affect firm value. Meanwhile, partially ERP system does not have a significant effect on firm value and internal control system has an effect on firm value.

Keywords: *Enterprise Resource Planning (ERP), Internal Control System, Internal Control Disclosure Index, Firm Value, Price to Book Value (PBV)*

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I am who undersign this letter hereby declare that the thesis entitled:

"The Effect of Enterprise Resource Planning System Implementation and Internal Control System on Firm Value", is the result of my own work to obtain an academic degree in college and is performed with the best of my knowledge. There is no work or opinion written or published by others, except those written in the text and mentioned in the bibliography. If plagiarism is found in this thesis, I will receive a sanction or the tittle that I get.

Padang, September 25th, 2024

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Padang, September 25th, 2024

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This study aims to analyze the effect of Enterprise Resource Planning (ERP) system implementation and internal control system on firm value of manufacture sector companies listed on Indonesia Stock Exchange (IDX). The independent variables in this study are ERP system implementation and internal control system measured using the internal control disclosure index (ICDI). The dependent variable is firm value measured by the Price to Book Value (PBV) ratio. The data analysis technique used in this study is multiple linear regression analysis through SPSS 27 program. The data were collected using purposive sampling method from annual reports 2020-2022 with a total sample of 177 firm-years from 63 manufacture companies listed on the IDX. The results of this study indicate that ERP system implementation and internal control system simultaneously affect firm value. Meanwhile, partially ERP system does not have a significant effect on firm value and internal control system has an effect on firm value.

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CHAPTER I
INTRODUCTION

1.1 Background

The rapid evolution of information technology has influenced the dynamics and changes in the business environment in recent decades. The development of technology and information has greatly influenced the progress of the business around world. For this reason, it is important for companies to keep up with these developments and implement them to improve company performance in order to compete and maintain business continuity in the future.

According to Indonesia's Central Statistics Agency (BPS), as per September 2023, there were 32,193 medium and large manufacturing companies or enterprises still actively producing in Indonesia. With such a large number of companies, information technology has become an important part of the company's strategy in order to be able to maintain a competitive edge in the midst of intense competition in the business world. The use of technology in the business activities of these companies can open up opportunities for the company to access, manage and use information in large quantities, quickly and accurately. This can be measured by the speed with which the company can capture information and then process it quickly and accurately into data that can be used by management to make the right decisions. Furthermore, the application of appropriate technology to business processes may add value to an organization's reputation with investors, who may view it as capable of increasing the value of the organization.

Firm Value is how investors perceive a company's value, often associated with its share price (Putu, Moeljadi, Djumahir & Djazuli, 2014). Maximizing firm value is one of the important goals as well as the long-term goals of the company. Firm value is also one of the indicators of the consideration for investors to invest in companies that are considered to be able to increase their wealth. Putu et al., (2014) stated that firm value becomes something very important in investment transactions. When the stock price is high, the firm is highly valued and it affects the market confidence in the current performance of the firm and the future prospects of the firm. There are a number of efforts and factors that can support an

increase in the value of a firm. One of them, according to research by Chen & Srinivasan (2023), is that the adoption of digital technology could increase firm value by increasing productivity through improved coordination and workflow efficiency. This could be a reason for firms to keep up with technological developments and to invest in those that can bring benefits to the firm. Most industries compete to invest in tools and technologies to integrate the production process, machines and human resources and then evaluate for better development in the company. Advances in technology believe to encourage investors to consider other factors beside the company's financial position to invest, because the role of technology itself in companies has transformed effectiveness and efficiency (Putri, Riwajanti & Riwajanti, 2022). In another study conducted by Kohli, Devaraj, and Ow (2012), mentioned that the investment made by the company to use the latest information technology can then help increase the value of the company.

In the past, firms seeking to adopt digital technology had to invest in data infrastructure and hardware that were costly and labour-intensive. But now, technological advancements have made things simpler and more seamless to use. This phenomenon occurs because technology continues to develop in a direction that makes it easier to use, so that it fulfils every company desire to have smooth and unobstructed information flow within its organization. Enterprise Resource Planning (ERP) is one of the technologies that is still continues to develops until now. It is a software system that integrates the entire business process to generate comprehensive business information using information technology (Klaus, Rosemann & Gable, 2000).

Before ERP system exists, each business function in the company operated independently, despite the fact that functional areas in an organization are interdependent and require data from one another to achieve their goals. However, since the existence of ERP systems, companies have been able to realize this integration through system which is a package of computer applications that support many, even most, aspects of a company's information need. ERP system, which has been present since the 1960s, has been used by organizations in various sectors to increase competitiveness in the sustainable business world. Currently, a new wave of data-driven digital technology is encouraging ERP vendors to continuously

update their systems to keep up with the latest technological developments. These changes are what make ERP systems still used by many companies in the world today because it relevant to what is needed in the market. Therefore, this study aims to determine whether the use of the latest ERP system can significantly affect firm value.

ERP implementation in Indonesia in recent years has increased significantly and is used by businesses of various scales ranging from large enterprises to SMEs. The reason is because ERP systems are one of the tools that show the potential for improvement in managing organizations and also as an information technology solution it allows companies and their suppliers to manage large projects effectively and efficiently throughout the project life cycle. It can be said that the use of this ERP system promises perfect integration of business processes throughout the organization which will have an impact on increasing firm value (Dewi & Bahari, 2023).

Other reason is that ERP systems enable the realization of modern organizational and structural forms of enterprises, in which all data resources, management procedures, control and regulation of business processes can be implemented with the support of single information and communication technology. With that reason, ERP implementation in Indonesian companies is expected to be able to accelerate business processes, increase efficiency and generate greater revenue, so that the company's operating costs can be optimized. With many ERP users today, it is proving that ERP is able to simplify business processes that would lead into increasing the efficiency in the company's operational performance that turns into the increase in the firm's value. It has been previously stated that an increase in company productivity can lead to a greater firm value and several studies have shown that the implementation of ERP software in companies can increase firm value due to the advantages offered by the system (Erlely & Pontoh, 2022; Nugraha, Janis & Bisri 2022; Nur & Putra, 2020; Hsiung, Wang & Chen, 2019).

Furthermore, in addition to the implementation of ERP system in companies, good internal control is also one of the things that companies need to pay attention to in order to increase the value of the company in the eyes of investors

or stakeholders. Internal control is a series of processes carried out by the company to provide adequate assurance of the achievement of entity objectives which include the efficiency and effectiveness of business activities, the reliability of financial statements and compliance with applicable regulations (COSO, 2013). Zhou & Han (2021) believe that through an efficient internal control, the future value-added capabilities of the company can be improved. Therefore, a strong internal control can increase the value of the company. In the market, Information about internal control is very important for stakeholders, but the information is limited to the company's internal parties, so a disclosure about internal control by the company is required (Spira & Page, 2010). It is stated by Chen dan Shi (2012) that the higher the internal control index, can leads to the higher the efficiency of the company's internal control, which results in the company being able to carry out its operations effectively and efficiently so as to increase company value.

As improving business efficiency and effectiveness is the source of increasing the firm value, this research aiming in knowing if the implementation of ERP and a good internal control system could also take the role in increasing the firm value of manufacturing companies that listed in IDX from 2020 to 2022. There are several differences between this research and previous studies such as, this study examines whether the use of both ERP system and good internal control system in the company can affect in the firm value. The research sample is manufacturing companies listed on the Indonesia Stock Exchange (IDX) in the last three years, namely 2020 to 2022. This research was conducted to determine the impact of the two independent variables, namely ERP implementation and Internal Control System on firm value that is measured with Price to Book Value (PBV) ratio.

Based on the background of the problems that have been described, and researchers want to know how much the influence of the independent variable affects the dependent variable. The researcher is interested in conducting research with the title **"The Effect of Enterprise Resource Planning Implementation and Internal Control System on Firm Value"**

1.2 Research Problem Formulation

Based on the background of the research above, this study intends to determine the effect of ERP and internal control on firm value. Therefore, the research problem is formulated as follows:

1. Does implementation of ERP system affect the firm value?
2. Does implementation of internal control system affect the firm value?
3. Does the ERP system implementation and internal control system in a company simultaneously affect firm value

1.3 Research Objectives

Based on the formulation of the problem above, the objectives to be achieved from this research are:

1. To know if the ERP system implementation has effect on firm value.
2. To find out the effect of internal control system on firm value.
3. To find out if the ERP system implementation and internal control system in a company has an effect on firm value.

1.4 Research Benefits

Based on the research objectives mentioned above, this research is expected to provide benefits for interested parties. The benefits of this research are as follows:

1. For the Investor/company

   Companies can understand the importance of implementing the ERP system, so the company can produce a better performance which can be seen from the increase in firm value.

2. For Andalas University

   This research is expected to provide additional knowledge and become a reference and reading material for those interested in exploring the effects of technology use on company.

3. For Researcher

   In the research conducted, the authors were able to find out directly about the influence of the implementation of ERP system in a company level, Internal Control and Firm Value measured by Price to Book Value (PBV) ratio.

1.5 Systematic Discussion

In order to provide a comprehensive overview of the contents of this thesis, it is necessary to have a systematic discussion which is classified in the form of chapters as follows:

CHAPTER I: INTRODUCTION.

Contains the background of the problem, problem identification, problem definition, problem formulation, research objectives, research benefits, and writing systematics.

CHAPTER II: THEORETICAL REVIEW

In this chapter, it is stated concisely and clearly about the results of the literature review related to the topic and research variables to serve as the basis for compiling a framework of thought and formulating hypotheses. This chapter contains Theoretical basis, summary of the previous research, hypothesis development, and research conceptual framework.

CHAPTER III: RESEARCH METHOD

This chapter discusses the conceptual model and systematics of the research. It's containing the research methods, variables, population and samples, data sources and data analysis techniques.

CHAPTER IV: RESEARCH RESULTS AND DISCUSSION

This chapter describes the results and discussion of the research conducted. This chapter will describe the general description of the research and analysis of research data calculations.

CHAPTER V: CLOSING

In this chapter which is the last chapter of the whole research which contains a description of the conclusionsof the overall discussion of problem analysis and suggestions given by the author on the problems raised inthe researcher.

CHAPTER II
THEORETICAL REVIEW

2.1 Theoretical Basis

2.1.1 Technology Organization Environment (TOE) Theory

Technology Organization Environment (TOE) theory is a theory developed by (Tornatzky & Fleischer, 1990) that aim to study the use of technological innovations in organization. Furthermore, Tornatzky & Fleischer (1990) explain that this TOE theory There are three contexts that influence the adoption of technology in organizations, namely the development of information technology, organizational conditions, and the company's industrial environment. The technology context refers to current internal and external technologies relevant to the organization. Decisions to adopt technology could be depend on what technology is available and as well as how the characteristics of the available technology fits with the firm's current technology. The organization context describes how the internal state of an organization will in adopting the technology. It can be viewed from the context of formal and informal organizational structure and characteristics, communication process, organization size and flexibility. The last, environment context describes the organizational space in which the organization does business. This context includes industry characteristics, market structure, infrastructure and government regulation (Adiyasa et al., 2019).

As for organizational level, this TOE theory is broadly used to explain IT adoption. Because TOE has a strong foundation and consistent empirical support, this theory can be used as a means to improve company performance and value (Sulaiman et al., 2021). The TOE theoretical framework can also be seen as a comprehensive and quality framework that is very suitable for studying the adoption of information technology in companies. This theory is aimed at companies in efforts to adopt an information technology that is useful for increasing the efficiency and effectiveness of company performance so that the company can develop forward and have better value nor to be remain competitive in the rapid changing industry.

2.1.2 Firm Value

The company in its development will always try to maintain its business advantage to increase company value. It is wildly known that the primary goal of the firm is to maximize the wealth of its stockholders, which translates into maximizing the price of the firm's common stock (Shim & Siegel, 1998). Firm value is a long-term financial performance measured by share price in market-based perspectives (Hatane, Tertiadjajadi & Josuatarigan, 2017). More clearly, company value is the investor's view on the company's success rate in managing company resources which is reflected through stock market value indicators. This value will then affect investment opportunities in the company which can provide a positive or negative picture of the company's future growth. This prospect will then affect the share price and with the increase in share price, the company value will also increase (Mareta & Fitriyah, 2017). This is what makes the company's value will then provide an overview to management regarding investors' perceptions of the company's past performance and future prospects (Brigham & Houston, 2019).

Given the description above, it can be concluded that firm value is the investor's perception of the company, this can be in the form of the company's success in managing the company's resource instruments which can be seen from the value of the company's share price in the capital market. A high firm value would attract new potential investors and strengthen the company's image as a viable company as an investment destination (Andes et al., 2020). That is why, in order to accommodate the expectation of stakeholder, increasing firm value is one of the main focusses of the company.

2.1.2.1 Values of the Company

There are several value concepts that explain the value of a company (Christiawan & Tarigan, 2007), namely:

1) Nominal Value, which is the value formally stated in the company's articles of association, explicitly mentioned in the company's balance sheet and also clearly written in the collective share certificate.
2) Market Value or often called the exchange rate, is the price that occurs from the bargaining process in the stock market. This value can only be

determined if the company's shares are sold on the stock market.

3) Intrinsic Value is a value that refers to the estimated real value of a company. Company value in the concept of intrinsic value is not just the price of a set of assets, but the value of the company as a business entity that has the ability to generate profits in the future.
4) Book Value is the value of the company calculated on the basis of accounting concepts. Book value records what the company paid for its assets, minus deductions for depreciation.
5) Liquidation value is the sale value of all company assets after deducting all liabilities that must be met. The residual value is the shareholders' share. Liquidation value can be calculated based on the performance balance sheet prepared when a company is liquidated.

2.1.2.2 Firm Value Measurement

Andes, Nuzula & Worokinasih (2020) highlight that measurement of firm value consists of some indicators:

1) Price to Book Value (PBV) Ratio

Firm value can also be measured by Price to Book Value (PBV) and accordingly, this PBV ratio is the valuation ratio for firm value used in this study. According to Sari & Jufrizen, (2019), Price Book Value (PBV) is the ratio between stock price and book value per share, This ratio can also be used as an alternative approach to determine the value of a stock because theoretically the market value of a stock must reflect its book value, because the higher the PBV value indicates the better the company's value and vice versa, the lower the PBV value indicates the company's value is getting worse, so investors' perception of the company is also not good. The formula for PBV is:

$$PBV = \frac{\text{Market price per share of common stock}}{\text{Book value per share of common stock}}$$

2) Tobins Q

Tobin's Q or Q ratio is a theory first introduced by James Tobin in 1969. This theory hypothesizes that the market value of the company should

be equal to the cost of the company's assets so that a balanced/equilibrium situation is created. Tobin's Q is a ratio that shows market estimates so that it provides rational information about the value of the company, because it includes all the company's assets. According to Brealy and Myers (2000) in the (Subanidja et al., 2016), companies with a high Tobin's Q ratio usually have a strong brand image of companies. On the contrary, companies that have low Tobin's Q ratio are generally involved in a very competitive industry or an industry that begins to shrink.

Tobin's Q can be formulated with:

$$Q = \frac{Market\ Capitalization\ (MVE) + Total\ Debt}{Total\ Assets}$$

Where:

MVE: Number of share outstanding x Share closing price

The ratio can be interpreted with the following:

Q < 1, the stock is undervalued. Means that management is considered incapable of managing the company's assets so that the potential for investment growth is low.

Q = 0, shares in average condition. Means that the ability to manage assets by management is stagnant so that there is no investment growth in the company.

Q > 1, the stock is high valuated. Means that management has managed the company's assets well so that the potential for investment growth is high

3) Price Earnings Ratio (PER)

Measures the amount that investors are willing to pay for each dollar of a firm's earnings; the higher the PER, the greater the investor confidence.

$$P/E = \frac{\text{Market price per share of common stock}}{Earning\ per\ Share}$$

2.1.3 Enterprise Resource Planning (ERP)

The implementation of an integrated information system is a crucial thing that companies need today. It is intended that information across organizational boundaries can be carried out properly so that strategic decisions can be made quickly and accurately. ERP systems help organizations to manage companies that have a broad scope of business processes, use an integrated basis and are used as an effective management reporting tool to support decision making. Here are some definitions of ERP according to experts:

Wallace & Kremzar (2001:5) describe Enterprise Resource Planning as:

> *"An enterprise-wide set of management tools that balances demand and supply, containing the ability to link customers and suppliers into a complete supply chain, employing proven business processes for decision-making, and providing high degrees of cross-functional integration among sales, marketing, manufacturing, operations, logistics, purchasing, finance, new product development, and human resources, thereby enabling people to run their business with high levels of customer service and productivity, and simultaneously lower costs and inventories; and providing the foundation for effective e-commerce"*

Another definition according to Leon, (2014:24) explains that an ERP system is:

> "*ERP stands for enterprise resource planning and means—the techniques and concepts for integrated management of businesses or management of business as a whole with the objective of efficient and effective use of management resources, and to improve the efficiency of enterprise management."*

Romney and Steinbart (2018:35) define ERP as follows:

> *"A system that integrates all aspects of an organization's activities—such as accounting, finance, marketing, human resources, manufacturing, inventory management— into one system. An ERP facilitates information flow among the company's various business functions and manages communications with outside stakeholders."*

From the three definitions above, it can be concluded that Enterprise Resource Planning or ERP is an information system that controls and integrate every aspect of your business from accounting and finance, supply chain management, marketing and sales, human resource planning, operation and also manufacturing into a single software system.

This integration eliminates the needs for separate system by combining various business processes and functions into a single system and make it more effective and efficient in the process. ERP systems also can help ensure consistency and accuracy in data entry, processing, and reporting. The better a company can integrate the activities of each functional area, the more successful it will be in today's highly competitive environment. Integration also contributes to improvements in communication and workflow. With the complexity that ERP has offered, the primary purpose of implementing it is to run the business, in a rapidly changing and highly competitive environment, far better than before.

2.1.3.1 ERP History

Historically, ERP systems were dedicated to large enterprises engaged in manufacturing activities and long before the advent of advance technology, ERP has come a long way since the 1960s, beginning with Material Requirement Planning (MRP) which was the predecessor of ERP and focused on product manufacturing planning for production and inventory orders. However, this pioneer system was very expensive and required a lot of experts to operate (Jacobs & Weston, 2007).

Furthermore, Jacobs & Weston (2007) explain that in the 1980s this system evolved into Manufacturing Resource Planning (MRP II) which provides more sophisticated solutions to support the manufacturing process, enables coordination between departments involved in the manufacturing process in large companies, such as factories, warehouses, and distribution centers, and has more advanced production scheduling capabilities than its predecessor. It also additionally included planning and control of other production factors such as human, machine and monetary resources.

Enterprise systems continued to evolve until the 1990s when Enterprise Resource Planning or ERP emerged, integrating multiple processes and departments into one system. This system is now expanded to include other departments and functions and go beyond the basic inventory control and manufacturing processes of previous iterations and its use is no longer limited to manufacturing companies only (Lobo, 2022). The rapid changes in technology also made the enterprise system continue to evolve until the early 2000s where

the internet began to be recognized, the ERP system was then developed into ERP II which refers to internet-enabled software that provides real-time access to ERP solutions delivered via the internet (McCue, 2020).

The system continues to grows until now the biggest development in enterprise system is the emerged of the system in the cloud model. Cloud-based ERP, which then called Cloud ERP, is typically an ERP system delivered as a service over the Internet and involves transferring the use of an ERP system from an enterprise's own local infrastructure to a web-based processing platform run by the system provider (Bitkowska, Dziembek & Gzik, 2024). Cloud model ERP system provider takes care of system maintenance, updates and data security, and the recipient does not buy a license, but leases the ERP system on an annual or monthly subscription basis. This change allows companies to completely stop using the ERP on-premise system, which is the adoption of technology that starting from the procurement of infrastructure to hardware is carried out by the company itself, thus company are no longer need to purchase and maintain the hardware of ERP system and also reduce the need for IT staff that handle maintenance which then will lead to easier implementations of the system. This major changing in with digital transformation using cloud could benefits company in many ways. But, to move to cloud is not a mere technical choice. Moving from on-premise software to cloud services affects all business model components, as well as way organization manage their process (Arena et al., 2020).

There are differences between on-premise ERP system and cloud ERP system that make this change one of the major changes in the history of ERP development. Research from Bitkowska et al., (2024) summarizes the changes in Cloud ERP in the Table 2.1:

Table 2.1 On-Premise ERP and Cloud ERP Key Differences

Aspects	On-premise ERP	Cloud-ERP
Cost	High initial cost for licenses, maintenance cost, and	Lower initial cost and no maintenance cost because it on the
Customization	The customization is up to the company	Low opportunities for customization
Deployment	In local data center	On provider's server
IT staff reducing	Need more IT staff	High possibility for reducing IT staff
Updates	Performed manually by the IT staff	Usually done automatically by the cloud provider
Access of Internet	No need internet access	Need internet access
System control	Need high control over the system	Limited control over the system
Technical infrastructure	Require investment for the infrastructure in house	All the necessary infrastructure is provided by the cloud service provider
Customers segment	Large enterprise that has certain budget for IT infrastructure	Can reach the Small and Medium Enterprise segment
Mobility	Limited access	Possible access from anywhere
Data Security	High data security controlled by enterprise security policy	Depending on each provider's security policy
Implementation time	Takes time to implement	Shorter implementation time

From the differences between the two types of ERP systems above, there are benefits and challenges that might come from switching on-premise ERP system to cloud ERP. It is stated in Elmonem, Nasr, and Geith (2016) research that if a company or an organization wants to decide to move into cloud ERP system, it must be taken into consideration to the possible cloud ERP clients that they should balance between the benefits and challenge between the two system because one benefit could led to many challenges and on another side, some challenges cloud be solved by some benefits.

2.1.3.2 ERP Benefits and Challenges

The implementation of a new system in a company, particularly one that introduces significant changes, requires careful consideration of the potential benefits and drawbacks for the company. Hence, in order to gain a comprehensive understanding of ERP systems in today's business environments, it is essential to examine both the potential benefits and the challenges associated with their implementation. As is stated in Elmonem et al., (2016) research that the interplay between benefits and challenges in ERP systems can make the decision-making process in making investment on ERP system for organizations challenging. According to Bitkowska et al., (2024), these are ERP system benefits from several dimension in the organization:

1) Operational, such as cost reduction, time efficiency and improvement of quality of analysis.
2) Processes, by increasing the efficiency of business processes through elimination of unnecessary activities, better use of resources and reduction of unnecessary costs, and etc.
3) Data processing, document circulation and information flow. ERP system helps the acceleration of data processing, increasing the speed of flow and availability of information in digital form, improvement of security of processed data, and also reliability and transparency of information
4) Management. ERP system helps in streamlining decision-making processes, improving the efficiency of managers' activities in the area of planning and control in the company and optimizing the management of tangible, intangible, financial and human resources
5) Strategic. ERP system helps with assisting in the implementation of digital transformation, and providing business flexibility for current and future changes of the enterprise.
6) Organizational. ERP system helps changing work performance patterns and transforming the enterprise into an organization that bases its activities on information, eliminating information asymmetry,

developing user knowledge and competencies, and moving toward an intelligent organization.

The literature highlights that ERP systems provide extensive benefits across various dimensions of an organization. It is expected that by leveraging and integrating those advantages, companies will be able to achieve greater overall efficiency, adaptability, and competitiveness in the ever-evolving business landscape. Aside from the benefits that ERP system has offers that can streamline processes and enhance efficiency on the company, considering the challenges that could impact their overall effectiveness also important. In their literature, Mahmood, Khan, and Bokhari (2020) explains ten most common issues that could appear in implementing ERP system in an organization:

1. Top Management Approach. Major changes that will be faced by companies in implementing ERP systems require great support and responsibility from top management to carefully plan the change process. Thus, to avoid issues/challenges those may appear in as impediments toward successful implementation of ERP system, company needs to seek a full support and commitment from top management first.
2. Change management. ERP system implementation requires big changes in the company that makes mostly middle manager who has already comfortable with their own way in doing their work resist the ERP implementation process. It is another challenge that a potential ERP implementor needs to face because clearly resistance to change is a problem that is not easy to handle.
3. Employee training and development. Since the ERP system is a complex system, it demands the company user to conduct special training for the employee. Thus, this is one of the major challenges that a company needs to face in implementing ERP system. In the majority of cases, the provision of training for ERP systems requires a considerable investment of time and resources. Consequently, the risk of failure in training could result in the ERP system failing.

4. Effective communication. ERP system integrates the business process from various departments in a company into a single system, hence an effective communication and coordination among users is an essential part in the success of changes in the company.
5. System integration. Companies might face a challenge when integrating more than one business system in the organization since there is no system or application that can accommodate all functions in the company, for example the use of different ERP modules from different vendors or integrating old-nonupgradeable systems into the newest one. This integration process is costly and potentially leads to data loss. Therefore, system integration is one of the critical aspects that always needs consideration while implementing ERP.
6. Business process reengineering (BPR). BPR may defined as the rethinking and redesign of business processes to achieve improved organizational performance in terms of quality, cost, speed, and service. ERP system implementation process in organization involved reengineering of the existing business process to fit with the ERP software. ERP and BPR are complementary, thus lack of consideration of BPR might result in the failure of the ERP system.
7. Vendor selection. Choosing the right vendor involves comparing and selecting partners that can offer a trustworthy product feature such as software, hardware, databases, networks, and also modules for the company. This issue could be challenging because Inaccuracy in vendor selection can negatively impact the company later.
8. Project management. Project management is the process of initiating, planning, implementing, and controlling different project activities to achieve company milestones. Problems associated with ERP system implementation might occur during ongoing project management, including poor risk management, scoop creep, and poor allocation of resources along with vendor management.
9. Project team selection and team empowerment/skilled people. In developing a team for an ERP system project, a company needs to

gather a representative of individuals from each department. Moreover, the project team should be made up of people who understand and have expertise about the project so that they can be given the authority to make decisions that may lead to better chances of successful ERP implementation.

In conclusion Mahmood et al. (2020) emphasize that successful ERP system implementation requires careful planning and addressing various challenges. Key factors include securing top management support, managing changes effectively, ensuring thorough training, and fostering clear communication. By focusing on these areas and preparing adequately, organizations can enhance their chances of a successful ERP implementation and fully realize the system's benefits.

2.1.3.3 ERP Major Modules

An ERP solution automates critical business processes and serves as a shared database for all financial and operational information from across the company. ERP module is designed for specific business functions, providing the data from other modules that is built to help various departments perform their individual functions and supporting the business processes. McCue, (2022) addresses the following 13 major ERP modules:

1. Finance: This is one of the most important ERP modules because it lets businesses know where they stand financially and where they're headed. This module's got some key features, like tracking accounts payable (AP) and accounts receivable (AR) and handling the general ledger. It also creates and stores crucial financial documents.
2. Procurement: This module, also known as the purchasing module, is utilized by organizations to procure the materials or products necessary for the manufacturing and/or sale of goods. One advantage of this module is that companies can maintain a list of approved vendors in this module and link those suppliers to specific items.
3. Manufacturing: The manufacturing module benefits manufacturers by enabling them to plan production and ascertain whether they have the necessary resources for planned production runs, such as raw materials

and machinery capacity. Throughout the manufacturing process, the system can provide real-time information on the status of goods-in-progress, enabling companies to track actual output against forecasted production.

4. Inventory Management: This module helps you manage inventory by tracking items and locations. It also integrates with the procurement module to show you current and incoming inventory. It helps you manage inventory costs, handle stock, and analyze trends.
5. Order Management: An order management module is designed to track orders from receipt in the warehouse to delivery to the customer. This module plays a crucial role in preventing orders from being lost and increases on-time delivery rates to keep customers satisfaction and avoid unnecessary expenses for expedited shipping.
6. Warehouse Management: A warehouse management module can effectively guide warehouse employees through all warehouse processes based on the layout of the facility. The warehouse management module can provide different picking strategies, such as batch picking, wave picking, and zone picking, based on which is most effective for a given business. Furthermore, some modules can suggest employees the most effective pick path.
7. Supply Chain Management: A supply chain management module is designed to record and track the various stages in the distribution of materials and finished products within the supply chain. These stages encompass sub-suppliers, suppliers, manufacturers, distributors, retailers, and ultimately consumers.
8. Customer Relationship Management (CRM): The system retains all customer and prospect information. This encompasses the company's communication history with an individual, including the date and time of calls and emails, as well as their purchase history. A CRM system enhances customer service by enabling employees to readily access all the information they require when interacting with a customer.

9. Professional Service Automation (Service Resource Management): This module enables an organization to plan and manage projects. It is frequently utilized by service-based businesses. The application monitors the status of projects, oversees the utilization of human and capital resources throughout the project, and permits managers to approve expenses and timesheets.
10. Workforce Management: This module is similar to a human resource management module, but it is designed for companies with a greater proportion of hourly than salaried employees. It can monitor workers' attendance and hours, as well as measuring factors such as employee productivity and absenteeism.
11. Human Resource Management (HRM): A human resource management (HRM) or human capital management (HCM) module typically encompasses all the functionalities of a workforce management application. This widely utilized module maintains comprehensive records on all employees and stores pertinent documents such as performance reviews, job descriptions, and employee's offer letters.

With the increasing need for companies to be able to compete in a competitive business world, new modules are also created to facilitate the business continuity. Such modules like e-commerce module that facilitate the expeditious promotion of a business-to-business (B2B) or business-to-consumer (B2C) e-commerce website and marketing automation module that manages marketing operations across digital channels (McCue, 2022). A company can choose only the modules relevant to its business model, operations and key challenges. As the organization evolve, then the company can then add ERP modules to address new needs or challenges.

According to Weinberg (2022) companies embracing digital transformation seek the flexibility, agility, speed, and remote access to application in their ERP system. They have identified several powerful ERP vendors in the market that could help them achieve those goals, like SAP, Oracle, Microsoft, Infor, Workday, Sage, Epicor, Salesforce.

2.1.4 ERP Implementation

Providing functions to support business and a department within a company through a single and centralized system is a key factor of ERP system that keeps a company growing and expanding. Leon (2014) on his book said that a properly implemented ERP system is a strategic weapon that can benefit in business advancement by providing the tools needed by the company to adapt quickly to changes. ERP packages, when chosen appropriately, implemented wisely, and used effectively, can significantly increase a company's productivity and revenues. However, many businesses fail because they utilize the incorrect product, deploy it incompetently and haphazardly, and use it inefficiently or ineffectively.

Therefore, in order for the ERP system to work well, it is important for companies to understand the configuration of the ERP system and the differences that will occur between business processes within the company that will also need to be adjusted before implementation. Careful consideration and preparation are required before making a decision to invest in the implementation of ERP system in the company. This is because, even with the advanced in ERP system offers and no matter how sophisticated and efficient the benefits obtained from current ERP developments that align with the frequent evolution in information technology, the costs incurred for implementing ERP in companies are still not small and should be taken into serious consideration, because any errors in the implementation will result in no small loss either. Align with Al-Amin, Hossain, Islam, and Biwas (2022) study that said some key challenges that company might face as significant obstacles in implementing ERP system, such as higher cost, data security, long implementation process, and resistance to handling ERP related modifications in. Therefore, aside from the benefits that it offered, implementing ERP system can be challenging and requires various risks to be considered to ensure a successful implementation.

Furthermore, in order to addressed the risk appropriately and successfully execute an ERP system in a company or organization, a Critical Success Factor (CSF) of ERP implementation must be thoroughly understood. Understanding the CSF is necessary because it outline aspects which are essential to ensure that

a successful ERP implementation proves to be a profitable venture for an organization. Al-Amin et al., (2022) highlighted several CSF that company needs to considered and emphasized by a company that want to adopt ERP system. The literature said that in the rapid change in the technology of the industry 4.0, company needs to still focus on seven topmost CSF for ERP implementation which are top management support, IT infrastructure, skilled staff, training and education, monitoring and evaluation (Al-Amin et al., 2022).

Critical success factor is one important thing that needed to be considered before implementing ERP system, and aside of that, Muslmani et al. (2018) outline a process to aid in the decision-making process when deciding to integrate a new ERP system, starting with evaluating the sustainability of the technology, then considering cost and stakeholder impact, followed by assessing the system's responsibility and feasibility and finally evaluating the system requirements prior to implementation. Muslmani et al. (2018) found that proper planning and involvement of the right personnel can avoid customization problems during implementation. Open communication and clear goals are crucial for the implementation process in all enterprises, as they can help to prevent conflicts and ensure that everyone understands the system and the enterprise's implementation plan.

2.1.5 Internal Control System

Internal control has an important role in the company. Internal control is used to direct the company's operational activities, prevent misuse of the system implemented and protect the assets owned by the company and become a reference in making good decisions. Committee of Sponsoring of the Treadway Commission (COSO, 2013) define internal control as:

> *"Internal control is a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance."*

As mention in the definition, internal control has three objectives. First. relating to operation that is to ensure that the effectiveness and efficiency to organization operation, including operational and financial performance goals, also safeguarding assets against loss. Second, relate to the reporting objectives that is to make sure that the internal and external financial and non-financial reporting may encompass reliability, timeliness and transparency as set forth by the regulator or the entity's policies. Third, relate to the compliance objectives that is to adherence to laws to which the entity is subject. It is also can be concluded that Internal control is very necessary because internal control is an integral part of the implementation of management activities because it is in accordance with the management function which consists of planning, implementation and control. In this case, the manager not only carries out planning and implementation, but also controls so that the implementation of the entity's activities reaches the target and is in accordance with the plan.

Internal control has components that are related to it. These components play an important role in order for good and adequate internal control to occur in the company. Of course, it would be even better if all of these components are included in the implementation of internal control in the company. Moeller (2016) highlight COSO five main components of internal control, which are:

1) Control Environment

   The set of standards, processes, and structures that provide a basis or structure for carrying out effective internal control activities across the enterprise.

2) Risk Assessment

Risks is any possibility that may occur that might adversely affect the achievement of enterprise objectives. Assessment of the risk involves a dynamic and iterative process for identifying and assessing the risk to help determines how risks are managed so the company or organization can achieve its objectives.

3) Internal Control Activities

Control activities occur throughout the organization, at all levels and all functions. Control activities are the actions established through policies and procedures that help to ensure that managements directives to mitigate risks to the achievement of objectives are carried out also to enforce supervision or control of company operations. These activities include various activities with approval authorizing verification, reconciliation, review of operating performance, security of assets, and segregation of duties.

4) Information and Communication

Information systems are not only concerned with data generated internally, but also from external parties needed in making business decisions. Information in necessary for company to carry out internal control responsibilities to support the achievement of its objectives. Communication is the continual, iterative process of providing, sharing, and obtaining necessary information.

5) Monitoring Activities

Monitoring is an activity that evaluate and ascertain whether each of the components of internal control is present and functioning in the organization as it should be.

Effective internal control system provides reasonable assurance regarding an achievement of the enterprise's objectives. In order to for the internal control to work effectively, the five components need to be present and functioning in the enterprise. The five components also need to be operated together in an integrated manner so that the risk of the enterprise for not achieving its objectives could be reduce to an accepted level.

Aside of that, limitation for the system also exist as the internal control system provides its functions to the enterprise. These limitations (COSO, 2013) may result from:

- Suitability of objectives established as precondition to internal control
- Reality to human judgement in decision making can be faulty and subject to bias
- Breakdown that can occur because of human failure as simple errors
- Ability of management to override internal control
- Ability of management, other personnel, and/or third parties to circumvent controls through collusion
- External events beyond the enterprise's control

Those limitations of internal control are often the result of external factors and are beyond the control of the internal team. Consequently, it is essential for management to be aware of these limitations when selecting, developing, and deploying controls that aim to minimize them to the greatest extent possible.

2.2 Previous Research

Table 2.2 Summary of Previous Research

No	Author and Title	Year	Research Method	Variables	Research Result
1	Delvira Berliana Lintang Utami dan Dedi Kurniawan *Effect of Implementation ERP on Profitability of Firm Value Sector Manufacture Companies Listed on the Indonesia Stock Exchange*	2022	Quantitative	Independent: - Dummy ERP Dependent: - Profitability - Firm Value	The test results based on paired sample t-test shows no significant effect of firm value between before and after ERP implementation measured by Tobins Q
2	Deni Pandu Nugraha, Ervina Janis, dan Bisri *The Effect of Enterprise Resource Planning in Increasing Firm's Value*	2022	Quantitative	Independent: - Financial Performance (NPM and TATO) Moderating: - Dummy ERP Dependent: - Company Value (MVE)	The main finding is ERP have direct impact to firm's value and can increasing influence of total asset turnover toward firm's value. Companies are advised to further integrate ERP into company performance planning, especially in maximizing existing asset resources, by maximizing existing resources to increase company value.
3	Timey Nikolaus Erlely dan Grace T. Pontoh *Penerapan Enterprise Resource Planning dan Kinerja Keuangan: Dampak pada Nilai Perusahaan LQ-45 yang Terdaftar di Bursa Efek Indonesia*	2022	Qualitative	Independent: - ERP - Financial Performance Dependent: - Firm Value	ERP simultaneously and partially affect the firm value.

4	D. P. Emrinaldi Nur dan Adhitya Agri Putra *Enterprise Resource Planning and Firm Value: Case of Oil and Gas Firm in Indonesian Stock Exchange*	2020	Quantitative	Independent: - Enterprise Resource Planning Dependent: - Firm Value	Enterprise resource planning has positive effect on market to asset value. The result indicates that hypothesis, enterprise resource planning implementation increases oil and gas firm value, is accepted.
5	Kevin Sutanto, Amelia Setiawan, Samuel Wirawan *Pengaruh Pengungkapan Internal Control, Remunerasi Manajemen Kunci, dan Audit Fee Terhadap Nilai Perusahaan Consumer Goods yang Terdaftar di Bursa Efek Indonesia (BEI) Pada Tahun 2019-2021*	2023	Quantitative	Independent: - Internal Control - Key Management Remuneration - Audit Fee Dependent: - Firm Value	The study show that disclosure of internal control partially affects firm value. Simultaneously, disclosure of internal control, key management remuneration, and audit fee affect firm value.
6	Miranda Ariani dan Weli *Pengaruh Pengungkapan Sistem Pengendalian Internal terhadap Nilai Perusahaan dengan Agency Cost Sebagai Mediator*	2022	Quantitative	Independent: - Internal control disclosure Dependent: - Firm Value	Internal control disclosure has a significant influence on firm value. Means, the increase in the company's internal control system disclosed will increase the company's value as indicated by the Tobin's Q value.

7	Qianhui Ma, Lan Ju, and Zishi Zhang *Innovation Input and Firm Value: Based on the Moderating Effect of Internal Control*	2022	Quantitative	Independent: Innovation input Moderator Internal control quality Dependent: - Operating Profit - Yearly stock return	In this paper, internal control quality moderates the relationship between innovation input in the company and firm value. The result shows that internal control significantly increases the value relevance of innovation input, that is, the better the internal control, the more innovation investment contributes to the operating performance and market value of a firm

2.3 Hypothesis Development

2.3.1 Effect of ERP System Implementation on the Firm Value

The successful implementation of ERP is believed to increase company value by improving company performance through increasing the efficiency of the company's business processes. O'Leary (2000) argues that by implementing standard ERP processes and a single database that spans the range of enterprise activities and locations, ERP systems provide integration across multiple locations and functional areas which result to improved decision-making capabilities that can be seen in a wide range of metrics, such as decreased inventory, personnel reductions, speeding up the financial close process, and others. Thus, ERP can be used to facilitates firms to create its value by changing the basic nature of organizations in a number of different ways. On the other side, Davenport (2000) argues that companies should strive for business value in their ERP implementations, because having an ERP in place will be a considerable advantage to companies that need to change their ways of doing business frequently and rapidly.

To support the statements mentioned above, there are several previous studies that have conducted theoretical studies regarding the significant impact of ERP implementation on firm value. Nur & Putra (2020), stated that ERP implementation has positive effect on oil and gas firm value because it provides higher information quality, integrated relationship between firms' functions and departments, integrated relationship between supplier and customer, also efficiency in resource usage. Hsiung et al. (2019) found that after the introduction of ERP system to the company is significantly enhance the firm value by effectively integrating and linking the internal processes of the enterprise to the system. Similarly, Nugraha et al. (2022), also found that ERP had a significant effect of firm value because ERP help facilitates and accelerates the work in a company and increasing effectiveness and efficiency will undoubtedly improve the company's performance, which then impacts its firm's value.

Based on those description, the following hypothesis is formulated:

H1: There is an effect from implementation of ERP System to Firm Value

2.3.2 Effect of Internal Control Systems on Firm Value

As its objectives are relating to operations, reporting, and compliance, internal control processes are designed and maintained by the management of a company to trust the accuracy of financial reporting, promote accountability, and achieve operational effectiveness and efficiency of the enterprise. An enterprise discloses information on internal control to gain attention to the authenticity of financial statements to the stakeholders, that will contribute later to the company's economic decision-making (Janardhanan & Ramkumar, 2022).

The adequate disclosure of internal control will show that the company is on the right track in achieving its goals so that it will increase the value of the company in the eyes of investors. In line with this, the research from Ariani & Weli, (2022) reveals that internal control disclosure has a positive effect on firm value because information transparency regarding internal control is needed by the market which later contribute to firm value.

Another study from Ma, Ju, and Zhang (2022) verifies that empirically internal control significantly increases the value relevance of innovation input, that is, the better the internal control, the more innovation investment contributes to the operating performance and market value of a firm. Another research conducted by Zheng (2020) notes that the more effective the internal control is, the more beneficial it is to increase the value of the enterprise.

Based on the description above, the hypothesis can be formulated:

H2: There is an effect of Internal Control System to the Firm Value

2.3.3 The Effect of ERP system Implementation and Internal Control System on Firm Value

The implementation of an Enterprise Resource Planning (ERP) system and the Internal Control System could be a factor that can influence a company's firm value. As Both elements serve in ensuring operational efficiency, regulatory compliance, and strategic alignment within an organization. To understand their combined effect on firm value, it is essential to examine the interplay between ERP systems and internal controls, and how these factors, when measured through the internal control disclosure index in the company's annual report, contribute to the overall valuation of the firm.

ERP systems integrate various business processes and provide real-time data access, leading to improved decision-making, cost reductions, and enhanced productivity. These systems streamline operations and ensure that resources are used efficiently, thus creating a more agile and responsive business environment. When effectively implemented, ERP systems can drive significant improvements in operational performance, which in turn can positively impact the firm's financial outcomes and market valuation (Nur & Putra, 2020).

On the other hand, an Internal Control System is needed for maintaining the integrity of financial reporting, safeguarding assets, and ensuring compliance with laws and regulations (Moeller, 2016). The internal control disclosure index in the company's annual report serves as a proxy for the effectiveness of these controls. Higher levels of internal control disclosure typically indicate stronger governance practices, greater transparency, and reduced risk of financial misstatements or fraud. These factors can enhance investor confidence and, consequently, firm value.

The combined implementation of ERP systems and a good internal control believes could create a better value for the company. While ERP systems improve the efficiency and effectiveness of operations, strong internal controls ensure that the benefits derived from ERP implementations are sustained and protected. The internal control disclosure index provides a measurable indicator of this synergy, reflecting the combined influence of both ERP systems and internal controls on the firm's governance and performance

Based on the description above, the hypothesis can be formulated:

H3: There is a simultaneous effect of ERP system implementation and Internal Control System to the Firm Value

2.4 Conceptual Framework

Based on the theoretical basis and previous research, the following conceptual framework can be built:

Figure 2.1 Research Framework

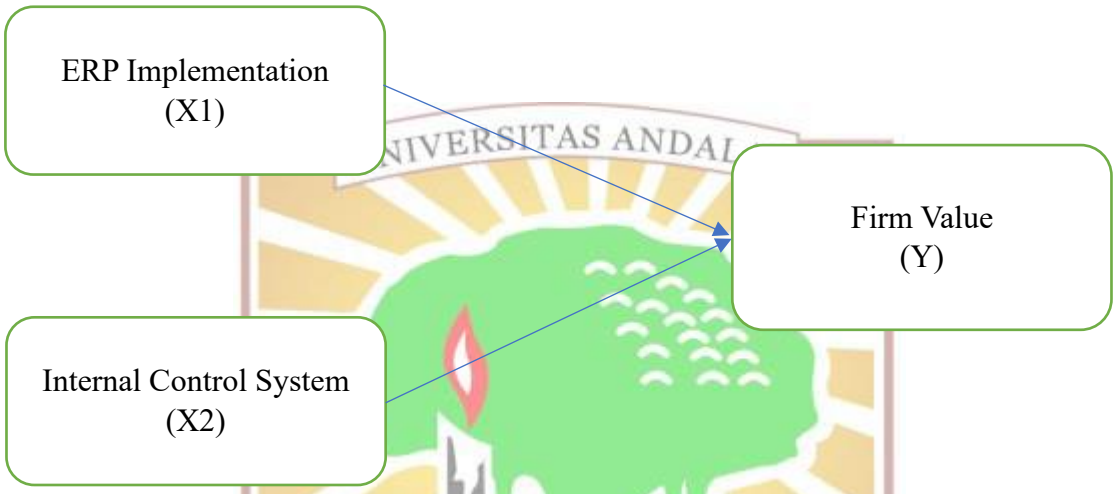

Figure 2.1 Conceptual Framework

Based on the conceptual framework above, it could be concluded that this research was conducted to analyze the effect of two independents variable namely ERP system implementation and Internal Control System measure by Internal Control Disclosure Index (ICDI) on the valuation of the company measures by Price to Book Value as the dependent variable.

CHAPTER III
RESEARCH METHOD

3.1 Research Design

This study aims to obtain empirical evidence regarding the effect of ERP system implementation and internal control system on firm value. This research uses a quantitative approach. Quantitative research according to Sugiyono (2019) is a type of research that produces findings obtained using statistical procedures or other ways of quantification. This study object is manufacturing companies that were included in the Indonesia Stock Exchange list in the period 2020 - 2022. The data that has been collected is then analysed using the SPSS 27 program. After the data processing process, testing of existing theories is carried out, which can result in strengthening or modifying the theory.

3.2 Sampling Method

3.2.1 Population

According to (Sekaran & Bougie, 2016), population refers to the entire group of people, events, or things of interest that the researcher wishes to investigate or in other words it is the number of objects in the study with specific characteristics. The population is all the elements that meet specific requirements, are related to the problem under study, and are used as objects in research. The population in this study were all manufacture companies listed on the Indonesia Stock Exchange for the period 2020 – 2022 with the total population is 632 annual reports from 227 companies. The reason of choosing manufacture sector is because the ERP system is originally made for manufacture company, so we want to know today's effect on large manufacture companies in Indonesia.

3.2.2 Sample

The definition of sample according to (Sekaran & Bougie, 2016) is a part or subset of a population. The sampling method in this study was purposive sampling. The purposive sampling method is a method of determining the sample by selecting data units using specific criteria. The goal is to get a

representative sample according to the specified criteria. The requirements included in the sample are:

1. Manufacturing companies listed on the Indonesia Stock Exchange and in the period 2020 – 2022.
2. Manufacturing companies that publish their annual reports as of December 31 in the period 2020 – 2022.
3. Manufacturing companies that provide information related to the variable data are needed in this study.

3.4 Type and Sources of Data

The data source in this study is secondary data. Secondary data are obtained through existing resources and does not need to be collected by the researcher directly, and researcher is only an independent observer (Sugiyono, 2019). The sources of secondary data related to this study is collected manually from annual reports of manufacturing companies listed in the Indonesia Stock Exchange for the period 2020 – 2022. The annual report is accessed via IDX website (www.idx.co.id) and company's website. The data for this research was obtained through the documentary method. In documentation method, the researcher obtains information used as a theoretical basis and reference in processing the data by collecting, recording, reviewing, and observing annual reports, scientific journals, books, and published information related to the problem and the object to be studied.

3.5 Research Variables and Operational Definitions

3.5.1 Independent Variable (X)

In independent variable is one that influences the dependent variable in either a positive or negative way (Sekaran & Bougie, 2016). The independent variables in this study are ERP system Implementation (X1) and Internal Control System (X2).

3.5.1.1 Enterprise Resource Planning (X1)

The measurement for ERP implementation is dummy variable which if in the company annual report disclosed at least one of the keywords that is related to ERP terms then the score was assigned as 1, and 0 otherwise. The keywords set for this research are: *"ERP",*

"Enterprise Resource Planning", "Integrated system", and some of ERP common vendors like *"SAP", "Oracle", "Microsoft", "Sage", "Infor", "Salesforce".*

3.5.1.2 Internal Control Index (X2)

For internal control the measurement is based in Internal Control Disclosure Index based on Arisandi, Islami and Soeprajitno (2022) and Venorika (2022), that consist of 4 criteria with total of 18 indexes that is explained the Table 3.1:

Table 3. 1 Internal Control Disclosure Index

Audit Committee	Internal Audit Unit
1. Committee Name 2. Position History, work experience, and basis of appointment 3. Educational History 4. Term of Position 5. Disclosure of Independence 6. Disclosure of company policies and their implementation related to the frequency of meetings and the extent to which they participate 7. A brief description of the activities during the fiscal year specified in the report	1. Internal Audit Name 2. Position history, work experience, and recruitment basis 3. Qualification and certification as a profession of Internal Audit 4. Structure of position 5. The duties and responsibilities of internal audit are as stated in the charter 6. A brief description of the implementation of tasks in the financial year
Internal Control System	**Risk Management System**
1. Compliance with financial and operational controls and other laws and regulations 2. Evaluation or review of the effectiveness of the internal control system	1. An overview of the company's risk management 2. Types of risks and how to manage them 3. Review the effectiveness of the company's risk management system

Source: (Arisandi et al., 2022)

The analysis will be based on whether the item is used/disclose (exists) then the score is 1 or not used (does not exist) then the score is 0 for the items in the annual report, which refers to internal control information, and the calculation is based on this formulation:

$$ICDI = \frac{\sum xij}{nj}$$

Where:

ICDI = Internal Control Disclosure Index

xij = the number of items disclosed by the company's report

nj = maximum number of items disclosed in annual report

3.5.2 Dependent Variable (Y)

The dependent variable is the variable of primary interest to the researcher (Sekaran & Bougie, 2016). The dependent variable in this study is the Firm Value (Y) which measured by the Price to Book Value (PBV) ratio.

3.5.3 Variable Operational Definition

Table 3. 2 Variable Operational Definition

Variable	Indicator	Items	Source
ERP System (X1)	"1" for companies implementing ERP "0" for companies that have not implemented ERP	"SAP", "Oracle", "Microsoft", "Sage", "Infor", "Salesforce	Delvira & Kurniawan, (2022); Pandu Nugraha et al., (2022)
Internal Control System (X2)	Internal Control Disclosure Index (ICDI)	Audit Committee Internal Audit Unit Internal Control System Risk Management System	Arisandi et al., (2022); Venorika, (2022)
Firm Value (Y)	Price to Book Value (PBV)	$\frac{Market\ Price\ per\ Share}{Book\ Value\ per\ Share}$	Susanto et al., (2023)

3.6 Data Analysis Techniques

The data analysis technique used in this study uses the multiple regression analysis with the help of the statistical software which is SPSS 27. The tests carried out in this study are descriptive statistics, classical assumption tests, and moderated regression analysis.

3.6.1 Descriptive Statistic Test

Descriptive statistical analysis is an analysis used to show an overview of the data that has been collected before entering the main discussion of the research (Ghozali, 2021). Descriptive statistical analysis can be in the form of mean, median, maximum, minimum and standard deviation of the data. Descriptive statistics are usually used to describe the sample data profile before utilizing statistical analysis techniques that function to test hypotheses.

3.6.2 Classical Assumption Test

3.6.2.1 Normality Test

The normality test aims to test whether in the regression model the confounding or residual variables have a normal distribution. As the t-test and F-test assume that the residual values follow a normal distribution. If this assumption is violated, the statistical test becomes invalid for a small sample size (Ghozali, 2021). In the SPSS tool that researchers use in this study, the normality test used is the Kolmogorov-Smirnov (K-S) Test. The Kolmogorov Smirnov test is a test of different data tested for normality with standard normal data. The advantage of this normality test is that it is simpler. Similar to other different tests, the Kolmogorov Smirnov test compares the Asymp. Sig value with α = 5%. The criteria used:

a. If the Asymp. Sig value < 0.05, then the data is not normally distributed
b. If the Asymp. Sig value > 0.05, then the data is normally distributed

3.6.2.2 Multicollinearity Test

The multicollinearity test aims to test whether the regression model found a correlation between the independent variables. A good regression model should not have a correlation between the independent variables (Ghozali, 2021). The criteria for making decisions using the tolerance and VIF values are as follows:

a. If the tolerance value < 0.10 or the Variance Inflation Factor (VIF) value > 10 means there is multicollinearity.

b. If the tolerance value > 0,10 or the Variance Inflation Factor (VIF) value < 10 means there is no multicollinearity.

3.6.2.3 Heteroscedasticity Test

The Heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another (Ghozali, 2021). If the variance is fixed, it is called Homoscedasticity and if the variance is different, it is called Heteroscedasticity. A good regression model is one that does not occur Heteroscedasticity. In this study, the test used is the Glejser test.

3.6.2.4 Autocorrelation Test

The autocorrelation test aims to test whether in a linear regression model there is a correlation between confounding errors in period t and period t-1 (Ghozali, 2021). This autocorrelation arises because successive observations over time are related to each other, and this problem arises because the residuals (confounding errors) are not free from one observation to another. Autocorrelation of residuals usually occurs when regression analysis contains time series data. In this study using the autocorrelation test with the Durbin-Watson (DW) test.

3.6.3 Hypothesis Testing

3.6.3.1 Multiple Linear Regression Analysis

To test the hypothesis in this research, the author used multiple linear regression method. This method is to examine the effect of two or more independent variables on the dependent variable. The independent variable in this study is ERP System Implementation and Internal Control System. The dependent variable is Firm Value. The equation for testing the hypothesis in this study is as follows:

$$FV = \alpha + \beta_1 X_1 + \beta_2 X_2 + e$$

Description:

FV = Firm Value

α = Constant

β_1 β_2 = Regression coefficient

X_1 = ERP System

X_2 = Internal control system

e = Error

3.6.3.2 Simultaneous Regression Coefficient Test (F-Test)

Ghozali (2021) stated the F test aims to determine whether the independent variables simultaneously significantly affect. In this study, the significance level of α = 5% was determined. With the following hypothesis criteria:

a. The hypothesis is rejected if the Sig. value is > 0,05. This means that the independent variable simultaneously does not affect the dependent variable significantly.
b. The hypothesis is accepted if the F value is < 0,05. This means that the independent variable simultaneously affects the dependent variable significantly.

3.6.3.3 Partial Regression Coefficient Test (T-Test)

According to Ghozali (2021) partial t-test aims to see the significance of each independent variable on the dependent variable. In this study, a significance level of α = 5% was determined. Some of the criteria in the partial t-test are:

a. If Sig. < 0.05, then hypothesis is accepted. It means that the independent variable has a significant effect on the dependent variable
b. If Sig > 0.05, then hypothesis is rejected. It means that the independent variable does not have a significant effect on the dependent variable.

3.6.3.4 Coefficient of Determination (R2)

Coefficient determination measures the extent to which the model can explain the variation in the variable dependent. The determination coefficient (R2) is used to determine the extent to which the independent variable has an influence on the dependent. If the value of $R^2 = 0$ is lesser (close to zero), it means the independent variable has no connection or little effect with the dependent variable. When the value of $R^2 = 1$ or more (near to one), it means a perfect relation or better capacity between the independent variable and the dependent variable (Gujarati & Porter, 2015).

CHAPTER IV
RESEARCH RESULT AND DISCUSSION

4.1 The Sample Selection Process

This study using secondary data obtained from annual report of manufacturing sector company listed in Indonesia Stock Exchange (IDX) for the period 2020 until 2022 as the research population. The number of manufacture company listing in IDX until 2022 is 227 companies with total 632 data for three years observation period. The sample selection process is described in Table 4.1:

Table 4. 1 Purposive Sampling Criteria

	Criteria	2020	2021	2022
1	**Manufacturing companies listed on the Indonesia Stock Exchange and in the period 2020 – 2022.**	**194**	**211**	**227**
2	**Manufacturing companies that do not publish their annual reports as of December 31 in the period 2020 – 2022.**	**(9)**	**(11)**	**(13)**
3	**Manufacturing companies that do not provide information about ERP system implementation and Internal Control Disclosure Index**	**(122)**	**(134)**	**(147)**
4	**Manufacturing companies that not provide information about Firm Value (PBV)**	**(3)**	**(4)**	**(5)**
5	**Data deleted after performing data transformation**	**(2)**	**(2)**	**(3)**
	Obtained data in accordance to the criteria	**58**	**60**	**59**
	Final Sample for the study	**177 firm-years**		

Source: processed (2024)

Table 4.1 represent the information regarding the criteria for the purposive sampling method used in this study. The final sample sized that meet the sampling criteria is 177 firm-years from 63 companies and the information about the sampled companies can be seen in Appendix 1. The final sample is obtained from observing the company's annual report which disclosed the information about ERP system implementation, internal control disclosure index and also the measurement data needed for firm value calculation in the company's annual report. Lastly, the unbalanced panel data is used for this study and processed using SPSS 27 software.

4.2 Research Result

4.2.1 Descriptive Statistic Test

Table 4. 2 Statistical Descriptive Test Result

	N	Minimum	Maximum	Mean	Std. Deviation
ERP	177	0	1	0,88	0,324
ICDI	177	0,28	1,00	0,8448	0,16981
PBV	177	0,0433	44,8570	2,641210	5,3401293
Valid N	177				

Source: Processed Data from SPSS 27, 2024

Based on the descriptive statistical analysis test result in Table 4.2, it shows the descriptive variables used in this study with a total of 63 company and of 632 data from annual reports and sustainability reports during the 2020-2022 period as follows:

a. The dependent variable is Firm Value with Prica to Book Value (PBV) as the variable measurement. Based on Table 4.2, the minimum value of the company value is 0,0433 from Wijaya Karya Beton Tbk. Meanwhile, the maximum value of the company value is 44,8570 from Unilever Indonesia Tbk. The PBV ratio result in 2,641210 for average value and 5,3401293 for standard deviation. This indicated that the PBV value is vary because the standard deviation value is higher than the mean value.

b. The first independent variable in this study is Enterprise Resource Planning (ERP) with the indicator 0 as the minimum value indicated that the company does not disclose the use of ERP system in the company's annual report and otherwise, the indicator 1 shows the maximum value which means the company disclosed the use of ERP system in the company. The mean value for this variable is 0,88, this value is higher than the value 0,324 for standard deviation indicating that the ERP value does not vary.

c. The second independent variable in this study is Internal Control System with Internal Control Disclosure Index (ICDI) as the measurement for the variable. The minimum value in this variable is 0,28, this number indicates that a company only disclose 5 out of 18

indexes for Internal Control System disclosure in the annual report. The maximum value of this variable is 1, this number indicates that the company disclosed all of the indexes needed for Internal Control System disclosure in the annual report. The mean value is 0,8448, this value is higher than the value 0,16981 for standard deviation indicating that the ICDI value does not vary.

4.2.2 Classical Assumption Test Results

4.2.2.1 Normality test

A normality test is carried out to see whether the residual value is normally distributed. The result using one-sample Kolmogorov-Smirnov test is on the table 4.3:

Table 4. 3 Normality Test before Data Transformation

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			177
Normal Parameters	Mean		0,000000
	Std. Deviation		5,27556560
Most Extreme Differences	Absolute		0,273
	Positive		0,273
	Negative		- 0,271
Test Statistic			0,273
Asymp. Sig. (2-tailed)			< 0,001
Monte Carlo Sig. (2-tailed)	Sig.		0,000
	99% Confidence Interval	Lower Bound	0,000
		Upper Bound	0,000

Source: Processed Data from SPSS 27, 2024

The results of data normality using a 1-sample KS, as shown in Table 4.3, shows the Statistic test value of 0.273 with a significance value of <0.001 which is below the significance level of 0.05.

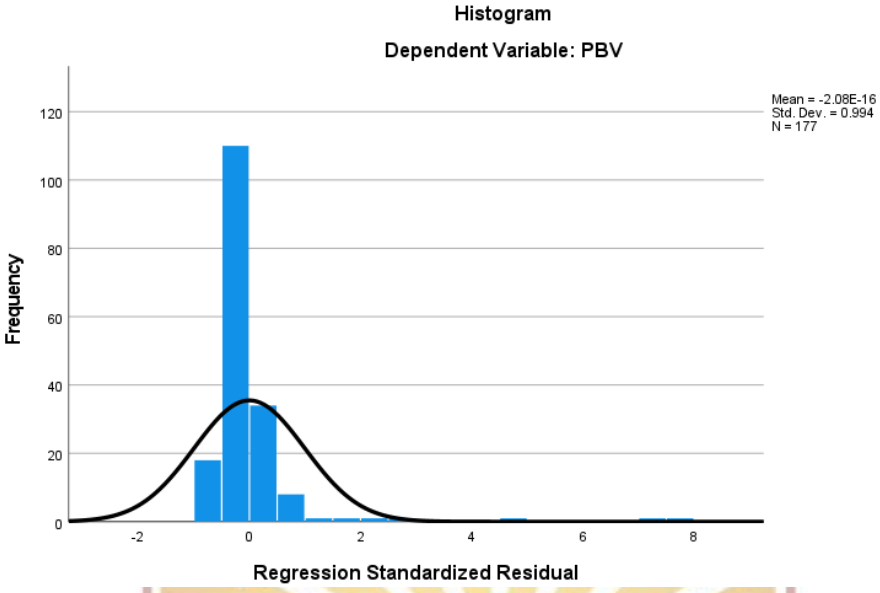

Figure 4 1 Histogram Plot 1

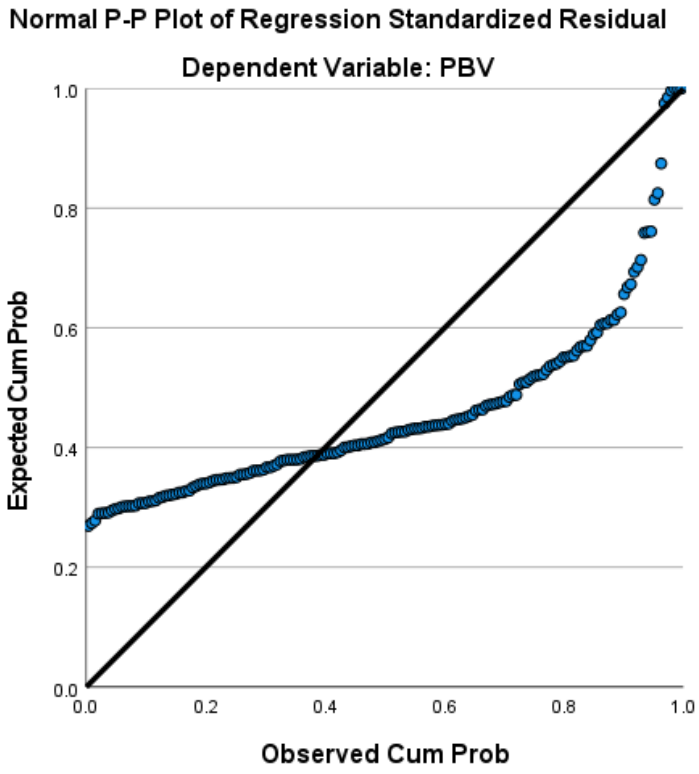

Figure 4 2 Normal Plot 1

The results of the 1-Sample KS can also be strengthened by looking at the shape of the histogram graph which shows an abnormal distribution pattern and the normal plot graph which shows that the distribution of points deviates from the diagonal line. These results indicate that the data in this study is not normally distributed and cannot be used for further analysis.

The solution to this problem is to perform Natural Log (LN) transformation on the dependent variable, namely PBV so that the data can be transformed into normal data and can be carried out for other analytical tests for this study. The test result after LN transformation on dependent variable shows in the Table 4.4:

Table 4. 4 Normality test after Data Transformation

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			177
Normal Parameters	Mean		0,000000
	Std. Deviation		1,06556606
Most Extreme Differences	Absolute		0,044
	Positive		0,040
	Negative		- 0,044
Test Statistic			0,044
Asymp. Sig. (2-tailed)			0,200
Monte Carlo Sig. (2-tailed)	Sig.		0,568
	99% Confidence Interval	Lower Bound	0,556
		Upper Bound	0,581

Source: Processed Data from SPSS 27, 2024

From the results of the data analysis in Table 4.4, normal data has been found after the transformation of LN (Y) to the dependent variable, namely PBV. Proven by the results of data normality using 1-Sample KS after transformation, as shown in Table 4.4, shows the Statistic test value of 0,044 with a significance value of 0,200 or more significant than a significance level of 0,05

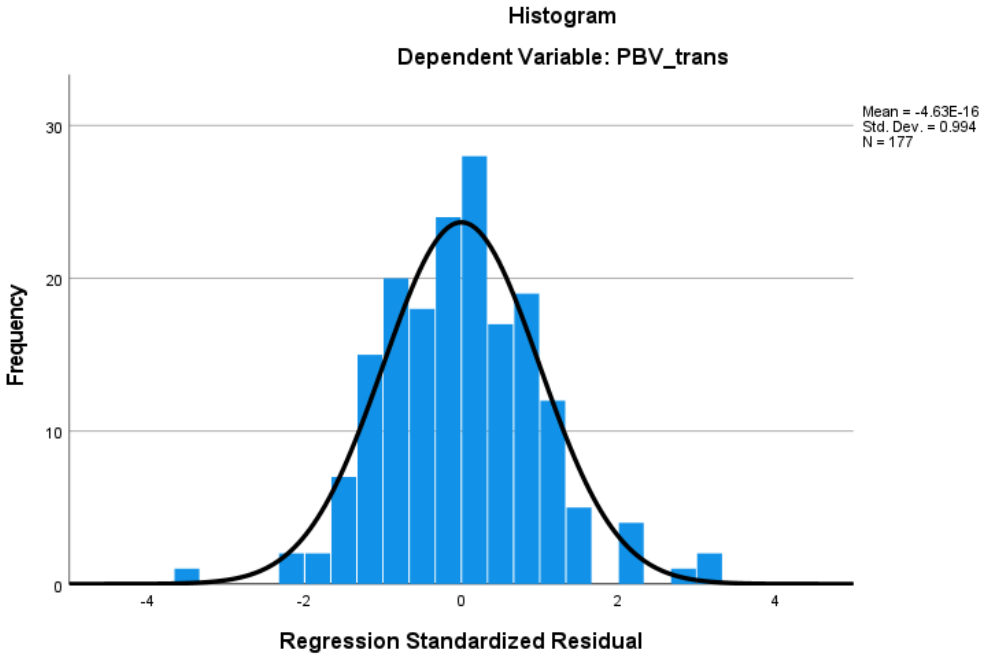

Figure 4 3 Histogram Plot 2

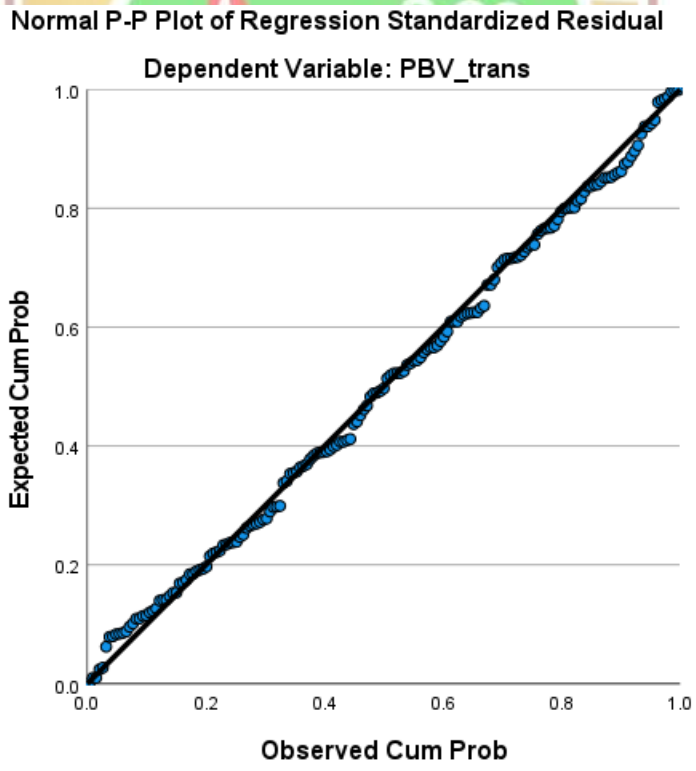

Figure 4 4 Normal Plot 2

Other normality test results can be seen from the shape of the curve and the plot has shown normal data. These results indicate that the data in this study are standard and can be used for further analysis.

4.2.2.2 Multicollinearity Test

The multicollinearity test is to see whether there is a correlation between the independent variables in a multiple linear regression model. The condition for no multicollinearity test is if both Variance Inflation Factor (VIF) value < 10,00 and tolerance value > 0,100.

Table 4. 5 Multicollinearity Test Result

Coefficients [a]

Model		Collinearity Statistics Tolerance	VIF
1	(Constant)		
	ERP	0,983	1,017
	ICDI	0,983	1,017

a. Dependent Variable: PBV_trans

Source: Processed Data from SPSS 27, 2024

The test results in Table 4.5 shows there are no symptoms of multicollinearity because the result shows the tolerance value of 0,983 which exceed the requirement of more than 0,100 and the VIF value is 1,017 also exceed the requirement value of below 10,00.

4.2.2.3 Heteroscedasticity Test

This test's purpose is to find out whether there is a difference in variance from the residual one observation to another. In this study, the test used is the Glejser test. There is a provision that if the significance value between independent variable with absolute residual as a dependent variable exceeds 0.05 then heteroscedasticity does not occur and if the significance value is less than 0.05 then heteroscedasticity occurs. The heteroscedasticity test result can be seen in Table 4.6:

Table 4. 6 Heteroscedasticity Test Result

Coefficients [a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	0,798	0,276		2,894	0,004
	ERP	- 0,028	0,156	- 0,014	- 0,179	0,858
	ICDI	0,069	0,299	0,018	0,983	1,017

a. Dependent Variable: Abs_res

Source: Processed Data from SPSS 27, 2024

Based on the Table 4.6 it can be seen that the Sig. value for ERP is 0,858 and for ICDI is 1,017, this means the both result value meets the requirement of Glejser test which is more than 0.05, so from this test there is no heteroscedasticity problem.

4.2.2.4 Autocorrelation Test

The aim of this test is to see whether there is a relationship between a period of time. In this study, the test will be used is the Durbin Watson with the provision if the DW value is between the *du* until (4-*du*) from du value in the Durbin-Watson (D-W) table. The Autocorrelation Test result can be seen in Table 4.7:

Table 4. 7 Autocorrelation Test Result

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,233[a]	0,054	0,044	1,07167	1,991

a. Predictors: (Constant), ICDI, ERP
b. Dependent Variable: PBV_trans

Source: Processed Data from SPSS 27, 2024

The *du* value can be found in the D-W distribution table based on the number of independent variables (k = 2) and the number of research samples (N = 177) with a significance of 0.05. From the D-W table it is found that the *du* value is 1,7769 and the value of (4-*du*) is 2,2231.

From the Table 4.7, the DW value shows the results of the analysis which is 1,991 so it can be concluded that there are no symptoms of autocorrelation because the value is located between *du* and (4-*du*).

4.2.3 Hypothesis Test Results

4.2.3.1 Multiple Linear Regression

Table 4. 8 Multiple Linear Regression Analysis Result

Coefficients [a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta
1	(Constant)	- 1,059	0,443	
	ERP	0,475	0,251	0,141
	ICDI	1,089	0,480	0,169

a. Dependent Variable: PBV_trans

Source: Processed Data from SPSS 27, 2024

The equation of multiple linear regression after the testing using SPSS version 27 as seen in Table 4.8, would be:

$$FV = -1{,}059 + 0{,}475\ ERP + 1{,}089\ ICDI + e$$

From the multiple linear regression equation above, it can be explained that the constant value is -1.059, this means that if the variable independent which consist of ERP (X1) and ICDI (X2) are equal to zero, the PBV value is -1.059. The ERP regression coefficient is 0.475, this means that every increase in the ERP value of 1 will cause an increase in PBV of 0.475 with the assumption that all other independent variables are constant. The ICDI regression coefficient is 1.089, this means that every increase in the ICDI value of 1 will cause an increase in PBV of 1.089 with the assumption that all other independent variables remain or constant.

4.2.3.2 Partial Regression Coefficient (T-Test)

This test was conducted to describe the effect of each independent variable on the dependent variable partially. To analyse whether or not it has an effect, it can be seen by comparing the significant variable value with an error rate (α) = 0,05. Hypothesis will be rejected if the significant value > 0,05 and the t value < t table Otherwise, the hypothesis will be accepted if the significant value is less

< 0,05 and t value > t table. The result of the T-test on this research hypothesis can be seen in Table 4.9:

Table 4. 9 T-Test Result

Coefficients [a]

Model		t	Sig.	Conclusion
1	(Constant)	- 2,391	0,018	
	ERP	1,892	0,060	H1 is Rejected
	ICDI	2,269	0,024	H2 is Accepted
Dependent Variable: PBV_trans				

Source: Processed Data from SPSS 27, 2024

After testing the regression model with the t-test to see the effect of each independent variable on the dependent variable, it can be concluded that:

ERP system implementation does not affect the Firm Value (PBV). It was found that the significant value of the ERP system implementation variable is 0,060 and the t value is 1,892 with a t-table value is 1,974 that we got from the t-table formula, (α/2: n-k-1). Therefore, with t-count value (1,892) < t-table value (1,974) and the significant value is greater than the error rate of 0.05 it can be concluded that ERP system implementation variable did not affect the firm value. Thus, this hypothesis is *rejected*.

Internal Control System has an effect on Firm Value (PBV). It was found that the significant value of the Internal Control System variable is 0,024 and the t value is 2,269 with a t-table value is 1,974. Therefore, with t-count value (2,269) > t-table value (1,974) and the significant value is less than the error rate of 0.05, it can be concluded that the Internal Control System variable has a positive effect on the Firm Value. Thus, this hypothesis is *accepted*.

4.2.3.3 Simultaneous Regression Coefficient (F-Test)

This test is used to determine the extent to which the independent variables together affect the dependent variable. The criteria are that, if the significant value < 0.05 or F value > F table, then the hypothesis is accepted. Otherwise, the hypothesis is rejected. The results of the F-test can be seen from the table 4.10:

Table 4. 10 F-Test Result

ANOVA[a]

Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	11,515	2	5,757	5,013	0,008[b]
	Residual	199,836	174	1,148		
	Total	211,351	176			

a. Dependent Variable: PBV_trans
b. Predictors: (Constant), ICDI, ERP

Source: Processed Data from SPSS 27, 2024

Based on the Table 4.10, it can be seen that the Sig. value is 0,008 and the calculated F value is 5,013 with the F-table value 3,05 that we got from F-table formula, (k; n-k). therefore, with the calculated F value is 5,013 > F-table value 3,05 and the significant value is 0,008 which is less than 0,05. It can be concluded that the results of the F test shows that the ERP system implementation (X1) and internal control system (X2), simultaneously effect the firm value (Y).

4.2.3.4 Coefficient of Determination (R^2)

The coefficient of determination (R^2) aims to determine how much the ability of the independent variables to explain the dependent variable. The result of this test can be seen in Table 4.11:

Table 4. 11 Coefficient of Determinant Test Result

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,233[a]	0,054	0,044	1,07167

a. Predictors: (Constant), ICDI, ERP
b. Dependent Variable: PBV_trans

Source: Processed Data from SPSS 27, 2024

The R Square value shows a value of 0.054 which signifies that the impact of ERP (X1) and ICDI (X2) on firm value is 5.4%. Based on the findings of this analysis, it can be inferred that although the value is small, ERP and ICDI are among the factors that can influence firm value. Meanwhile, the remaining 94,6% are influenced by other variables beyond those included in the regression model.

4.3 Research Results Discussion

a. The effect of ERP System Implementation on the Firm Value

Based on several testing to prove if the used of ERP system in the company has some effect in the firm value that might influence the value of the company in the market, it is found in this research testing that ERP system implementation in Indonesia manufacturing company does not have effect on firm value. This result is not in line with the research from Erlely and Pontoh, (2022); Nugraha et al., (2022); Nur and Putra, (2020) which found that ERP system implementation has an effect on firm value. Also, this result is not in line with Technology Organization Environment (TOE) theory. This theory believes that the company could increase the efficiency and effectiveness of company performance and also create a better value by adopting a new technology.

This could indicate that, even with ERP system implementation that has been running smoothly in a company, it does not mean the company's success has been obtained. It is stated in the research about CSF of ERP implementation from Al-Amin et al., (2022) that companies need to think consider about the other aspect aside the amount of investment costs from implementing an ERP system, which is can be seen from the economic aspects and business benefits, such as improving employee and company performance by training, educating, monitoring and also evaluation of the system, which requires a long time to build and takes. This is in accordance with earlier research from Wanchai (2019) and Fendra (2019) stated that ERP system implementation only shows its effect on firm value after implementing it for four years or more.

Based on the explanation, the period of years used in this study might be the reason of why the result of ERP system implementation shows no effect on firm value. Moreover, the research conduct by Delvira & Kurniawan (2022) on manufacturing company listed in IDX from 2017 until 2019 shows no significant effect on firm value between before and after ERP implementation in the companies. This research emphasizes that the fairly short period of years for the sample in this study may be the reason why the research results cannot represent the effect of ERP system implementation on firm value. Hence, in order to assess more accurately the impact of ERP system investments on organizations, it is necessary for the company to employ proper measures for various aspects over a long period.

Furthermore, the benefits of ERP systems itself could be another reason behind the result that shows no effect of ERP system implementation on the value of a firm. Improved efficiency and data accuracy, may not be immediately reflected in measurable financial performance or market valuation. In addition, in the short term, the expected benefits may be offset by the significant costs and disruptions associated with ERP implementation, including large up-front investments and potential operational downtimes. In addition, the potential benefits of the ERP system may not be fully realized if the implementation is not aligned with the strategic goals of the business or if there is a lack of adequate support and training. This finding suggests to the company that the success of ERP systems depends heavily on their implementation and integration into the broader business strategy, highlighting the complexity of linking IT investments directly to the firm value.

b. The effect of Internal Control System on the Firm Value

The test result shows that Internal Control System measure by Internal Control Disclosure Index could affect positively on firm value. This result is in line with the research conduct by Ariani & Weli (2022) and Susanto et al., (2023) which stated that the Internal Control system measured by Internal Control Disclosure Index has effect on firm value.

The result of this study highlights the effect of strong internal controls which is characterized by the high ICDI value of the company in improving the total value of a firm. It shows that with the transparency of information regarding the internal control system in the annual reports, which is characterized by the Index, has affecting the company which can be in the response that occurs, namely an increase the value of the company in the market.

As stated in COSO (2013), effective internal control systems ensure the safeguarding of assets against loss, accurate financial reporting, and compliance with regulations, all of which contribute to operational efficiency and investor confidence. As a result, companies that prioritize and invest in strong internal control mechanisms are likely to see an improvement in their market valuation. This makes it clear that internal controls are not just a regulatory requirement but they are a strategic asset that can drive firm value and competitive advantage. Moreover, the results of this study also show that the Internal Control system of the company is required by the market in order to contribute to increasing the value of the company. Hence, it is suggested for a company to continue disclosed their information regarding to their Internal Control System annually in company's Annual Report.

c. The effect of ERP system implementation and Internal Control System on the Firm Value

The simultaneous regression coefficient test, or F-test, reveals that both the implementation of ERP system and Internal Control system combined in the company is proven to have effect on firm value. Moreover, the R Square test shows both ERP system and Internal Control system could affect the value of the firm by 5,4 percent. That is a small number but the result also suggests that while individually, ERP implementation may not show an effect on firm value, its integration with strong internal control systems can enhance overall business performance and value.

The possible explanation for this phenomenon is that when ERP systems are effectively combined with strong internal controls, both create a synergistic environment that promotes better decision-making, improved financial reporting accuracy, and operational efficiencies. Essentially, the ERP system provides comprehensive data and streamlined processes, which, when supported by stringent internal controls, ensure the reliability and integrity of information. This combination can result in enhanced management practices and stronger regulatory compliance, which in turn enhances investor confidence and subsequently increases firm value.

Furthermore, as one of the COSO (2013) framework's primary components is information and communication, the integration of ERP systems with this framework of internal control can help leverage the function of information and communication within the company and help mitigate risks associated with financial misreporting and fraud. These are critical factors for maintaining a company's reputation and for ensuring long-term success. It should also be noted that, as investors and stakeholders place significant value on transparency and reliability, the duality of ERP systems implementation and internal controls demonstrates a company's commitment to sound governance practices. This may also result in a higher market valuation.

The simultaneous test results of ERP systems and internal control systems on firm value demonstrate the significance of a comprehensive approach to technology and control mechanisms within a company. While ERP systems may not directly affect firm value, their effectiveness is considerably enhanced when coupled with strong internal control systems, ultimately leading to improved firm value. With this finding, the researcher underscores the necessity for companies to integrate technological investments with robust governance frameworks to achieve optimal business outcomes.

The significant simultaneous test result of ERP systems and internal control systems on firm value also highlights the importance of their integration and alignment with the TOE framework components. By

leveraging technological capabilities, aligning organizational resources and structures, and addressing environmental factors such as regulatory compliance and market dynamics, organizations can maximize the benefits of ERP and internal control systems, ultimately enhancing firm value. This holistic approach underscores the critical role of a well-integrated technological and control infrastructure in driving sustainable business success.

However, due to the limitations of previous studies that link the relationship between the variables in this study, the researchers concluded that further research is still needed on the topic of ERP systems, internal control systems and their influence on firm value. Furthermore, researchers also suggest paying attention to other components for more accurate results.

CHAPTER V
CONCLUSION

5.1 Conclusions

This research aims to obtain empirical evidence about the influence of Enterprise Resource Planning (ERP) system and Internal Control System on Firm Value as measured by Price to Book Value (PBV). By using the purposive sampling method, the data were collected from 2020- 2022 with a total of 177 samples to be tested from 67 companies listed on the Indonesia Stock Exchange in the manufacturing sectors. Based on the result that already has been done on the statistical test, analyses, and discussion in the previous chapter, we can have some conclusions:

1. Enterprise Resource Planning system does not affect the firm value of manufacturing sector company listed in Indonesia Stock Exchange.
2. Internal Control System significantly affects the firm value of manufacturing sector company listed in Indonesia Stock Exchange.
3. Simultaneously, ERP system implementation and Internal Control System has an effect on firm value of manufacturing sector company listed in Indonesia Stock Exchange.

5.2 Limitations

In this study, researchers realized that there were still limitations in conducting research. The following are the limitations in this study

1. The number of samples used in this study is limited, namely only 63 companies because many companies have not disclosed the used of ERP system in their company annual report.
2. The time span for this research is short, only three years from 2020 to 2022
3. The variable used in this study is limited to ERP system implementation and Internal Control System for the independent variable and Firm Value for dependent variable.

5.3 Suggestions

Based on the results of the analysis, conclusions, and limitations in this study, there are suggestions that can be given in order to obtain better research results are:

1. For the companies are expected to continue to present Annual Report reports a that emphasize transparency from the use of information systems and technology, so that later it is hoped that they will become a discussion for investors because issuing a good annual and sustainability reports builds a good reputation for the environment in the eyes of the public.
2. For researchers, due to the lack of mid- and long-term post-implementation data, future research on the long-run impact of ERP is proposed, by using a longer research time span so that it can show better results on how the use of the ERP system in the company could affect the company.
3. For further research, it can also use the latest version of the ERP system, namely Cloud-ERP as one of the variables where in recent years, most ERP vendors have started demanding their clients to move from the on-premise one.
4. Future researchers can also examine how the impact of ERP system implementation on other aspects, such as company profitability, employee performance or etcetera, as the research variables.
5. To get a more representative result, the research could take place directly to the company that already go through pre- and post-implementation phase of ERP system, so the result could describe how the system works in the field.

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APPENDIX

Appendix 1 Company Sample List

No		Company Name
1	AGII	Aneka Gas Industri Tbk
2	AISA	Tiga Pilar Sejahtera Food Tbk
3	ALDO	Alkindo Naratama Tbk
4	AMIN	Ateliers Mecaniques D'Indonesie Tbk
5	ARNA	Arwana Citramulia Tbk
6	AUTO	Astra Otoparts Tbk
7	AVIA	Avia Avian Tbk
8	BAJA	Saranacentral Bajatama Tbk
9	BELL	Trisula Textile Industries Tbk
10	BOLT	Garuda Metalindo Tbk
11	CCSI	Communication Cable Systems Indonesia Tbk
12	CINT	Chitose International Tbk
13	CLEO	Sariguna Primatirta Tbk
14	CPRO	Central Proteina Prima Tbk
15	DEPO	Caturkarda Depo Bangunan Tbk
16	DMND	Diamond Food Indonesia Tbk
17	DVLA	Darya Varia Laboratoria Tbk
18	EKAD	Ekadharma International Tbk
19	ERTX	Eratex Djaja Tbk
20	GGRP	Gunung Raja Paksi Tbk
21	GOOD	Garudafood Putra Putri Jaya Tbk
22	INAF	Indofarma Tbk
23	INAI	Indal Aluminium Industry Tbk
24	INDF	Indofood Sukses Makmur Tbk
25	INOV	Inocycle Technology Group Tbk
26	IPOL	Indopoly Swakarsa Industry Tbk
27	ISSP	Steel Pipe Industry of Indonesia Tbk
28	ITIC	Indonesian Tobacco Tbk
29	JPFA	Japfa Comfeed Indonesia Tbk
30	KAEF	Kimia Farma Tbk
31	KDSI	Kedawung Setia Industrial Tbk
32	KEJU	Mulia Boga Raya Tbk
33	KINO	Kino Indonesia Tbk
34	KLBF	Kalbe Farma Tbk
35	KMTR	Kirana Megatara Tbk
36	KRAS	Krakatau Steel (Persero) Tbk
37	MBTO	Martina Berto Tbk
38	MERK	Merck Indonesia Tbk

39	MRAT	Mustika Ratu Tbk
40	NIKL	Pelat Timah Nusantara Tbk
41	NPGF	Nusa Palapa Gemilang Tbk
42	NTBK	Nusatama Berkah Tbk
43	PBRX	Pan Brothers Tbk
44	PICO	Pelangi Indah Canindo Tbk
45	PRAS	Prima Alloy Steel Universal Tbk
46	PSGO	Palma Serasih Tbk
47	SCNP	Selaras Citra Nusantara Perkasa Tbk
48	SIDO	Industri Jamu dan Farmasi Sido Tbk
49	SMBR	Semen Baturaja Tbk
50	SMCB	Solusi Bangun Indonesia Tbk
51	SMSM	Selamat Sempurna Tbk
52	SOHO	Soho Global Health Tbk IPO
53	TCID	Mandom Indonesia Tbk
54	TDPM	Tridomain Performance Materials Tbk
55	TRIS	Trisula International Tbk
56	TSPC	Tempo Scan Pacific Tbk
57	UNVR	Unilever Indonesia Tbk
58	VOKS	Voksel Electric Tbk
59	WIIM	Wismilak Inti Makmur Tbk
60	WOOD	Integra Indocabinet Tbk
61	WSBP	Waskita Beton Precast Tbk
62	WSKT	Waskita Karya (Persero) Tbk
63	WTON	Wijaya Karya Beton Tbk

Appendix 2 SPSS 27 Analysis Output

Descriptive Statistic Test

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ERP	177	0	1	.88	.324
ICDI	177	.28	1.00	.8448	.16981
PBV	177	.0433	44.8570	2.641210	5.3401293
Valid N (listwise)	177				

Normality test before data transformation with LN(Y)

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			177
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		5.27556560
Most Extreme Differences	Absolute		.273
	Positive		.273
	Negative		-.271
Test Statistic			.273
Asymp. Sig. (2-tailed)[c]			<,001
Monte Carlo Sig. (2-tailed)[d]	Sig.		.000
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Normality test after data transformation with LN(Y)

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			177
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		1.06556606
Most Extreme Differences	Absolute		.044
	Positive		.040
	Negative		-.044
Test Statistic			.044
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.568
	99% Confidence Interval	Lower Bound	.556
		Upper Bound	.581

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 303130861.

Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ERP	.983	1.017
	ICDI	.983	1.017

a. Dependent Variable: PBV_trans

Heteroscedasticity Test (Glejser)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.798	.276		2.894	.004
	ERP	-.028	.156	-.014	-.179	.858
	ICDI	.069	.299	.018	.231	.818

a. Dependent Variable: Abs_res

Autocorrelation Test (Durbin-Watson)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.233[a]	.054	.044	1.07167	1.991

a. Predictors: (Constant), ICDI, ERP

b. Dependent Variable: PBV_trans

Multiple Linear Regression and Partial Regression (t-test)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.059	.443		-2.391	.018
	ERP	.475	.251	.141	1.892	.060
	ICDI	1.089	.480	.169	2.269	.024

a. Dependent Variable: PBV_trans

Simultaneous Regression (F-Test)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.515	2	5.757	5.013	.008[b]
	Residual	199.836	174	1.148		
	Total	211.351	176			

a. Dependent Variable: PBV_trans

b. Predictors: (Constant), ICDI, ERP

Coefficient of Determination (R^2)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.233[a]	.054	.044	1.07167	1.991

a. Predictors: (Constant), ICDI, ERP

b. Dependent Variable: PBV_trans