THE EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF MANUFACTURING INDUSTRIES DURING COVID-19

BY

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A Project Paper Submitted to
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fulfilment of the requirement for
Master Degree of Business Administration

Faculty of Accountancy and Management (FAM),
Universiti Tunku Abdul Rahman
2023/2024

DECLARATION OF ORIGINALITY FORM

This is to certify that the research title The Effect of Working Capital Management On Profitability Of Manufacturing Industries During Covid-19 is prepared by Adleena Binti Sazali and submitted to the Faculty of Accountancy and Management (FAM), Universiti Tunku Abdul Rahman to fulfil the partial requirement for the attainment of the Master Degree of Business Administration.

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ACKNOWLEDGEMENT

ABSTRACT

The purpose of this study is to find the empirical evidence between working capital management on company profitability during Covid-19. The main aim of the study was to examine the influence of working capital management has an impact on firm's profitability of manufacturing industry listed companies in Malaysia during pandemic Covid-19. The secondary data for analysis is collected from DataStream of 100 listed companies randomly selected for seven-year period from 2016 to 2022. The working capital management components used for the purpose of this study was Debt Ratio (DR), Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO) and Days Payable Outstanding (DPO) as independent variable while Return on Assets (ROA) as dependent variable. Descriptive statistics, Pearson's Correlation analysis, and Regression analysis were employed as measure of analysis. The result show that DR, DIO, DSO DPO have a negative significant effect on profitability. The empirical findings would be useful to managers on financial planning for the companies to maximize firm's profitability during financial crisis and global financial disruption.

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1.0 Introduction
1.1 Research Background

All businesses and companies must have a strong capital structure in their financial position to ensure sufficient funds and liquidity to carry on their business activities. Most firms own comprehensive goals and plans, which include optimising profits in either the short or long term to achieve financial stability. Companies' financial strategies are major in shaping the business decisions required to manage their resources effectively. As Zimon and Tarighi (2021) stated, a company's ability to meet its short-term financial commitments and maintain a steady flow of capital depends on its liquidity. Businesses are more likely to declare bankruptcy when they incur more financial expenditures, and even the slightest errors with their working capital may cause them to lose liquidity. Working capital management involves making effective use of the funds required to operate an organisation's day-to-day operations to accomplish the organisation's goals and objectives, which are primarily the generation of profits, the promotion of growth, and the maintenance of a healthy financial position.

Every organisation, whether public or private, requires sufficient working capital to satisfy its daily and fundamental financial commitments. According to Odi and Solomon (2010), a significant number of business organisations could only survive for a short period to realise their goals because of inefficiencies in the administration of their working capital. Research conducted by Xuhui and Ruoxi (2013) established that a significant percentage of the businesses that were examined faced difficulties with inefficient cash management. A study conducted shows that sixty per cent of businesses were experiencing these difficulties. The study was conducted by Struwig and Watson (2021). In order to maintain continuous corporate operations amid the global crisis, firms are seeking to enhance their cash management and working capital procedures. The organisation may have challenges due to a shortage of financial resources.

Consequently, the most problematic aspect of financial management is that the managers need to help maintain control over the organisation's cash flows. According to Mong (2011), company owners will have problems managing their cash flows since their primary emphasis is maximising their profits rather than their cash flows. Excessive emphasis on profit

optimisation without taking into account the impact on cash flow might result in overtrading. Overextending by accepting more projects or orders above the capacity of existing cash flow might potentially burden financial resources and prevent effective cash flow management. Hence, it is very crucial that every organisation implements working capital management activities to determine the financial position of the company.

1.2 Problem Statement

The manufacturing sector in Malaysia plays a crucial role in enhancing the competitiveness and success of the economy. According to Randa, Norzalina and Norhafiza (2019), according to the 2016 BNM Annual Report, the manufacturing sector in Malaysia has the second highest position in terms of its contribution to the country's gross domestic product (GDP). The manufacturing sector in Malaysia plays a crucial role in the country's economic development, making a substantial contribution to overall growth. It closely follows the services industry and has a wide range of contributions, including creating employment, driving technological innovation, diversifying exports, and adding value to the economy. Based on annual economic statistics, the manufacturing sector's performance keeps enhancing economic activities that increase the contribution to Malaysia's GDP. As a result, it is undeniably essential to put effort into boosting the efficiency of the manufacturing sector.

Due to the COVID-19 pandemic, the Malaysian government has announced a Movement Control Order (MCO), which has impacted Malaysia economically. Most companies that do not supply necessities are not allowed to operate as usual, which has caused the business to be unable to produce sufficient cash flow. This pandemic not only affected Malaysia's economy but also impacted the economy globally. Zhang, Hu and Ji (2020) stated that the COVID-19 impact reduced the economic activity that affected global economic activities to prevent the disease from spreading.

Most companies and businesses in Malaysia encourage employees to perform work from home (WFH) to ensure the business keeps going. However, a few industries are unable to implement the same method due to the company's need for a workforce, such as manufacturing industries.

Manufacturing industries are industries that produce and perform finished goods for the customer. As for the manufacturing industry, the business needs to operate and generate income by ensuring the employees perform their work physically in the plant or factory to run the business—for example, a manufacturing company with services such as the aerospace industry, including MRO and the medical manufacturing industry. However, due to the COVID-19 pandemic, the government has restricted the company from allowing employees to attend the company physically, and businesses tend to lose profit as they cannot generate income, leading to a steep decline in the manufacturing industry.

WCM has been shown to have an impact on the bottom line of Malaysian manufacturing companies (Ko et al., 2018). This is mainly because of its direct relationship with maximising liquidity, reducing financing costs, and improving operational efficiency, which ultimately results in a positive impact on the bottom line. The findings from Ko et al. (2018) establish the critical impact of Working Capital Management (WCM) on the financial performance of Malaysian manufacturing companies. However, while existing literature highlights this impact, a significant gap remains in understanding the specific implications of external disruptive events, such as the COVID-19 pandemic, on WCM and its consequent effect on financial performance. The research by Demiraj et al. (2022) exploring the impact of the pandemic on profitability within the European automotive industry acts as a catalyst for investigating a similar phenomenon within Malaysia's manufacturing sector. Therefore, this study aims to bridge this gap by examining how the COVID-19 pandemic influenced WCM practices and, subsequently, the financial performance of Malaysian manufacturing companies, building upon the prior understanding established by Ko et al. (2018).

1.3 Overview of Industry

1.3.1 Overview of Working Capital Management

Across the business industry, companies need sufficient cash flow to operate and promote proper management. This is to ensure that the company has adequate capital to operate and sustain the business. Patrick and Titus (2018) stated that it is vital for the business to measure the actual figures as the company operations are growing. In order to measure and control the

financial flow, the business needs to practice working capital management to operate the business. Maintaining liquidity, meeting short-term obligations, and capitalising on growth opportunities all depend on effective working capital management for businesses. Deloof (2003) suggests that it impacts a company's ability to finance daily operations, handle cash flows, and maximise profitability. Working capital management practices have been performed since the 1900s to manage current assets, such as cash, inventories, and buildings, to meet short-term liabilities, such as accounts payable. Working capital management can be optimised through various strategies, such as effective inventory management, prompt account receivable collections, and strategic accounts payable management. Furthermore, organisations have the opportunity to maximise working capital efficiency by employing methods like cash flow forecasting, optimising inventory turnover, and implementing credit management policies (Lambert & Davidson, 2013). Working capital management is vital to every business sector, especially to small-medium enterprises. Angelique stated that capital budgeting is one of the components in working capital management to handle the business's cash flows (cited in Peel and Wilson, 1996).

1.3.2 Overview of the Manufacturing Industry in Malaysia

The industrial sector in Malaysia has played a crucial role in stimulating economic expansion and progress for the country. Malaysia's manufacturing industry is diversified, spanning various sectors, including electronics, automotive, chemicals, equipment, and textiles. The electronics industry, which includes semiconductor production, is a highly significant sector in the country. It is characterised by major global businesses such as Intel, Samsung, and Western Digital (Rasiah, 2003). The manufacturing sector is of utmost importance to Malaysia's economy, substantially contributing to the country's GDP, job opportunities, and export revenue. The Department of Statistics Malaysia (DOSM) revealed that manufacturing sales in 2018 had achieved RM71.8 billion, compared to RM66.6 billion in the previous year. In addition, the Department of Statistics Malaysia (DOSM) declared that sales increased by 5.2% in December 2019, reaching RM76.1 billion, compared to RM72.3 billion recorded in the previous year. The year-on-year gain was primarily fueled by the rise in Transport Equipment and other manufacturing products (7.7%), Petroleum, Chemical, Rubber and Plastic Products (5.9%), and Electrical and electronics Products (2.7%). Amidst the rise of COVID-19 in 2020, Malaysia's manufacturing sales witnessed a decline of 3.0% in March 2020, reaching RM110.2

billion, compared to RM113.5 billion recorded in the previous year. The drop in sales value in March 2020 compared to the same period last year may be attributed to the fall in sales of Transport Equipment and other manufacturing products (-7.4%), Food, Beverages, Tobacco Products (-5.9%), and Electrical & Electronics Products (-5.7%). Several sectors, including transportation, manufacturing, and services, are experiencing a decline due to the prolonged implementation of the movement control order (MCO), contributing to the economic slowdown. The directive (Shaari et al., 2021) causes significant financial losses for small and large firms.

1.3.3 Overview of Covid-19

The cause of Coronavirus Disease 2019 (COVID-19) is linked to a new type of coronavirus called Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). Unlike other coronaviruses that usually cause mild respiratory infections in people, SARS-CoV-2 has unique features. COVID-19 is a highly contagious respiratory disease that is mainly spread by respiratory droplets (CCDC, Chinese Centre for Disease Control and Prevention, 2020). The discovery of SARS-CoV-2 marked a significant milestone in global health as it rapidly disseminated across continents, giving rise to an unparalleled epidemic (Kucharski et al., 2020). The nation had several outbreaks of diseases, resulting in healthcare institutions being overwhelmed by the sudden increase in cases. The emergence of infections began when Singapore reported its first imported case of COVID-19 from Wuhan, China. Subsequently, eight individuals who had close contact with the infected person were found in Johor, Malaysia (Shah et al., 2020). The pandemic had a significant and expansive economic effect on Malaysia, resulting in disruptions across all industries. The implementation of lockdown measures, travel limitations, and social distancing protocols resulted in a decline in economic activity, a rise in unemployment, and a fall in consumer expenditure. The government adopted stimulus programmes to reduce the economic consequences and provide assistance to impacted firms and people (Baharum et al., 2021). Malaysia enforced a Movement Control Order (MCO) on March 18, 2020, in response to the worsening circumstances. The Movement Control Order (MCO) was implemented with the objective of limiting people's mobility and containing the spread of the virus, based on insights gained from other countries that were also hit by the illness. The government targeted the improvement of healthcare capacity, the promotion of

public health awareness, and the acceleration of vaccination distribution activities (Lee et al., 2020).

1.4 Research Questions and Objective

The objective of this study is to examine the correlation between WCM and the profitability of the manufacturing industry in Malaysia during COVID-19. The research questions that have been identified as below: -

How does the debt ratio affect the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic?

How many days of inventory are outstanding, affecting the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic?

How does the number of days sales outstanding affect the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic?

How many payables are outstanding, and how did this affect the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic?

Research Objectives

Specifically, the research objectives (RO) are as follows:

i) To assess the impact of the debt ratio on the profitability of the manufacturing sector in Malaysia amidst the COVID-19 epidemic.

To analyse the number of days of inventory outstanding affects the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic.

To analyse the number of days sales outstanding affect the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic.

To analyse the number of payables outstanding and how it affected the profitability of the manufacturing industry in Malaysia during the COVID-19 pandemic.

1.5 Purpose and Significance of the Study

1.5.1 Theoretical Significance

Firstly, this study extends the concept of the pecking order theory, which investigates how the capital structure works on the company's financial performance. The study explores and extends the impact of the COVID-19 pandemic on the economic activity that influences the manufacturing business financially in Malaysia. In light of the study undertaken by Zimon and Tarighi (2021) on the Effects of the COVID-19 Global Crisis on the Working Capital Management Policy in Poland, it is worth considering the applicability of their findings to the context of Malaysia. Lastly, the result of this study will add value to other researchers as reference data when conducting new research.

1.5.2 Practical Significance

This research is very significant since it enables company managers to enhance their understanding of prospective default events, particularly during periods of instability. By prioritising the management of working capital, this approach provides managers with a means to strengthen their comprehension, enabling them to traverse volatile situations with more effectiveness. This study ultimately provides valuable insights that assist managers in optimising their tactics to decrease default risks and preserve stability in the face of oscillations. Moreover, managers can effectively prioritise resource allocation and intervention strategies by understanding the most pressing issues faced by manufacturing companies. This is due to the fact that working capital management (WCM) has an essential effect on the financial performance of firms. Moreover, this research holds significance for practitioners, policymakers, academics, and firm managers concerning how working capital management impacts a firm financial performance. By comprehending the possible effects of COVID-19 on their operations and supply chains, companies can take proactive steps to mitigate risks, improve resilience, and seize new market opportunities. It facilitates the reduction of a company's financial costs and enables strategic planning to maximise profitability and enhance shareholders' wealth.

1.6 Scope of the Study

This research examines manufacturing companies that have been consistently listed on the Bursa Malaysia from 2016 to 2022, covering a period of seven years. This research uses secondary data received from Refinitiv Datastream for analytical purposes.

1.7 Organisation of the Research

The research project will be structured into five chapters in the following manner: -

Chapter 1: Introduction and study overview.

Chapter 2: Focuses on doing a literature review of the theories and concepts related to working capital management. It examines the impact of working capital management policies on the profitability of companies in the manufacturing sector in Malaysia, as well as the empirical data supporting these ideas. The chapter also presents the study framework and hypothesis.

Chapter 3: titled "Research Methodology," covers topics such as research design, data collecting, hypothesis creation, and data analysis.

Chapter 4: Results and Analysis entails the evaluation of hypothesis and debate on the outcomes obtained from regression analysis.

Chapter 5: Results and Discussion provides an examination and interpretation of the findings.

Chapter 6: Managerial consequences for managers in manufacturing organisations.

Chapter 7: focuses on the policy implications that are applied in Malaysia, namely the government policies that are implemented to help the industrial industry.

Chapter 8: Conclusion and recommendations for future research, including a discussion of the study's shortcomings and implications.

2.0 Literature Review
2.1 Theories and Concept

2.1.1 The Pecking Order Theory

Numerous internal and external factors can significantly influence corporate decision-making regarding the optimal value of current assets and liabilities. One of the factors to consider is the impact of corporate financing decisions. The Pecking Order Model is considered one of the most significant theories about capital structure. Based on that theory by Myers and Majluf (1984), it is claimed that companies tend to reduce their financial reserves to generate internal capital instead of enhancing their financial leverage through external borrowing or the issuance of new stocks. The reduced information costs that are associated with debt issues are the primary reason why companies choose debt over equity when they need funding from outside sources (Frank & Goyal, 2003). Whenever a company requires external financing, whether it be because of generous dividend policies, unpredictable fluctuations in profitability, or investment opportunities, the company will initially select debt as the most secure form of financing, followed by hybrid securities such as convertible bonds, and finally equity as a final resort (Culata & Gunarsih, 2012).

The pecking order theory is heavily influenced by the idea that it correlates perfectly with various observations regarding companies' application of external financing. Due to the presence of information differences between the firm and potential investors, the firm has a tendency to prioritise the utilisation of retained earnings as opposed to debt financing. Frank and Goyal (2020) added that organisations may face financial constraints because of the unequal access to information between managers/owners and investors. Therefore, according to Holmes and Kent (1991), managers want to retain control over their firms in order to minimise the cost of borrowing debt, which is cheaper than the cost of raising stock. This practice avoids a decrease in the values of the firm's shares. It limits the payout of dividends to boost cash flow and minimises access to loans in order to lower the cost of capital. Therefore, financially successful companies have a more significant amount of internal cash at their disposal (Adair & Adaskou, 2015).

Additionally, the firm tends to favour short-term debt over long-term debt and prefers debt financing over equity financing (Chen et al., 2011). Jose and Francisco (2008) stated that a

predicted hierarchical structure exists in a company's approach to financing decisions. The prioritisation of this order is determined by the financial sources that incur minimal information costs and exhibit lower levels of risk. Because of this, businesses that are able to earn greater profits and accumulate sufficient amounts of them would borrow less money, provided that all other factors stay the same (Agyei et al., 2020).

2.1.2 Agency Theory

The link between agency theory and capital structure centres on the notion that conflicts of interest among various stakeholders in a company, specifically between shareholders and management, may impact the firm's financing choices. Agency theory argues that managers may possess their own aims and motivations that may not fully line with those of shareholders, resulting in agency costs and possible inefficiencies in decision-making (Triyono et al., 2019). In agency theory, there are several agency connections that exist inside a corporation, including those that exist between shareholders (called principals) and managers (called agents), between a creditor (called principals) and shareholders and managers (called agents), between an employer (called principals) and employee (called agents), and so on (Grigore & Ştefan, 1976). According to Berger et al. (1997), a significant body of research in the fields of corporate governance and capital structure has used agency theory to suggest that the conflict of interest that exists between the management and shareholders of a company has an impact on the decisions that an organisation makes about its policies, including those pertaining to its capital structure. However, Panda and Leepsa (2017) argue that when it comes to controlling the actions of agents in jointly owned organisations, this theory is helpful in putting into practice the many governance methods that are available.

There is an issue with agency in the management decision-making process in such complicated companies. This is due to the fact that the decision-makers who originate and execute the firm's decisions are not the ones who are really responsible for the wealth repercussions of their choices. Furthermore, when the executive team's control increases, the company has a more significant information asymmetry, which makes it more difficult for shareholders and bondholders to oversee the conduct of the managers, which leads to weakenedstronger reporting transparency (Huang et al., 2016). Tripathi (2019) added that it was determined via

the application of the Agency Theory that the ownership structure does have an effect on the capital structure from the data. Effective internal corporate governance and monitoring procedures are therefore emphasised by scholars as crucial in addressing the agency issue.

The presence of the Agency Theory provides investors with information on the relationship between managers and shareholders, as well as between shareholders and debtholders, and the influence that this relationship has on the ability of a firm to take on debt. The term "internal corporate governance" describes the set of rules and regulations put in place by an organisation to promote transparency, responsibility, and sound decision-making. In it, the board of directors, management, and other internal stakeholders set up systems to make sure the business runs efficiently and ethically while also protecting the interests of shareholders. According to Huang et al. (2016), managers are able to make better use of resources when there is good corporate governance in place, which in turn decreases the cost of debt since default risk is reduced. Furthermore, good governance lessens information asymmetry by preventing managers from abusing their position of power to further their own interests rather than that of the shareholders and by guaranteeing the disclosure of trustworthy financial information.

2.1.3 Trade-off Theory

The Trade-Off Theory (TOT) is based on the assumption that businesses make decisions on the allocation of their resources by balancing the tax advantages of debt against the costs of bankruptcy, with the end goal of achieving the optimum debt ratio (Adair & Adaskou, 2015). The theory proposed by Modigliani and Miller (1958) may be used to explain how companies utilise taxes to manage their profitability and determine an optimal amount of debt. An increase in the amount of debt, commonly referred to as bankruptcy expenditures, raises the risk of filing for bankruptcy. This is due to the fact that when the ratio of debt-to-equity increases, those who hold debt will seek higher interest rates, while owners will anticipate better returns on their investments; as a result of the increased risk that the business faces, the persistent growth in debt will not result in an increase in the value of the company. As a result of the enormous debt, there is a possibility of failure. According to Martinez et al. (2019), within this framework, the trade-off theory of transaction costs examines and takes into account the impacts of the whole sector, including taxes, bankruptcy costs, and agency difficulties.

Additionally, it forecasts an ideal arrangement as a consequence of weighing the expenses and advantages of issuing debt and capital. In this theoretical framework, leverage is seen as beneficial (given certain circumstances), and owner-managers have a preference for using debt even when internal funds are accessible. Nevertheless, this theory suggests avoiding the excessive use of leverage and provides a coherent explanation for debt ratios.

Moreover, based on the research findings of Cekrezi (2013), the effective tax rate coefficient is positively and statistically significantly related. Therefore, if a company is required to pay higher taxes, it should consider increasing its debt usage to lower its tax expenses. However, it is essential to note that there are other costs, such as depreciation, which are considered non-debt tax shields. These costs diminish the significance of the tax advantage gained from using debt. According to Ahmadimousaabad et al. (2013), one significant advantage of using debt is the use of the debt tax shield. Conversely, the drawbacks of debt, mainly when a company accumulates excessive debt, include the potential costs associated with the financial crisis. The primary advantage of debt is the tax deductibility of interest payments, which encourages the use of debt. Implementing practical corporate governance standards may encourage the proper utilisation of debt by matching the interests of shareholders and management. Boards of directors have the authority to create rules for making choices about the company's capital structure and to supervise the firm's financing operations to make sure they are in accordance with the interests of shareholders and the goal of creating long-term value.

2.1.4 Cash Conversion Cycle Theory

The cash Conversion Cycle is one of the financial indicators used to quantify the duration required for a firm to transform its inventory and accounts receivable investment into cash employing sales. The term "cash conversion cycle" refers to the duration between a company's payment to suppliers for inventory and the subsequent cash receipt from customers for sales. It serves as a crucial metric for evaluating a company's effectiveness in effectively managing its working capital and cash flow. Based on the CCC theory stated by Johnson and Smith (2022), it is said that a reduced cash conversion cycle is indicative of effective management of working capital, hence resulting in enhanced levels of liquidity and profitability. The researchers Nwude et al. (2018) made the observation that a rise in CCC would result in an increase in the minimum

liquidity need of the company, and vice versa on the other hand. Nwude et al. (2018) added that If the CCC duration is shorter, it indicates that the inventory turnover period in days is lower, which means that the materials are processed more quickly. The turnover of receivables in days was decreased, resulting in that trade debtors were collected from more quickly and if turnover of payables in days is decreased, it implies that payments to trade creditors are made more slowly. The CCC theory emphasises the significance of maintaining a proper balance between the duration required to collect cash from customers (Days of Sales Outstanding, DSO), the duration needed to settle payments to suppliers (Days Payable Outstanding, DPO), and the duration necessary to convert inventory into sales (Days of Inventory Outstanding, DIO). The capital structure choices of a firm may impact its management of working capital, which includes the cash conversion cycle. For example, if a firm substantially depends on borrowing money to finance its operations, it may incur more extraordinary interest expenses and debt commitments, which may hinder its capacity to manage its available funds for day-to-day operations effectively. Elevated amounts of debt may result in heightened financial leverage, thereby exerting strain on the organisation to provide sufficient liquidity for meeting debt commitments. This might lead to an extended cash conversion cycle as the firm may be required to store a more significant amount of cash or maintain elevated levels of inventory in order to assure sufficient liquidity. Through the optimisation of several components of the Cash Conversion Cycle (CCC), an organisation can optimise its management of working capital, improve cash flow, and increase profitability.

2.2 Working Capital Components

2.2.1 Debt Ratio

The debt ratio is a financial measure that measure the relationship between a company's overall debt and its shareholders' equity. The previous measurement holds significant importance when evaluating a company's level of financial leverage and corresponding exposure to risk. The influence of the debt ratio on a firm's profitability is essential, and its mathematical foundations can be attributed to multiple financial theories and concepts. The Modigliani and Miller (M&M) theorem, this foundational theory that clarifies the relationship between debt ratio and profitability (Luigi & Sorin, 2009). The M&M theorem argues that the debt ratio does not impact a company's profitability or capacity to generate value for its shareholders. According

Acaravci (2015), free cash-flow hypothesis recommended that extra advantageous companies use a higher level of debt to enforce discipline among management. This is done to encourage them to distribute cash rather than investing it in wasteful initiatives.

Nevertheless, it is essential to note that this theorem relies on the assumption of ideal capital markets, the lack of taxes, and the lack of bankruptcy costs, factors that may only align partially with the complexities of the real world. Increase in debt ratio may bring risk to the profitability of the companies to lead bankruptcy. Bankruptcy is a common occurrence, particularly in situations when the owner of a firm is unable to repay their obligations. This might make it challenging to get new lenders in the future. With proper management, financial leverages continue to be one of the most successful methods that a variety of company organisations use in order to boost the return on investment for their shareholders.

It important to acknowledge that many situations could have an influence on the correlation between debt ratio and profitability. One issue that can significantly impact a corporation is the financial distress cost, which occurs when a company encounters challenges in fulfilling its debt obligations. As the debt ratio of a corporation increases, there is a corresponding rise in the probability of experiencing financial trouble, which in turn may result in a decrease in profitability. Financial distress can lead to higher borrowing expenses, limited capital availability, and an adverse effect on a firm's status.

2.2.2 Days of Sales Outstanding (DSO)

A company's ability to collect its accounts receivable is measured by a statistic called Days of Sales Outstanding (DSO). It shows how well a firm handles its credit procedures. Profitability is affected by days sales outstanding (DSO), and this may be understood theoretically through the perspectives of working capital management, financial performance, and cash flow optimisation. If a firm has a lower DSO, then it is likely that it is receiving payments from clients sooner, which is consistent with the cash conversion cycle idea. This allows up capital that may be invested in the business, used to settle short-term debts, or used toward expanding the company's activities. A corporation may improve its liquidity situation and, perhaps, its

profitability by decreasing the DSO and shortening the cash conversion period. Business that has a reduced DSO (Days revenues Outstanding) are more skilled at turning their revenues into cash. This leads to better cash flow and profitability. By reinvesting funds more swiftly into strategic projects, like as research and development, marketing campaigns, or capital expenditures, they may accelerate growth and increase the value for shareholders. It is also possible that a low DSO score indicates that consumers are paying quickly, even early, in order to get discounts, or that the organisation has stringent payment processes (Mwinuka & Dome, 2022). According to Mwinuka and Dome (2022), In most cases, DSO levels that are less than 45 days are considered to be reasonable. A low DSO score indicates that consumers are paying quickly, even early, in order to get discounts, or that the organisation has stringent payment processes. As the global market grows more dynamic and fast-paced, manufacturing companies require flexible production systems that can quickly adapt to changes in the market. This is necessary in order to fulfil the demands of their customers and compete with other businesses in the same industry. Deloof's (2003) research on working capital management analysed how different approaches to managing a company's cash flow affects its bottom line. DSO was shown to have a statistically significant negative association with profitability. Profitability was often better at businesses with shorter DSO and lower at those with longer DSO.

2.2.3 Days of Inventory Outstanding (DIO)

The financial indicator known as Days of Inventory Outstanding (DIO) tracks the amount of time it typically takes a business to sell off its stock of unsold goods. It shows how well a corporation is able to manage its stock and turn that stock into revenue. Inventory management, COGS optimisation, and cash flow theories provide insight into the theoretical foundation of DIO's effect on profitability. Efficient inventory management is crucial for firms to sustain ideal levels of inventory. The retention of surplus inventory results in the freezing of capital and the accrual of carrying costs, while inadequate inventory levels may result in stockouts and missed sales opportunities. A decrease in days inventory outstanding (DIO) signifies efficient inventory turnover, leading to decreased carrying costs and enhanced profitability for a corporation. Zaher and Illescas (2022) added that the positive impact of growth-oriented financial restrictions on firm value has a more significant effect in companies with shorter CCC, DIO, DSO, and longer DPO. In their study, Castellares and Salas (2019) discovered that when nations are affected by a recession, a financial crisis, or a combination of the two, their

imports experience a significant decrease. This is particularly true for sectors that have a lengthier DIO owing to the financial crisis in order to bring in material to the plant. York and Venkataraman (2010) conducted research on influence of inventory management on company performance. Their findings revealed a positive relationship between effective inventory management techniques and superior financial performance, specifically in terms of increased profitability. This research highlights the significance of optimising Days Inventory Outstanding (DIO) within the context of a complete inventory management strategy.

2.2.4 Days Payable Outstanding (DPO)

Days Payable Outstanding is to measure the time an organisation to pay its debts to suppliers for the items and services procured. This analysis offers valuable insights into a company's effectiveness in managing its accounts payable and its competence in properly managing trade credit. The theoretical basis of the influence of DPO on profitability may be comprehended by examining the perspectives of working capital management, cost of capital, and cash flow theories. From a cost of capital standpoint, the act of delaying payments to suppliers is a method of obtaining short-term financing. By extending the duration of payment terms, a corporation may effectively preserve its available funds for an extended time, so enabling their use for alternative objectives, such as capitalising on development prospects or reducing outstanding debts. According to Asman et al. (2022), accounts payable have a crucial impact on achieving a healthy cash flow. This is because a rise in cash resulting from certain transactions could cause problems with available funds. The accounts payable represents the payment rate at which the corporation settles its obligations to vendors. This methodology can enhance liquidity management, reduce short-term borrowing expenses, and possibly augment profitability. Raheman and Nasr (2007) research examining the correlation between working capital management, specifically days payable outstanding (DPO), and business profitability within the context of Pakistani enterprises. The researchers discovered that an extended days payable outstanding (DPO) was positively correlated with increased profitability. This implies that under some circumstances, the act of postponing payments to suppliers has favorable outcomes for a company's profitability, likely attributable to enhanced cash flow and decreased financing expenses.

2.3 Empirical Evidence

2.3.1 Relationship between Debt Ratio and Profitability

The debt ratio is one of the financial instruments in the working capital as the company's indicator of capital structure. Short-term liabilities are joint in companies to ensure they have sufficient capital to run the business. A bad working capital policy might put a company in financial hardship, making it impossible to repay its short-term borrowing obligation. The effects of this failure could be disastrous for the company, as it would be difficult for it to gain the confidence of other lenders to take out additional loans, the market would view it negatively, and the share price would drop. Suppliers and creditors might be reluctant to sign new agreements.

Significant research results conclude a robust negative significance between debt ratio and profitability, which indicates that an increase in leverage or debt ratio may lead to a decrease in the business's profitability. This statement can be confirmed by Mboi, Muturi, and Wanjare (2018) analysed data from a sample of 90 businesses in Kenya, including big and medium-sized companies registered at Nairobi Securities Exchange (NSE). Based on the findings of this study, the use of short-term debt to calculate the efficiency of return on assets and return on equity is correlated negatively with profitability. According to the results, raising more short-term debt might hurt a company's bottom line. In order to strengthen the company's financial standing and guarantee short-term profitability, it is necessary to do away with lending terms.

Ngo, Tram, and Vu (2020) found a beneficial effect of debt on corporate profitability in Vietnam. A total of 118 companies listed on the Vietnam Stock Exchange were subject to examination from 2009-2017. The empirical results demonstrate a statistically significant inverse correlation between debt and firm profitability, indicating that a 1% increase in the debt ratio results in a decrease in profitability of around 0.14%. A larger ratio corresponds to an increased level of risk for the firm to continue implementing its present strategy.

Almazari (2013) research on The Relationship between Working Capital Management and Profitability: Evidence from Saudi Cement Companies findings present a negative relationship between debt financing and profitability. This research mainly focus on trading companies that were created before to the year 2005 and were listed on the Tadawul market of the Saudi national stock exchange. The findings shows that an increase of one unit debt ratio will negatively influence gross operating profit 5.9%.

Loganathan et al. (2011) research on Fiscal Adjustment and Dynamic Economics Performance: The Case of Malaysia is to examine the determine the possibility that there is a connection between Malaysia's fiscal adjustment and the country's dynamic economic performance by using time series data over the whole period of 1980-2009. Additionally, regression research has uncovered statistical evidence that demonstrates a negative relationship between debt ratio and return on assets for businesses that make extensive use of fixed capital. The return on assets (ROA) drops by 0.214% if it grows by 1%.

Ching et al. (2011) observed an inverse correlation between the debt ratio and return on assets in a study of Brazilian publicly traded enterprises from 2005 to 2009. Garcia et al. (2011) conducted a study on 2,974 European listed enterprises during a twelve-year period from 1998 to 2009. The research used the control variables of current ratio and debt ratios. The research discovered a significant inverse correlation between the current ratio and debt ratio with regards to profitability.

However, research by Lumbantobing, Sulivyo, Sukmayuda and Riski (2020) studies on the debt ratio effect on return on assets on Indonesia stock reveals that debt ratio partially had a positive relationship on return on assets. The researcher has stated that an increase in debt would positively impact profitability due to a small amount of leverage. The researchers determined that during the period 2014-2018, the leverage amount of the industry was less than their total assets. It indicates that the company's assets were funded by equity rather than debt to generate a profit.

Moreover, research by Khalid findings present positive relationship on debt ratio and profitability. This paper studies Indian firms that listed in Bombay Stock Exchange (BSE) for a span of time that comprises a period of five years beginning in 2006 and ending in 2011.

Dalci (2018) found an inverted U-shaped association between leverage and profitability in different research that looked at 1,503 listed industrial enterprises in China. The reason financial leverage has a favourable effect on profitability in this inverted U-shaped relationship is because of the tax shield. The listed Chinese enterprises experience bankruptcy expense, financial difficulty, significant agency issues, and information asymmetry, which are all adverse outcomes of China's institutional features.

2.3.2 Relationship of Cash Conversion Cycle and Profitability

The Cash Conversion Cycle (CCC) is a significant metric employed in financial management for evaluating the efficacy and liquidity of a business. This include three independent variables in this study which is days inventory outstanding (DIO), days receivables outstanding (DRO), and days payables outstanding (DPO). The metric under consideration signifies the duration required for an organisation to transform its allocated resources in inventory into monetary funds derived from sales, thereby offering significant insights into the effective administration of working capital. A comprehensive comprehension of the Cash Conversion Cycle (CCC) is imperative for business proprietors and financial managers, as it can substantially influence a firm's profitability and overall financial well-being.

According to Catherine, Siu, and Yongxian (2020), this approach aims to assess the efficacy of a company's performance through the evaluation of three key metrics: days inventory outstanding (DIO), days receivables outstanding (DRO), and days payables outstanding (DPO).

In essence, the cash conversion cycle quantifies and evaluates the efficiency with which available cash can generate additional cash flow for a business's operational activities.

Aldubhani et al. (2022) research on the impact of working capital management on profitability: evidence from listed companies in Qatar stated that companies with shorter periods for cash

conversion cycle tend to exhibit higher levels of profitability. The result of this study indicates that the cash conversion cycle has inverse significant on return on assets which determines that reducing the cash conversion cycle will enhance profitability. The study utilised a methodology of multiple regression analysis to investigate the manufacturing companies listed on the Qatar Stock Exchange.

Specifically, the analysis focused on ten selected firms between 2015-2019.

The empirical evidence above is supported by Oseifuah and Kojo's (2016) study on the Cash Conversion Cycle theory influence on firm financial performance. This study examines the effect of WCM on profitability of a sample of seventy-five non-financial company that are publicly traded on the Johannesburg Stock Exchange (JSE). The financial data was obtained from I-Net Bridge and BF McGregor from 2003 to 2012. The findings of this research align with the CCC hypothesis, which claims that there is a significant negative correlation between working capital management, including the cash conversion cycle, and profitability as measured by return on assets (ROA). The findings suggest that reducing the cash conversion cycle (CCC) through the minimisation of working capital duration and the acceleration of collections leads to a significant increase in return on assets.

Panigrahi (2013) found a correlation between the numbers of a company's cash conversion cycle and its profitability; this finding inspired the researcher to conduct Cash Conversion Cycle and Firms' Profitability - A Study of Cement Manufacturing Companies in India. From 2001 to 2010, five of India's most successful cement producers had their performance analysed for this research. After controlling for heteroskedasticity in the data to reduce the impact of outliers, regression findings show a positive and statistically significant relationship between the cash conversion cycle and both ROA and ROE. This conclusion implies that greater profitability as examined by these standards is not significant with a quicker cash conversion cycle.

Gołaś (2020) research on impact of working capital management on business profitability: Evidence from the Polish dairy industry has presented the negative relationship between cash conversion cycle and Return on Assets (Profitability). The objective of this study was to

investigate the causal relationship between Working Capital Management (WCM) and Return On Assets (ROA) in milk processing enterprises. The Cash Conversion Cycle (CCC) indicates that the lengthening of these periods has a detrimental effect on the return on operational assets in dairy enterprises. In contrast, when the coefficients of Days Sales Outstanding (DSO) and Days Payable Outstanding (DPO) are positive, it indicates that prolonging these cycles has a positive effect on Return on Assets (ROA).

2.4 Conceptual Framework
The research framework for this study is shown as per below;

Independent Variables

WCM Components
Debt Ratio (DR)
Days Inventory Outstanding (DIO)
Days Sales Outstanding (DSO)
Days Payable Outstanding (DPO)

Control Variables
Debt Ratio (DR)
Days Inventory Outstanding (DIO)

Dependant Variable

Profitability
Return On Assets (ROA)
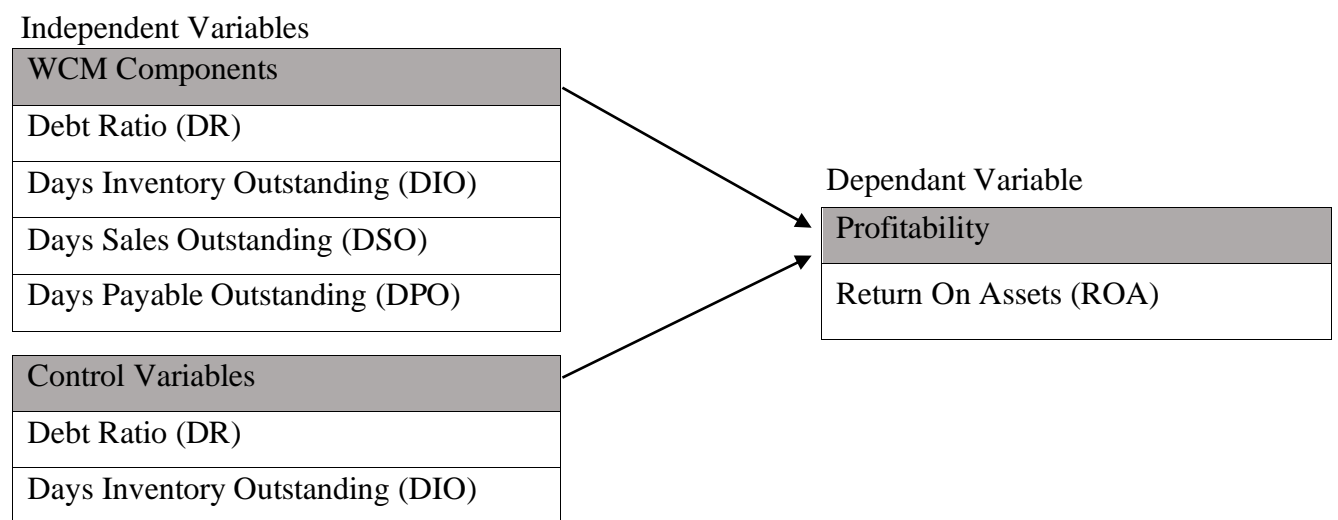
The dependent variable for the study refers to the firm's profitability that is represented by Return on Assets (ROA), while the independent variables refer to working capital management components that are represented by Debt Ratio (DR), Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO) and Days Payable Outstanding (DPO). The control variables for this framework is current ratio (CR), and sales growth (SG).

2.5 Hypothesis Development

It is possible to present the hypotheses that have been offered in order to investigate the impact that working capital management (WCM) components have on the profitability of manufacturing in the following way:

H01: There is lack of relationship between Debt Ratio and Return on Assets of the manufacturing firms.

HA1: There is a relationship between Debt Ratio and Return on Assets of the manufacturing firms.

H02: There is no relationship between Days Inventory Outstanding and Return on Assets of the manufacturing firms.

HA2: There is a relationship between Days Inventory Outstanding and Return on Assets of the manufacturing firms.

H03: There is no evidence of relationship Days Sales Outstanding and Return on Assets of the manufacturing firms.

HA3: There is evidence relationship between Days Sales Outstanding and Return on Assets of the manufacturing firms.

H04: There is no relationship between Days Payable Outstanding and Return on Assets of the manufacturing firms.

HA4: There is a relationship between Days Payable Outstanding and Return on Assets of the manufacturing firms.

3.0 Methodology

3.1 Research Design

The purpose of this study is to improve our knowledge of the impact that the management of working capital has on the profitability of manufacturing companies in Malaysia during the epidemic of the Covid-19 virus. In order to determine the nature of the link that exists between the variables that are dependent and those that are independent, this research used a quantitative approach.

3.2 Target Population and Sample

Target populations are defined as units, people, or objects for which the survey findings are meant to generalize. In this study, the target population and sampling are randomly collected 100 manufacturing companies listed in Bursa Malaysia from 2016 to 2022. A sample size of 100-150 companies allows researchers to obtain a reasonable representation of the population and provides a sufficient number of observations to perform meaningful statistical analyses. Li et al., (2018) conducted a research study on the impact of working capital management on firm profitability using a sample size of 57 manufacturing companies and Smith et al. (2023) using sample size of 120 various companies.

The purpose of this research is to explore the influence that working capital management (WCM) components have on the profitability of businesses. The probability sampling approach has been used in order to provide a sample that is both representative and objective. When conducting a study on the relationship between working capital management and business profitability, researchers may utilise basic random sampling to get a list of all firms operating within a certain industry or location. Researchers may then pick a specific group of companies for the study by using random number generators or lottery techniques. Using a method known as simple random sampling, Smith et al. (2023) carried out a research study to investigate the influence that working capital management has on the profitability of businesses. For the purpose of designing the study sample, researchers chose one hundred businesses at random from a list of manufacturing enterprises located in the area.

3.3 Data Collection Method

The data that will be used in this study will be obtained from the manufacturing company that is listed on the Bursa Malaysia stock exchange. This company is responsible for maintaining the data and financial information of all sub-sectors of businesses, such as agriculture products, automotive, consumer services, food and beverages, household goods, personal goods, retailer, and travel, leisure, and hospitality.

3.4 Variable Measurement

There will be a discussion in this part about the statistical methods that were used in order to analyse and assess the data that was gathered in order to discover the connection between the variables. Following is the computation of the variables, where they are as follows:

3.4.1 Dependant Variable
Return on Assets

The return on assets (ROA) is a financial metric companies utilise to assess their profitability concerning their total assets. According to Komba (2017), using return on assets as a calculation by managers is an effective means of generating revenue. The calculation of return on assets involves the division of a company's net income by its total assets, with the resulting figure expressed as a percentage. The formula is presented in the following method:

$$\boldsymbol{ROA} = \frac{Net\ Income}{Total\ Assets}$$

3.4.2 Independent Variable
Debt Ratio

The debt ratio is a financial metric utilized to assess the proportion of a company's total liabilities concerning its total assets. The debt ratio, the leverage ratio, represents the proportion of total debt to total assets. This ratio can be expressed as a decimal or a percentage. A low debt ratio indicates that a company is in a favourable financial position, whereas a higher debt ratio poses a risk to the company. On top of that, some researchers who additionally included

debt ratio as independent variables have evaluated debt ratio as the ratio of total debt to total assets. (Almazari, 2013). The determination of the debt ratio is conducted using the following calculations:

$$\textbf{Debt Ratio} = \frac{Total\ Debts}{Total\ Assets}$$

Days Inventory Outstanding (DIO)

The number of days that a company takes to convert its inventory into sales is referred to as the days inventory outstanding (DIO). This includes the number of days that they take to convert things that are still in the process of being made (Nurhidayat & Thamrin, 2023). This method helps businesses analyze their inventory management efficiency and assess how quickly they are turning their inventory into sales. Below is to calculate Days Inventory Outstanding:

$$\textbf{DIO} = \frac{Average\ Inventory\ Value}{Cost\ of\ Goods\ Sold}$$

Days Sales Outstanding (DSO)

In a financial context, DSO is a metric that helps businesses assess their accounts receivable management efficiency. It measures the average number of days it takes a company to collect payments from its customers for credit sales (Cristian & Raisa, 2017). The formula to calculate Days Sales Outstanding is as follows:

$$\textbf{DSO} = \frac{Account\ Receivable}{Total\ Credit\ Sales}$$

Days Payable Outstanding (DPO)

The term "days payable outstanding" (DPO) refers to the average number of days that it takes a corporation to pay its trade creditors for their payments and invoices. Accounts payable applies to the suppliers who have provided products or services that have not yet been paid by customers. This financial metric may be referred to as the credit-free period, which is calculated as the ratio of accounts due to purchases, multiplied by 365 days (Falope & Ajilore, 2009).

$$\boldsymbol{DPO} = \frac{Account\ Payables}{Cost\ of\ Good\ Sold}$$

3.4.3 Control Variable

The variable that is maintained constant in order to facilitate the analysis of the connection between the independent variables and the dependent variables is referred to as a control variable. During an investigation, a control variable has the potential to influence the result of the study in either a good or negative way. According to Spector and Brannick (2013) the purpose of this explanation is to clarify the functions that control variables play in order to eliminate any potential for error in the measurement of variables of interest and to purify the observed link between variables of relevance. To prevent the influence of the control variable from occurring, it is necessary to exercise caution. Control variables are variables that are either fixed or removed in order to clearly establish the link between an independent variable and a dependent variable. This is done in order to ensure that the relationship is consistent.

(ii) Current Ratio

An example of a control variable that has been included into the model is the the current ratio, and it is calculated by dividing the current assets by the current liabilities. This is based on a previous study that was carried out by Zariyawati et al (2009). The Current Ratio is often used to assess a company's capacity to meet its financial commitments. A lower CR value indicates the company's inability to meet its short-term obligations, which can negatively impact its profitability. Companies that cannot fulfil their obligations will face additional burdens (Amanda, 2019). There were other studies that used current ratio as a control variable in their regression analysis. (Akomeah & Frimpong, 2019). A portion of the reason why the current

ratio was included into the model regression is because of its traditional use as a measurement of the liquidity status of the company. (Akomeah & Frimpong, 2019).

As a result of the trade-off connection that exists between liquidity and profitability, a higher current ratio is linked with poorer profitability, and vice versa. According to Eljelly (2004), a considerable adverse relationship was found between the profitability of businesses and their liquidity, as assessed by the current ratio. This was based on a review of previous work. In addition, according to the findings of a research that was carried out by Charitou et al (2012), there is a negative correlation that has been documented between the current ratio and profitability as evaluated by return on assets (ROA).

$$Current\ Ratio\ = \frac{Current\ Assets}{Current\ Liabilities}$$

(iii) Sale growth

One of the control variables that is used in the regression by Zariyawati, et al. (2009) and Sharma & Kumar (2014) is (Sales1 – Sales0)/Sales0. Kasozi (2017) is another researcher who has incorporated sales growth as a control variable in their studies. Others who have done this include and Tahir and Anuar (2016). Akinlo (2012) suggests that there is a positive relationship between sales growth and profitability. This is because higher sales growth is typically associated with better product or service quality, shorter evaluation time for products, reduced accounts receivable days, and a positive impact on profitability. Akinlo and Asaolu (2012) suggests that there is a positive relationship between sales growth and profitability. This is because higher sales growth is achieved through better product or service quality and shorter evaluation time, which in turn lowers the number of days that accounts receivable is outstanding, which has a beneficial effect on profitability. The favourable correlation between increasing sales and increased profitability is confirmed by the findings of several studies as well (Zariyawati, et al., 2009; Raheman, Afza, Qayyum and Bodla, 2010).

$$Sales\ Growth\ = \frac{Sales1 - Sales0}{Sales0}$$

Table 3.1: Summary of Variables

Variables	Measurement	Operational definition
Return on Assets	$$\frac{Net\ Income}{Total\ Assets}$$	Return on Assets (ROA) is a financial metric that measures the profitability of a company by calculating the ratio of profits before interest and tax to total assets. (Sharma & Kumar, 2011)
Debt Ratio	$$\frac{Total\ Debts}{Total\ Assets}$$	For the purpose of generating a higher income than the bank, the business can choose to invest fixed-rate bank loans. (Angahar & Alematu, 2014)
Days Inventory Outstanding (DIO)	$$\frac{Average\ Inventory\ Value}{Cost\ of\ Goods\ Sold}$$	The number of days that a firm takes to convert its inventory into sales, including items that are still in the process of being manufactured (Akindele & Odusina, 2015)
Days Sales Outstanding (DSO)	$$\frac{Account\ Receivable}{Total\ Credit\ Sales}$$	The first metric is the current collection period (DSO), which denotes the mean number of days it takes for the company to receive payments (Paul et al., 2012).
Days Payable Outstanding (DPO)	$$\frac{Account\ Payables}{Cost\ of\ Good\ Sold}$$	The days of payable outstanding are affected by the speed or duration of days of sales outstanding and days of sales in inventory (Mulyono et al, 2018).
Current Ratio	$$\frac{Current\ Assets}{Current\ Liabilities}$$	The Current Ratio is often used to assess a company's capacity to meet its financial commitments (Zariyawati et al (2009),
Sale Growth	$$\frac{Sales1 - Sales0}{Sales0}$$	Sales growth (GROW) measure as (Sales1 –Sales0)/Sales0 (Sharma & Kumar (2014)

3.5 Data Processing and Analysis

In the process of evaluating and illustrating the outcome, data analysis involves statistically examining the data. For the purpose of this investigation, three different types of data analysis models were utilised: regression analysis, descriptive analysis, and correlation analysis.

3.5.1 Descriptive Analysis

Descriptive analysis includes the process of describing raw information by the use a variety of statistical measures, which includes the mean, median, mode, standard deviation, range, quartiles, and percentages. These metrics provide a brief overview of the primary trends, variability, and distribution of the data. Its primary goal is to provide a clear and concise data summary, making it easier to understand and interpret. This approach enhances the inclusivity of research dissemination by catering to a wider range of individuals, such as policymakers, stakeholders, and individuals lacking expertise in the field. Consequently, it facilitates the effective transmission of research findings. According to Quartey (2003), the utilisation of descriptive analysis is advantageous due to its comprehensive nature, providing initial yet valuable insights into the characteristics of the data.

3.5.2 Correlation Analysis

Correlation analysis is conducted to identify variables that exhibit a strong correlation. The Pearson correlation coefficient was calculated to evaluate the strength of the relationship between the dependent, independent, and control variables (Adekola et al., 2017). The presence of multicollinearity can be inferred when there is a strong correlation between variables (Saunders et al., 2003; Anderson et al., 2007). A correlation coefficient of +1 indicates a perfect positive correlation where the variables move in the same direction. As one variable increases, the other increases proportionally. In addition, correlation analysis is being carried out in order to ascertain the nature of the connection that exists between the independent and dependent variables, which include the WCM components, the WCM policy, and the control variables, with regard to the profitability of the enterprises. In addition to this, it is able to identify any issues of multicollinearity since it is based on Pearson's correlation matrix.

3.5.3 Regression Analysis

The regression model aims to estimate the mathematical connection between variables by analyzing observed data and determining the most optimal line or curve that minimizes the discrepancy between expected and actual values of the dependent variable. According to Muhammad et al. (2016), this analysis examines the statistical significance of the link between variables to investigate the impact of Working Capital Management (WCM) components on company profitability. Previous studies have implemented regression analysis models to examine the influence of working capital on business profitability. In their study, Gill, Bigger, and Mathur (2010) use regression analysis as a methodological approach to examine the influence of working capital management on profitability.

3.5.4 Models Specification

Models number one

This model tests the relationship between DR and ROA.

$Y_{ot} = \alpha + \beta_1 DRP_{ot} + \beta_2 CR_{ot} + \beta_3 SG_{ot} + e$

Model number two

This model explains the relationship between DIO and ROA.

$Y_{ot} = \alpha + \beta_1 DIOP_{ot} + \beta_2 CR_{ot} + \beta_3 SG_{ot} + e$

Model number three

The third test model, it tested the relationship between DSO and ROA.

$Y_{ot} = \alpha + \beta_1 DSOP_{ot} + \beta_2 CR_{ot} + \beta_3 SG_{ot} + e$

Model number four

The fourth model, it tested the relationship between DPO and ROA.

$$Y_{ot} = \alpha + \beta_1 DPOP_{ot} + \beta_2 CR_{ot} + \beta_3 SG_{ot} + e$$

Where:

α = Constant term for the independent variables

Y = Return on Assets

DR = Debt Ratio

DIO = Days of Inventory Outstanding

DSO = Days of Sales Outstanding

DPO = Days of Payable Outstanding

CR = Current Ratio

SG = Sale growth

e = the error term

β = Regression coefficient model

3.6 Diagnostic Tests

For any research endeavour, it is crucial that the findings be dependable in order to facilitate the implementation of policies. Therefore, diagnostic tests are conducted to assess the validity of the study's findings. The research conducted tests to determine the importance of characteristics other than diagnostic tests such as serial correlation, functional form, normalcy, heteroscedasticity, and structural stability of the model.

3.6.1 Multicollinearity Tests

Multicollinearity is the occurrence of strong correlations between independent variables in a regression model. This may result in erroneous estimate of coefficients and compromise the reliability of statistical inference. By doing this analysis, the hypothesis that the link between two or more variables is distinct is put to the test (Kayani, 2018). Assessment of multicollinearity may also be accomplished through the use of tolerance and the Variance Inflation Factor (VIF) (Qi, 2016). When your predictors are associated, the variance inflation factor (VIF) evaluates the extent to which the variance of an estimated regression coefficient grows. It is common practice to utilise the VIF that is the biggest among all predictors as an indication of severe. Kayani (2018) added that if the variance inflation factor (VIF) of any individual variable is larger than 5, then it should be investigated. However, if the VIF is greater than 10, then it implies that there is multicollinearity present in the statistical data set.

3.6.2 Normality Test

According to Ramesh et al. (2017), before using inferential parametric statistical techniques, it is necessary to evaluate the assumptions of normality for such tests. This is to facilitate the graphical tests conducted to assess the normality of the data and examine the skewness and kurtosis coefficients. It is possible to determine the extent to which the data follows a normal distribution with the use of these tests. In the event that the normality is not reached, it is possible that the findings will not accurately portray the connection that exists between the variables. The Pearson sample correlation coefficient derived from the rank plot points is squared to provide the Shapiro-Wilk normality test statistic ($E(Y_i), Z_i$), where $i = 1, 2, ..., n$. The low values of the test statistics indicate that the normalcy principle is not valid (Ahmed, 2018).

4.0 Empirical Findings

4.1 Introduction

This chapter objective is to analyse, interpret and discuss the results that are obtained from DataStream that include 100 manufacturing firm in Malaysia. The empirical result generated by Statistical Package for the Social Sciences (SPSS) software to analysis. This chapter will include descriptive statistics to generate mean standard, correlation analysis was performed to observe the correlation between the variables and regression analysis to study the relationship between dependent and independent variables. In addition, this chapter include diagnostic tests to analyze the data which include normality tests and multicollinearity tests.

4.2 Descriptive Statistics

Descriptive statistics shows the result of the variables which is minimum, maximum, mean and standard deviation. Moreover, the result provides the descriptive statistics of return on assets, debt ratio and Days Inventory Outstanding, Days Sales Outstanding and Days Payable Outstanding to understand the variables effect on each year. This is to ensure that researcher acknowledge the variables of study of listed manufacturing firm for the period of study before and during Covid-19 impacted (2022-2016).

Table 4.1: Descriptive Statistics for the Averages of Variables

Variables	Minimum Statistics	Maximum Statistics	Mean	Standard Deviation
Return On Assets (ROA)	-80.43%	79.95%	3.8955%	10.46742%
Debit Ratio (DAR)	0.0%	55.9%	17.375%	14.8325%
Days Inventory Outstanding	0.0877	701.9791	100.7528	90.8165

Days Sales Outstanding	5.1873	946.6266	83.3085	63.2160
Days Payable Outstanding	0.8272	1152.5641	68.9535	110.5643

In this analysis, we explore key financial performance metrics for a dataset comprising 700 observations, focusing on Return on Assets (ROA), Debt Ratio (DR), Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO), and Days Payable Outstanding (DPO). The dataset resulting in a valid sample size of 100 cases with complete information. The mean ROA stands at 3.8955%, indicating that, on average, the entities in the dataset generate a positive return on their assets. The relatively low standard deviation (0.39563%) suggests a narrow spread around this mean. The narrow spread indicates that the company able to maintain stable financial management practices during Covid-19. However, the positive skewness of 10.46742% signals a rightward tilt in the distribution, and the kurtosis of 14.363 indicates distribution with heavy tails. During Cvoid-19, manufacturing sector is susceptible to various sector-specific factors such as raw material prices, labor costs, regulatory changes, and technological advancements. Outliers in financial metrics may arise due to sudden shifts in these factors, impacting the company's profitability, liquidity, and overall financial performance. The mean Debt Ratio is 17.375%, with a small standard deviation of 0.5986%, implying limited variability around the average. The average DIO is 100.7529, with a standard deviation of 3.5898. With an average DSO of 83.3085 and a standard deviation of 2.5008, entities in the dataset tend to collect sales revenue relatively fast. The mean DPO is 68.9535, with a standard deviation of 4.3636.

Table 4.2: Descriptive statistics for Return on Assets

Year	Minimum	Maximum	Mean	Std. Deviation
2022	-17.81%	27.81%	2.7070%	7.25402%
2021	-52.05%	56.24%	5.1973%	11.86376%
2020	-17.15%	79.95%	5.9289%	13.49700%
2019	-40.43%	31.89%	3.0524%	9.08567%
2018	-16.29%	31.98%	3.4778%	8.08885%
2017	-38.56%	30.01%	3.4113%	8.80838%
2016	-80.43%	52.07%	3.4932%	12.80219%

Among the years examined, 2020 stands out with the highest average percentage change of 5.9289%. This surge indicates a significant positive trend in financial performance during that year. Several factors likely contributed to this, including shifts in consumer behavior, increased demand for certain products, and government interventions aimed at supporting businesses amidst the challenges posed by the pandemic. The manufacturing sector, being vital for supplying essential goods, might have experienced a surge in demand, leading to improved financial performance across many companies. Conversely, 2019 recorded the lowest average percentage change at 3.0524%. This relatively modest figure suggests a period of stability or modest fluctuations in financial performance before the onset of the pandemic. It's plausible that economic conditions were relatively favorable during this time, with companies experiencing steady, albeit not remarkable, growth or stability in their financial metrics. Notably, 2020 also had the highest standard deviation of 13.49700%, The higher standard deviation in ROA may reflect increased economic uncertainty and market volatility during the analyzed period, such as the COVID-19 pandemic. Economic downturns, changing consumer behavior, and disruptions in supply chains can lead to fluctuations in revenue, expenses, and profitability, resulting in a higher degree of unpredictability in ROA.

Table 4.3: Descriptive statistics for Debt Ratio

Year	Minimum	Maximum	Mean	Std. Deviation
2022	0.07%	48.01%	14.8215%	14.66661%
2021	0.01%	55.87%	15.6541%	15.05122%
2020	0.05%	52.74%	16.1304%	14.64019%
2019	0.016%	55.025%	17.09468%	15.229494%
2018	0.05%	51.75%	17.4265%	14.49743%
2017	0.10%	49.82%	17.3470%	14.48373%
2016	0.09%	49.93%	17.1512%	14.81796%

Among the years examined, 2020 stands out with the highest average percentage change of 16.1304%. This indicates a significant positive movement in financial performance during that year, despite the challenges posed by the pandemic. The wide range of solutions adopted by companies to address the ongoing problems presented by COVID-19 likely contributed to the considerable variability, as reflected by the high standard deviation of 14.64019%. Companies may have faced uncertainties related to supply chain disruptions, changes in consumer behavior, and economic downturns, leading to a broader spread in financial performance. Conversely, 2019 recorded a smaller range of values, with a minimum of 0.016% and a maximum of 55.025%. Despite this narrower range, the year exhibited a higher standard deviation of 15.229494%, suggesting an expanding range of financial strategies adopted by companies. This variability could be attributed to businesses diversifying their approaches to mitigate risks and capitalize on emerging opportunities. The average percentage change of 17.09468% indicates a positive trend in financial performance, albeit with increased variability compared to previous years.

Table 4.4: Descriptive statistics for Days Inventory Outstanding

Year	Minimum	Maximum	Mean	Std. Deviation
2022	12.5353	550.6476	117.9866	90.6068
2021	7.36960	626.2935	119.1948	95.6390
2020	12.2299	701.9791	120.7729	106.4771
2019	11.5320	691.3872	107.3885	99.4793
2018	15.04	641.8682	104.6488	96.45649
2017	13.6700	386.5165	97.0056	78.3031
2016	14.5700	440.9930	94.5500	74.4481

Among the years analyzed, 2020 exhibits the highest range of DIO, ranging from 12.23 to 701.98 days. This wide range indicates significant fluctuations in inventory management techniques, likely influenced by the challenges posed by the COVID-19 pandemic. Disruptions in the supply chain, such as lockdowns, travel restrictions, and manufacturing facility shutdowns, could have led to delays in procuring raw materials or components, resulting in either excess inventory or shortages. The elevated standard deviation of 106.48 days highlights the greater degree of variation and unpredictability in inventory management during this turbulent period. Conversely, 2017 displays the lowest range of DIO, varying from 13.67 to 386.52 days. This narrower range suggests a more consistent approach to inventory management throughout the year, possibly driven by stable market conditions and efficient supply chain operations. The smaller standard deviation of 78.30 days further reflects the uniformity in inventory management practices, indicating a period of relative stability and predictability in inventory levels. The COVID-19 pandemic and other external events may have caused significant disruptions in the company's supply chain. Lockdowns, travel restrictions, and shutdowns of manufacturing facilities could lead to delays in the procurement of raw materials or components, resulting in either excess inventory or shortages. These disruptions would be reflected in higher variability and unpredictability in DIO.

Table 4.5: Descriptive statistics for Days Sales Outstanding

Year	Minimum	Maximum	Mean	Std. Deviation
2022	10.0409	382.9621	96.78200	68.9085
2021	17.71089	946.6266	97.36663	113.7392
2020	15.58378	591.0076	92.4377	74.2994
2019	16.41357	274.37821	88.11693	45.1674
2018	21.0698	200.2499	92.40736	43.3348
2017	24.4941	438.5276	94.4640	56.1257
2016	22.2092	290.7989	93.6663	48.8685

Among the years analyzed, 2021 stands out with the highest range of DSO, varying from 17.71 to 946.63 days. This wide range indicates significant volatility in accounts receivables management, possibly reflecting challenges in effectively handling receivables amidst market instability during the pandemic. Due to Covid-19, all business has significant effect in generating income including debt repayment. The greater standard deviation of 113.74 days further underscores the heightened unpredictability and fluctuations in receivables collection practices during this period. Conversely, 2019 displays the lowest range of DSO, ranging from 16.41 to 274.38 days. Despite this narrower range, the standard deviation of 45.17 days suggests a more uniform strategy in managing accounts receivables over this period. This indicates a period of relative stability and consistency in receivables collection practices, possibly driven by favorable market conditions and efficient collection processes. The medium range of DSO falls within 2020, where the duration spans from 15.58 to 591.01 days. Despite the wider range, the standard deviation of 74.30 days suggests a significant degree of variation in receivables management procedures. This variability may be attributed to the uncertainties and interruptions caused by the COVID-19 pandemic, leading to disruptions in payment cycles and challenges in collecting receivables efficiently.

Table 4.6: Descriptive statistics for Days Payable Outstanding

Year	Minimum	Maximum	Mean	Std. Deviation
2022	0.8271	701.2190	73.4989	101.1997
2021	1.2751	906.9913	80.7878	118.1364
2020	1.9753	944.9110	80.1784	120.1489
2019	1.3851	913.8347	76.4172	114.9595
2018	1.4904	1152.5640	86.0088	148.6505
2017	1.3861	952.6151	79.2679	123.3223
2016	1.8435	645.3486	68.8246	84.6578

Among the years analyzed, 2018 stands out with the highest range of DPO, spanning from 1.49 to 1152.56 days. This wide range indicates significant variability in accounts payables management strategies, possibly influenced by changing economic conditions and market dynamics. The larger standard deviation of 148.65 days further underscores the variability and unpredictability in payables payment days during this period. Companies may have adapted their payment schedules to navigate through economic uncertainties, resulting in a wider spread of payment days. Extend payment term is also to support business generate the income and have more cash to invest. However, it can be negative where it can impact the relationship between company and the supplier. Conversely, 2016 displays the lowest range of DPO, varying from 1.84 to 645.35 days. Despite this narrower range, the standard deviation of 84.66 days suggests a relatively stable period in accounts payables management. This indicates consistent payment practices and possibly efficient supplier relationships during this time, contributing to a more predictable payment schedule. The medium range of DPO falls within 2020, where the duration spans from 1.98 to 944.91 days. Despite the wider range, the standard deviation of 120.15 days suggests significant variability in payables management methods. The

uncertainties and interruptions caused by the COVID-19 pandemic likely impacted payment cycles and strategies, leading to fluctuations in payables payment days.

4.3 Regression Analysis
Table 4.7: Regression Analysis

Variables	Coefficient	Std. Error	t-Statistic	P-value
C	9.254	0.850	10.885	0.000
DAR	-0.125	0.026	-4.888	0.000
DIO	0.003	0.004	0.687	0.492
DSO	-0.036	0.006	-5.731	0.000
DPO	-0.008	0.004	-2.292	0.022

a. Dependent Variable: ROA

The Debt Ratio (DR) has a coefficient of -0.125 and a standard error of 0.026. This indicates that for every one-unit rise in Debt Ratio, there is a corresponding fall of 0.125 units in ROA. The presence of the negative sign indicates an opposite correlation. The Days Inventory Outstanding (DIO) coefficient is 0.003, with a standard error of 0.004. Although the statistical significance is low ($p = 0.492$), this indicates a small but positive correlation between DIO and ROA. The Days Sales Outstanding (DSO) coefficient is -0.036, with a standard error of 0.006. A substantial negative correlation ($p < 0.001$) indicates that as the DSO increases, the ROA decreases. The Days Payable Outstanding (DPO) coefficient is -0.008, with a standard error of 0.004. The data shows a strong negative correlation ($p = 0.022$), indicating that as DPO increases, ROA decreases.

The Debt Ratio (DR) has a Beta value of -0.193, which signifies the standard impact of a one-unit alteration in DR on ROA. A negative beta indicates a stronger influence. The Days Inventory Outstanding (DIO) has a Beta value of 0.029, indicating a little effect on the Return on Assets (ROA), while it is not statistically significant. The Days Sales Outstanding (DSO)

of Beta is -0.243, which suggests a more pronounced negative influence on Return on Assets (ROA). The Days Payable Outstanding (DPO) has a Beta value of -0.092, indicating a substantial negative effect on the Return on Assets (ROA). The t-values and p-values evaluate the statistical significance of each predictor. The 95% confidence intervals provide a range in which the actual coefficients are expected to be located. All predictors, except DIO, have statistical significance, as shown by p-values below 0.05.

Table 4.8: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5249.988	4	1312.497	15.725	.000[b]
Residual	48827.100	585	83.465		
Total	54077.088	589			

   a. Dependent Variable: ROA

   b. Predictors: (Constant), DPO, DR, DIO, DSO

The Regression Mean Square (1312.497) and Residual Mean Square (83.465) provide information about the average variability explained by predictors and unexplained by the model, respectively. The F-statistic (15.725) is calculated by dividing the Regression Mean Square by the Residual Mean Square. A larger F-statistic suggests a more significant overall model fit. In this case, the F-statistic of 15.725 is indicative of a statistically significant model. The p-value associated with the F-statistic is 0.000 (b), which is less than the conventional significance level of 0.05. This implies that the overall model is statistically significant, indicating that at least one of the predictors has a significant effect on ROA.

4.4 Correlation Analysis

Table 4.9: Correlation Analysis

	ROA	DR	DIO	DSO	DPO	CR	SG
ROA	1.0000						
DR	-0.1689	1.0000					
DIO	-0.0528	-0.0336	1.0000				
DSO	-0.2248	-0.1180	0.3282	1.0000			
DPO	-0.1311	-0.0120	0.1113	0.1783	1.0000		
CR	0.0760	-0.4722	0.1521	0.1679	-0.1600	1.0000	
SG	0.0998	-0.0257	-0.1039	-0.1523	-0.0896	-0.0609	1.0000

ROA exhibits weak negative correlations with DR (-0.169), DSO (-0.225), and DPO (-0.131), indicating that higher values of these variables are associated with lower ROA. However, the correlations are not very strong. ROA has weak positive correlations with CR (0.076) and TA (0.100), suggesting a slight tendency for higher ROA values to be associated with higher CR and TA, although the relationships are not substantial. DR shows a moderate negative correlation with CR (-0.472), indicating that higher debt ratios are associated with lower current ratios. DSO exhibits a moderate positive correlation with DIO (0.328), suggesting a relationship between longer inventory turnover and longer accounts receivable collection periods. DPO shows weak negative correlations with DR (-0.012) and CR (-0.160), indicating that higher debt ratios and lower current ratios are associated with longer days payable outstanding.

Based on the table above, the correlation analysis shows a negative relationship between independent variable (DR, DIO, DSO, DPO) and dependent variable (ROA) and a positive relationship between control variable which is Firm Size and Sales Growth. Thus, based on this findings, hypothesis one, two, three, and four rejected null hypothesis.

4.5 Diagnostic Tests
4.5.1 Multicollinearity Tests
Table 4.10: Multicollinearity Tests

Constant	t-Statistic	Sig.	Tolerance	VIF
C	8.457	0.000		
DAR	-4.229	0.000	0.761	1.314
DIO	0.761	0.447	0.871	1.148
DSO	-5.476	0.000	0.838	1.193
DPO	-2.149	0.032	0.911	1.098

a. Dependent Variable: ROA

The multicollinearity test assesses the degree of correlation between independent variables in the regression model, specifically Debt Ratio (DR), Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO), Days Payable Outstanding (DPO), Current Ratio (CR), and Total Assets (TA), in relation to their impact on Return on Assets (ROA).

The constant term represents the expected value of ROA when all independent variables are zero. In this case, the intercept is 8.837, with a t-value of 8.457 and a significance level of 0.000, indicating that the intercept is statistically significant. The collinearity statistics, tolerance, and variance inflation factor (VIF) assess the extent of multicollinearity among independent variables. A tolerance value close to 1 and VIF value below 10 indicate low multicollinearity. In this analysis, The tolerance values range from 0.711 to 0.963, indicating moderate to low multicollinearity among the independent variables. The VIF values range from 1.039 to 1.406, further confirming low multicollinearity.

4.5.2 Normality Tests
Table 4.11: Normality Test

Constant	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
C	0.144	590	0.000	0.835	590	0.000
DAR	0.120	590	0.000	0.911	590	0.000
DIO	0.177	590	0.000	0.687	590	0.000
DSO	0.160	590	0.000	0.646	590	0.000
DPO	0.268	590	0.000	0.416	590	0.000

The findings of the Shapiro-Wilk normality test, which are shown in Table 4.11, indicate that the study data did not follow a normal distribution. The significance value for each observation was either less than 0.05 or 0.00, as seen in Table 4.11. This result is supported by Devi et al. (2020) where the findings are not normally distributed. Consequently, a non-parametric statistical test was conducted through the Wilcoxon signed rank (Devi et al., 2020). The Wilcoxon Signed-Rank test is a frequently used non-parametric test for analysing paired data (Lowry, 1998; Rosner, Glynn, & Lee, 2006).

Table 4.12: Wilcoxon Signed-Rank Test

		N	Mean Rank	Sum of Ranks
DR - ROA	Negative Ranks	152[a]	184.8	28095
	Positive Ranks	462[b]	347.9	160710
	Ties	0[c]		
	Total	614		
DIO - ROA	Negative Ranks	7[d]	20.86	146
	Positive Ranks	633[e]	323.8	204974
	Ties	0[f]		
	Total	640		
DSO - ROA	Negative Ranks	9[g]	48.56	437
	Positive Ranks	630[h]	323.9	204043
	Ties	0[i]		
	Total	639		
DPO - ROA	Negative Ranks	26[j]	69.73	1813
	Positive Ranks	616[k]	332.1	204590
	Ties	0[l]		
	Total	642		

According to Table 4.12, the values of the ties for the DR, DIO, DSO, and DPO, as well as ROA, were all equal to zero. This indicates that there were no values that were same between the independent variables and ROA. As can be seen from the negative rankings at the N value of 152 and the positive ranks at the N value of 462, there are 152 firms that had a fall in their debt ratio during the period in question, while there are 462 companies that witnessed an increase in their debt ratio. The data also reveal that between the years 2016 and 2022, when the COVID-19 pandemic had an influence, 7 firms suffered a loss in their DIO value, while 633 companies experienced an increase in their DIO value. This is shown by the negative rankings at the N value of 7 and the positive ranks of 633 companies. There is a drop of 9 firms based on the DSO value, whereas there is a gain of 630 enterprises when the DSO value is included. Before and during the Covid-19 epidemic, there were 26 firms that had a fall in their DPO value, while there was a 616 percent rise in value.

Table 4.13: Wilcoxon Signed-Rank Test

	DR - ROA	DIO - ROA	DSO - ROA	DPO - ROA
Z	-15.079[b]	-21.886[b]	-21.807[b]	-21.566[b]
Asymp. Sig. (2-tailed)	0	0	0	0

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

The results of the Wilcoxon signed-rank test, which are presented in Table 4.13, indicate that there is a noteworthy distinction between the values of ROA and all independent variables. These variables include debt ratio, days inventory outstanding, days sales outstanding, and days payable outstanding. This distinction is evident from the Asymp. Sig. (2-tailed) values, which are 0.00 <0.05. One might get the conclusion that null hypotheses 1, 2, 3, and 4 are not accepted.

Table 4.14 Summary of Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test	Sig.	Null Hypothesis	Decision
Debt Ratio	0.000	No relationship between Debt ratio and Return on Assets	Reject the null hypothesis
Days Inventory Outstanding	0.000	No relationship between Days Inventory Outstanding and Return on Assets	Reject the null hypothesis
Days Sales Outstanding	0.000	No relationship between Days Sales Outstanding and Return on Assets	Reject the null hypothesis
Days Payable Outstanding	0.000	No relationship between Days Payable Outstanding and Return on Assets	Reject the null hypothesis

4.6 Conclusion

Generally, this chapter conducted a test to analyse the variable of this research. Based on the analysis, all hypothesis is answered. Based on the regression analysis, the independent variable, which is Debt Ratio, DIO, DSO and DPO is an inverse relationship with profitability (ROA). Moreover, descriptive statistics test as indicating the value of all variables each year. Lastly, correlation analysis was performed to determine the relationship between the variables. The results of the hypothesis are summarized in Table 4.8.

Table 4.12: Summary of Hypothesis

	Hypothesis	**Status**
H1	There is a significant impact of Deb Ratio and Return on Asset.	Not Supported
H2	There is a significant impact of Days Inventory Outstanding and Return on Asset.	Not Supported
H3	There is a significant impact of Days Sales Outstanding and Return on Asset.	Not Supported
H4	There is a significant impact of Days Payable Outstanding and Return on Asset.	Not Supported

5.0 Result and Discussion

5.1 Introduction

This chapter aims to provide a comprehensive summary of the study, including a discussion of the results and their potential contributions to other organizations and future studies. Along with the conclusion, there will also be a list of the study's limitations and recommendations for more research.

5.2 Analysis of Findings

5.2.1 Relationship between Debt Ratio and Return on Assets

Based on the findings in chapter four, there are inverse relationship between debt ratio and return on assets. The result evident that increase in one unit of debt ratio will decrease 16.89% of profitability. This suggest that an increment in debt will decrease the profitability of the consumer firm and vice versa. Based on the descriptive statistic for debt ratio, we can identify that the leverage during Covid-19 in year 2019 and 2021 is the peak year where the percentage of the debt ratio spike compared to year before endemic happens. According to Li (2021), the study result demonstrates that when the COVID-19 pandemic had its influence on global economy in early 2020 manufacturing enterprises had inferior performance compared to the period before 2020. In addition, debt ratio is one of the vital financial tools for the managers to measure the leverage of the business in order avoid any insufficient liquidity. Based on the correlation analysis in table 4.9, the result shows all variables including return on assets, days inventory outstanding, days sales outstanding, days payable outstanding, current ratio and sales growth has a negative relationship with debt ratio. This indicates that increment in leverage may negatively influence the sales growth of the company. The economic crisis prompted several industries to curtail their manufacturing operations in response to the decrease in individuals' buying power (Devi et al., 2020). The findings align with the research conducted by Devi et al. (2020) and Bintang et al. (2019), indicating variations in financial performance, namely in the current ratio, both before to and during the monetary crisis. Implementing improvement for post-Covid-19 such as cost-cutting initiatives and operational efficiency improvements may free up resources that can be applied towards debt reduction. Companies may need to simplify procedures, minimize overhead expenditures, and optimize resource allocation to boost profitability and strengthen their financial statements.

5.2.2 Relationship between Days Inventory Outstanding and Return on Assets

Based on regression analysis in table 4.9, the results show inverse relationship between Days Inventory Outstanding and return on assets with highly significant at 1% level. The result represent increase in one unit of days inventory outstanding will decrease in 5.28% of profitability demonstrates that inventory management has a substantial adverse effect on profitability. This finding indicates that a company's profitability decreases as it retains its inventory for a longer period of time. This has been supported by previous researcher Mulyono et al. (2018) whereby there is negative relationship between days of sales in inventory on return on assets. This is because, the reduction in the number of days it takes for state raw material businesses to sell their inventory is attributed to effective inventory planning and monitoring, which involves adjusting production levels and turnover according to seasonal demands. Furthermore, it has been shown that poor financial and operational performance is associated with increased amounts of inventory that are excessive. Cristian and Raisa (2017) argue that finding represent that days inventory outstanding is negatively impacting the profitability of 50 listed companies from Bucharest Stock Exchange. The pandemic has caused significant disruptions to global supply chains, leading to delays in sourcing raw materials, components, and finished goods. Consequently, companies may experience higher inventory levels as they struggle to maintain production amidst supply shortages. The increase in DIO reflects these challenges, and the associated decrease in profitability suggests that the disruptions are negatively impacting the company's ability to manage its inventory efficiently. The COVID-19 pandemic has caused unparalleled changes in consumer behaviour and patterns of demand. Certain sectors witnessed an upsurge in the need for critical products, whereas others encountered significant reductions in the demand for optional services or products. Businesses with a lengthier DIO may find it difficult to adjust to these fluctuations, which could result in stockouts or excess inventory.

5.2.3 Relationship between Days Sales Outstanding and Return on Assets

In model 3, the result in regression analysis shows that there is negative relationship between Days Sales Outstanding and return on assets with highly significant at 1% level. The result evident that increase in one unit of days sales outstanding will decrease 22.48% of profitability. It is possible that the company's credit and collection practices are inefficient if the DSO is

considered to be excessive. As the Days Sales Outstanding (DSO) grows, it signifies that the firm is experiencing a longer period of time to collect payment for its sales. This might potentially create an impact on the company's cash flow and liquidity (Hu & Zhang, 2021). Customers may be taking advantage of lenient credit terms, leading to a higher proportion of bad debts or uncollectible accounts receivable. This delay in receivables might be the result of a number of different circumstances, such as the financial troubles of customers or the operational inefficiencies brought on by the epidemic. This not only affects liquidity but also erodes profitability through increased operating expenses associated with collection efforts and potential write-offs (Lazaridis & Tryfonidis, 2006). Economic uncertainty during Covid-19 has increased, leading to cash flow constraints for many businesses. Customers may face financial difficulties, causing delays or defaults in payments, thereby increasing DSO. The impact of an extended Days Sales Outstanding (DSO) is obvious: it not only obstructs cash flows but also creates credit risk due to delayed payments (Zhou et al., 2022), hence leading to a decline in Return on Assets (ROA). Manufacturing firms should prioritise adopting strategies to reduce Days Sales Outstanding (DSO), enhance cash flow, and minimise the adverse effects on Return on Assets (ROA). This will help to strengthen their financial well-being and resilience in the face of these unusual circumstances (Fathihani et al., 2023).

5.2.4 Relationship between Days Payable Outstanding and Return on Assets

The relationship between days payable outstanding and return on assets on the findings in chapter four shows negative relationship. Based on the table 4.9, increase one unit of days payable outstanding reduce 13.11% of profitability of the company. This result indicates that a firm that takes a long period to pay debtors has lower profitability. When it comes to profitability, especially return on assets, previous research has repeatedly shown that there is a negative association between days payables outstanding and profitability. As an instance, Yao and Yao (2023) conducted research in which they discovered that businesses that have a longer DPO have a tendency to have a lower ROA. This suggests that a delay in paying suppliers is connected with a decrease in profitability. However, amidst the COVID-19 epidemic, manufacturing companies experience financial limitations due to of decreased income, prevented operations, and unpredictable economic circumstances. Although a greater days payables outstanding might initially enhance liquidity, it can also result in a superior return on assets throughout the epidemic (Febriantika et al., 2021). Companies may choose to prolong

payment terms to suppliers as an approach to save cash and enhance liquidity, enabling businesses to fulfil urgent financial commitments and navigate through the crisis. A significant advantage for manufacturing firms during the COVID-19 epidemic is the capacity to successfully balance DPO in order to optimise cash flow while preserving profitability. However, this will bring harm to the organization whereby harm to the company's image and stakeholder trust might result in adverse press, consumer reaction, or investment apprehension. Moreover, supplier relationships may have been strained as a result of enterprises extending their DPO to address liquidity and cash flow difficulties. This might have caused interruptions in the supply chain and increased expenses (Bighelli et al., 2023).

6.0 Managerial Implications
6.1 Recommendations for Practitioners

6.1.1 Cash Flow Management
Cash flow management in an organization is crucial to maintain the stability of the organization by tracking and controlling amount of money spending for the business operations. According to Afrifa and Tingbani (2018), the financial capabilities vary depending on factors such as internal finance availability, access to capital market, and cost of financing. Manufacturing businesses commence their operations by doing a thorough study of their cash flows. This entails the surveillance of money coming in and going out, recognising recurring trends, and comprehending the factors that cause swings in cash flow. Through the examination of cash flow accounts, organisations get valuable understanding of their liquidity status and need for cash.

A high level of free cash flow shows that the firm is generating an excess amount of cash that is not required for reinvesting in its operations or paying off debts. However, Haron and Nomran (2016) added that if a corporation has a low level of free cash flow, it may be due to excessive costs resulting from inefficient management or losses incurred from certain investments. A low level of free cash flow suggests that the firm may have difficulties in generating enough cash from its activities to meet its costs, debt commitments, and investments. These circumstances might result in limitations on financial resources, obstacles in maintaining sufficient cash flow, and difficulties in securing finance for endeavours aimed at expanding or implementing strategic plans. There is also the possibility that when a company

has a significant amount of free cash flow, it may encourage managers to participate in capital projects with a negative present value. This is particularly true for companies that have a poor degree of controlling on management. Free cash flow can be reduced when managers of firms have the option to adopt either aggressive or cautious financial practices when it comes to managing working capital (Zariyawati et al., 2016).

Kroes and Manikas (2014) advise that the cash flow can be manage and control by the amount of time that passes between the time that items are sold and the time that the company collects the money, the amount of inventory that the company has and the amount of time that a company takes to pay its suppliers. Manufacturing businesses use cost reduction measures to save cash and enhance profitability. Strategies include the optimisation of overhead expenditures, the renegotiation of contracts with suppliers to gain more favourable terms, and the simplification of operations to diminish waste and inefficiencies. Efforts to reduce costs enable the allocation of resources towards investment in growth possibilities or the reduction of debt. Moreover, the enhancements in performance that are associated with enhanced liquidity are mainly the consequence of an improved cash position, improved credit, a decreased risk of bankruptcy, and/or the capacity to self-finance new business ventures. Therefore, efficient management of working capital is crucial for maximising cash flow. Manufacturing businesses prioritise the management of receivables, payables, and inventory levels in order to minimise the amount of cash that is invested in working capital. Strategies include the implementation of streamlined invoicing and collections procedures, the negotiation of advantageous payment terms with suppliers, and the optimisation of inventory turnover rates.

6.1.2 Inventory Optimization

The manufacturing sector places a significant emphasis on inventory optimisation as an essential component of operations management. By ensuring that companies maintain ideal stock levels to satisfy customer demand while simultaneously reducing the costs associated with retaining excess inventory, effective inventory management guarantees that organisations are able to supply consumer demand. Previous studies have identified numerous variables that will impact the success of inventory management. These factors include inventory control

planning, documentation and store records, the expertise and abilities of staff, and financing. Inventory optimisation assists discrete producers in managing inventory-related expenses and addressing the current unpredictability of demand and intricacy of the supply chain. Shiau et al., (2014) argue that the inventory disparity is attributed to errors in manual recording, as well as the misplacement and misuse of goods inside their organisation. Another further prevalent issue is the occurrence of delays in the supply of raw materials from suppliers.

According to Scheuffele and Kulshreshtha (2007), inventory Optimisation (IO) involves using advanced methods and technology to enhance the visibility, control, and management of inventory within a wide supply network. Supply chain departments must play crucial role (Saudi et al., 2019) to control the delivery of the shipment by the suppliers to ensure that the quantity delivered are sufficient for the production and not exceeding production demand. Every supplier will deliver the product or raw materials based on customer vendor schedule requirement. Whenever the production demand is drop or reduce, it is essential that the supply chain take responsibility revising the vendor schedule to require just-in-time (JIT) inventory management to reduce the expenses associated with holding onto inventory. Just-in-Time (JIT) primarily focuses on minimising lead time in manufacturing, and the benefits of this approach cannot be overstated (Takim, 2014). According to Wei Weng et al (2012), using just-in-time (JIT) task completion in manufacturing processes may effectively decrease both inventory levels and instances of late delivery for completed items. For just-in-time (JIT) systems to work, suppliers must work closely with supply chain team to reduce inventory levels and lead times by ensuring the timely delivery of components and raw materials. This has been confirmed and investigated by past researcher where prior to using inventory optimisation strategies, the manufacturer's distribution network was not coordinated and consisted of consecutive tiers of distribution, resulting in restricted visibility, surplus inventory, stock shortages, delays in cycle time, and challenges in establishing new retail partnerships.

Furthermore, safety or buffer stock require to support the demand of production. Buffer stocks refers to additional inventory that is maintained as a precautionary measure to prevent stockouts caused by unpredictable disturbances in the natural or environmental factors. When it comes to protecting the system from unforeseeable circumstances such as stockouts, which may arise as a result of forecasting mistakes or departures from the typical demand during lead times,

safety stock refers to the quantity of inventory that must be kept aside in order to safeguard the system (Takim, 2014). For the purpose of optimising inventory turnover rates, it is vital to identify inventory goods that only move slowly or that have become outdated. For the purpose of lowering the amount of surplus inventory and increasing the turnover rate, businesses undertake frequent inventory audits and adopt techniques such as markdowns, promotions, and liquidation respectively.

6.1.3 Negotiate Favorable Payment Terms

The ability to negotiate favourable payment terms is vital for manufacturing firms in order to enhance their cash flow, efficiently manage their working capital, and build their relationships with their suppliers (Rodríguez et al., 2021). Favourable payment terms negotiation is the discussion and agreement of payment conditions between a purchaser and the vendor that are beneficial to both parties. Payment terms in business transactions specify the schedule and manner in which payment is made for products or services provided subject to change based on market norms, the strength of the parties' negotiating positions, and other transaction-specific factors. This negotiation includes the activity and process of payment period, payment method, discounts, currency fix rates etcetera. Extending the payment terms to supplier may provide sufficient cash to the company and have more assets to support the production. Charitou et al. (2016) argue that, reduce the days of payable outstanding leading to reduction of cash in the company hence extending the payment term may assist the company having adequate amount of cash to invest in the business. Cash flow management can be improved through favourable payment terms which extend payment periods, reduce upfront cash outflows, and enhance working capital efficiency (Zachariassen, 2008). Postponing the payment of accounts payable to suppliers enables companies to evaluate the quality of branch goods and may serve as a cost-effective and adaptable means of financing (Ponsian et al., 2014). Ponsian (2014) findings on research supported this where there is positive relationship between average payment period and profitability where economically rational due to the fact that a company postpones its payments to its creditors, it may allocate and use a greater amount of working capital to enhance profitability.

To identify the chances for negotiation, it is important to do research on suppliers' contract and agreement to have an understanding of the contract payment terms, price structures, and market

dynamics. Negotiating the payment term must have official agreement with both parties and of course this agreement include beneficial for the company and supplier. To secure better terms with suppliers, company may highlight the benefits of long-term collaboration, like increased business volume, stability, and reliability (Abang, 2023). Firstly, manager need to collect necessary data on the demands of the company, current financial status, and organization goals. Despite this, managers need to ensure to take into account the financial situation of suppliers, as well as their price structures and payment preferences. Once an ample amount of data has been gathered, the negotiating process should be conducted with a collaborative attitude, prioritising mutual advantages and establishing long-term connections. Highlight the unique selling points and advantages of the business partnership with the provider. In addition, the agreement may have incentives such as discounts for early payment, discounts based on volume, or longer-term contracts to enhance the attractiveness of the arrangement. It is essential to record the mutually agreed-upon agreements in written form to prevent any misunderstandings or conflicts that may arise in the future. Lastly, it is crucial to maintain transparent communication and foster strong relationships with the supplier after the negotiation in order to establish trust and credibility.

6.2 Adaption to COVID-19

6.2.1 Flexible Workforce Management

Companies in the manufacturing industry have devised labour management techniques that are adaptable in order to accommodate the constantly shifting requirements brought about by the COVID-19 pandemic. The implementation of remote work arrangements for non-essential personnel, the modification of shift patterns to reduce the amount of interaction between workers, and the cross-training of employees to fill numerous functions are all features that fall under this category. Manufacturing businesses are able to sustain productivity and cooperation despite the long distance that separates them from one another by using technological platforms that allow for virtual meetings, project management, and communication tools successively enhance the use of technologies. Companies have used staggered shift patterns and rotation systems in order to lessen the density of workers in production plants and adhere to social distancing rules. This enables the implementation of smaller staff cohorts, hence reducing contacts and the risk of viral transmission, while yet ensuring optimal productivity (Maidstone et al., 2021). Implementing cross-training initiatives and encouraging multi-skilling through

flexible workforce management may effectively minimise the need for intensive training and onboarding of new personnel. This is particularly advantageous during the pandemic when firms may have limitations in conducting conventional training sessions owing to social distancing measures or restricted access to training facilities. It is possible for businesses to optimise their labour costs, respond to variable production needs, and preserve employee safety if they retain workforce flexibility.

6.2.2 Lean Manufacturing Practices

Companies in the manufacturing industry have been driven by COVID-19 to reconsider their production procedures and adopt the ideas of lean manufacturing. The operations of businesses have been simplified, non-value-added activities have been removed, and production layouts have been optimised in order to improve efficiency and drastically cut waste (Cekerevac 2022). A streamlined system becomes even more efficient and rapid, and its inefficiencies become more readily apparent and removable. Through the use of lean manufacturing processes, businesses are able to reduce their resource consumption, maximise their utilisation of working capital, and react rapidly to changing market circumstances (Muhammad et al., 2022). Abdelhadi (2021) suggest that the lean manufacturing process can be controlled and improved by implementing 5s by keeping the workplace clean and organised is a fundamental principle of 5S. Keeping it that way throughout this COVID-19 season will minimise employee exposure to the virus that is causing this pandemic. Moreover, create specific instructions on how to disinfect oneself, the operational instruments and machinery, and how to provide the most sanitary circumstances is very necessary in order to put a halt to the transmission of the COVID-19 virus.

6.2.3 Risk Management

In an effort to lessen the effect that interruptions caused by COVID-19 will have on the operations, manufacturers have made risk management and contingency planning their top priorities. The performance of risk assessments, the identification of possible vulnerabilities in supply chains and operations, and the development of contingency plans to handle a variety of situations are all included in this (Chen et al., 2021). Through proactive risk identification and mitigation, businesses are able to minimise interruptions, safeguard their financial interests, and ensure that their company operations continue uninterrupted (Onica et al., 2022). Oh et al.

(2020) stated that risk management in Korea during covid-19 is the business collaborate with other businesses is an everyday occurrence for a firm that is dependent on the capacity of its relationships. Since this pandemic impacted globally, it is essential to have a communication with customer and supplier on the risk and impact on the raw material and finish product. Oh et al. (2020) added Enhancing relational competence may positively impact supply chain performance by changing the dynamics of supply chain operations.

6.2.4 Customer Relationship Management

Customer relationship management, often known as CRM, is of utmost importance to organisations operating in a wide range of sectors, particularly during the period of Covid-19. It is the responsibility of this management to guarantee that strong ties are built and maintained with its current clients.

Within the context of the pandemic, manufacturing organisations have strengthened their communication channels in order to keep in constant communication with their loyal clients. This involves making use of digital channels like as email and video conferencing in order to offer information on the availability of products, the progress of orders, and delivery timetables with regard to those products. Companies are able to handle consumer problems in a timely manner, give clarity about possible delays or interruptions, and develop trust and confidence in their brand when they improve their communication. Rahman and Khan (2017) stated that customer relationship management (CRM) solutions expedite internal workflows and procedures, which improves both operational efficiency and productivity. Businesses are able to free up resources and concentrate on operations that are of higher value when they automate jobs that are repetitive in nature, such as data input, lead management, and contact with customers. As a consequence, this leads to cost reductions, a reduction in response times, and an improvement in service quality. Gunawan et al. (2021) added that ff want to keep the confidence of your customers during times of crisis, proactive communication and openness are very necessary. In the process of navigating the obstacles posed by the pandemic, customer relationship management (CRM) systems play an essential part in the planning for recovery and future development. Businesses are able to detect new possibilities, plan strategic initiatives, and efficiently manage resources when they do an analysis of consumer data and trends in the market.

7.0 Policy Implications
7.1 Government Policies to Support Manufacturing Industries

The execution of the Movement Control Order in Malaysia has resulted in the freezing of all sectors, making it impossible to conduct business as normal. The MCO was associated with the prevention of persons from entering or leaving a certain region to control the control the spread of the virus (Shah et al., 2020). Despite the fact that this move has had an effect on the implementation of work from home policies by all organisations, it is not feasible for manufacturing firms since these companies need their employees to be physically present in the factory in order to run their operations. This has been argued by Ishak et al. (2023) the lockdown has caused the depletion of inventories due to facilities shut down. Furthermore, the demand–supply cycle was further disturbed as a result of the requirement to shut industrial facilities and the underperformance of a large number of other facilities, this also impact the progress of large projects which was further hindered by transportation disruptions.

On 30th May 2021, The Ministry of International Trade and Industry (MITI) has announced latest standard operating procedure (SOP) manufacturing and manufacturing-related services (MRS) sectors that are permitted to operate under the Movement Control Order (MCO) from June 1 to June 14, 2021 (Malaysian Investment Development Authority, 2021). This SOP is to guarantee that there is a sufficient supply of essential goods for the rakyat, as well as to support the ongoing operations of key infrastructures and front-line services, such as security, healthcare systems, information, and communications, and so on. The following industries are permitted to operate at 60% workforce capacity: aerospace (including MRO), food and beverage, packaging and printing materials, personal care and cleaning supplies, healthcare and medical care (including dietary supplements), electrical and electronics, textiles (for PPE manufacturing only), oil and gas (including petrochemical and petrochemical products), chemical products, machinery and equipment, fuels and lubricants (production, distillation, storage, supply).

7.2 Regulatory Framework for Working Capital Management

The COVID-19 epidemic has presented unparalleled difficulties for enterprises globally, including businesses located in Malaysia. As the result, governments and regulatory agencies have developed numerous steps to help companies and alleviate the negative effect of the epidemic.

7.2.1 Government Support Programs

For the purpose of supporting Malaysians in weathering the epidemic, the government has initiated a number of programmes, some of which include monetary assistance, loan moratoriums, and a decrease in some expenditures (Khalid 2021). Micro, small, and medium-sized businesses in Malaysia have an opportunity to rebound courtesy to the PRIHATIN Economic Stimulus Package, an effort that the government has launched to address the current economic crisis. The government claims that RM100 billion will be allocated across various programmes and initiatives, including the Special Relief Facility, a reduction in the interest rate from 3.75 percent to 3.5 percent, and a micro-credit scheme that will provide RM500 million, bringing the total fund for the scheme to 700 million with an interest rate of 2 percent and no collateral required (Mustapa and Mohamad, 2021).

Moreover, wage Subsidy Programme (Programme Subsidi Upah) is a government support programme that was introduced by the Malaysian government as part of the PEMERKASA (Pelan Pemulihan Ekonomi dan Rangsangan Kewangan) initiative. The purpose of this programme is to assist employers in retaining their employees and to mitigate the impact that the COVID-19 pandemic has had on businesses. Employers that are qualified for the programme may be eligible to receive subsidies that will pay a part of their workers' salary for a certain amount of time. The amount of the subsidy may change based on a variety of circumstances, including the size of the firm, the degree to which income has decreased, and the number of workers who are eligible for the subsidy.

Additionally, Yaacob and Mat Radzi (2022) mention that government of Malaysia has introduce Penjana Kerjaya 2.0 is a programme that was initiated as a component of the National

Economic Recovery Plan (PENJANA) with the purpose of addressing the issue of unemployment and promoting the development of new jobs in response to the economic effect of the COVID-19 epidemic. Under the programme, the government provides financial incentives to firms that recruit job seekers who meet the program's requirements. These job searchers include recent college graduates as well as those who have lost their employment as a result of the epidemic. It is feasible that pay subsidies, training allowances, and other financial incentives are included in these incentives. The purpose of these incentives is to encourage firms to develop new employment possibilities and to keep workers.

7.2.2 Financial Relief Measures

Bank Negara Malaysia, the Central Bank of Malaysia, has implemented financial relief measures to alleviate the financial strain on industrial enterprises during the COVID-19 pandemic. The measures include the decrease in the statutory reserve requirement (SRR), decrease in the overnight policy rate (OPR), and the creation of the Targeted Relief and Recovery Facility (TRRF) to provide financial support to firms impacted by COVID-19. Ali et al. (2021) confirms that BNM has announced the adoption of a moratorium for financing and loans, which automatically offers a six-month delay of instalments for Islamic finance and its equivalents. The moratorium package was extended to all clients, irrespective of their financial circumstances. Ali et al. (2021) added that Malaysia government provide zakat funds to entrepreneur to start and improve the financial of their business. Given the present conditions, Zakat funds may be used to provide financial support to those who have experienced a loss of income. Shah et al., (2020) mentioned that a sum of RM 40 million has been designated for small and medium enterprises (SMEs) engaged in food production and agriculture. Furthermore, RM 1000 awards have been assigned to 10,000 e-commerce entrepreneurs. Lastly, RM 20 million has been allotted to the Malaysian Digital Economy Corporation to support the establishment of rural internet hubs.

In addition, Malaysia government impose utility bill subsidies or reductions for necessary services such as electricity, water, and other vital services in order to minimise the running expenses of enterprises. By reducing administrative costs and enhancing cash flow, these subsidies aim to reduce the financial pressures that are placed on companies, especially small and medium-sized enterprises (SMEs). Furthermore, the government may provide financial

incentives or refunds to enterprises in order to promote energy-efficient practices and sustainability projects. This will result in a further reduction in operating expenses over the course of the long term.

7.3 Policy Recommendations for Mitigating COVID-19 Impact

7.3.1 Health and Safety Regulations Compliance

Safety compliance encompasses the fundamental safety responsibilities that people do in order to maintain workplace safety (Hu et al., 2021). The emergence of COVID-19 has brought about a set of new safety regulations and protocols, in addition to the ones already outlined in the food safety literature. Despite the fact that Malaysia is was struggling to overcome the difficulties brought about by the COVID-19 epidemic, government are confronted with the onerous job of putting into practice effective measures to limit the pandemic's effects on public health, the economy, and society. Various economic sectors have been permitted to function, provided that they strictly comply with health and safety protocols. This is done to maintain a balance between public health, economic viability, and the well-being of individuals. Making sure that manufacturing employees are in compliance with health and safety rules is very necessary in order to safeguard their health and well-being. The risk of COVID-19 transmission among workers may be reduced by enterprises via the use of preventative measures such as physical distance, mask-wearing, and sanitization practices. Promote employee engagement and active involvement in health and safety activities by including workers in the creation of safety procedures, seeking their input, and acknowledging their contributions to maintaining a secure work environment. Spirit AeroSystems Malaysia Sdn Bhd, an aircraft manufacturing company in Subang, Malaysia, has implemented a policy mandating that all employees undergo Covid-19 testing before to accessing the factory premises in order to prevent any potential spread of the virus. Furthermore, it is essential for every employee to use the MySejahtera programme provided by the Malaysian government in order to monitor any potential close contacts inside the organisation and mitigate the spread of the virus.

7.3.2 Financial Support

The manufacturing sector plays a crucial role in driving economic progress in Malaysia, making substantial contributions to job creation, exports, and GDP expansion. Nevertheless,

the industry is confronted with a multitude of obstacles, especially in light of the COVID-19 epidemic, which has caused disruptions in worldwide supply chains, decreased demand, and put a strain on financial resources. Manufacturing enterprises rely heavily on financial support to sustain operations, compensate employees, and cover fixed expenses during periods of reduced income. By obtaining working capital loans, businesses can address temporary cash flow shortages and continue their industrial operations. The Domestic Investment Coordination Platform (DICP) team collaborates closely with local authorities, vendors of technology, financial institutions, and equity and corporate advisory firms to support the growth of small and medium-sized enterprises (SMEs) to promotes an increase in domestic direct investments (Malaysia Investment Development Authority, 2020) but not applicable to other sector and industry. According to Department of Statistics Malaysia (DOSM) media statement in May 2020, the government has implemented several measures to alleviate the financial strain on small and medium companies (SMEs) and micro companies, including the provision of supplementary funds amounting to RM10 billion. Access to inexpensive financing solutions that are specifically customised to meet the requirements of manufacturing enterprises should be made available by the government and financial institutions. In the case of the energy sector, for instance, Pilloni et al. (2022) demonstrate that short-term interventions are offered, and specific actions are taken. These interventions include the subsidisation or lowering of power costs, as well as the government's mitigation of the total cost of incentives for all sectors. Loans with low interest rates, credit lines, and working capital facilities that provide flexible repayment terms and grace periods are included in this category. Moreover, financial support in the form of grants, subsidies, and incentives may be given by the government to manufacturing firms, enabling the industries to adopt new technologies, digitalize operations, and automate processes.

7.3.3 Tax Incentives and Relief

Even more gloomy were the manufcaturing companies, who anticipated a precipitous reduction in income of sixty-five percent, with thirty percent of businesses experiencing difficulties with funding. When it comes to navigating through COVID19, many alternative techniques have been used by federal and state governments all across the globe. The COVID-19 epidemic has impacted both developing and developed nations. For example, the United States (U.S.) has earmarked $2 trillion of government money to address the income risk and negative effects

caused by the COVID-19 strike. The funds are mostly being transferred to people and enterprises in order to stabilise the economic situation (as cited in Lim et al., 2021). In addition, tax relief initiatives are designed to enhance the cash flow and liquidity of enterprises by decreasing their tax obligations. As an instance, the government may provide tax deferrals, extensions for tax filing deadlines, and exemptions of penalties or interest for delayed payments. Lim et al. (2021) argues that businesses who are significantly impacted by COVID-19 are permitted to alter their profit projections for the year 2020 with regard to the payments of monthly income tax instalments without incurring any penalties. Moreover, precise tax incentives are implemented to encourage investment in certain sectors or activities that are crucial for economic recovery and resilience. As an example, the government may provide tax benefits to firms who engage in automation, digitization, and innovation projects with the aim of improving productivity, competitiveness, and sustainability in the manufacturing industry.

8.0 Conclusion

8.1 Summary of the Study

Working capital management is a crucial financial tool for businesses. Sufficient liquidity is necessary to finance the company's everyday operations and meet the firm's capital needs for investing in other business activities. It is crucial for a company to ensure that its working capital management is at an adequate level to maintain an appropriate level of risk. If an organization lacks sufficient money to continue carrying out its operations, it may suffer a decline in sales (Komba, 2017). Hence, implementing effective working capital management in an organization may significantly enhance operational efficiency and provide an enhanced competitive advantage. The purpose of this study is to investigate the relationship between effective management of working capital and the profitability of manufacturing companies that were listed in Bursa Malaysia during the period of Covid-19. The data was analyzed using regression analysis, descriptive analysis, and correlation analysis on a sample of 100 manufacturing firms during a seven-year period (2016-2022). The research used return on assets as an indicator of profitability, and included debt ratio, days inventory outstanding, days sales outstanding and days payable outstanding as independent variables to assess the overall effectiveness of working capital management. The result of this study present that the independent variables have negative significant impact on working capital management which

indicate that increase one unit of independent variables may decrease the profitability of the organization. Based on the result, the analysis reveals that manufacturing companies have seen extensive disruptions not only impacted the financial performance but also in their supply chains, resulting in shortages of raw materials, delays in transportation, and limitations in labour availability. The epidemic has caused a huge financial burden, since lower demand, manufacturing interruptions, and cash flow issues have worsened the economic effect. The initiatives of the government, which include financial assistance programmes, tax incentives, and regulatory changes, have been of critical importance in assisting manufacturing companies, safeguarding employment opportunities, and fostering economic recovery in Malaysia.

8.2 Limitations

Certain limitations have been noted in the research that was done to examine the impact of working capital management (WCM) on the profitability of manufacturing firms. One of the disadvantages is that the research period only spans seven years, from 2016 to 2022, which is seen to be insufficient to examine the post-Covid-19 era. As a result, it is impossible to determine the impact of the WCM policy and components on the profitability of businesses during the end of the epidemic. Moreover, this research only collect data from Data Stream and Bursa Malaysia Stock Exchange and not primary data. This constraint may have resulted in a limited comprehension of the many and complex effects of COVID-19 on the industrial industry. The analysis may have been limited in terms of depth and specificity due to the study's dependence on secondary data sources and existing literature. Due to restrictions on data availability and limited access to private information, the research may not have comprehensively captured the whole magnitude of the pandemic's influence on individual manufacturing businesses or specific subsectors within the industry. In addition, this research study had limitations in terms of the applicability to other geographic regions or industry sectors as data obtained from the selected population, which was only from Malaysia and focused on the manufacturing sector. Therefore, it is necessary for future researchers to examine broader and diverse sample sets in order to account for multiple countries with diverse sectors. This will facilitate the process of comparing the outcomes of various investigations. There may have been limitations placed on the research due to a lack of resources, including time and competence. The limitations of the resources might have had an effect on the depth of the study, the level of analysis, and the capacity to evaluate all of the relevant study issues

in a comprehensive way. Last but not least, The study's scope may have been constrained by the restricted accessibility and reliability of data pertaining to the manufacturing sector in Malaysia. The study may have been affected by limited access to current and complete data on many factors, including production levels, financial performance, and employment patterns, which might have impacted the accuracy and thoroughness of the research.

8.3 Recommendations for Future Research

There are several recommendations for future research and improvement in measuring working capital management benefits. Future research can extend the sample of the population and consider collecting different sample set to analyse the working capital management impact on Covid-19. In the future, research should investigate the implementation of long-term resilience and adaptation strategies for the manufacturing sector in Malaysia. These strategies should be developed and implemented. Investigate the ways in which manufacturing organisations might strengthen their resilience to future pandemics, economic shocks, and disruptive events by implementing agile business models, digital transformation, and diverse supply networks. For the benefit of future research, it is recommended that more analysis be carried out using a greater number of data samples, such as making use of financial records from before, during, and after the epidemic. Moreover, future research may consider using primary data to collect data directly with the firm to study the understanding on how the managers control the financial and manage the company during the pandemic where the business unable to operation as usual. Researchers can get a full picture of the social, economic, and environmental effects of COVID-19 on the industrial industry by communicating to a wider range of stakeholders. The organisation can also make sure that solutions are tailored to the desires and requirements of all stakeholders. Furthermore, it is likely that future research will contain other dependent and independent elements that are capable of explaining the effect that working capital management has on profitability. This is something that is going to be investigated. Additional investigation is required to examine the incorporation of sustainability concepts into COVID-19 recovery methods within the industrial sector. An examination of the convergence of economic recovery, environmental sustainability, and social fairness may provide insights into the construction of improved and enduring manufacturing systems that are both inclusive and environmentally friendly.

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