Research Article

Financial Determinants to Healthcare Profitability During Covid-19 Pandemic: A Case Study of Chinese Listed Companies

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ABSTRACT

This study aimed to study (i) the financial determinants influencing the profitability of healthcare companies listed in the Chinese Stock Market during the COVID-19 pandemic, focusing on financial indicators such as the current ratio (CR), debt ratio (DA), debt-to-equity ratio (DE), sales growth (SG), operating cash flow (OCF), and company size (S); (ii) the relationship between these financial variables and the primary profitability metrics——return on assets (ROA) and return on equity (ROE); and (iii) the impact of the COVID-19 pandemic on these relationships was explored through a dummy variable (CV19). The sample comprised healthcare companies listed in China, totaling 206 firms, selected based on the availability of financial data for the periods before and during the pandemic, a total of six years (2017–2022). They were selected by adhering to stringent criteria to ensure data comparability and representativeness of the healthcare sector. The instrument for collecting data was financial reports sourced from reputable online database, Bloomberg. Data were analyzed using descriptive statistics, t-tests, correlation analysis and regression models. The research results found that there are significant changes in specific financial indicators such as CR, SG, OCF, and company size during the pandemic, while DA and DE did not show significant differences between the periods. The variables; CR, SG, and OCF positively influence both ROA and ROE, highlighting the importance of liquidity and operational efficiency. The DA and company size were negatively associated with profitability metrics. This research offers valuable insights for healthcare businesses by highlighting

how liquidity and operational efficiency are crucial for maintaining profitability in times of economic disruption. It underscores the need for healthcare companies to enhance their liquidity management and operational strategies to better withstand crises. Additionally, the study provides evidence on the impact of company size and debt ratios on profitability, informing strategic financial planning in the healthcare sector. These findings can guide practitioners and policymakers in developing robust financial strategies to navigate future uncertainties.

Keywords: Healthcare Business Group, COVID-19 Pandemic, Financial Determinant, China, Profitability

บทความวิจัย

ปัจจัยทางการเงินที่กำหนดผลกำไรของธุรกิจดูแลสุขภาพระหว่างการระบาดของโควิด-19 : กรณีศึกษาบริษัทจดทะเบียนจีน

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์ เพื่อศึกษา 1. ปัจจัยทางการเงินที่มีอิทธิพลต่อความสามารถในการทำกำไรของบริษัทในกลุ่มสุขภาพที่จดทะเบียนในตลาดหลักทรัพย์ของสาธารณรัฐประชาชนจีนในช่วงระหว่างการระบาดโคโรน่าไวรัส 2019 โดยเน้นที่ตัวชี้วัดทางการเงิน เช่น อัตราหมุนเวียน อัตราส่วนหนี้สิน อัตราส่วนหนี้สินต่อส่วนของผู้ถือหุ้น การเติบโตของยอดขาย กระแสเงินสดจากการดำเนินงานและขนาดของบริษัท 2. ศึกษาความสัมพันธ์ระหว่างปัจจัยทางการเงินเหล่านี้กับอัตราส่วนที่ใช้วัดความสามารถในการทำกำไร ได้แก่ ผลตอบแทนจากสินทรัพย์และผลตอบแทนจากส่วนของผู้ถือหุ้น และ 3. ศึกษาผลกระทบของการระบาดโคโรน่าไวรัส 2019 ต่อความสัมพันธ์เหล่านี้ โดยการสำรวจผ่านตัวแปรหุ่น จำนวนตัวอย่างที่ใช้ในการศึกษาประกอบด้วยข้อมูลทางการเงินของบริษัทกลุ่มสุขภาพที่จดทะเบียนรวม 206 บริษัท สำหรับช่วงเวลาก่อนและระหว่างการระบาดโคโรน่าไวรัส 2019 จำนวน 6 ปี (พ.ศ. 2560–2565) บริษัทกลุ่มตัวอย่างถูกคัดเลือกจากเกณฑ์ความถูกต้องและครบถ้วนของข้อมูลเพื่อให้แน่ใจว่าข้อมูลสามารถเปรียบเทียบได้และเป็นตัวแทนของบริษัทในกลุ่มสุขภาพ การรวบรวมข้อมูลรายงานทางการเงินได้จากฐานข้อมูลออนไลน์ที่มีชื่อเสียง Bloomberg ข้อมูลได้รับการวิเคราะห์โดยใช้สถิติเชิงพรรณนา การทดสอบ t การวิเคราะห์ความสัมพันธ์และแบบจำลองการถดถอยเชิงพหุคูณ ผลการวิจัยพบว่า ในช่วงที่มีการระบาด มีอัตราส่วนทางการเงินหลายอัตราส่วนมีการเปลี่ยนแปลงอย่างมีนัยสำคัญทางสถิติ โดยเฉพาะอัตราส่วนหมุนเวียน การขยายตัวของยอดขาย กระแสเงินสดจากการดำเนินงานและขนาดของบริษัท ในขณะที่อัตราส่วนหนี้สินต่อสินทรัพย์และอัตราส่วนหนี้สินต่อส่วนของผู้ถือหุ้น ไม่มีความแตกต่างที่สำคัญทางสถิติระหว่างช่วงเวลาดังกล่าว โดยอัตราส่วนหมุนเวียน การขยายตัวของยอดขายและกระแสเงินสดจากการดำเนินงาน มีอิทธิพลในเชิงบวกต่อทั้ง อัตราผลตอบแทนต่อสินทรัพย์และต่อหนี้สิน

ผลการวิจัยนี้เน้นถึงความสำคัญของสภาพคล่องและประสิทธิภาพการดำเนินงานของบริษัท ในขณะที่อัตราส่วนหนี้สินต่อสินทรัพย์และขนาดของบริษัทมีความสัมพันธ์เชิงลบกับอัตราส่วนความสามารถในการทำกำไรของบริษัทงานวิจัยนี้ให้ข้อมูลเชิงลึกอันมีค่าสำหรับธุรกิจด้านการดูแลสุขภาพ โดยเน้นย้ำว่า สภาพคล่องและประสิทธิภาพการดำเนินงานมีความสำคัญต่อการรักษาผลกำไรในช่วงเวลาที่เศรษฐกิจตกต่ำ งานวิจัยนี้เน้นถึงความจำเป็นที่บริษัทด้านสุขภาพจะต้องปรับปรุงการจัดการสภาพคล่องและกลยุทธ์การดำเนินงานเพื่อให้สามารถรับมือกับวิกฤตได้ดีขึ้น นอกจากนี้การศึกษานี้ยังให้หลักฐานเกี่ยวกับผลกระทบของขนาดบริษัทและอัตราส่วนหนี้สินต่อกำไร ซึ่งจะช่วยให้สามารถวางแผนการเงินเชิงกลยุทธ์ในภาคส่วนการดูแลสุขภาพได้ ผลการวิจัยนี้สามารถเป็นแนวทางให้ผู้ปฏิบัติงานและผู้กำหนดนโยบายพัฒนากลยุทธ์ทางการเงินที่แข็งแกร่ง เพื่อรับมือกับความไม่แน่นอนในอนาคต

คำสำคัญ: กลุ่มธุรกิจดูแลสุขภาพ โคโรน่าไวรัส 2019 ปัจจัยทางการเงิน ประเทศจีน ความสามารถในการทำกำไร

INTRODUCTION

The healthcare sector plays an essential role in safeguarding the health and well-being of individuals and communities, as its effectiveness is closely linked to public health outcomes and economic stability. In recent years, the healthcare field has undergone notable changes due to advancements in medical technology, shifts in healthcare policies, and alterations in consumer behavior. Nevertheless, the emergence of the COVID-19 pandemic in late 2019 has presented unparalleled challenges to the global healthcare sector, disrupting healthcare delivery systems, stretching healthcare resources, and reshaping the industry landscape (Liu et al., 2022).

This pandemic has had extensive effects on healthcare entities such as hospitals, pharmaceutical firms, medical device producers, and healthcare service providers (Filip et al., 2022), compelling these organizations to adjust to evolving circumstances swiftly, establish new procedures to control the spreading of the viruses, and guarantee the ongoing provision of vital healthcare services. Furthermore, the pandemic has revealed weaknesses in healthcare supply chains, emphasized disparities in healthcare access, and stressed the significance of healthcare resilience and readiness (Smallwood et al., 2022).

Amid various challenges, it is crucial to comprehend the financial performance of healthcare companies pre and post-COVID-19 outbreak. Key financial metrics such as profitability, liquidity, leverage, and operational efficiency offer valuable insights into the resilience of healthcare organizations and their capacity to navigate the challenges posed by the pandemic. By examining changes in these metrics over time, researchers and stakeholders can gain a more profound insight into the financial effects of the pandemic on the healthcare sector and devise strategies to enhance financial resilience and sustainability in the future (Ichsani et al., 2022).

The healthcare sector has exhibited resilience amid the COVID-19 pandemic, showcasing notable growth and efficiency despite the economic downturn impacting various sectors in China. According to data from the Chinese National Bureau of Statistics (NBS), there were considerable rises in investments and added value in the healthcare industry in the first quarter of 2022 (Xue, 2023). Noteworthy growth rates were observed in manufacturing activities related to biological medicines and products, with investments increasing by 15.1% and added value by 10.5%. Production capacity also surged, with daily outputs reaching hundreds of millions for specific items. For example, there was a remarkable 24.8% year-over-year increase in the production of medicinal alcohol, while mask manufacturing skyrocketed by 3.5 times compared to the previous year. Financial information from Wind, a prominent data provider, further highlights the sector's strong performance, as most healthcare companies reported profit growth in the first quarter. Among 328 publicly traded companies, 270 saw profit

growth, representing 82% of the total, while only 58 reported declines in net profit, making up 18% of the total (Jin et al., 2022).

As a result of the outbreak, several local hospitals in China have postponed or halted some of their regular medical services. Additionally, many general patients have reduced their hospital visits to minimize risk, leading to declining demand for routine medical services. The epidemic has also caused numerous companies to suspend their usual operations, such as the Chinese Medical Association postponing all academic meetings until April. For most medical companies not directly involved in epidemic-related activities, their revenue will face significant pressure in the first quarter of this year. However, the epidemic has underscored the importance and long-term potential of the healthcare industry. This crisis may serve as a catalyst and accelerator for the long-term growth of China's healthcare sector. This is evident in the following three aspects (Leite et al., 2020).

This research presents a comprehensive analysis of the financial performance of healthcare companies before and aduring the COVID-19 pandemic. Leveraging real-world data, the study examined key financial indicators such as return on equity (ROE), return on assets (ROA), debt-to-equity ratio (DE), debt-to-asset ratio (DA), sales growth (SG), operating cash flow (OCF), and size (S) to assess the impact of the pandemic on the financial health of healthcare organizations. Through statistical analysis, including t-tests, regression models, and robustness checks, the research provided insights into the dynamics of the healthcare sector amidst the COVID-19 pandemic. It offered recommendations for enhancing financial resilience and sustainability in the face of future challenges (Pink et al., 2007).

Considering the limitations of studying the financial impact of COVID-19 on healthcare-listed companies in China, the following research questions were posed: What were the changes in the financial performance of healthcare companies in China during COVID-19 compared to before, and in which direction did these changes occur? Additionally, how did the financial ratios of healthcare companies in China change during the COVID-19 pandemic, and how did this change affect their financial performance?

The research aims to explore the impact of COVID-19 and other key financial variables on healthcare companies in China, focusing on the period before and during the pandemic. In addition, this study will provide actionable insights and recommendations for healthcare companies in China to enhance their financial resilience and performance amidst the challenges posed by the COVID-19 pandemic and other economic uncertainties. This study contributes to a better understanding of the dynamics between COVID-19, financial variables, and the performance of healthcare companies in China, ultimately providing valuable insights for stakeholders in the healthcare industry. The study, therefore, aims to:

1. Investigate the key financial variables both dependent and independent variables that impact during COVID-19 pandemic. This includes examining key financial indicators such as the current ratio (CR), debt ratio (DA), debt-to-equity ratio (DE), sales growth (SG), operating cash flow (OCF), and company size (S) and comparing their values before and during the pandemic by using t-test analysis.

2. Evaluate the relationship between these financial variables and primary profitability metrics: Using correlation and regression analysis, the study attempts to determine how these financial indicators impact their profitability measured by return on assets (ROA) and return on equity (ROE). COVID-19 is used as a dummy variable to indicate the time prior and during the pandemic.

By conducting these analyses, the research seeks to provide a comprehensive understanding of how the financial health and performance of healthcare companies in China become in response to the unprecedented challenges posed by the COVID-19 pandemic.

LITERATURE REVIEW

The healthcare sector is a critical component of national economies and public welfare, with its performance closely tied to societal well-being and economic stability. Extensive research has been conducted to understand the financial dynamics of healthcare organizations and their responses to various external factors, including economic fluctuations, regulatory changes, and technological advancements. However, the outbreak of the COVID-19 pandemic in late 2019 has introduced unprecedented challenges to the healthcare industry, prompting a renewed focus on understanding the financial resilience and sustainability of healthcare organizations in the face of global crises (Leite et al., 2020).

This study focuses on two fundamental financial performance metrics: return on assets (ROA) and return on equity (ROE). These metrics hold widespread significance among investors and analysts for evaluating a company's financial health. Given the unique challenges and opportunities amidst the current landscape, they are particularly relevant in the healthcare industry. Our analysis will delve deeper into ROA and ROE, shedding light on how these key indicators reflect the healthcare industry's adaptability and resilience during the COVID-19 pandemic. Prior to the COVID-19 pandemic, numerous studies emphasized the significance of financial indicators such as return on equity (ROE), return on assets (ROA), debt-to-equity ratio (DE), debt-to-asset ratio (DA), sales growth (SG), operating cash flow (OCF), and Size (S) in evaluating the financial health and performance of healthcare companies. These financial indicators are vital in determining healthcare organizations' profitability, liquidity, and operational efficiency. They influence the organizations' ability to deliver quality care, maintain financial stability, and achieve sustainable growth (Pink et al., 2007).

Return on Assets (ROA): The ROA measures a company's efficiency in using its assets to generate revenue, calculated as net income divided by total assets (Law, 2014). A higher ROA indicates greater efficiency, a positive signal for investors and stakeholders. During the COVID-19 pandemic, ROA is particularly relevant for healthcare companies due to increased demand for products and services, alongside rising costs and operational complexities (Kumar & Zbib, 2022).

Return on Equity (ROE): ROE assesses the return generated on shareholders' equity, calculated as net income divided by shareholders' equity (Law, 2014). A higher ROE suggests effective profit generation from shareholders' investments. Amidst the COVID-19 pandemic, ROE is crucial for healthcare companies facing challenges in attracting and retaining investors (Kumar & Zbib, 2022).

Current Ratio (CR): The current ratio evaluates a company's ability to cover short-term liabilities with short-term assets (Law, 2014). The pandemic has disrupted the healthcare supply chain, reduced patient volumes, and changed patient behavior, negatively impacting the CR of many Chinese healthcare companies (Francis, 2020; Sun et al., 2021). However, some companies adapted and maintained or increased their CR by meeting the heightened demand for medical supplies and services (Sun, Bao, & Lu, 2021).

Debt to Asset Ratio (D/A): The D/A ratio measures the percentage of a company's assets financed through debt (Law, 2014). During the pandemic, healthcare companies faced financial challenges, leading to increased debt financing to meet surging demands (Batrancea, 2021). For instance, a study by KPMG noted a rise in the D/A ratio in the healthcare industry due to investments required to combat the pandemic (KPMG, 2020).

Debt to Equity Ratio (D/E Ratio): This ratio assesses a company's leverage by comparing total debt to shareholders' equity (Law, 2014). The COVID-19 pandemic intensified financial strains, compelling many healthcare companies to increase their debt levels. Elevated D/E ratios highlight the financial risk and leverage in these companies (Deloitte, 2020). Companies like Shanghai Fosun Pharmaceutical and Sino Biopharmaceutical saw increased D/E ratios due to their expansion efforts during the pandemic (Fosun Pharma, 2021; Sino Biopharmaceutical Limited, 2021).

Sales Growth (SG): SG measures a firm's revenue growth over a specific period (Law, 2014). The pandemic led to decreased revenues for many healthcare companies due to reduced patient volumes and service suspensions. However, companies involved in producing medical equipment or expanding telemedicine services experienced increased demand and robust sales growth (Sun et al., 2021; Wang et al., 2021).

Operating Cash Flow (OCF): OCF evaluates a company's liquidity and financial health by measuring cash generated from primary operating activities (Law, 2014). The pandemic disrupted cash flows for many healthcare organizations due to reduced patient visits and increased expenses. Nevertheless, companies that implemented cost-saving measures and diversified revenue streams managed to maintain positive cash flow (Deloitte, 2020).

Size (S): The size of a company's assets, indicated by the natural logarithm of total assets, reflects its financial health and growth potential (Law, 2014). Larger asset sizes provide more resources for investment and innovation. Studies have shown a positive correlation between hospital asset size and financial performance in China (Chen et al., 2020). However, effective resource management is crucial for sustaining financial stability and growth.

In light of the COVID-19 pandemic, it has become even more crucial to investigate these financial indicators to understand their impact on healthcare companies' financial performance and resilience. This research aims to fill the gap by providing a comprehensive analysis of how these key financial metrics have evolved due to the pandemic and what implications these changes hold for the future of healthcare organizations in China.

The COVID-19 pandemic has markedly reshaped the healthcare sector's financial landscape, presenting significant challenges and potential opportunities for healthcare organizations. Scholarly studies have meticulously documented the immediate financial repercussions of the pandemic, including disruptions to healthcare services, decreases in patient volumes, and heightened costs associated with pandemic response measures. These financial challenges have been particularly severe for healthcare organizations with constrained financial reserves and substantial debt levels, underscoring the critical importance of financial resilience and risk management in mitigating the effects of external shocks (Bolton et al., 2021).

In response to the COVID-19 pandemic, healthcare organizations have adopted various strategic measures to navigate financial uncertainties and ensure the continuity of essential services. These strategies encompass cost-containment initiatives, revenue diversification efforts, and investments in digital health technologies to enhance efficiency and improve patient outcomes. Furthermore, government interventions, including stimulus packages, loan programs, and regulatory relief measures, have provided vital financial support to healthcare organizations, aiding them in weathering the economic downturn induced by the pandemic (Provenzano et al., 2020).

Despite these concerted efforts, the long-term financial ramifications of the COVID-19 pandemic remain uncertain, with persistent challenges related to vaccine distribution, healthcare capacity, and public health infrastructure. Additionally, the pandemic has highlighted the imperative for healthcare

organizations to adopt a more resilient and agile approach to financial management. This necessitates incorporating comprehensive risk assessments, scenario planning, and contingency planning into their strategic decision-making processes (Achim et al., 2022).

A crucial financial indicator used to assess the financial health of healthcare organizations is the current ratio (CR). The current ratio measures a company's ability to meet its short-term liabilities with its short-term assets, serving as a key liquidity indicator. The COVID-19 pandemic has profoundly impacted the current ratio of China's healthcare industry due to disruptions in the healthcare supply chain, a decrease in patient volume, and shifts in patient behavior (Law, 2014). These disruptions have underscored the importance of maintaining liquidity to ensure operational continuity during financial stress.

During the COVID-19 pandemic, the healthcare industry faced substantial financial challenges driven by the surging demand for healthcare services and the necessity to invest in new equipment and technology to address the crisis effectively. Consequently, many healthcare companies were compelled to resort to increased debt financing to meet these unprecedented demands, impacting their Debt to Asset (D/A) ratios (Batrancea, 2021). This reliance on debt financing highlighted the critical role of financial management in ensuring the liquidity and operational continuity of healthcare organizations during periods of financial strain.

Amid the COVID-19 pandemic, the Debt to Equity (D/E) ratio assumed heightened importance for healthcare companies due to their significant financial challenges. The global economic slowdown and market instability exacerbated the difficulties for healthcare industry firms as they struggled to maintain financial stability and fulfill their debt obligations. The pandemic triggered a sharp increase in healthcare expenditures, necessitating substantial investments by governments and healthcare providers in medical equipment, supplies, and infrastructure to combat the virus (Musa et al., 2022). These investments were crucial in responding to the health crisis but also underscored the importance of robust financial strategies to manage increased debt levels and ensure sustainable financial performance.

The COVID-19 pandemic introduced various challenges that significantly impacted sales growth in the healthcare industry. For example, many hospitals and clinics were compelled to suspend or reduce their services due to government-mandated lockdowns and safety measures, resulting in decreased revenue and declining sales growth for several companies (Sun et al., 2021). Conversely, some healthcare companies involved in producing medical equipment and supplies experienced increased demand during the pandemic, leading to robust sales growth. Additionally, certain companies

quickly adapted to evolving market conditions by integrating new technologies or expanding their telemedicine services, further boosting their sales growth (Wang et al., 2021).

The COVID-19 pandemic has posed significant challenges to the operating cash flow of healthcare organizations in China. For instance, many hospitals and clinics experienced disruptions in their cash flow due to reduced patient volumes, delayed insurance payments, and increased expenses related to pandemic response measures (Sun et al., 2021). Implementing lockdowns and social distancing measures led to decreased patient visits and elective procedures, resulting in lower revenue generation for healthcare providers. This reduction in revenue, coupled with increased costs associated with acquiring personal protective equipment (PPE) and implementing safety protocols, put pressure on the operating cash flow of many healthcare companies (Wang et al., 2021).

During the COVID-19 epidemic, many Chinese healthcare companies experienced increased service demand, leading to higher revenues and potentially larger asset bases. However, the pandemic also presented challenges such as supply chain disruptions, rising personal protective equipment (PPE) costs, and decreased elective surgeries. These challenges may have impacted the growth of assets and the overall size of assets for certain companies within the industry (Francis, 2020).

Studies have highlighted the significant role of asset size in shaping the financial performance of healthcare companies. Research by Chen et al. (2020) found a positive correlation between the size of assets in Chinese hospitals and their financial success. This suggests that larger hospitals may have greater resources to invest in advanced technologies and equipment, attract and retain top talent, and offer patients a wider range of services. Additionally, the study noted that hospitals located in economically developed regions tended to have larger asset sizes and better financial performance, underscoring the impact of regional economic dynamics on healthcare companies in China.

In this context, the present study aims to contribute to the existing literature by examining the financial performance of healthcare companies before and during the COVID-19 pandemic. By analyzing real-world data and applying statistical methods such as t-tests, regression models, and robustness checks, the researcher seeks to provide insights into the financial resilience and sustainability of healthcare organizations amidst the challenges posed by the pandemic. Through this research, the researcher hopes to inform policymakers, healthcare leaders, and stakeholders about the implications of the COVID-19 pandemic for the financial health of the healthcare sector and identify strategies to enhance resilience (Lesmana & Daryanto, 2019).

Agency Theory provides insights into the principal-agent relationships within organizations and their implications for financial performance. In Chinese healthcare companies, aligning managerial decisions with shareholder interests is crucial for optimizing financial outcomes (Kasbar et al., 2023).

The principal-agent relationships inherent in healthcare firms involve shareholders entrusting managers with financial decision-making. The effectiveness of these relationships directly influences financial performance. Conflicts of interest may arise when managers prioritize their interests over those of shareholders, impacting financial outcomes (Meckling & Jensen, 1976).

Agency Theory posits that managers (agents) may not always act in the best interests of shareholders (principals) due to conflicting incentives. A high current ratio indicates good liquidity, which ensures that the company can meet its short-term obligations and thus maintain operational stability. Managers are incentivized to maintain a healthy current ratio to avoid liquidity crises, which could harm their reputation and job security. Shareholders, on the other hand, would be concerned about excessive liquidity if it implies underutilization of resources that could otherwise generate higher returns.

From the perspective of Agency Theory, high leverage (indicated by higher DA and DE ratios) can be a double-edged sword. Managers may prefer higher leverage to finance growth and expansion, which can enhance their power and control. However, excessive debt increases financial risk, which shareholders might be wary of due to the potential for bankruptcy. Effective corporate governance mechanisms can mitigate these risks by aligning managerial incentives with shareholder interests, ensuring that debt levels are managed prudently.

Agency Theory suggests that managers might engage in activities to boost sales growth to achieve short-term performance targets and enhance their compensation or career prospects. However, this focus on short-term gains can sometimes lead to overemphasis on growth at the expense of long-term profitability and stability. Shareholders rely on governance structures to ensure that growth strategies are sustainable and align with the company's long-term interests.

Operating cash flow is a crucial indicator of a company's ability to generate cash from its operations, which is essential for maintaining liquidity and funding ongoing activities. Agency Theory highlights the potential for conflicts between managers and shareholders regarding the use of cash flows. Managers might prefer to retain cash for discretionary spending, while shareholders might favor dividend payouts or reinvestment in high-return projects. Effective governance can help balance these interests.

Larger asset size can provide economies of scale and competitive advantages, potentially leading to better financial performance. However, Agency Theory suggests that as organizations grow, agency problems may become more pronounced due to the complexity of managing larger entities and the potential for managerial opportunism. Ensuring robust governance structures is critical in large organizations to align managerial actions with shareholder interests and to mitigate agency costs.

The COVID-19 pandemic has introduced significant uncertainties and challenges for healthcare organizations. Agency Theory can explain the strategic responses of managers during crises. For instance, managers may take on more debt to finance urgent needs or invest in new technologies to address the crisis, impacting DA and DE ratios. Additionally, the pandemic's impact on sales growth, operating cash flow, and liquidity can be assessed through the lens of agency problems, as managers navigate these challenges while balancing the interests of various stakeholders.

This literature review systematically aligns with the research objectives by exploring the connection between the main theoretical concepts used in this research and related past research. It provides a foundation for understanding the financial dynamics of healthcare organizations in the context of the COVID-19 pandemic, thereby setting the stage for the empirical analysis to follow. Moreover, corporate governance mechanisms, essential components of Agency Theory, play a pivotal role in ensuring the alignment of interests and mitigating agency conflicts. Effective governance structures, including transparent financial reporting, equitable executive compensation, and independent boards, contribute to improved financial performance in Chinese healthcare companies (Kasbar et al., 2023).

RESEARCH CONCEPTUAL FRAMEWORK

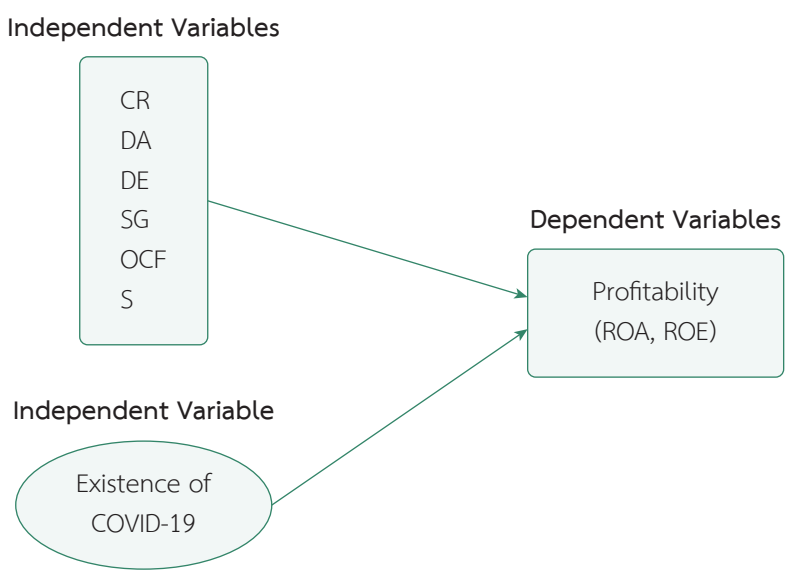

Figure 1: Research Framework

The hypotheses in this study aim to investigate the interplay between various financial metrics and the financial performance of healthcare companies in China. Key indicators such as Return on Assets (ROA) and Return on Equity (ROE) are used to assess profitability and efficiency in asset and equity utilization. These hypotheses seek to examine how financial factors like Current Ratio (CR), Debt-to-Asset Ratio (DA), Debt-to-Equity Ratio (DE), Sales Growth (SG), Operating Cash Flow (OCF), and Size (S) influence the financial performance of Chinese healthcare firms, with ROA and ROE as outcome variables. Additionally, COVID-19 is proposed as a dummy variable that may affect the financial performance of Chinese healthcare companies.

Hypothesis 1: Current Ratio (CR) is posited to have a positive influence on the financial performance of Chinese healthcare companies, as measured by ROA and ROE.

A higher CR indicates a company's ability to cover its short-term liabilities with its short-term assets, which may indicate liquidity and financial stability. Thus, it is hypothesized that a higher CR will lead to improved financial performance in the Chinese healthcare sector.

Hypothesis 2: Debt-to-Asset Ratio (DA) is expected to have a negative influence on the financial performance of Chinese healthcare companies, as measured by ROA and ROE.

A higher DA ratio suggests that a company has more assets financed through debt, which may indicate higher leverage and financial risk. Therefore, it is hypothesized that a higher DA ratio will lead to decreased financial performance in the Chinese healthcare sector.

Hypothesis 3: Debt-to-Equity Ratio (DE) is anticipated to negatively influence the financial performance of Chinese healthcare companies, as measured by ROA and ROE.

A higher DE ratio indicates a higher proportion of financing from debt relative to equity, which may imply higher financial leverage and risk. Hence, it is hypothesized that a higher DE ratio will lead to decreased financial performance in the Chinese healthcare sector.

Hypothesis 4: Sales Growth (SG) is expected to have a positive impact on the financial performance of Chinese healthcare companies, as measured by ROA and ROE.

Higher sales growth indicates increased revenue, which can contribute to improved profitability and returns. Therefore, it is hypothesized that higher SG will lead to improved financial performance in the Chinese healthcare sector.

Hypothesis 5: Operating Cash Flow (OCF) is posited to positively influence the financial performance of Chinese healthcare companies, as measured by ROA and ROE.

OCF reflects the cash generated from the company's core operations, which can be used for investments, debt repayment, and other activities. Thus, it is hypothesized that higher OCF will lead to improved financial performance in the Chinese healthcare sector.

Hypothesis 6: Size (S) is anticipated to have a positive impact on the financial performance of Chinese healthcare companies, as measured by ROA and ROE.

Larger companies often benefit from economies of scale, have better access to capital, and possess greater resources for investment in technology and innovation. Therefore, it is hypothesized that a larger company size will lead to improved financial performance in the Chinese healthcare sector.

Hypothesis 7: COVID-19, represented as a dummy variable, influences the relationship between financial indicators (Current Ratio (CR), Debt-to-Asset Ratio (DA), Debt-to-Equity Ratio (DE), Sales Growth (SG), Operating Cash Flow (OCF), and Size (S)) and financial performance metrics (Return on Assets (ROA) and Return on Equity (ROE)) of Chinese healthcare companies.

In this hypothesis, COVID-19 is modeled as a dummy variable where 0 denotes the period from 2017 to 2019 (pre-pandemic) and 1 denotes the period from 2020 to 2022 (pandemic period). This hypothesis posits that the effect of financial indicators on financial performance may be moderated by the COVID-19 pandemic, leading to different impacts during the pandemic compared to the pre-pandemic period.

To test the hypotheses H1–H7, the study will employ various statistical methods, including descriptive statistics, t-test, correlation analysis and multiple regression analysis.

RESEARCH METHOD

Population and Sample Selection

The study centered on evaluating the financial performance of healthcare companies listed on the Shanghai and Shenzhen Stock Exchanges in China, spanning the period before and during the COVID-19 pandemic. A sample of 206 healthcare firms was meticulously selected based on rigorous criteria: They were publicly listed on these exchanges, provided complete financial disclosures for both before and during-COVID-19 periods, and operated within the healthcare sector, encompassing areas such as equipment and supplies, providers and services, healthcare technology, and pharmaceuticals.

Initially, data collection from Bloomberg yielded 293 potential candidates. Following meticulous data cleaning to ensure the inclusion of only those with comprehensive financial information, the final sample size for analysis was determined to be 206 companies. The final sample size for analysis was determined to be 206 companies. The dataset covers a span of six years from 2017 to 2022, comprising a total of 1,236 observations across all firms studied. This means that for each of the 206 companies, financial data was collected for each year within the six-year period, resulting in a total of 1,236 firm-year observations for analysis.

Method

Descriptive Statistics: Provide a summary of the data, including mean, median, standard deviation, and range for key financial indicators (e.g., ROA, ROE, CR, DA, DE, SG, OCF, S). This step sets the stage for understanding the general trends and distributions of financial performance metrics across the study periods.

T-Tests: Conduct t-tests to compare the means of financial indicators before (2017–2019) and during (2020–2022) the COVID-19 pandemic. This method evaluates whether there are significant changes in financial performance attributable to the pandemic, directly addressing the research objective one.

Multiple Regression Analysis: This study applies multiple regression models to examine the relationship between financial indicators and profitability metrics (ROA and ROE) according to the research objective two. Moreover, the researcher used VIF to detect multicollinearity among the independent variables. Multicollinearity occurs when predictor variables are highly correlated, which can inflate the variance of the coefficient estimates and make the model unreliable. A VIF value greater than 10 indicates significant multicollinearity that needs to be addressed. By using VIF, the researcher ensures the robustness of the regression model by identifying and mitigating the effects of multicollinearity.

The quantitative investigation included multiple regression analysis and descriptive statistics to look into the relationship between independent factors and the financial success of healthcare businesses during the COVID-19 epidemic. t-test (before COVID-19 and during COVID-19) and multiple regression are employed. The relationship between the financial performance of healthcare companies and the selected factors was analyzed using a panel data regression model. This multiple regression model aims to quantify the effect of the pandemic on corporate performance, accounting for variations across different times prior to and after COVID-19, across different financial characteristics. The model took the following form:

$$ROA_{it} = \alpha + \beta 1CR_{it} + \beta 2DA_{it} + \beta 3DE_{it} + \beta 4SG_{it} + \beta 5OCF_{it} + \beta 6S_{it} + \beta 7CV19_{it} + \varepsilon \quad ...(1)$$

$$ROE_{it} = \alpha + \beta 1CR_{it} + \beta 2DA_{it} + \beta 3DE_{it} + \beta 4SG_{it} + \beta 5OCF_{it} + \beta 6S_{it} + \beta 7CV19_{it} + \varepsilon \quad ...(2)$$

Where to:

ROA_{it} = Return on assets (profit divided by assets) of the Chinese healthcare listed companies *i* at time *t*

ROE_{it} = Return on equity (profit divided by equity) of the Chinese healthcare listed companies *i* at time *t*

CR_{it} = Current ratio (current assets divided by current liability) of Chinese healthcare listed company *i* at time *t*

DA_{it} = Debt-to-Asset Ratio (debt divided by assets) of Chinese healthcare listed company *i* at time *t*

DE_{it} = Debt-to-Equity Ratio (debt divided by equity) of Chinese healthcare listed company *i* at time *t*

SG_{it} = Sales Growth (sales of the current year minus sales of the previous year divided by sales of last previous year) of Chinese healthcare listed company *i* at time *t*

OCF_{it} = Operating Cash Flow of Chinese healthcare listed company *i* at time *t*

S_{it} = Size of Chinese healthcare listed company (logarithm of total assets) of *i* at time *t*

CV19 = A dummy variable where 0 is the year before COVID-19 (2017–2019), 1 is the year during COVID-19 (2020–2022)

ε = the error term

α and $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, $\beta 6$, $\beta 7$ = the coefficients to be estimated.

To assess the impact of the COVID-19 pandemic on the financial performance of healthcare companies, a dummy variable was introduced into the analysis. The dummy variable, denoted as COVID-19, was designed to capture the period-specific effects of the pandemic on the financial metrics of healthcare firms.

The dummy variable was coded as follows:

0 for the pre-pandemic period, which includes the years 2017 to 2019.

1 for the pandemic period, covering the years 2020 to 2022.

This coding scheme allows for a clear distinction between the financial performance of healthcare companies before and during the pandemic. By including this variable in the regression models, the analysis aims to isolate the effects of the COVID-19 pandemic on financial indicators such as return on assets (ROA), return on equity (ROE), and other key financial metrics. The use of this dummy variable facilitates the examination of how the pandemic has specifically influenced the financial performance of healthcare companies, compared to the pre-pandemic period. It helps in understanding the extent of changes attributable to the pandemic versus those due to other factors.

RESULTS

In this section, the researcher presents a descriptive analysis of financial performance metrics for healthcare-listed companies in China during the COVID-19 pandemic. Key variables include the Current Ratio (CR), Debt-to-Asset Ratio (DA), Debt-to-Equity Ratio (DE), Sales Growth (SG), Operating Cash Flow (OCF), Size (S), Return on Assets (ROA), and Return on Equity (ROE). On average, companies had a CR of 2.72 (SD = 2.67), indicating substantial variability in liquidity. The DA averaged 16.28% (SD = 13.84%), reflecting diverse leverage levels, while the DE averaged 36.39% (SD = 46.92%), showing considerable variation in financing structures. Sales Growth averaged 21.85% (SD = 44.63%), with wide disparities in performance. The average OCF was 676.70 (SD = 1,381.72), demonstrating significant differences in cash generation. Company Size averaged 8.45 (SD = 1.30), highlighting differences in operational scale. ROA averaged 6.65% (SD = 9.02%), and ROE averaged 12.16% (SD = 16.36%), both showing considerable variability in profitability. See Table 1.

Table 1 Descriptive Summary

Variable	Mean	Std. Dev	Min	Max
CV19	0.50	0.50	0.00	1.00
CR	2.72	2.67	0.11	31.20
DA	16.28	13.84	0.00	69.27
DE	36.39	46.92	0.00	293.36
SG	21.85	44.63	–86.37	397.80
OCF	676.70	1,381.72	–2,643.52	18,278.11
S	8.45	1.30	4.86	12.20
ROA	6.65	9.02	–54.10	73.77
ROE	12.16	16.36	–75.41	176.19

Source: Compiled by author's processing

A moderate negative association of -0.444 was found between CR and DA ($p < 0.05$). This shows that enterprises with higher current ratios have lower debt-to-asset ratios, implying greater short-term liquidity and less reliance on debt financing. A modest positive connection of 0.216 exists between SG and OCF ($p < 0.05$). This suggests that organizations with higher sales growth create better operating cash flows, demonstrating superior operational performance and revenue production. A modest positive

association of 0.461 was found between SG and S ($p < 0.05$). This shows that larger organizations have faster revenue growth rates, maybe due to their greater market presence and economies of scale. ROA and CR have a moderate positive connection (0.250, $p < 0.05$). This suggests that organizations with greater current ratios have higher returns on assets, indicating effective asset usage. Similarly, ROE and CR have a moderate positive connection of 0.159 ($p < 0.05$). Companies with higher current ratios often have greater returns on equity, suggesting efficient capital usage and potential shareholder value development. See Table 2.

Table 2 Correlation

	CR	DA	DE	SG	OCF	S	ROA	ROE
CR	1							
DA	–0.444	1						
DE	–0.356	0.863	1					
SG	0.069	–0.039*	–0.047*	1				
OCF	0.091	–0.085	–0.091	0.216	1			
S	–0.215	0.352	0.349	–0.050*	0.461	1		
ROA	0.250	–0.339	–0.296	0.436	0.399	–0.076	1	
ROE	0.159	–0.205	–0.207	0.482	0.428	–0.027*	0.923	1

Source: Compiled by author's processing
Note: ** for $p < 0.01$ (highly significant), * for $p < 0.05$ (significant)

The comparative t-test results highlight significant changes in key financial indicators among Chinese healthcare companies listed on the Shanghai and Shenzhen Stock Exchanges before and during the COVID-19 pandemic. Specifically, there was a substantial increase in the mean current ratio (CR) from 2.446 before COVID-19 to 2.989 during COVID-19 ($p = 0.0003$), indicating enhanced short-term liquidity during the pandemic. Conversely, the debt-to-asset ratio (DA) and debt-to-equity ratio (DE) showed no statistically significant changes, with p-values of 0.6754 and 0.4749, respectively, suggesting stability in debt management strategies. However, sales growth (SG) declined significantly from a mean of 25.207 before COVID-19 to 18.488 during COVID-19 ($p = 0.0081$), while operating cash flow (OCF) increased markedly from 397.890 to 955.520 ($p = 0.0000$), indicating improved operational efficiency and cash flow management amidst reduced sales performance. Moreover, company size (S) substantially increased from a mean of 8.180 to 8.715 ($p = 0.0000$), reflecting potential growth

in market capitalization or asset expansion during the pandemic. Despite these shifts, measures of profitability, including return on assets (ROA) and return on equity (ROE), did not show statistically significant differences, with p-values of 0.2207 and 0.3116 respectively, suggesting relative stability in profitability metrics despite the economic challenges posed by COVID-19. These findings underscore the varied impacts of the pandemic on financial performance across different dimensions of company operations and management strategies within the Chinese healthcare sector. See Table 3.

Table 3 Comparative T-Test Results Prior to and During COVID-19

Variables	Mean		Pr (|T| > |t|)	t
	Prior COVID	During COVID		
CR	2.446	2.989	0.0003**	–3.5947
DA	16.110	16.440	0.6754	–0.4189
DE	35.436	37.345	0.4749	–0.7147
SG	25.207	18.488	0.0081**	2.6532
OCF	397.890	955.520	0.0000**	–7.2404
S	8.180	8.715	0.0000**	–7.4257
ROA	6.338	6.966	0.2207	–1.2252
ROE	11.693	12.636	0.3116	–1.0124

Source: Compiled by author's processing
Note: ** for $p < 0.01$ (highly significant), * for $p < 0.05$ (significant)

The regression analysis results offer valuable insights into how specific financial indicators influence the financial performance of Chinese healthcare companies, as measured by Return on Assets (ROA) and Return on Equity (ROE). For ROA, the Current Ratio (CR) shows a positive coefficient of 0.219, statistically significant at the 0.05 level ($p = 0.011$), indicating that better liquidity positively impacts asset utilization efficiency. Conversely, the Debt-to-Asset Ratio (DA) has a negative coefficient of –0.167, significant at the 0.01 level ($p < 0.001$), suggesting that higher leverage adversely affects asset returns. Sales Growth (SG) and Operating Cash Flow (OCF) exhibit strong positive relationships with ROA, with coefficients of 0.068 ($p < 0.001$) and 0.002 ($p < 0.001$), respectively, underscoring the critical role of revenue growth and cash flow management in enhancing asset profitability. Size (S) negatively impacts ROA (coefficient = –0.991, $p < 0.001$), indicating that larger firms may face inefficiencies affecting their

asset returns. The model's R-squared value of 0.3942 suggests that the included variables explain approximately 39.42% of the variability in ROA. See Table 4.

In the context of ROE, Sales Growth (SG) and Operating Cash Flow (OCF) again show strong positive relationships, with coefficients of 0.140 ($p < 0.001$) and 0.005 ($p < 0.001$), respectively, highlighting their significant roles in enhancing equity returns. Size (S) has a notable negative impact on ROE, with a coefficient of –2.003 ($p < 0.001$), indicating potential inefficiencies or higher costs associated with larger-scale operations. While positive, the Current Ratio (CR) is not statistically significant (coefficient = 0.135, $p = 0.389$), suggesting that liquidity may not be a critical driver for equity returns. Interestingly, the COVID-19 variable did not significantly affect either ROA or ROE, with p-values of 0.624 and 0.748, respectively, suggesting that the pandemic's direct financial impact may be mitigated by other internal or external factors. The ROE model has an R-squared value of 0.3851, explaining 38.51% of the variability in ROE. See Table 4.

Table 4 Regression Analysis of ROA and ROE

Var	ROA				ROE			
	Coef.	Std. Err.	t	P > |t|	Coef.	Std. Err.	t	P > |t|
CR	0.219	0.086	2.560	0.011*	0.135	0.156	0.860	0.389
DA	–0.167	0.030	–5.550	0.000**	–0.058	0.055	–1.060	0.288
DE	0.009	0.009	1.060	0.289	–0.016	0.016	–1.030	0.301
SG	0.068	0.005	14.560	0.000**	0.140	0.009	16.250	0.000**
OCF	0.002	0.000	13.180	0.000**	0.005	0.000	14.530	0.000**
S	–0.991	0.203	–4.890	0.000**	–2.003	0.370	–5.410	0.000**
COVID-19	0.205	0.419	0.490	0.624	0.246	0.765	0.320	0.748
_cons	13.601	1.659	8.200	0.000**	23.822	3.031	7.860	0.000**
R-squared	0.3942				0.3851			
Adj R-squared	0.3907				0.3816			

Source: Compiled by author's processing

Note: ** for $p < 0.01$ (highly significant), * for $p < 0.05$ (significant)

Table 5 presents the Variance Inflation Factor (VIF) values for each independent variable in the regression analysis, along with their reciprocal values. The VIF measures the severity of multicollinearity between independent variables in a regression model. A higher VIF indicates a stronger multicollinearity issue.

The reciprocal of the VIF (1/VIF) is also provided, where values closer to 1 indicate lower multicollinearity. The mean VIF across all variables is 2.16, indicating moderate multicollinearity among the independent variables. Generally, VIF values below 10 are considered acceptable, suggesting that multicollinearity is not a significant concern in this regression model.

Table 5 Variance Inflation Factor (VIF) Analysis

Variable	VIF	1/VIF
DA	4.33	0.231
DE	4.03	0.248
S	1.72	0.583
OCF	1.56	0.639
CR	1.3	0.769
SG	1.1	0.911
COVID19	1.09	0.916
Mean VIF	2.16	

Source: Compiled by author

Note: VIF < 1: There is no multicollinearity among the predictor variables. Each predictor variable is not linearly related to other predictor variables. 1 ≤ VIF < 5: Indicates moderate multicollinearity. The predictor variables are somewhat correlated with each other, but it is not severe enough to cause serious issues in the regression analysis. 5 ≤ VIF < 10: Suggests high multicollinearity. The predictor variables are highly correlated with each other, which may affect the reliability of the regression coefficients. VIF ≥ 10: Indicates very high multicollinearity. The predictor variables are very highly correlated, leading to unreliable and unstable estimates of regression coefficients.

CONCLUSION AND RECOMMENDATIONS

This study investigated the financial determinants influencing the profitability of healthcare companies listed in China during the COVID-19 pandemic. Key financial indicators, including current ratio (CR), debt ratio (DA), debt-to-equity ratio (DE), sales growth (SG), operating cash flow (OCF), and company size (S), were analyzed to understand their impact on profitability metrics, specifically return on assets (ROA) and return on equity (ROE). Through t-tests, regression analysis, and correlation analysis, significant relationships emerged that provide insights into financial management practices in the healthcare sector during economic uncertainty.

The study found mixed impacts of CR on ROA and ROE. In the OLS model, CR had a positive and significant impact on ROA, supporting H1 and aligning with previous studies by Pink et al. (2007). However, in the FEM, CR negatively influenced both ROA and ROE, refuting H1 in these contexts.

DA consistently showed a negative impact on both ROA and ROE across all models, supporting H2. This finding aligns with Bolton et al. (2021), highlighting the detrimental effects of high leverage during financial crises.

DE generally had a negative impact on profitability. In the FEM, DE negatively influenced ROE, supporting H3 in this context. This result aligns with Musa et al. (2022), indicating that increased leverage can harm financial stability during economic downturns.

SG had a positive and significant effect on both ROA and ROE across all models, supporting H4. This aligns with Sun et al. (2021), who documented the importance of revenue growth in maintaining financial performance during the pandemic.

OCF consistently had a positive and significant impact on both ROA and ROE, supporting H5. This finding supports Wang et al. (2021), emphasizing the importance of efficient operations and cash management.

The size of the company showed mixed effects. While larger companies sometimes performed better due to economies of scale, the impact was not uniformly positive across all models, supporting H6. This mixed result is consistent with Francis (2020), who noted varied impacts of size on financial performance.

The direct impact of the COVID-19 variable (CV19) was not significant in any of the models for ROA and ROE, indicating that while the pandemic had an overarching influence on financial metrics, the individual financial indicators played a more critical role in determining performance. Thus, H7 was not supported, aligning with Provenzano et al. (2020), who documented the complexity of isolating the pandemic's direct financial impacts. This conclusion is based on the observation that

the direct effect of the pandemic on ROA and ROE was not statistically significant, and the impact of the pandemic on these performance metrics was indirect through the financial indicators.

In conclusion, despite the unprecedented challenges posed by the COVID-19 pandemic, Chinese healthcare companies demonstrated resilience in maintaining stable profitability metrics. The findings provide actionable insights for healthcare executives, policymakers, and investors to optimize financial strategies and enhance resilience against future economic uncertainties. By understanding these financial dynamics, stakeholders can navigate complexities in the healthcare industry more effectively, fostering sustainable growth and value creation in the post-pandemic landscape.

CONTRIBUTION

The research offers significant contributions both theoretically and practically. Theoretically, it enhances the understanding of how financial indicators such as the Current Ratio, Debt-to-Asset Ratio, Debt-to-Equity Ratio, Sales Growth, Operating Cash Flow, and Size influence financial performance (ROA and ROE) within the healthcare sector. By incorporating COVID-19 as a dummy variable, the study introduces a novel dimension to financial performance analysis, advancing theoretical models to account for extraordinary events. This approach not only refines existing hypotheses but also paves the way for new research avenues. Practically, the findings provide valuable guidance for financial managers by highlighting how key indicators are affected by pandemics, which can inform strategic planning and decision-making. Policymakers can use the insights to develop targeted support measures and policies, while investors can adjust their strategies based on the financial performance trends observed during crises. Additionally, the study offers benchmarks for evaluating healthcare companies' performance, aiding in assessing resilience and adaptability in the face of global challenges. Overall, this research bridges theoretical gaps and provides practical tools and insights that enhance both academic understanding and real-world applications in healthcare financial management.

SUGGESTIONS

Based on the findings and conclusions drawn from this study, several key suggestions emerge for enhancing the financial performance and resilience of healthcare companies listed in China, particularly in light of the COVID-19 pandemic. First and foremost, prioritizing robust liquidity management strategies is crucial, as evidenced by the significant impact of current ratios on profitability metrics like ROA and ROE. This entails optimizing working capital, maintaining adequate cash reserves, and ensuring quick access to liquidity during economic disruptions.

Secondly, healthcare firms should focus on prudent debt management practices. While the study found stability in debt ratios, companies should continue to monitor and minimize reliance on debt financing where possible, balancing financial leverage with strategic growth initiatives. Thirdly, enhancing revenue generation through diversified and innovative healthcare solutions is essential. Strategies should include expanding market reach, investing in technological advancements, and bolstering service offerings to sustain revenue growth and profitability.

Furthermore, improving operational efficiency remains critical. Healthcare organizations should streamline processes, adopt cost-effective measures, and leverage technology to enhance productivity and mitigate financial risks. Additionally, monitoring the impact of company size on financial performance is vital, as larger firms may face challenges associated with operational complexities despite economies of scale. Implementing resilience plans that include scenario-based financial modeling, stress testing of liquidity positions, and proactive risk management is essential to prepare for future uncertainties and industry disruptions. Policymakers should also consider supportive measures to foster financial stability, incentivize innovation, and promote sustainable growth within the healthcare sector. By implementing these recommendations, healthcare companies can strengthen their financial resilience and adaptability, ensuring sustained growth and value creation in a rapidly evolving economic landscape.

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