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Corporate Finance Management in the Age of Big Data

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ABSTRACT

This study examines corporate finance management in the age of big data by analyzing trends in revenue, profitability, financial efficiency, and the relationships among major financial indicators. The objective of the study is to understand how data-driven financial analysis can support improved decision-making and long-term corporate performance. The research adopts a quantitative approach using secondary financial statement data covering the period from 2009 to 2023. The dataset was cleaned and standardized before analysis to ensure reliability and consistency. Various analytical techniques were applied, including descriptive statistics, trend analysis, scatter plot analysis, histograms, boxplots, financial ratio analysis, country-level profit comparison, and correlation matrix analysis. The analysis was conducted using Google Colab with Python-based data processing and visualization tools. The findings reveal a generally increasing revenue trend from 2009 to 2022, indicating improvement in corporate financial performance during the period. A strong positive relationship was observed between revenue and gross profit, suggesting that firms with higher revenue tend to achieve greater profitability. Financial ratio analysis indicates that most firms maintain moderate profitability levels and relatively low leverage structures. In addition, the correlation analysis demonstrates strong positive relationships among key financial indicators such as revenue, profit, net income, EBITDA, and market capitalization. These results highlight the interconnected nature of corporate financial performance indicators. Overall, the study concludes that big data analytics plays an important role in enhancing financial information quality, supporting more effective financial decision-making, and promoting sustainable corporate growth in the digital economy.

KEYWORDS: Big Data Analytics; Corporate Finance Management; Financial Performance; Profitability; Digital Transformation.

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1. Introduction

The active development of digital technologies and data systems has radically changed the situation in corporate financial management. Over the past few years, financial information management has continued to be progressively based on the use of big data analytics, artificial intelligence, and digital platforms in organizations to aid strategic decision-making. The analytics of big data enables companies to gather, store and analyze large amounts of structured and unstructured financial information, which can be used to make better predictions, assess risks and plan their finances. Big data methods can be applied specifically to financial management since they can help companies to identify financial trends, determine possible risk factors, and distribute resources more effectively (Cerchiello and Giudici, 2016). With corporate environments increasingly becoming competitive and intricate, the capacity to successfully use data has emerged as a major ingredient towards sustainable financial performance.

Digital transformation has also contributed greatly to the quality of financial information and enhanced the corporate governance mechanisms. New technologies like blockchain can be used to offer a transparent and safe platform for financial transactions and reporting where manipulation is minimized and information reliability is enhanced. Research shows that digital transformation of financial institutions on blockchain can contribute to the quality of accounting information and the effectiveness of corporate governance systems (Al Shanti and Elessa, 2023). On the same note, the highly developed accounting information systems can help organizations generate precise financial reports, track the performance of the operations, and assist in the managerial decision-making procedures, thus enhancing the efficiency of the organizations and increasing their sustainability in the long term (Huy and Phuc, 2020). These changes indicate that digital technologies are becoming a part and parcel of the contemporary financial management systems.

The growing use of big data analytics has also presented novel possibilities of corporate innovation and cost-efficiency. Companies are able to process big data to learn about market forces, customer behaviours, and financial patterns, which enables them to come up with novel approaches and become more productive. It has been proposed that big data analytics can be used to add importance to the business value and firm performance by helping organizations derive valuable insights from complex datasets (Ren et al., 2017). In addition, big data analytics is conducive to process innovation expertise because it enhances organizational learning and makes the decision-making processes more efficient (Mikalef and Krogstie, 2020). The practical data also show that those companies that implement big data technologies are more likely to reach higher rates of innovation and competitive advantage than companies that only use traditional information systems (Niebel et al., 2019).

The increased focus on the environmental, social, and governance (ESG) performance is another significant detail of contemporary corporate finance management. Shareholders and consumers are putting more and more pressure on companies to incorporate sustainability-related issues in their strategic and financial decisions. It has been demonstrated that ESG performance affects corporate innovation and financial decision-making because it enhances investor confidence and financial limitations experienced by companies (Tang, 2022). In times of economic unpredictability, good ESG performance can also help soak up financial limitations and enhance corporate resilience to enable companies to continue unchanged investment and innovation efforts (Zhang et al., 2022). Moreover, the increased need for green finance has stimulated

companies to implement environmentally sensitive technologies and innovation strategies, which lead to financial and environmental gains in the long run (Yu et al., 2021).

The importance of big data technologies is also to decrease the information asymmetry within financial markets. The lack of information asymmetry increases between managers and investors when they have different amounts of information, and this situation may result in inefficient financial decision-making and risk of higher investment. Big data analytics is used to minimize such asymmetry by enhancing the visibility and availability of financial data so that the stakeholders can make more informed decisions (Yan et al., 2015). Moreover, the monitoring systems based on big data allow companies to work out the early warning systems, which reveal the presence of financial risks through the analysis of the accounting indicators and observation of the abnormal trends in the financial data (Wang, 2022).

The recent advancements in the field of artificial intelligence and machine learning have also extended the possibilities of big data analytics in the field of financial management. Financial analysis systems that work on AI enable organizations to calculate predictive information based on complicated financial data to aid in risk management, fraud detection, and investment analysis. It is possible to use sophisticated AI and big data methods in the electronic financial system to enhance the efficiency of financial forecasting and decision-making (Najem et al., 2025). Also, analytical systems based on machine learning have been applied to enhance the objectivity of performance evaluation and measurement systems in different fields (Fan and Yang, 2023). Digital transformation also adds to better productivity and competitiveness through the opportunities to maximize resource allocation and increase total factor productivity (Cheng et al., 2023).

Although the importance of big data technologies increases, only a small number of empirical studies investigate how corporate financial indicators act in the context of big data. These dynamics are critical to the assessment of the effectiveness of data-driven approaches to financial management. Thus, the purpose of the study is the analysis of corporate finance management in the era of big data in terms of revenue patterns, profitability patterns, financial ratios, and the correlations between the main financial indicators. In this examination, the study attempts to contribute knowledge on how big data analytics can help to improve financial decision-making and sustain corporate performance.

Research Objectives

- 1.To examine the trend of corporate financial performance.
- 2.To analyze the relationship between key financial indicators, such as revenue and profit.
- 3.To evaluate corporate financial efficiency and capital structure using financial ratios

3. Methodology

3.1 Research Design

This paper will assume a quantitative research design by reviewing secondary financial data to assess the issue of corporate finance management in the era of big data. The study aims at estimating patterns, relationships, and trends of the corporate financial indicators over time. The analysis method considers the increase in revenue, profitability, leverage, shareholder returns, and the correlation between significant financial variables. The study, through this design,

explores how the financial performance indicators develop, as well as how they coexist in a data-driven corporate financial environment.

3.2 Data Source

The study is founded on a set of data included in the corporate financial statements, which span 2009-2023 (Patil, 2023). The data set consists of the financial indicators of firms at the firm level of revenue, gross profit, net income, EBITDA, market capitalization, shareholder equity, operating and investment cash flows, liquidity ratio, leverage ratio, and profitability ratios, namely, the ratio of return on equity, ratio of return on assets, and ratio of net profit margin. Other variables, e.g. the number of employees and macroeconomic indicators, are also provided. These are all the variables that give a detailed foundation on which the performance of corporate financial performance, capital structure, profitability and financial stability can be assessed.

3.3 Data Preparation and Cleaning

The dataset was standardized and cleaned before analysis in order to guarantee consistency and reliability. The names of columns were synchronized, duplicate record entries were eliminated, and gaps in the observations were investigated. The financial variables that were presented in non-numeric form were translated into numerical format by eliminating symbols like commas and currency signs. Preparation of data was done so that all financial indicators could be subjected to statistical analysis and visualization. Besides, the data were clustered according to year, where it was necessary, as it may enable analysis of trends across the period of study.

3.4 Analytical Techniques

Corporate financial performance was measured using several methods of analysis. To investigate general trends in the data, first, descriptive statistics were applied, and a graphical analysis was presented. To investigate the change in corporate revenue with time, a year-wise trend analysis was taken. The correlation between the success and gross profit was assessed with the help of scatter plot analysis, the distribution of revenue, profits, and selected financial ratios were assessed using histograms and boxplots.

Second, the financial ratios analysis was employed to evaluate capital structure and financial efficiency of the corporations. Some of the important ratios that have been compared are profit margin, return on equity, return on assets and the debt-to-equity ratio. These ratios have been computed with the help of common financial formulas and have been utilized in assessing the trend of profits, shareholders returns, and leverage among companies.

Third, the analysis of country level aggregation was done in order to compare the total corporate profits in the various countries. With the help of this analysis, the variation in corporate profitability depending on the geographic and economic backgrounds is outlined. At last, correlation matrix analysis was conducted to determine the strength of the relationships and direction of the relationships between significant financial variables. The correlation heatmap gives an understanding of the movement of such financial indicators as revenue, profit, EBITDA and market capitalization.

3.5 Tools and Software

It was analyzed through Google Colab in Python programming language. Data manipulation and preprocessing were done in Python libraries like Pandas, NumPy provided numerical calculations and Matplotlib served to visualize and analyze graphs. These applications enable effective management of massive financial data and enable powerful data analysis that can be used in research in the field of corporate finance.

3.6 Justification of the Method

The selected methodology is appropriate to study the management of corporate finance in a big data setting since it provides an opportunity to conduct a systematic analysis of substantial financial volumes. The methodology allows obtaining a holistic view of corporate performance of the company in terms of financial performance and interrelationship between significant financial indicators by merging the trend analysis, ratio analysis, and correlation analysis. Quantitative methods assist in finding meaningful trends that can be used in making evidence-based decisions in the field of finance.

3.7 Limitations of the Methodology

The methodology has certain limitations even though it has its benefits. Due to the utilization of secondary data, the study will be based on the available and accurate data set of the findings. Some of the changes in the results can be attributed to availability of data, or differences in reporting as opposed to actual change in corporate performance. Moreover, the specified analysis is based mostly on statistical relationships, and trends, and does not provide the causal relationships between the adoption of big data and corporate financial outcomes.

4. Results

4.1 Revenue Trend Analysis

Analysis of the trend of corporate revenue based on the years between 2009 and 2023 reveals the trend as which the trend is increasing generally with time. Total corporate revenue grew and was growing steadily as shown in Figure 1 to reach a peak of about 1.64 million in 2022, with a starting point of around 390,000 in 2009. Such upward trend means that corporate financial performance has been steady throughout the period under analysis. Its growth is especially notable after 2017 when the revenue grows at an accelerated rate, achieving major amounts in the period between 2020 and 2022. This time can indicate the increasing influence of data-oriented decision-making and digitalization in corporate financial management.

There is, however, a sudden decrease in 2023 when the revenue decreases significantly. This fall can be linked to unfinished reports of the data or macroeconomic instability or changes that are made in the corporate financial operations. Although this decline is experienced, the trend in the long run still indicates a dramatic growth in revenues. On the whole, the findings show that the corporate bodies have seen significant financial expansion during the big data era, which demonstrates the relevance of advanced analytics and fintech in strategic financial management.

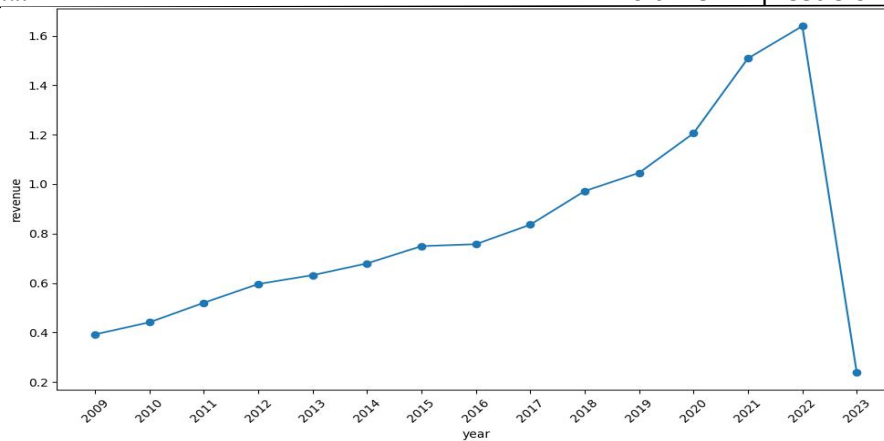


Figure 1. Growth Pattern of Corporate Revenue Over Time

4.2 Relationship Between Revenue and Profit

Figure 2 indicates that there is a correlation between corporate revenue and gross profit as shown in the scatter plot. The findings show a positive correlation between the two variables that are strong. Gross profit is increased in proportion to the increase in revenue. Companies enjoying a better revenue level are likely to make much higher profits as an indicator of the success of increasing revenues as a way of boosting financial results. The fact that the distribution of the observations in the direction of the upward trend is clustered may indicate that the higher the sales volume, the better the profitability.

It is also indicated that there is a bit of dispersion among the middle-level revenue firms meaning that there are variation in the cost structures, operational efficiency as well as financial management practices among business. The results prove that the growth of revenues is one of the key determinants of corporate profitability.

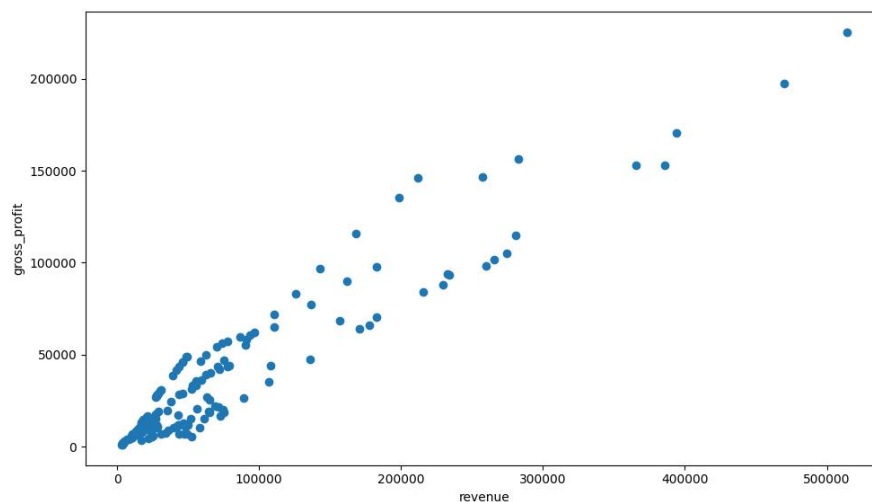


Figure 2. Relationship Between Corporate Revenue and Gross Profit

4.3 Distribution of Corporate Revenue

Figure 3 shows the allocation of corporate revenue. The histogram indicates that the figures of the revenues are positively skewed, i.e. most of the companies use the lower to mid-range levels of the revenues, and only a small number of firms make very high revenues.

The largest percentage of observations lie in the range of about 20,000 to 100,000 indicating that a significant percentage of the companies have financial levels of moderation. Nonetheless, the number of large corporations that make revenues over 300,000 is lower which means that the financial power is concentrated in fewer companies. Such distribution is indicative of unequal distribution of size of corporations, with large multinational corporations controlling the market in financial capacity.

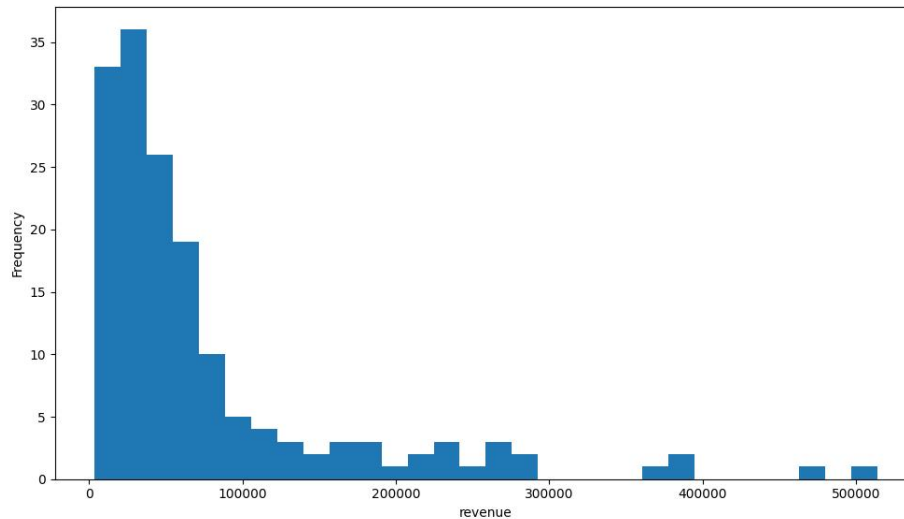


Figure 3. Frequency Distribution of Revenue Among Companies

4.4 Profit Distribution

In Figure 4 which shows the profit distribution analysis, it is clear that there were very high levels of variability in the corporate profitability between firms. The boxplot indicates that most companies have average levels of profits and a number of outliers with very high profits. The outliers indicate that some companies are much more profitable, which may happen because they have better financial policies, effective management of operations, or competitive advantages in the international markets. This is a variable, which makes it clear that strategic financial management plays a big role in ensuring that corporate profitability is maximized.

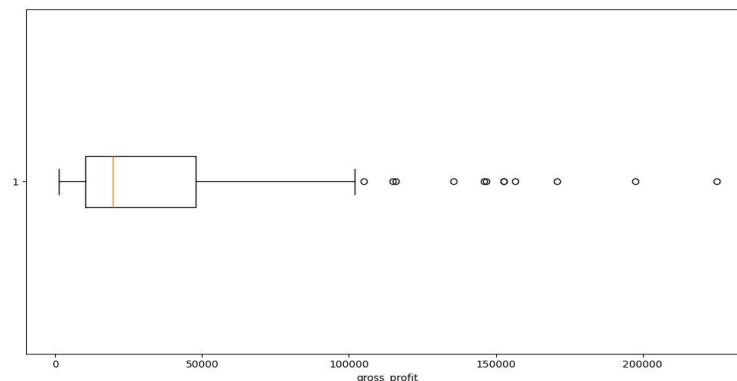


Figure 4: Variability and Outliers in Corporate Gross Profit

4.5 Financial Ratio Analysis

Return on Equity (ROE)

The ROE distribution was depicted using Figure 5. The majority of firms boast of ROE values that are clumped around positive figures and what this means is that companies are generally profitable to the shareholders. Nevertheless, a number of extreme negative values are also detected which means that there were companies that made losses or poorly used equity. Such variation implies that firms vary in terms of financial performance and investment efficiency.

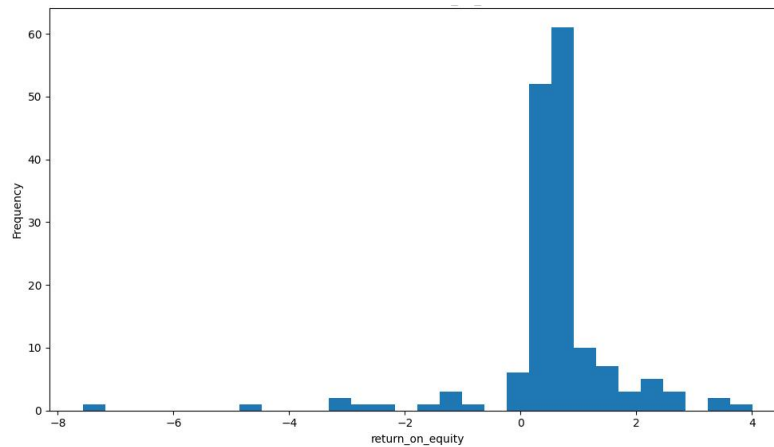


Figure 5: Firm-Level Return on Equity Distribution Analysis

Profit Margin

Figures 6 display the profit margin distribution. Most companies have the profit margins of between 0.3 up to 0.7, which is reflective of the relatively constant levels of profitability in the sample. Very high profit margin of 0.9 to 1.0 is earned by a few firms with very efficient operations or good positions in the market. These findings indicate that most firms are operating with moderate margins though there are firms that operate with high efficiency.

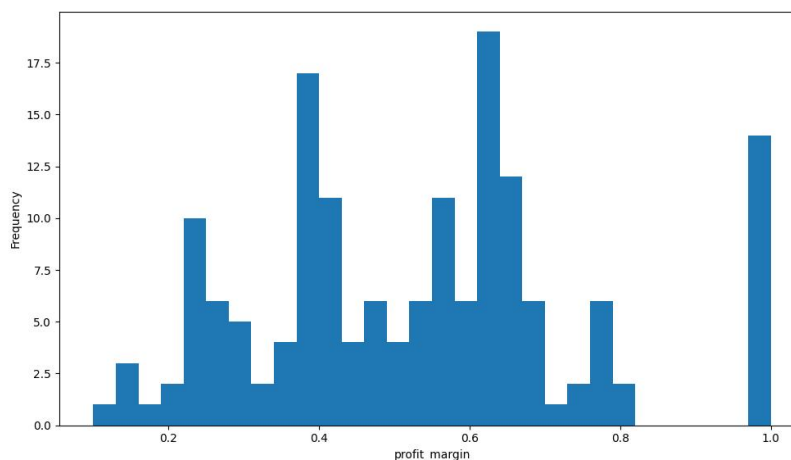


Figure 6: Profit Margin Distribution in Corporate Financial Performance

Debt-to-Equity Ratio

Figure 7 of the debt-equity ratios indicates that the majority of companies have a low leverage. Most of the values are clumped around zero that implies that the companies have a greater equity funding than debt. A small number of companies have higher leverage ratios, which means that

they have more dependency on borrowed funds. This is a conservative approach to funding which can minimize the financial risk but ensure a stable position in the long run.

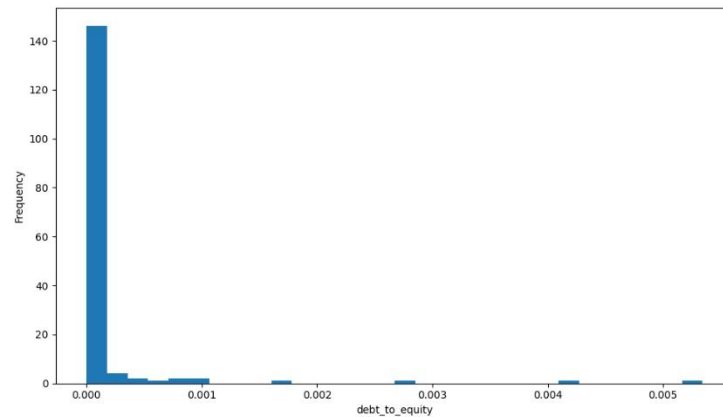


Figure 7: Frequency Distribution of Corporate Debt-to-Equity Ratios

4.6 Country-Level Profit Analysis

Figure 8 indicates the country-wise distribution of the overall corporate profits. The findings show that there are substantial variations in the profitability of countries.

The total profit that some countries make is significantly larger than that of others in terms of economic development, industrial capacity and financial infrastructure. These differences underscore the contribution of national economic setups to corporate financial performance.

Those countries that have better financial systems and extensive technological infrastructure are more likely to make more profit in their corporate.

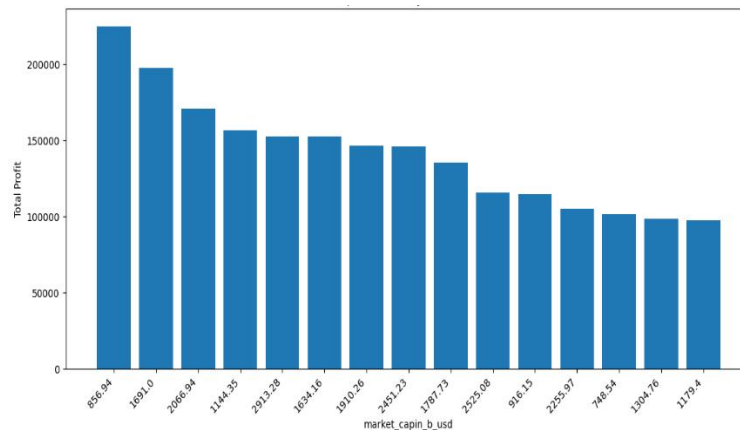


Figure 8. Cross-Country Analysis of Corporate Profitability

4.7 Correlation Analysis of Financial Variables

The correlation table in Figure 9 gives us a clue on the relationship between the most important financial variables. There are a number of significant positive correlations between significant financial indicators (revenue, gross profit, net income, EBITDA, and market capitalization).

These close ties imply that companies that experience increased amounts of revenue are expected to be more profitable and marketable. Moreover, profitability ratios like ROE, ROA, and ROI are positively correlated with each other, and it means that the company has a stable financial performance with more than one indicator. On the other hand, there are other variables which

correlate weaker or even negatively with the financial activities and investment flows, indicating the complicated character of corporate financial processes. Overall, the correlation analysis proves the implementation of the interdependence of corporate financial indicators as well as indicates the significance of financial data analysis as a whole in contemporary management of corporate finance.

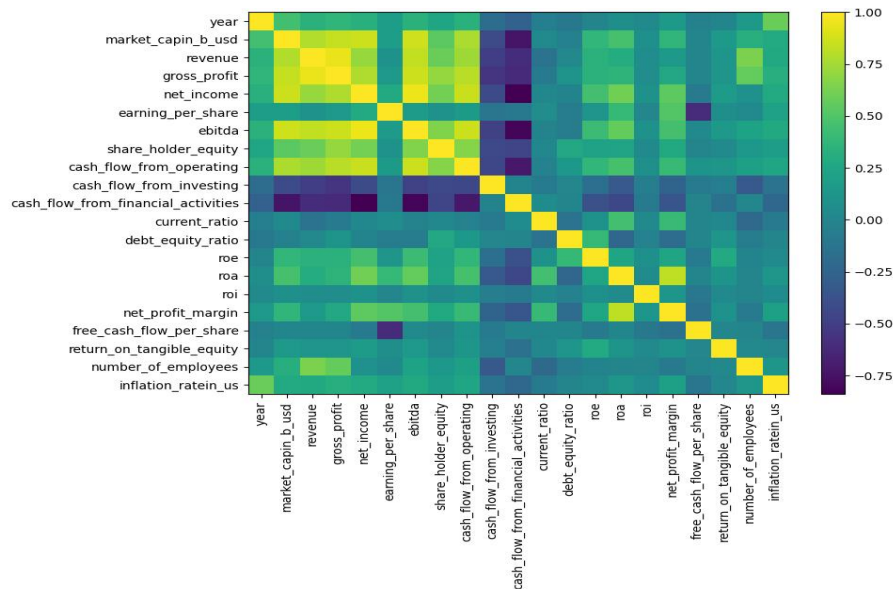


Figure 9. Correlation Analysis of Corporate Financial Performance Variables

5. Discussion

The results of this research demonstrates the growing role of big data and digital transformation in the development of the modern corporate finance management. The empirical findings show that there are strong trends in the revenue growth, profitability distribution, leverage structure, and the correlation between financial indicators. These findings reveal that the corporate financial performance is becoming more and more dependent on digital data processing, sophisticated financial analysis, and the enhancement of access to financial information.

The revenue trend analysis by year clearly shows that the growth is upward since 2009, and through this analysis, the firms have managed to expand their financial performance enormously over the years. The rising trend in revenue might indicate the enhancement of strategic financial management, efficiency, and digitalization of firms. Big data analytics and digital technologies allow businesses to analyze big data and make better investment choices by assessing market trends. It has been proposed in research studies that digital transformation increases the efficiency of investment in enterprises due to the decrease in information asymmetry and the elimination of inefficient investment decisions due to financing limits and earnings management schemes (Liao et al., 2023). Along with that, the evolution of digital inclusive finance has been demonstrated to spur corporate innovation and enhance technological improvement in companies, which eventually leads to enhanced financial performance (Xu et al., 2023). Thus, the growth of revenues in the long term noted in this research is in line with the general literature on the topic of digital finance and corporate innovations.

The plotting analysis indicates that the relationship between revenue and gross profit is quite positive, and therefore, the higher the revenue level, the higher the probability of the company

making a high level of profitability. The significance of resource allocation and cost management in the financial performance of corporations is evident in this relationship. Big data analytics offers businesses a lot of data on the time spent on production, the customers and their behaviours, as well as the efficiency of the business, which enables firms to increase their profitability and make the best financial decisions. According to the previous studies, accounting information of high quality is very crucial in enhancing the efficiency of innovation investments and lessening financing limitations that firms experience (Lei et al., 2022). On the same note, Tang (2023) highlights that the interplay between the quality of accounting information and the restriction in financing conditions has a significant impact on innovation investment decisions in a private enterprise. Such conclusions confirm the fact that good financial performance is strictly linked to the presence of unbiased financial information and highly developed analytical instruments, which are the results of this research.

The result of the revenue and profit distribution indicated that the majority of the firms have a moderate range of financial activity, whereas a smaller number of large corporations have a drastically high revenue and profit. This is an unequal distribution of structural variations in the size of firms, availability of financial resources, and technological facilities. The bigger companies are usually in a position to embrace large data technologies and digital financial systems, and this improves their capability to process financial data and unearth lucrative opportunities. The quality of the financial reporting process and decision making is also enhanced by the integration of big data analytics in the accounting information systems. According to Nurhayati et al. (2023), the effectiveness of accounting information systems is highly enhanced by big data analytics because it increases the accuracy of data, financial transparency, and processing abilities within institutions.

Financial ratio analysis gives additional insight on financial performance of the company. The analysis of the allocation of the return on equity and the profit margin reveals that the majority of the firms have moderate profitability, but there are companies with superior returns and lower returns. The differences underscore the contribution of internal governance, management practices and operational efficiency to the financial performance. Of particular importance is the role of corporate governance mechanisms affecting the financing options and financial management practices. Briozzo et al. (2017) added that governance structures determine access to finance and strategic choices made by firms in terms of capital structure and investment actions. Good governance is thus of the essence in ensuring that there is financial stability and sound financial management.

The country-based profit analysis shows that there is a considerable difference in corporate profitability in various national settings. The differences can be indicators of disparities in economic development, regulatory frameworks, financial base, and terms of technology adoption. The larger social and political issues also affect corporate conduct, helping to determine the expectations of stakeholders and corporate image. According to Muller (2022), corporate positioning on controversial sociopolitical matters may impact the perception of the public, the relationship with stakeholders and corporate legitimacy. All these can affect the financial performance and the market valuation indirectly.

Lastly, the correlation analysis indicates that major financial indicators show a strong positive relationship, including the revenue, net income, gross profit and market capitalization. These correlations affirm that financial performance measures in corporations are highly correlated. Big

data analytics enables companies to study these relationships more deeply to allow managers to identify patterns and make sound financial choices. On the whole, the results of the present research confirm the thesis statement that big data and digital financial technologies are changing the management of corporate finance by enhancing the quality of financial information, investing in innovations, and making strategic decisions (Xu et al., 2023; Lei et al., 2022; Nurhayati et al., 2023).

6. Conclusion

This paper has discussed the management of corporate finance in this era of big data through the financial performance indicators, including the trend in revenues, profitability, financial ratios and the correlation between the two important financial variables. The results indicate that the overall corporate financial results have been on an improvement path over the years, shown by the increasing trend of revenue between 2009 and 2022. The significant, positive correlation of revenue and gross profit shows that those companies that have more sales volumes are likely to be more profitable, and it is essential to manage the financial side and make the right choices. The distribution analysis also indicated that the majority of the firms are operating within moderate levels of revenue and profits, whereas a few companies are making outstanding financial results. This is an indication that bigger companies with more access to technological resources and sophisticated data analytics can have enhanced competitive advantages. There was also financial ratio analysis which demonstrated that the majority of firms have moderate profitability and a relatively conservative leverage structure, which is an indication that they are more predisposed towards the stable financial management practices. The correlation approach validated the existence of strong relations between the important financial indicators and the fact that corporate financial performance is interrelated. Comprehensively, the results indicate that big data analytics is essential in ensuring better quality of financial information, decision-making, and innovation in firms. With organizations increasingly moving to the digital technologies, it will be crucial to incorporate the concept of big data analytics into the corporate finance strategy aimed at long-term financial sustainability and sustainable growth.

Reference

1. Al Shanti, A. M., & Elessa, M. S. (2023). The impact of digital transformation towards blockchain technology application in banks to improve accounting information quality and corporate governance effectiveness. *Cogent Economics & Finance*, 11(1), 2161773.
2. Briozzo, A., Albanese, D., & Santoliquido, D. (2017). Corporate governance, financing and gender: A study of SMEs from Argentinean Securities Markets. *Contaduría y administración*, 62(2), 358-376.
3. Cerchiello, P., & Giudici, P. (2016). Big data analysis for financial risk management. *Journal of Big Data*, 3(1), 18.
4. Cheng, Y., Zhou, X., & Li, Y. (2023). The effect of digital transformation on real economy enterprises' total factor productivity. *International Review of Economics & Finance*, 85, 488-501.
5. Fan, S., & Yang, Z. (2023). Towards objective human performance measurement for maritime safety: A new psychophysiological data-driven machine learning method. *Reliability Engineering & System Safety*, 233, 109103.

6. Huy, P. Q., & Phuc, V. K. (2020). The impact of public sector scorecard adoption on the effectiveness of accounting information systems towards the sustainable performance in public sector. *Cogent Business & Management*, 7(1), 1717718.
7. Ji-fan Ren, S., Fosso Wamba, S., Akter, S., Dubey, R., & Childe, S. J. (2017). Modelling quality dynamics, business value and firm performance in a big data analytics environment. *International Journal of Production Research*, 55(17), 5011-5026.
8. Lei, Z., Gong, G., Wang, T., & Li, W. (2022). Accounting information quality, financing constraints, and company innovation investment efficiency by big data analysis. *Journal of Organizational and End User Computing (JOEUC)*, 34(3), 1-21.
9. Liao, K., Liu, H., & Liu, F. (2023). Digital transformation and enterprise inefficient investment: Under the view of financing constraints and earnings management. *Journal of Digital Economy*, 2, 289-302.
10. Mikalef, P., & Krogstie, J. (2020). Examining the interplay between big data analytics and contextual factors in driving process innovation capabilities. *European Journal of Information Systems*, 29(3), 260-287.
11. Müller, N. (2022). Perceptions about corporate positioning on controversial sociopolitical issues: Examining big pharma engagement with patient advocacy. *Public relations review*, 48(5), 102261.
12. Najem, R., Bahnasse, A., Fakhouri Amr, M., & Talea, M. (2025). Advanced AI and big data techniques in E-finance: a comprehensive survey. *Discover Artificial Intelligence*, 5(1), 102.
13. Niebel, T., Rasel, F., & Viete, S. (2019). BIG data–BIG gains? Understanding the link between big data analytics and innovation. *Economics of innovation and new technology*, 28(3), 296-316.
14. Nurhayati, N., Hartanto, R., Paramita, I., Sofianty, D., & Ali, Q. (2023). The predictors of the quality of accounting information system: do big data analytics moderate this conventional linkage?. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3), 100105.
15. Patil, R. (2023). Financial statements of major companies (2009–2023) [Dataset]. Kaggle
16. Tang, H. (2022). The effect of ESG performance on corporate innovation in China: The mediating role of financial constraints and agency cost. *Sustainability*, 14(7), 3769.
17. Tang, L. (2023). The impact of accounting information quality and financing constraints on innovation input of Chinese private enterprises.
18. Wang, W. (2022). Early warning and monitoring analysis of financial accounting indicators of listed companies based on big data. *Scientific Programming*, 2022(1), 1936145.
19. Xu, R., Yao, D., & Zhou, M. (2023). Does the development of digital inclusive finance improve the enthusiasm and quality of corporate green technology innovation?. *Journal of Innovation & Knowledge*, 8(3), 100382.
20. Yan, J., Yu, W., & Zhao, J. L. (2015). How signaling and search costs affect information asymmetry in P2P lending: the economics of big data. *Financial Innovation*, 1(1), 19.
21. Yu, C. H., Wu, X., Zhang, D., Chen, S., & Zhao, J. (2021). Demand for green finance: Resolving financing constraints on green innovation in China. *Energy policy*, 153, 112255.

22. Zhang, D., Wang, C., & Dong, Y. (2022). How does firm ESG performance impact financial constraints? An experimental exploration of the COVID-19 pandemic. *The European journal of development research*, 35(1), 219.