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# Business Insights through Artificial Intelligence ChatGPT for Financial Statement Analysis: Empirical Findings from Leading Technological Companies

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**ABSTRACT**

Financial statement analysis is one of the most important aspects of measuring the organizations' efficiency and earning power. In this research, ratio analysis and trend analysis are carried out to determine the organizations' revenues, liquidity, and cash flows for getting insights for decision making. The data analysis is done with the help of ChatGPT and the data are collected from income statements, balance sheets and cash flows statements from the websites of top five technological companies including; Apple, Amazon, Alphabet (Google), Meta and Microsoft for the period from 2018 to 2022. The findings demonstrated that ChatGPT provided analysis almost 50 percent accurate which is not enough for the decision making as compared with analysis uploaded on companies' websites. So, it is inferred that ChatGPT is not good for those organizations which use analytical approach.

## Introduction

Every year, innovations and novel ideas emerge, as they are in high demand and significantly impact various sectors such as businesses, governments, households, and the public (Dwivedi et al., 2021; Raza & Alsulami, 2025). Artificial intelligence (AI) is a highly advanced innovation that has demonstrated its revolutionary capabilities across various domains by effectively automating functions with exceptional speed, accuracy, and multitasking capabilities within a limited timeframe (Schizas et al., 2022). A newly introduced Chatbot and ChatGPT (Generative Pre-Training Transformer) have been developed and released to offer efficient and convenient access to extensive data and information, delivering prompt outcomes (Javaid et al., 2023). ChatGPT has been developed as an innovative technological progress with the use of artificial intelligence by OpenAI. ChatGPT has emerged more powerful among all existing GPTs (Roumeliotis & Tselikas, 2023). By using this GPT, financial users who seek information can get many advantages.

It facilitates in assessing financial strength of company, evaluates its liquidity and checks ability of company in paying off debts and financial obligations (Leippold, 2023; Alsulami & Raza, 2025). In addition, it facilitates companies to determine internal equity for starting fresh investments by examining return on equity. Moreover, it assists companies to identify earnings on per share and to get insights on its stock price trend (Marr, 2012). This suggests that ChatGPT technology performs various tasks and resolves queries. Furthermore, the wide range of economic sectors and economies can benefit from artificial intelligence (AI) potential use (Lund et al., 2023). It can be said that on the basis of information provided by ChatGPT after analyzing return on equity and market share can help company to know its growth and take investment decisions accordingly. ChatGPT facilitates the analysis of balance sheet data provided by investors. This evaluation provides insights from various aspects such as in ascertaining growth of assets and measuring financial stability of company by calculating debt ratios, such as the debt-to-equity ratio (Haque et al., 2022). But findings suggests that financial statements by using ChatGPT is only about 50% it need for the top technology companies, which is not enough for making accurate business decisions compared to the traditional methods and tools which are available on most of the company's websites.

This work adopts an exploratory research methodology that involves a secondary analysis of secondary data in assessing the usefulness of ChatGPT in financial statement analysis. Quantitative and qualitative measures are based on the accuracy, reliability as well as the time taken in generating results from ChatGPT. Observations are made based on a comparison of the analysis of results produced by ChatGPT with traditional techniques (Ray, 2023). As such, this capability improves the ability of financial managers to make correct financial reports and correct mistakes, as well as planning future investments. ChatGPT supports managers' work by presenting easy-to-understand formats of comprehensive data, strengthening risk evaluation, and recognising significant financial patterns essential for critical management decisions (Soni, 2019; Humpherys et al., 2011). The organizations have benefitted through the use of technology to get insights and know methodologies to identify financial trends, important patterns and other happenings. Artificial intelligence (AI) can be used by financial managers to facilitate them in performing many responsibilities, this includes making annual financial reports, preparing tenders, handling unsystematic risks, and developing methods for dividend payment as well as standards of the company (Spring et al., 2022).

AI has proved to be indispensable in the modern era, it has facilitated organizations with manifold benefits and deliver prompt and precise results based on the data provided to it. The objectives of this research are to assess the effectiveness of using ChatGPT in financial analysis to understand its outputs, to discuss its strengths and weaknesses in being a tool accurate in its financial analysis, and to compare and contrast its outputs with existing traditional techniques of financial analysis that provides precise and useful information for businesses. The purpose of this study is also to provide valuable insights pertinent to the ChatGPT's application in evaluating financial reports that firms have generated. It seeks to explore the implications of ChatGPT's findings on these firms and examine how it aids in companies' data acquisition and interpretation. The questions of this study encompass the following.

- Is it true that financial statement analysis benefits from using ChatGPT?
- Asking if ChatGPT provides reliable and quick results.
- What factors encourage companies to use ChatGPT to view and analyze financial reports?
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## Literature Review

White et al. (2023) examined the impact of ChatGPT on improving and providing prompt outcomes. Their findings demonstrated that within a relatively brief period of approximately three months after its launch on March 10, 2023, the application compiled 5600 scholarly articles, with the keyword "GPT," indexed on Google Scholar. This speedy compiling emphasized the GPT's potential, wide utilization and academic significance. The investigators concluded that ChatGPT greatly impacts businesses and provides wide range of information for the use in business organizations, academia, and financial users. However, it is important to note that ChatGPT has certain limitations and vulnerabilities. Therefore, users should exercise caution when utilizing ChatGPT and remain mindful of the ethical dilemmas and constraints associated with its use. With responsible use of ChatGPT, the researchers in finance domain can draw huge advantages from the wide range of data across numerous disciplines. Individuals possess the capacity to comprehend the concept of finance and the various societal factors that shape its significance. The collaborative endeavor between individuals results in

comprehensive knowledge, innovative resolutions, and a strong foundation within the field of finance (Risius & Spohrer,

2017). The authors, Fecher et al. (2023) and Nikolic et al. (2023) underscored the significance of ethical considerations about ChatGPT across multiple sectors, such as education, healthcare, customer service, content creation, language translation, entertainment, financial services, atmospheric science, and chatbots. They also examined the advantages and limitations of using ChatGPT in these sectors. Their findings highlighted the significant ethical considerations associated with ChatGPT and the potential risks its language patterns pose. The authors expressed the need for users and developers of this chatbot to proactively mitigate the potential risks associated with its usage and address concerns regarding privacy. However, it is essential to acknowledge that AI has a significant favorable influence on a wide range of industries, including healthcare and education. Undoubtedly, it will play a crucial role in revitalizing the interaction between humans and machines. The effectiveness of the outcomes is contingent upon the quality of the data presented in the form of instructions (Yeo et al., 2023). Concise outcomes are crucial in guiding the system to generate precise and pertinent responses. The prompt acknowledges the presence of limitations in the context of ChatGPT's usage in natural language processing, explicitly emphasizing the significance of prompt response speed in driving its adoption.

Haleem et al. (2023) examined the effects of ChatGPT utilization on various aspects of digital marketing, online communications, communication objectives, and automated customer support. The author's conclusion suggests that this chatbot significantly improves customer-oriented service. Specifically, the chatbot facilitates round-the-clock and efficient delivery of services to customers, ensuring accuracy and promptness. This ChatGPT has the potential to assist companies in enhancing their sales performance and improving customer satisfaction levels.

The research studies conducted by De Silva et al. (2023) and Speith et al. (2023) investigated the application of explainable artificial intelligence (XAI) and language models, specifically ChatGPT, in enhancing the dissemination of financial knowledge to individuals lacking finance proficiency. The researchers assessed ChatGPT's abilities in evaluating explainable Artificial Intelligence (XAI) models and explaining complex financial concepts in a manner accessible to non-technical individuals. The findings indicate that ChatGPT exhibits sufficient potential for elucidating diverse concepts to specific audiences. The authors assert that they are the pioneers in utilizing the XAI model for conversational purposes, specifically in explaining the predictions generated by non-linear black box learning models within finance. The authors have identified ChatGPT's limitations in demonstrating model predictions. However, it is anticipated that the immediate engineering dimensions of the model will address and overcome these limitations. Over time, the model demonstrates significant potential across multiple sectors and can benefit all stakeholders, regardless of their financial background. It aids users in gaining awareness and making informed decisions about investments.

Some authors, Panda & Kaur (2023) and Behl et al. (2021) examined implementing an artificial intelligence chatbot model, ChatGPT, designed to respond to user queries. The answers provided by the chatbot are determined by the algorithm it employs and the characteristics of the input data it receives. In this exploratory study, researchers sought to determine how much crowd-funding, alternative finance, and community finance responses differ between automated systems and human respondents. Crowd-funding, alternative finance and community finance have been selected due to the need for specific definitions for these terms in scholarly literature. However, specific definitions have gained acceptance among a significant number of scholars. The research gap identified in this study pertains to improving answer accuracy. The findings of this paper suggest that accuracy can be enhanced by providing concise content and accurate input.

The investigation by Mahtaney & Mahtaney (2021) elucidates the substantial enhancements artificial intelligence has brought to human existence through its capacity to automate tasks with precision, efficiency, and expediency, thereby addressing the contemporary imperative for such advancements. ChatGPT exhibits significant potential in providing answers and enhancing the quality of human-machine interactions. This paper asserts that it significantly impacts the methodologies employed in the composition and evaluation of scientific articles. Using user-oriented artificial intelligence-based chatbots, such as ChatGPT, offers significant advantages in terms of time efficiency, reduced effort, and cost savings in writing tasks. These benefits are primarily attributed to the automation, accuracy, and promptness inherent in the technology. An exploratory research study will examine the audience's anticipated expectations, perceptions, and potential impact shortly. Qualitative data was collected using ChatGPT, and the "MES Mode" was utilized for prediction within the ChatGPT system (Tlili et al., 2023). In conclusion, ChatGPT is highly beneficial across various industries, encompassing education and customer services.

To what extent does artificial intelligence, especially ChatGPT, add new insights to the field of management theories and concepts, the question explored by (Pawel Korzynski et al., 2023). They examined the effects of AI adoption by examining selected management theories in decision-making, human resource management, and administration and knowledge management. Based on these results, ChatGPT could impact management theorizing at the strategic,

functional, and administrative levels. This post shows research substantiating ChatGPT's strategic usefulness in fostering innovation among business owners by providing easy data access. It also demonstrates how valuable ChatGPT is for functional managers, as it speeds up collaboration, information flow, and decision-making. Knowledge management improves when relevant information is made easier to produce, distribute, and share across an organization's workforce.

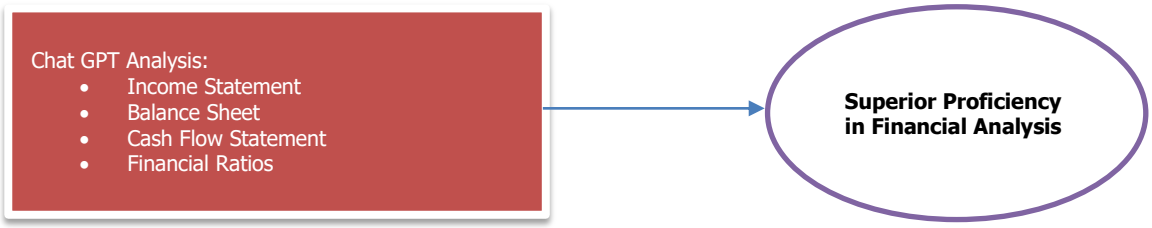
The study of Saggu and Ante (2023) looked into how ChatGPT impacts the profitability of digital currency holdings. The research showed that in the first month after ChatGPT was released, average returns were 10.7 per cent, and in the second month, 15.6 per cent. Furthermore, returns varied between 35.5% and 41.3% during this period. After its release, ChatGPT proved so reliable that it quickly became a leading price indication for AI-related digital currencies. When AI assets are released, investors expect a rise in earnings because of their high potential and benefits.

The authors' contribution presented an innovative framework of graph-influenced networks (Chen et al., 2023). This framework aims to improve the GNNs' ability to predict the future. Information from October 2021 through December 2022 has been collected from 30 Dow Jones Industrial Average (DOW) firms. According to the results, this model is superior to other methods for predicting stock price changes. In addition, it was found that portfolios built with this technique resulted in higher returns—this model's initial features feedstock market data and time spent reading news headlines. Graph Neural Networks (GNNs) were fed data from ChatGPT's network structure understanding skills in this investigation. In addition, while a simple network model was used in this investigation, more complex network models might also be used. In order to adequately address concerns about over-smoothing, this study used a sample size of 30 firms. This study used the most up-to-date data as of October to improve prediction accuracy and aid in making well-informed decisions. According to the research of Wood et al. (2023), the ChatGPT chatbot has gained popularity due to its effectiveness in answering questions, making it a valuable resource for language learning. This study gathered information from 186 different institutions across 14 different nations. Students' responses and performance on 28,085 standardized tests and textbook accounting questions were included. As of January 2023, ChatGPT had a success rate of 56.5% when answering questions, with 9.4% of the time yielding only partially correct answers. Students performed exceptionally well on examinations when point values were considered, averaging 76.7 percent compared to ChatGPT's average of 47.5 percent when partial credit was not considered. ChatGPT's average, however, rises to 56.5% when partial credit is considered. ChatGPT, on the other hand, did better than the typical student on 15.8 percent of partial-credit exams. According to the data, ChatGPT delivered more excellent performance by providing a mix of correct and primarily correct answers. The system needs to provide 100% accurate results. Some degree of plagiarized content in the form of responses provided by the chatbot is preferred. In order to reap the benefits of technological breakthroughs, accounting students must adapt to and actively participate in the present trend of growing connections with machines.

According to the research of Ali and Aysan (2023), the release of ChatGPT in November 2022 sparked considerable excitement because of its potential to provide instant responses. This study indicates the great potential for financial robo-advisors, portfolio optimization, sentiment analysis, investment analysis, stock price forecasting, and risk assessment. Financial analysts can gain a great deal from this. The research also shows that this chatbot differs significantly from others used in the financial sector.

The novel chatbot, ChatGPT, was deployed on Twitter for a month, during which time it collected a sizable dataset of 233,914 English tweets, and Taecharungroj (2023) analyzed this data. After collecting these tweets, a latent Dirichlet allocation (LDA) topic modelling technique was applied to them. The primary motivation for this review was to learn how the chatbot responded to the questions that were asked of it. The investigation uncovered three significant categories: technology, news, and responses. Essay writing, creative writing, code writing, prompt writing, and question responding were also shown to be five unique functional areas in which the chatbot worked by the analysis. The author concludes by focusing on four issues that have come to light due to recent developments in AI. The changing nature of work in response to AI, the creation of a new technological landscape, ethical challenges brought on by AI development, and the relentless pursuit of AI are all things that worry us Based on above literature we have created conceptual model presented in Figure 1.

**Figure 1**
**Conceptual Framework**




We proposed four hypotheses for this study:
$H_1$= ChatGPT exhibits superior proficiency in conducting income statement analysis compared to financial managers.
$H_2$= ChatGPT exhibits superior proficiency in conducting balance sheet analysis compared to financial managers.
$H_3$= ChatGPT exhibits superior proficiency in conducting cash flow statement analysis compared to financial managers.
$H_4$= ChatGPT exhibits superior proficiency in conducting financial ratios analysis compared to financial managers.

## Methodology

This study employs secondary data from financial statements as a source for analysis. Multiple methods of analysis are available, and in this study, we have utilized regression analysis, ratio analysis and trend analysis and visual techniques.
Several ratios have been utilized to investigate the transformative impact of ChatGPT on financial managers and financial analysts. These ratios involve the calculation of various metrics with the assistance of ChatGPT. The research involves the calculation of several technical ratios, including profitability ratios, leverage ratios, earnings ratios, liquidity ratios and market ratios.
The trend analysis involves the utilization of historical data, current information, and forecasting techniques to calculate ratios. By examining patterns, this analysis aims to develop insights into future trends. The analysis employs technical analysis to assess the investment growth, revenue and expenses outcomes, as well as the cash inflows and outflows associated with the day-to-day and annual operations of leading global companies in the information technology industry.
Ratio analysis holds equal significance as it involves the comparison of two numerical values to ascertain their respective movements. These ratios play a significant role in assisting companies in achieving desired outcomes, and we have employed them in this context to assess revenues, financial standing, and cash expenditures.
The utilization of ratios has been found to be highly efficacious in facilitating investment decisions and aiding in the assessment and management of financial distress. Various ratios are computed and subsequently compared on a yearly basis in order to assess their performance. The fundamental purpose of this analysis is to assess the correlation between two numerical values. The regression analysis has been used to check the effect of Statement analysis by ChatGPT on superior proficiency in financial analysis. Visualization are used for robustness of the results. The description of data is presented in Table 1.

**Table 1** Data Description

| | Name | Financial statements | Years | Source |
|---|---|---|---|---|
| 1 | Apple | Income statements, Balance Sheets and Cash flow statements | 2018-2022 | https://www.macrorends.net/stocks/charts/AAPL/apple/financial-statements |
| | Amazon | Income statements, Balance Sheets and Cash flow statements | 2018-2022 | https://www.macrotrends.net/stocks/charts/AMZN/amazon/financial-statements |

| | | | | |
|---|---|---|---|---|
| | Microsoft | Income statements, Balance Sheets and Cash flow statements | 2018-2022 | https://www.macrotrends.net/stocks/charts/MSFT/microsoft/financial-statements |
| 4 | Alphabet | Income statements, Balance Sheets and Cash flow statements | 2018-2022 | https://finance.yahoo.com/quote/GOOGL/financials |
| | Meta | Income statements, Balance Sheets and Cash flow statements | 2018-2022 | https://finance.yahoo.com/quote/META/financials/ |

**Source:** Yahoo Finance

## Results and Discussions

### 4.1. Income Statement Analysis

The analysis is based on financial statements. In this analysis, in table 2, it has been observed that revenues increase continuously due to increase in sales. In the year 2018, the revenues were negative means costs were high in 2018 and in year 2022 revenues are positive means company has earned sufficient and sales increased a lot and in result apple got almost 8 percentage of revenue .It was Apple's *first year-over-year quarterly revenue decline since 2019* and the biggest annual quarterly revenue drop since September 2016. Apple CEO Tim Cook explained that three factors badly impacted the results: a strong dollar, production issues in China affecting the iPhone 14 Pro and iPhone 14 Pro Max, and the overall macroeconomic environment. In addition, it was also elucidated by the management of apple that revenues declined due to covid-19 too and then company struggled and succeeded in increasing the revenue milestone. Results exhibit in table 2 that gross profit is negative in 2018 and then increased up to 25.69 percent in 2021 and then declined in 2022 these results seems to be wrong and hypothesis $H_5$ is rejected but actually Apple's gross profit margin lessened in 2018 (38.3%, -0.3%) and 2019 (37.8%, -1.4%) and increased in 2020 (38.2%, +1.1%), 2021 (41.8%, +9.3%), and 2022 (43.3%, +3.7%) as reported on finbox.com website. Results provided by ChatGPT show that spending on research and development is increased and it has been also provided by finbox.com that on average research and development increased almost 18.78 percentage on average basis from 2018 to 2022 so the results are correct.

**Table 2** Apple Income Statement analysis

| Item | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Revenues | -2.04% | -1.97% | 5.51% | 33.42% | 7.85% |
| Cost Of Revenue | -1.19% | -1.20% | 4.82% | 25.69% | 4.92% |
| Gross Profit | 2.42% | -3.40% | 6.67% | 45.85% | 11.74% |
| Operating Expenses And Income | -11.56% | 11.48% | 12.23% | 13.49% | 17.54% |
| Research Development | -14.73% | 13.92% | 15.37% | 16.54% | 19.84% |
| Selling General Administrative | -9.90% | 9.20% | 7.84% | 10.37% | 14.47% |
| Other Operating Income | - | - | - | - | - |
| Operating Income | -9.77% | -9.81% | 3.69% | 64.03% | 9.66% |
| Income Tax Expense | -21.76% | 21.69% | 7.65% | 50.03% | 32.97% |
| Other Net Income From Continuing Operations | -10.23% | -55.02% | -55.61% | -67.87% | 229.84% |
| Earnings From Continuing Operations | -6.99% | -7.16% | 3.90% | 64.44% | 5.38% |
| Other Items | - | - | - | - | - |
| Net Income | -6.99% | -7.16% | 3.90% | 64.44% | 5.38% |

**Source:** Author's Calculations and ChatGPT

In this analysis data have been taken for four years due to its availability. Results given by ChatGPT in table 3 show that cost of goods sold is increased from 6 percent in 2019 to 18.96 percent in 2022 and these results are correct as same results are uploaded on https://www.macrotrends.net/stocks/charts/AMZN/amazon/cost-goods-sold website. Analysis provided in table 3 expresses that SG&A expenses are increased on average approximately 25 to 26 percentage because sales are increased that's why expenses also increased. This increment is also provided on website https://www.macrotrends.net/stocks/charts/AMZN/amazon/selling-general-administrative-expenses. Results in table 3 show that interest expense was 30 percent, and it has been increased from the previous year so it is quite clear that company is utilizing the more borrowed money thereby increasing the cost of capital in form of interest expense.

The same results are uploaded on website https://www.wsj.com/market-data/quotes/AMZN/financials/annual/income-statement

**Table 3** Amazon Income Statement analysis

| Item | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|
| Sales/Revenue | 9.40% | 21.70% | 37.62% | 20.45% |
| Cost of Goods Sold (COGS) incl. D&A | 6.05% | 16.73% | 40.94% | 18.96% |
| Gross Income | 14.01% | 29.28% | 32.85% | 22.68% |
| SG&A Expense | 22.66% | 32.79% | 29.62% | 23.74% |
| Research & Development | 29.69% | 31.03% | 19.12% | 24.51% |
| EBIT | -45.82% | 9.12% | 54.89% | 15.98% |
| Non-Operating Income/Expense | -219.72% | 82.35% | 10655% | - |
| Interest Expense | 30.85% | 9.84% | 2.94% | 12.91% |
| Pretax Income | -115.56% | 57.79% | 73.00% | 24.11% |
| Income Tax | -167.10% | 67.48% | 20.80% | 98.88% |
| Net Income | -108.16% | 56.41% | 84.08% | 15.04% |
| EPS (Basic) | -108.25% | 54.89% | 81.92% | 14.13% |
| EBITDA | -19.28% | 22.21% | 29.93% | 20.24% |

**Source:** Author's Calculations and ChatGPT

Analysis done by the ChatGPT in table 4 shows that net income increased dramatically beyond the expectations which was negative in 2018 and increased almost 100 percentage on average and changed from negative to positive. Results uploaded on website are different a **12.85% increase** from 2019, a **38.37% increase** from 2020, and **18.72% increase** from 2021.

Link: https://www.macrotrends.net/stocks/charts/MSFT/microsoft/net-income-loss

Results provided in table 4 exhibit that operating expense decreased from 2018 to 2019 and then increased and reached to 58 percentage as per given by ChatGPT. Same results are uploaded on website https://www.macrotrends.net/stocks/charts/MSFT/microsoft/operating-expenses

ChatGPT results in table 4 demonstrate that gross profit increased continuously from 2018 to 2022. On average basis it has been increased almost 20 percentages. Results uploaded on website are different Microsoft annual gross profit for 2022 was 17.06% increased from 2021.Microsoft annual gross profit for 2021 was, a 19.52% increased from 2020. Microsoft annual gross profit for 2020 was a 16.89% increased from 2019.

Link: https://www.macrotrends.net/stocks/charts/MSFT/microsoft/gross-profit

**Table 4** Microsoft Income Statement analysis

| Item | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Revenues | 22.68% | 40.23% | 58.36% | 86.89% | 120.22% |
| Gross Profit | 29.24% | 50.06% | 73.85% | 107.74% | 143.60% |
| Operating Expenses | 11.42% | 8.18% | 9.89% | 38.47% | 58.10% |
| Operating Income | 57.05% | 92.14% | 137.11% | 210.35% | 273.03% |
| Earnings from Continuing Operations | -21.72% | 85.45% | 108.06% | 189.04% | 243.79% |
| Net Income | -21.72% | 85.45% | 108.06% | 189.04% | 243.79% |

**Source:** Author's Calculations and ChatGPT

Results provided by ChatGPT in table 5 show that operating expense followed increase and decrease percentage in last five years in zigzag manner and mostly it has been increased almost 2 percentages on average basis. Results uploaded on website are somehow changed and different.

Link:https://www.macrotrends.net/stocks/charts/GOOGL/alphabet/operating-expenses. Results given by the ChatGPT in table 5 express that income tax expense increased in last five years and decreased in 2022 and ultimately became negative in 2022, which is better for company. Same results are uploaded on website.

https://www.macrotrends.net/stocks/charts/GOOG/alphabet/total-provision-income-taxes. Results showed by the

ChatGPT indicate that operating income which was positive in 2019 and declined and become negative and reached to -4.90 percentages that is red signal for company and the shareholders. Almost same results are uploaded on website https://www.macrotrends.net/stocks/charts/GOOG/alphabet/operating-income

**Table 5** Google Income Statement analysis

| Item | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Revenues | 18.30% | 12.70% | 41.20% | 9.80% |
| Cost of revenue | 20.50% | 18.30% | 30.70% | 13.80% |
| Gross profit | 16.50% | 8.60% | 50.30% | 6.80% |
| Operating expenses | 17.90% | 4.70% | 19.80% | 20.30% |
| Research development | 21.50% | 5.90% | 14.40% | 25.30% |
| Selling gen. Admin | 17.80% | 15.70% | 22.40% | 16.40% |
| Other operating income | -5.80% | -11.00% | 27.70% | 15.50% |
| Operating income | 29.90% | 20.40% | 90.70% | -4.90% |
| Income tax expense | 26.40% | 47.90% | 88.30% | -22.80% |
| Other net income | 15.30% | -24.90% | -1.80% | 175.60% |
| Earnings from cont. | 11.00% | 17.30% | 88.80% | -21.20% |
| Net income | 11.00% | 17.30% | 88.80% | -21.20% |

**Source:** Author's Calculations and ChatGPT

Results of Meta for four years provided in table 6 by ChatGPT tell that Gross profit which was positive in 2019 become negative in 2020 and finally not expressed in 2022 which is quite clear that ChatGPT does not provide accurate results with respect to Gross profit. Results available on website are different.

https://www.macrotrends.net/stocks/charts/META/meta-platforms/operating-income

Analysis in table 6 shows that research and development increased from 2019 to 2020 but from 2020 and onwards it is 0 percentage it means results are wrong. Results uploaded on website are different https://www.macroaxis.com/financial-statements/META/Research-and-Development-Expense. Data have been analyzed

in table 6 and show that net income was positive in 2019 then shows 0 percentage in 2021-2022 which is also wrong. Available results on website are different.

Link https://www.macrotrends.net/stocks/charts/META/meta-platforms/net-income

**Table 6** Meta Income Statement analysis

| Item | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Total Revenue | 21.29% | -0.97% | 0.00% | 0.00% |
| Operating Revenue | 21.73% | -0.75% | 0.00% | 0.00% |
| Cost of Revenue | 32.04% | 11.50% | 0.00% | 0.00% |
| Gross Profit | 19.20% | -4.42% | 0.00% | 0.00% |
| Operating Expense | 8.53% | 26.89% | 0.00% | 0.00% |
| Selling General and Admin. | -10.68% | 13.33% | 0.00% | 0.00% |
| Research & Development | 35.58% | 42.92% | 0.00% | 0.00% |
| Operating Income | 36.56% | -31.94% | 0.00% | 0.00% |
| Net Income | 57.84% | -40.22% | 0.00% | 0.00% |

**Source:** Author's Calculations and ChatGPT

When we run the balance sheet trend analysis by using ChatGPT, it runs very slowly; Apple balance sheet does not show perfect analysis. Analysis obtained in table 7 shows that cash was 88 percentages which was positive in 2018 and then become negative in 2019 to 2022. This indicates that it is not good for company because cash availability is reduced.

Results available on website are change and it seems ChatGPT provided incorrect results with respect to cash. Link https://www.fundamentl.io/company/AAPL.US/share-data/chart. Results in balance sheet of Apple in table 7 show that short term investments which were positive in 2018 and then reduced and become negative in 2020 and onwards. Data available on website are change link https://www.fundamentl.io/company/AAPL.US/share-data/chart. Analysis in table 7 reveals that current assets were positive in 2018 and then become negative in 2019 and then become 0 that is not suitable for company and it seems to be wrong. Results available on website are different https://www.fundamentl.io/company/AAPL.US/share-data/chart

Figure 2 provides the changes of income statement analysis by ChatGPT and public data that taken from financial reports. Based on these overall we can say that ChatGPT exhibits superior proficiency in conducting income statement analysis compared to financial managers. Hence it doesn't support $H_1$. These results are aligned by (Mahmud et al., 2024; Talaei-Khoei et al., 2024; Li & Lee 2024).

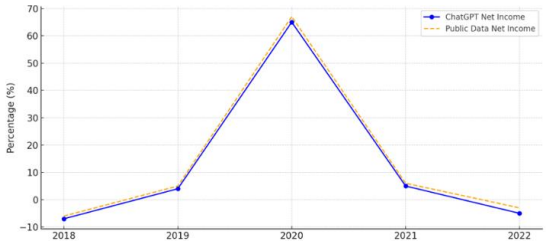



**Figure 2:** Income Statement Analysis Visuals
**Source:** Author's own

## 4.2. Balance Sheet Analysis

**Table 7** Apple Balance Sheet analysis

| Item | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Non-current assets | | | | | |
| Long term investments | -40% | -4% | 27% | -5% | -6% |
| Gross pp&e | 131% | 8% | 6% | 4% | 1% |
| Intangible assets | - | - | - | - | - |
| Goodwill | - | - | - | - | - |

| | | | | | |
|---|---|---|---|---|---|
| Other non-current assets | -214% | -5% | -12% | -18% | 33% |
| Current assets | 24% | -11% | -6% | 0% | 0% |
| Cash | 88% | -22% | -8% | -32% | -33% |
| Short term investments | 28% | 2% | -48% | -12% | -11% |
| Net receivables | -6% | -18% | 37% | 18% | 18% |
| Inventory | -18% | 4% | 1% | 62% | -25% |
| Other current assets | -13% | 2% | -9% | 25% | 50% |
| Total assets | -2% | -7% | -4% | 8% | 0% |
| Equity | | | | | |
| Common stock | 12% | 12% | 13% | 13% | 13% |
| Retained earnings | -28% | -35% | -68% | -71% | -155% |
| Other stockholder equity | -79% | -4% | -59% | 19% | -6% |
| Non-current liabilities | 1% | 1% | 8% | -9% | -9% |
| Long term debt total | -4% | -2% | 7% | -9% | -8% |
| Deferred long term liabilities | -1% | - | - | - | - |
| Other non-current liabilities | 11% | 12% | 8% | -13% | -9% |
| | 16% | -10% | 0% | 19% | 23% |
| Current liabilities | | | | | |
| Accounts payable | 14% | -17% | -8% | 30% | 17% |
| Short term debt | 12% | -22% | -15% | 13% | 35% |
| Other current liabilities | 20% | 7% | 14% | 12% | 25% |
| Total equity and liabilities | -3% | -5% | -4% | 9% | 0% |

**Source:** Author's Calculations and ChatGPT

Analysis of Amazon provided by ChatGPT in table 8 shows that cash increased from 2018 to 2022 which is positive sign and decreased in 2021 but again positive so after all this is good news for shareholders and creditors too. Data available on website is change. Link https://www.wsj.com/market-data/quotes/AMZN/financials/annual/balance-sheet. Results provided by ChatGPT shows that accounts receivable turnover ratios are positive and on average basis 14 percentages which is suitable for company. The same results are available on website https://www.wsj.com/market-data/quotes/AMZN/financials/annual/balance-sheet. Results provided in table 8 tell that intangible assets grow positively 7.2 on average basis which is again positive and better signal for the information users. Results available on website are different
https://www.wsj.com/marketdata/quotes/AMZN/financials/annual/balance-sheet

**Table 8** Amazon Balance Sheet analysis

| **Item** | **2018** | **2019** | **2020** | **2021** | **2022** |
|---|---|---|---|---|---|
| Cash & short term investments | | | | | |
| Cash only | 100.00% | 108.83% | 131.60% | 115.80% | 154.73% |
| Cash & short term investments growth | - | 32.79% | 52.96% | 13.77% | -26.91% |
| Cash & investments / total assets | 25.62% | 24.57% | 26.36% | 22.90% | 15.21% |
| Total accounts receivable | | | | | |
| Accounts receivable growth | - | 26.12% | 18.49% | 34.37% | 28.70% |
| Accounts receivable turnover | 14.33 | 13.69 | 15.9 | 14.4 | 12.24 |

| | | | | | |
|---|---|---|---|---|---|
| Inventories | | | | | |
| Inventories growth | - | 19.73% | 18.48% | 37.08% | 5.42% |
| Total current assets | 46.15% | 52.95% | 62.14% | 71.91% | 40.57% |
| Net property, plant & equipment | 37.99% | 50.82% | 46.87% | 58.95% | 68.61% |
| Total investments and advances | | | | | |
| Investments and advances growth | - | -20.69% | -11.48% | 25.80% | -42.39% |
| Intangible assets | 11.49% | 6.92% | 5.81% | 5.32% | 5.70% |
| Total other assets | | | | | |
| Other assets growth | - | 84.79% | 66.53% | 51.57% | 198.74% |
| Total assets | | | | | |
| Assets growth | - | 30.93% | 42.60% | 38.49% | 10.02% |
| Total liabilities | | | | | |
| Liabilities growth | - | 11.50% | 39.37% | 48.17% | 14.32% |
| Total equity | | | | | |
| Equity growth | - | 18.52% | 55.77% | 69.46% | 10.24% |
| Equity / total assets | 31.56% | 32.87% | 29.08% | 27.55% | 31.56% |

**Source:** Author's Calculations and ChatGPT

Analysis provided in table 9 present that goodwill was positive in 2018 and increase continuously and decreased in 2022 but again shows positive number that is green signal for insight users. Same results available on website https://www.macrotrends.net/stocks/charts/MSFT/microsoft/balance-sheet. Results by ChatGPT in table 9 shows that current assets ratios were positive and on average basis 10 percentages increment which is excellent for company. However, the results available are somehow different link https://www.macrotrends.net/stocks/charts/MSFT/microsoft/financial-ratios. As per analysis of ChatGPT in table 9 depict that net receivables were positive in 218 and then followed ups and downs and finally in 2022 remained low but again positive which is good for health of company. Same results are available on website https://www.macrotrends.net/stocks/charts/MSFT/microsoft/balance-sheet

**Table 9** Microsoft Balance Sheet analysis

| Item | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Non-current assets | 9.78% | 36.49% | 46.84% | 83.81% | 140.24% |
| Long term investments | -69.08% | 18.33% | -11.99% | 159.77% | 14.88% |
| Gross pp&e | 52.52% | 20.50% | 20.43% | 198.43% | -100.00% |
| Intangible assets | -20.35% | -3.58% | -8.98% | -22.59% | 11.61% |
| Goodwill | 1.59% | 20.41% | 23.59% | 41.13% | 35.50% |
| Other non-current assets | 18.27% | 134.77% | 10.13% | 140.40% | 629.10% |
| Current assets | 6.15% | 9.28% | 13.06% | 15.24% | 6.71% |
| Cash | 55.96% | 47.51% | 76.94% | 85.44% | 81.82% |
| Short term investments | -2.29% | -0.53% | -0.41% | -7.12% | -26.94% |
| Net receivables | 33.90% | 17.71% | 61.86% | 90.72% | 16.43% |
| Inventory | 22.13% | -22.96% | -8.62% | 38.27% | 41.99% |
| Other current assets | 37.60% | 108.17% | 27.92% | 173.97% | 274.68% |
| Total assets | 7.35% | 18.55% | 24.79% | 38.27% | 51.13% |
| Equity | 14.23% | 41.26% | 63.21% | 96.15% | 129.35% |

| | | | | | |
|---|---|---|---|---|---|
| Common stock | 2.74% | 13.47% | 16.15% | 19.96% | 25.22% |
| Retained earnings | 416.82% | 783.88% | 1205.64% | 2057.49% | 518.45% |
| Other stockholder equity | 322.49% | 320.65% | 345.23% | 322.03% | -356.73% |
| Non-current liabilities | -4.95% | -9.84% | -90.45% | -0.48% | -0.56% |
| Long term debt total | -95.10% | 2.60% | 4.50% | -34.10% | -38.16% |
| Deferred long term liabilities | 178.72% | 36.51% | 15.50% | 32.07% | 9.92% |
| Other non-current liabilities | -9.09% | 18.78% | 11.49% | 22.44% | 6.07% |
| Current liabilities | 16.58% | 23.68% | 11.49% | 105.10% | 6.07% |
| Accounts payable | 69.19% | 23.68% | 69.19% | 105.10% | 6.07% |
| Short term debt | -31.31% | -32.73% | -31.31% | -55.09% | -65.82% |
| Other current liabilities | 45.76% | 40.97% | 23.42% | 52.35% | 10.68% |
| Total equity and liabilities | 7.35% | 18.55% | 24.79% | 38.27% | 51.13% |

**Source:** Author's Calculations and ChatGPT

Analysis of Google available in table 10 shows that percentage of common stock was positive in 2018 and then increases and in the end it decreases but also remained positive in 2022 which is good for the top management and portrays that

company is utilizing equity financing for its operations. Same results are uploaded on website https://www.wsj.com/marketdata/quotes/GOOG/financials/annual/balance-sheet. Analysis of Google provided in table 10 represents that long term investments were negative in 2018 and then become positive in 2020 and decreased in 2022 and remained low but positive and good signal for the analysts. However, the results available on website are different link https://www.wsj.com/market-data/quotes/GOOG/financials/annual/balance-sheet. Results of Google depicted in table 10 illustrates that other current assets ratios were nearly 5 percentage positive and then followed cyclic structure and remained positive 15 percentages in 2022 which is better outcome for the company and users. Conversely, the results available on website are different link https://www.wsj.com/market-data/quotes/GOOG/financials/annual/balance-sheet

**Table 10** Google Balance Sheet analysis

| Item | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Non-current assets | | | | | |
| Long term investments | -5.70% | -5.60% | 58.30% | 43.60% | 3.20% |
| Gross pp&e | 41.40% | 41.60% | 14.60% | - | - |
| Intangible assets | -10.90% | -11.00% | -27.10% | -1.90% | 46.90% |
| Goodwill | 15.30% | 15.40% | 2.70% | 8.40% | 25.90% |
| Other non-current assets | -10.60% | -10.80% | 64.80% | 2232.10% | 18.10% |
| Current assets | | | | | |
| Cash | 10.70% | 10.80% | 42.70% | -20.80% | 4.50% |
| Short term investments | 9.40% | 9.40% | 9.00% | 7.70% | -22.50% |
| Net receivables | 29.80% | 29.90% | 14.20% | 28.30% | 0.00% |
| Inventory | -9.70% | -10.00% | -27.10% | 60.20% | 128.20% |
| Other current assets | 4.70% | 4.20% | 24.40% | 28.30% | 15.00% |
| Total assets | | | | | |
| Equity | | | | | |
| Common stock | 12.20% | 12.20% | 15.80% | 5.60% | 10.40% |
| Retained earnings | 12.90% | 13.60% | 7.40% | 17.20% | 2.10% |
| Other stockholder equity | -34.10% | -53.50% | -146.30% | -356.70% | 368.70% |
| Non-current liabilities | | | | | |
| Long term debt total | 13.50% | 13.50% | 205.20% | 6.30% | -0.80% |
| Deferred long term liabilities | 34.50% | 34.60% | 109.00% | 47.70% | -90.20% |
| Other non-current liabilities | 50.40% | 50.20% | -0.90% | 2.50% | 5.60% |
| Current liabilities | | | | | |
| Accounts payable | 27.00% | 27.00% | 0.50% | 8.00% | -15.30% |

| | | | | | |
|---|---|---|---|---|---|
| Short term debt | - | 26.80% | 28.30% | 29.40% | 13.70% |
| Other current liabilities | 27.20% | 27.20% | 28.80% | 13.10% | 10.30% |
| Total equity and liabilities | | | | | |

**Source:** Author's Calculations and ChatGPT

Analysis of Meta in table 11 portrays that Total Capitalization was positive in 2020 and remained positive in 2022 which is suitable for all the stakeholders. Same is available on website https://www.wsj.com/marketdata/quotes/GOOG/financials/annual/balance-sheet. Results provided by ChatGPT in Table 11 depicts that tangible book value was positive 33.42 percentages and negative in 2021 and also negative in 2022. Analysis of Meta in table 10 represents those ordinary shares number percentages were positive in 2020 and then became negative which is good for the information users. Data available on website is different link https://www.macrotrends.net/stocks/charts/META/metaplatforms/total-share-holder-equity

**Table 11** Meta Trend analysis (Balance Sheet)

| Item | **2020** | **2021** | **2022** |
|---|---|---|---|
| Total assets | 19.63% | 4.20% | 11.91% |
| Total liabilities net minority int | -2.03% | 32.61% | 45.97% |
| Total equity gross minority int | 26.47% | -2.74% | 0.67% |
| Total capitalization | 26.47% | 0.00% | 8.60% |
| Common stock equity | 26.47% | -2.74% | 0.67% |
| Capital lease obligations | 3.19% | 30.02% | 20.19% |
| Net tangible assets | 33.42% | -3.40% | -0.52% |
| Working capital | 18.54% | -25.06% | -28.42% |
| Invested capital | 26.47% | 0.00% | 8.60% |
| Tangible book value | 33.42% | -3.40% | -0.52% |
| Total debt | 3.19% | 30.02% | 91.13% |
| Share issued | 0.10% | -3.78% | -4.62% |
| Ordinary shares number | 0.10% | -3.78% | -4.62% |

**Source:** Author's Calculations and ChatGPT

For cash flow statement analysis, ChatGPT only analyze main activities; includes, operating, investing, and financing. While other items include in cash flow statement. ChatGPT does not perform first. When second command is given for analysis of all items, then ChatGPT do analyze it. Analysis received from ChatGPT in table 12 displays that depreciation and amortization was positive 15 percentages in 2018 and then become negative in 2019 and then followed cyclic patterns of positive and negative percentages then finally in 2022 it became negative. Results available on website are different link.

https://www.macrotrends.net/stocks/charts/AAPL/apple/total-depreciation-amortization-cash-flow. Results in table 12 portrays that cash flow from operations was negative 11 percentage in 2018 and then become positive in 2019, then finally in 2022 it became negative. Results available on website are different link.

https://www.macrotrends.net/stocks/charts/AAPL/apple/cash-flow-from-operating-activities. Results received from ChatGPT in table 12 depicts that net income was negative in 2018 which was not good and then become positive from 2019 to 2021 and finally in 2022 it became negative. Nonetheless, the results available on website are different link.https://www.macrotrends.net/stocks/charts/AAPL/apple/net-income

The Figure 3 presents the graphical presentation of balance sheet analysis by ChatGPT and public data taken from annual reports. Here overall we found a changes in analysis of both. We conclude that to reject $H_2$ that ChatGPT exhibits superior proficiency in conducting balance sheet analysis compared to financial managers. These results supported by (Atak, 2023; Amimakmur et al., 2024; Bouteraa 2024; Raza et al., 2023).

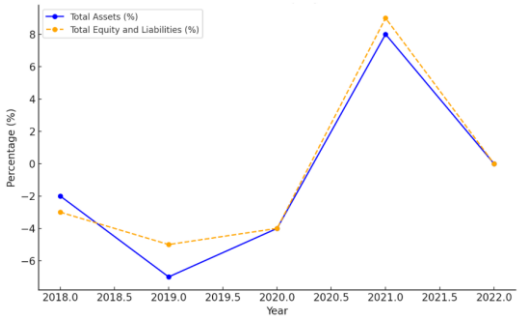



Figure 3: Balance Sheet Visuals
Source: Author's own

4.3. Cash Flow Statement Analysis

**Table 12** Apple Cash Flow Statement analysis

| **Account** | **2018** | **2019** | **2020** | **2021** | **2022** |
|---|---|---|---|---|---|
| Cash flow from operating activities | | | | | |
| Net income | -7% | 4% | 65% | 5% | -5% |
| Depreciation and amortization | 15% | -12% | 2% | -2% | -1% |
| Change to account receivables | -5% | 2729% | -244% | 82% | -84% |
| Change to inventory | -35% | -23% | 1987% | -157% | -159% |
| Change to liabilities | -14% | -171% | 188% | -289% | -26% |
| Change receivables | -76% | 167% | -262% | 66% | -33% |
| Other cash from operating activities | 122% | -256% | -301% | 0% | 0% |
| Cash from operations | -11% | 16% | 29% | 18% | -12% |

**Source:** Author's Calculations and ChatGPT

Analysis done by ChatGPT in table 13 exhibits that net investing cash flow was not available in 2018 and then become highly negative and 2021 it became positive and increased positively in 2022. Same results are available on website.
https://www.macrotrends.net/stocks/charts/AMZN/amazon/cash-flow-from-investing-activities

Findings from ChatGPT in Table 13 shows that net change in cash of Amazon was not available in 2018 and negative in 2019 then positive in 2020 and then negative 2021 and increased 500 percentage in 2022 which seems to be incorrect and not good for the information users. Available results on website are different.
https://www.macrotrends.net/stocks/charts/AMZN/amazon/net-cash-flow

Cash flow analysis done by ChatGPT in table 13 tells that nothing is available about net financing cash flow in 2018 and negative in 2019 then positive 669 percentage in 2021 that tends to be wrong and then 54 percentage in 2022. Available results on website are same:
https://www.macrotrends.net/stocks/charts/AMZN/amazon/cash-flow-from-financial-activities

**Table 13** Amazon Cash Flow Statement analysis

| **Account** | **2018** | **2019** | **2020** | **2021** | **2022** |
|---|---|---|---|---|---|
| Net operating cash flow | - | 25.36% | 71.53% | -29.88% | 0.92% |
| Net operating cash flow / sales | -5.31% | -8.66% | -15.44% | -12.38% | -7.32% |

| | | | | | |
|---|---|---|---|---|---|
| Net investing cash flow | - | -96.31% | 145.50% | -2.44% | -35.34% |
| Net investing cash flow / sales | -5.31% | -8.66% | -15.44% | -12.38% | -7.32% |
| Net financing cash flow | - | -30.97% | -89.03% | -669.84% | 54.47% |
| Net financing cash flow / sales | -3.30% | -3.59% | -0.29% | 1.34% | 1.89% |
| Net change in cash | - | -22.94% | 140.85% | -198.33% | 500.68% |
| Free cash flow | - | 25.19% | 19.81% | -156.63% | -14.94% |

**Source:** Author's Calculations and ChatGPT

Analysis achieved from chatgpt in table 14 depicts that net income of Amazon was negative in 2018 and then became positive and remained positive in 2022. Results available on website are different. https://www.macrotrends.net/stocks/charts/AMZN/amazon/netincome#:~:text=Amazon%20annual%20net%20income%20for,a%2084.08%25%20increase%20from%202019. Results of Microsoft obtained from chatgpt in table 14 reveal that capital expenditure was negative 43 percentage in 2018 and then become positive in 2020 and become negative 15 percentage in 2022. However, the results available on website are change link https://www.wsj.com/market-data/quotes/AMZN/financials/annual/cash-flow

Analysis acquired from chatgpt in table 14 represents that net borrowings were negative in 2018 and then followed cyclic manner and then in 2022 it became 21.69 which seems not good for company. Available results are somehow different, link.

https://www.macrotrends.net/stocks/charts/AMZN/amazon/net-long-term-debt

**Table 14** Microsoft Cash Flow Statement analysis

| Account | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Net income | -21.77% | 86.94% | 12.81% | 38.32% | 18.86% |
| Depreciation and amortization | 17.76% | 32.93% | 9.52% | -8.68% | 23.49% |
| Change to account receivables | 318.38% | -17.91% | -8.63% | 151.96% | 5.33% |
| Change to inventory | -22.23% | 2794.00% | -9.60% | 336.36% | -52.43% |
| Change to liabilities | -71.20% | -74.24% | -59.82% | 256.97% | 8.57% |
| Other cash from operating activities | -108.71% | -98.08% | 385.43% | 54.78% | -14.76% |
| Cash from operations | 11.02% | 18.87% | 16.33% | 26.47% | 16.14% |
| Capital expenditures | -43.29% | -19.81% | 10.80% | 33.58% | -15.69% |
| Other cashflow from investing activities | -115.95% | -1.72% | 274.68% | -324.44% | 7.60% |
| Cash from investing | -87.01% | -70.99% | -23.18% | -192.37% | 24.94% |
| Net borrowings | -132.16% | 256.36% | -125.35% | -50.84% | 21.69% |
| Dividends paid | 7.17% | -208.55% | -9.22% | -9.18% | -10.34% |
| Sale purchase of stock | -9.23% | 65.43% | 17.18% | -17.86% | -19.31% |
| Other cash from financing activities | -9.35% | 4.68% | 70.23% | -209.98% | 4.24% |
| Cash from financing | -501.67% | -9.61% | -24.99% | -5.35% | -27.71% |
| Change in cash without exchange rate | 272.57% | - | 474.07% | -70.71% | - |

| | | | | | |
|---|---|---|---|---|---|
| changes | | 213.01% | | | 145.02% |
| Exchange rate changes | 163.89% | -230.00% | 74.78% | -14.47% | -7.42% |
| Change in cash | 271.83% | -151.14% | 475.70% | -43.78% | -125.39% |
| Begin period cashflow | 17.63% | 55.75% | -4.94% | 19.07% | 2.82% |
| End period cashflow | 55.91% | -7.62% | 19.19% | 4.85% | -2.07% |

**Source:** Author's Calculations and ChatGPT

Results received from ChatGPT in table 15 shows that cash flow of Google from operations was positive 9.8 percentage in 2018 then remained positive till 2021 and finally in 2022 it became negative which is again not favorable for the stockholders. Same results are available on website https://www.macrotrends.net/stocks/charts/GOOG/alphabet/cash-flow-from-operating-activities

Analysis done by ChatGPT in table 15 exhibits that Google's cash flow from investing was negative in 2018 and then positive in 2020 and become negative in 2022 which is again not good for company. Same results are available on website.

https://www.macrotrends.net/stocks/charts/GOOGL/alphabet/cash-flow-from-investing-activities

Analysis received from ChatGPT in table 15 reveals that cash from financing was not available in 2018 and then became negative in 2019 and then became positive in 2021 and remained positive till 2022. Available results are different.https://www.marketwatch.com/investing/stock/goog/financials/cash-flow

**Table 15** Google Cash Flow Statement analysis

| Account | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Cashflow from operating activities | | | | | |
| Net income | 11.30% | 11.30% | 17.20% | 88.80% | -21.20% |
| Depreciation and amortization | 30.50% | 30.50% | 16.30% | -9.10% | 28.00% |
| Change to account receivables | -37.50% | -100.00% | -50.10% | -39.10% | 28.00% |
| Change to inventory | - | - | - | - | - |
| Change to liabilities | 154.30% | -39.80% | 65.90% | -5.90% | -25.30% |
| Other cash from operating activities | 148.40% | 146.30% | 33.20% | -14.40% | 4.40% |
| Cash from operations | 9.80% | 13.50% | 19.40% | 40.90% | -0.20% |
| Cashflow from investing activities | | | | | |
| Capital expenditures | 35.20% | -6.00% | -17.00% | 10.50% | 27.60% |
| Other cashflow from investing activities | 76.90% | 76.60% | 76.40% | 3.70% | -2.00% |
| Cash from investing | -121.4% | -3.50% | 11.00% | 8.50% | -42.90% |
| Cashflow from financing activities | | | | | |
| Net borrowings | - | - | - | - | - |
| Dividends paid | - | - | - | - | - |
| Sale purchase of stock | - | 102.60% | 69.50% | 61.40% | 18.10% |
| Other cash from financing activities | - | 12.80% | -36.10% | 238.70% | -8.90% |

| | | | | | |
|---|---|---|---|---|---|
| Cash from financing | - | -4.70% | -5.10% | 151.20% | 13.10% |
| Change in cash and equivalents | | | | | |
| Change in cash without exchange rate changes | 58.60% | -71.40% | 342.90% | -165.30% | -116.80% |
| Exchange rate changes | -105.3% | -92.40% | 104.30% | ####### | 76.70% |
| Change in cash | 86.70% | -69.90% | 343.40% | -169.50% | -120.30% |
| Cash flow period | | | | | |
| Begin period cashflow | 61.30% | 10.70% | 42.70% | -20.80% | 4.50% |
| Change in cash | 86.70% | -69.90% | 343.40% | -169.50% | -120.30% |
| End period cashflow | 10.70% | 10.80% | 42.70% | -20.80% | 4.50% |

**Source:** Author's Calculations and ChatGPT

Results of Meta available in 16 depicts that deferred tax was negative 368.53 in 2020 and then became positive 2702.70 which seems to be incorrect. Available results are different https://www.stock-analysis-on.net/NASDAQ/Company/Meta-Platforms-Inc/Analysis/Income-Taxes. Analysis of Meta done by ChatGPT in table 16 portrays that operating cash flow was 0 percentage in 2020 and then negative 12.97 percentage in 2021 and finally 0 percentage in 2022 which tends to be wrong. Available results on website are different link https://www.macrotrends.net/stocks/charts/META/meta-platforms/free-cash-flow. Results provided by chatgpt in table 16 indicates that investing cash flow of Meta was negative in 2020 and then became positive 282.12 percentages which tends to be incorrect available results on website are different link.
https://www.macrotrends.net/stocks/charts/META/meta-platforms/cash-flow-from-investing-activities

**Table 16** Meta Cash Flow Statement analysis

| **Items** | **2020** | **2021** | **2022** |
|---|---|---|---|
| Operating cash flow | 0.00% | -12.97% | 0.00% |
| Cash flow from continuing operating activities | 0.00% | -12.97% | 0.00% |
| Net income from continuing operations | -50.82% | -40.82% | 25.94% |
| Depreciation amortization depletion | 9.39% | 3.22% | 0.00% |
| Depreciation & amortization | 9.39% | 3.22% | 0.00% |
| Deferred tax | -368.53% | -100.00% | 2702.70% |
| Deferred income tax | -368.53% | -100.00% | 2702.70% |
| Asset impairment charge | - | - | - |
| Unrealized gain loss on investment securities | - | - | - |
| Stock based compensation | 30.04% | 36.14% | 5.42% |
| Other non-cash items | 1221.23% | 1215.75% | 3223.5% |
| Change in working capital | 0.00% | 0.00% | 0.00% |
| Change in receivables | 0.00% | 0.00% | 0.00% |
| Changes in account receivables | 0.00% | 0.00% | 0.00% |
| Change in prepaid assets | -90.74% | -92.23% | 10.61% |
| Change in payables and accrued expense | 0.00% | 0.00% | 0.00% |
| Change in payable | 0.00% | 0.00% | 0.00% |
| Change in account payable | 0.00% | 0.00% | 0.00% |
| Change in accrued expense | 0.00% | 0.00% | 0.00% |
| Change in other current assets | -133.96% | -115.33% | -944.10% |
| Change in other current liabilities | 0.00% | 0.00% | 0.00% |
| Change in other working capital | -58.29% | 10.87% | 6.10% |
| Investing cash flow | -31.24% | -59.08% | 282.12% |
| Cash flow from continuing investing activities | -31.24% | -59.08% | 282.12% |
| Net ppe purchase and sale | 40.41% | -1.36% | -1.36% |
| Purchase of ppe | 40.41% | -1.36% | -1.36% |
| Sale of ppe | - | - | - |

| | | | |
|---|---|---|---|
| Net business purchase and sale | -31.47% | 726.72% | -96.64% |
| Purchase of business | -31.47% | 726.72% | -96.64% |
| Net investment purchase and sale | 245.66% | -239.68% | -15.73% |
| Purchase of investment | 245.66% | -239.68% | -15.73% |
| Sale of investment | 245.66% | -239.68% | -15.73% |
| Net other investing changes | 4372.3% | 4365.71% | 5334.3% |
| Financing cash flow | -37.09% | 480.65% | -56.41% |
| Cash flow from continuing financing activities | -37.09% | 480.65% | -56.41% |
| Net issuance payments of debt | - | -0.01% | 0.00% |
| Net long term debt issuance | - | -0.01% | 0.00% |
| Long term debt issuance | - | - | - |
| Long term debt payments | -26.00% | 0.00% | 0.00% |
| Net short term debt issuance | - | - | 0.00% |
| Net common stock issuance | -58.89% | -75.09% | 0.00% |
| Common stock payments | -58.89% | -75.09% | 0.00% |

**Source:** Author's Calculations and ChatGPT

Analysis of Apple provided by ChatGPT in table 17 depicts that current ratios increased from 1.123 in 2018 to 1.541 in 2019 which is good for company and then decreased but remained positive almost same results are available on website.https://www.macrotrends.net/stocks/charts/AAPL/apple/current-ratio. Results of Apple provided by ChatGPT in table 17 shows that return on assets ratios increased from 17.48 in 2018 percentage to 27.39 percentage in 2022 which is green signal for investors because this increment indicates that investors are earning more same results are available on website.

https://www.macrotrends.net/stocks/charts/AAPL/apple/roa. Analysis of Apple done by ChatGPT in table 17 portrays that gross profit margin increased from 38,35 percentage in 2018 to 43.34 percentage in 2022 which is good news for all the stakeholders .same results are available on website https://www.macrotrends.net/stocks/charts/AAPL/apple/gross-margin

The Figure 4 presents the graphical presentation of cash flow statement analysis by ChatGPT and public data taken from annual reports. Here overall we found a significant changes in analysis of both. We conclude that to reject $H_3$ that ChatGPT exhibits superior proficiency in conducting cash flow statement analysis compared to financial managers. These results supported by (Jo, 2023; Laurila et al., 2024; Zhou & Li, 2023; Raza et al., 2024).

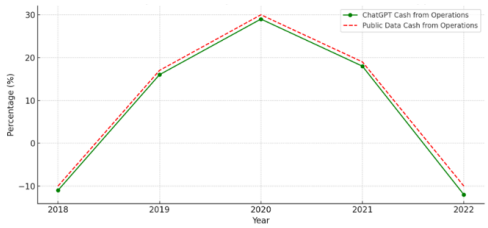



Figure 4: Income Statement Analysis Visuals
Source: Author's own

## 4.4. Financial Ratios Analysis

**Table 17** Apple Financial Ratios Analysis

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Liquidity Ratios** | | | | | |
| Current Ratio | 1.123 | 1.541 | 1.363 | 1.075 | 0.879 |
| Quick Ratio | 0.85 | 1.185 | 1.08 | 1.046 | 0.852 |
| **Leverage Ratios** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Debt-to-Equity Ratio | 0.873 | 1.009 | 2.352 | 4.289 | 6.574 |
| Debt Ratio | 0.387 | 0.444 | 0.506 | 0.798 | 0.936 |
| **Profitability Ratios** | | | | | |
| Gross Profit Margin | 38.35% | 37.84% | 38.25% | 41.79% | 43.34% |
| Net Profit Margin | 22.42% | 21.23% | 20.91% | 25.64% | 25.34% |
| Return on Assets (ROA) | 17.48% | 16.34% | 17.72% | 26.95% | 27.39% |
| Return on Equity (ROE) | 48.82% | 60.98% | 87.78% | 150.11% | 197.15% |
| **Assets Management Ratios** | | | | | |
| Asset Turnover Ratio | 0.724 | 0.768 | 0.849 | 1.041 | 1.118 |
| Inventory Turnover Ratio | 66.97 | 63.39 | 66.86 | 90.17 | 102.49 |
| Days Sales Outstanding (DSO) | 72.45 | 67.36 | 67.55 | 66.72 | 60.36 |
| Days Inventory Outstanding (DIO) | 5.46 | 5.75 | 5.45 | 4.04 | 3.56 |
| Days Payable Outstanding (DPO) | 30.13 | 27.99 | 24.47 | 26.64 | 23.42 |
| **Market Ratios (N/A)** | | | | | |

**Source:** Author's Calculations and ChatGPT

Analysis of Amazon provided by ChatGPT in table 18 represents that quick ratio decreased from 0.85 percentage in 2018 to 0.72 percentage in 2022 which is not good for information users. Same results are available on website. https://www.macrotrends.net/stocks/charts/AMZN/amazon/quick-ratio

Results of Amazon provided by ChatGPT in table 18 glimpse that debt to equity ratios decreases slightly from 2.73 percentage in 2018 to 2.17 percentage in 2022 and it is beneficial for company. Same results are uploaded on website.https://www.macrotrends.net/stocks/charts/AMZN/amazon/debt-equity-ratio. Analysis of Amazon provided by ChatGPT in table 18 indicates that earnings per share decreased from 1.01 in 2019 percentage to negative 0.27 in 2022 which is not suitable for shareholders. Same results are available on website. https://www.macrotrends.net/stocks/charts/AMZN/amazon/eps-earnings-per-share-diluted

**Table 18** Amazon Financial Ratios Analysis

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Liquidity Ratios** | | | | | |
| Current Ratio | 1.1 | 1.1 | 1.05 | 1.14 | 0.94 |
| Quick Ratio | 0.85 | 0.86 | 0.86 | 0.91 | 0.72 |
| **Leverage Ratios** | | | | | |
| Debt-to-Equity Ratio | 2.73 | 2.62 | 2.44 | 2.04 | 2.17 |
| Debt Ratio | 44.36% | 43.55% | 41.84% | 40.87% | 40.22% |
| **Profitability Ratios** | | | | | |
| Gross Profit Margin | - | - | - | - | 43.81% |

| | | | | | |
|---|---|---|---|---|---|
| Net Profit Margin | - | - | - | - | -0.53% |
| Return on Assets (ROA) | - | - | - | - | -0.62% |
| Return on Equity (ROE) | - | - | - | - | -1.86% |
| **Assets Management Ratios** | | | | | |
| Asset Turnover Ratio | 14.33 | 13.69 | 15.9 | 14.4 | 12.24 |
| Inventory Turnover Ratio | 10.36 | 10.64 | 16.22 | 14.08 | 13.47 |
| Days Sales Outstanding (DSO) | - | - | - | - | - |
| Days Inventory Outstanding (DIO) | - | - | - | - | - |
| Days Payable Outstanding (DPO) | - | - | - | - | - |
| **Market Ratios** | | | | | |
| Earnings Per Share | 1.01 | 1.15 | 2.09 | 3.24 | -0.27 |
| Market Capitalization | 794B | 932B | 1,631B | 1,661B | 1,824B |
| Book value per share | 113.68 | 160.59 | 231.74 | 318.68 | 347.89 |
| Price Earnings Ratio | 98.57 | 85.26 | 92.44 | 79.03 | - |

**Source:** Author's Calculations and ChatGPT

Analysis of findings of Microsoft done by ChatGPT in table 19 reveals that Asset turnover ratio in 2019 was 0.43 percentage and then it went up and finally in 2022 it reached at 0.54 which is good for the company. Same is available on website.https://www.stockanalysison.net/NASDAQ/Company/Microsoft-Corp/Ratios/Long-term-Investment-Activity. Results gained from ChatGPT in table 19 represents that net profit margin of Microsoft was 0.24 percentage in 2019 and then went increasing and finally it reached at 0.36 which is better for company. However, the results available on website are somehow change.
https://www.macrotrends.net/stocks/charts/MSFT/microsoft/net-profit-margin. Analysis obtained from ChatGPT in table 19 depicts that quick ratio was 2.45 then it started changing and reached to 1.84 percentage which is also good for company available on website is almost same https://www.macrotrends.net/stocks/charts/MSFT/microsoft/quick-ratio

**Table 19** Microsoft Financial Ratios Analysis

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Liquidity ratios** | | | | | |
| Current ratio | 2.48 | 2.9 | 2.53 | 2.52 | 2.08 |
| Quick ratio | 2.45 | 2.81 | 2.49 | 2.46 | 1.84 |
| **Leverage ratios** | | | | | |
| Debt-to-equity ratio | 1.44 | 1.42 | 1.12 | 0.94 | 0.73 |
| Debt ratio | 0.43 | 0.45 | 0.4 | 0.37 | 0.31 |
| **Profitability ratios** | | | | | |
| Gross profit margin | 0.62 | 0.65 | 0.66 | 0.68 | 0.69 |
| Net profit margin | 0.24 | 0.15 | 0.31 | 0.31 | 0.36 |
| Return on assets (roa) | 0.064 | 0.137 | 0.147 | 0.183 | 0.200 |
| Return on equity (roe) | 0.200 | 0.384 | 0.374 | 0.431 | 0.437 |
| **Assets management ratios** | | | | | |
| Asset turnover ratio | 0.43 | 0.44 | 0.47 | 0.5 | 0.54 |
| Inventory turnover ratio | 37.44 | 32.86 | 37.56 | 41.53 | 33.78 |
| Days sales outstanding (dso) | 13.05 | 13.32 | 13.04 | 14.37 | 14.5 |
| Days inventory outstanding (dio) | 27.33 | 30.2 | 28.49 | 32.85 | 32.97 |

| | | | | | |
|---|---|---|---|---|---|
| Days payable outstanding (dpo) | 20.97 | 21.7 | 20.41 | 22.14 | 22.32 |
| **Market ratios (n/a)** | | | | | |

**Source:** Author's Calculations and ChatGPT

Analysis of Google received from ChatGPT in table 20 indicates that current ratio was 3.92 in 2018 then stated declining and reached 2.38 in 2022 which is not good for the information users. Same results are uploaded on website. https://www.macrotrends.net/stocks/charts/GOOG/alphabet/current-ratio Results provided by ChatGPT in table 20 depicts that debt-to-equity ratio of Google was 0.11 in 2018 and then started decreasing and reached at 0.08 in 2022 which is good news for the stockholders. Results available on website are different. https://www.macrotrends.net/stocks/charts/GOOGL/alphabet/debt-equity-ratio. Analysis provided by ChatGPT in table 20 shows that return on equity was 17.31 in 2018 and then started increasing and reached at 23.40 percentage in 2022 which is also good for the information users. Same results are available on website. https://www.macrotrends.net/stocks/charts/GOOG/alphabet/roe

**Table 20** Google Financial Ratios Analysis

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Liquidity Ratios** | | | | | |
| Current Ratio | 3.92 | 3.37 | 3.07 | 2.93 | 2.38 |
| Quick Ratio | 3.22 | 2.99 | 2.64 | 2.56 | 1.99 |
| **Leverage Ratios** | | | | | |
| Debt-to-Equity Ratio | 0.11 | 0.1 | 0.1 | 0.08 | 0.08 |
| Debt Ratio | 0.08 | 0.09 | 0.1 | 0.09 | 0.09 |
| **Profitability Ratios** | | | | | |
| Gross Profit Margin | 56.51% | 55.57% | 53.58% | 57.00% | 55.32% |
| Net Profit Margin | 22.49% | 21.22% | 22.03% | 29.54% | 21.21% |
| Return on Assets (ROA) | 13.21% | 12.46% | 12.58% | 21.17% | 16.41% |
| Return on Equity (ROE) | 17.31% | 17.06% | 18.07% | 30.18% | 23.40% |
| **Assets Management Ratios** | | | | | |
| Asset Turnover Ratio | 0.654 | 0.636 | 0.612 | 0.759 | 0.781 |
| Inventory Turnover Ratio | | | | | |
| Days Sales Outstanding (DSO) | 45.46 | 51.16 | 51.76 | 56.16 | 50.56 |
| Days Inventory Outstanding (DIO) | 10.11 | 8.65 | 5.23 | 3.09 | 4.24 |
| Days Payable Outstanding (DPO) | 21.15 | 21.22 | 20.1 | 18.69 | 18.48 |
| **Market Ratios (N/A)** | | | | | |

**Source:** Author's Calculations and ChatGPT

Results of Meta received from ChatGPT in table 21 depicts that current ratio was 1.59 in 2019 and reached at 1.68 percentage in 2022 which is good for the owners. Results available on website are change. https://www.macrotrends.net/stocks/charts/GOOG/alphabet/roe. Analysis received from ChatGPT in table 21 indicates that net profit margin of Meta was 26.15 in 2019 and then went up and down and finally reached at 19.88 which is not good for company. Similar results are available on website https://www.macrotrends.net/stocks/charts/META/meta-platforms/net-profit-margin. Results provided by chatgpt in table 21 reveals that return on assets was 17.33 in 2019 and then went up and finally reached at 12.49 percentage in 2022 which is not good news for owners. Results uploaded on website are same https://www.macrotrends.net/stocks/charts/META/meta-platforms/roa

**Table 21** Meta Financial Ratios Analysis

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| **Liquidity Ratios** | | | | |
| Current Ratio | 1.59 | 1.93 | 1.53 | 1.68 |
| Quick Ratio | 1.54 | 1.87 | 1.48 | 1.63 |
| **Leverage Ratios** | | | | |
| Debt-to-Equity Ratio | 0.1 | 0.08 | 0.11 | 0.21 |
| Debt Ratio | 0.08 | 0.09 | 0.1 | 0.09 |
| **Profitability Ratios** | | | | |
| Gross Profit Margin | 81.92% | 80.82% | 82.67% | 78.43% |
| Net Profit Margin | 26.15% | 32.87% | 33.76% | 19.88% |
| Return on Assets (ROA) | 17.33% | 24.72% | 26.56% | 12.49% |
| Return on Equity (ROE) | 23.18% | 30.67% | 31.46% | 18.45% |
| **Asset Management Ratios** | | | | |
| Asset Turnover Ratio | 0.53 | 0.74 | 0.71 | 0.63 |
| Inventory Turnover Ratio | 5.52 | - | - | - |
| **Market Ratios (N/A)** | | | | |

**Source:** Author's Calculations and ChatGPT

Figure 5 provides visuals for profitability analysis for ChatGPT output and public data output and it suggest that analysis in 2018 year is correct however ChatGPT fails to analysis accurately rest of the year. Hence we are rejecting $H_4$= ChatGPT exhibits superior proficiency in conducting financial ratios analysis compared to financial managers. These results are enclosed by (Caratiquit & Caratiquit, 2023; Bai et al., 2023; Raza & Tursoy, 2025; Nilov et al., 2024; Zhou et al., 2024).

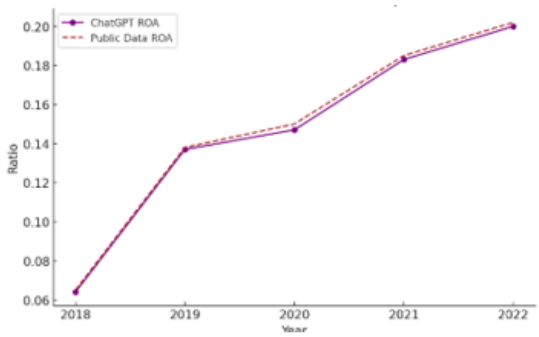



Figure 5: Profitability Visuals
Source: Author's own

## Conclusion and Policy Recommendations

This study aims to investigate the advantages of ChatGPT for financial statement analysts. Data for analysis have been gathered from the websites of the top five technology firms during a five-year period, from 2018 to 2022, to explore these benefits. Financial statements provide extensive data for consumers from several perspectives based on their preferences. This research analyzes financial statements, including the income statement, balance sheet, and cash flow statements, to ascertain the outcomes. The income statements of five leading technology companies were analyzed from 2018 to 2022, revealing that the results provided by ChatGPT were approximately 50% accurate and 50% inaccurate. This indicates that ChatGPT is neither beneficial nor reliable for assessing revenues, expenses, and various earnings across these companies. Also it is not fit for knowing the net income and net loss because if revenues and expenses are found incorrect then results will be unreliable. It is also observed that sometimes current ratios were found accurate and sometime inaccurate so this analysis by ChatGPT is not robust; moreover, the balance sheet ratios provided by ChatGPT are incredible. Cash flow statement ratios are sometimes found accurate sometimes inaccurate with respect to uploaded

on websites. Financial ratios from all three activities; investing, operating, and financing were also incredible and unreliable due to some misleading analysis by ChatGPT. We performed trend analysis, ChatGPT analysis, regression analysis and Pyton visuals all. No any analysis support our hypotheses. Hence, we concluded that ChatGPT is not good for financial analysis.

This research is undertaken to know the accuracy and robustness of ChatGPT. The current study can be interpreted as a first step in the research on financial statements analysis in technological sector with the help of ChatGPT. However, the results of this study should be treated with caution as the selected top five technological companies were more willing to make changes in their financial analysis and this ChatGPT is in its initial phase, limiting the ability of the app.

Future research might deem strategies to overcome obstacles in implementing accuracy in analysis. It could also contribute to a deeper understanding of the practices for suitable implementation of ChatGPT analysis for knowing the results. Practical implications are that this research exhibits that financial analysis provided by chatbot is not sufficient for utilizing in financial decisions and this chatbot should be updated enough for getting desired results.

It is recommended that in this analysis ChatGPT is used but further new version ChatGPT 4 should be used, and data were taken just for 5 years, and researcher can further take for more years like for 10 years or 50 years. In this research only 5 top technological companies were undertaken but 100 technological companies can be carried out for accuracy and reliability. Other sectors like textile sector, cement sector or manufacturing sector companies can be selected for further research. ChatGPT has also some limitations it can just provide analysis and doesn't take decisions.

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This study doesn't required any funding.

## Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

## Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

## Data Availability Statement

The data can be get from corresponding author made on available request.

Author Contribution Statement

**Sadam Ali Balal**: Conceptualization, Methodology, Validation, Investigation, Resources, Data curation, Writing - original draft, Writing - review & editing, Supervision, Project administration, Funding acquisition.

**Abdul Wajid Moroojo**: Software, Validation, Formal analysis, Resources, Data curation, Writing - original draft, Visualization, Funding acquisition.

**Muhammad Ramzan**: ChatGPT analysis, Visualization, Validation, Formal analysis, Resources, Data curation, Writing - original draft.

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