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The ability of efficiency and effectiveness indicators in explaining stock price performance: evidence from Palestine Exchange.

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Declaration

I declare that, except where explicit reference is made to the contribution of others, this thesis is substantially my own work and has not been submitted for any other degree at the Arab American University or any other institution.

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Abstract

This study examines the ability of efficiency and effectiveness indicators to explain stock price performance in the Palestine Exchange (PEX) during the period 2015–2024. The analysis focuses on three efficiency ratios—inventory turnover (IT), accounts receivable turnover (ART), and accounts payable turnover (APT)—and three effectiveness measures—return on sales (ROS), return on assets (ROA), and return on equity (ROE)—while accounting for firm size, firm age, and economic sector as control variables. The research employs a purposive sample of 21 non-financial firms representing the industrial, services, and investment sectors, generating 210 firm-year observations.

Given that normality tests (Kolmogorov–Smirnov and Shapiro–Wilk) indicated significant deviations from normality, non-parametric methods (Spearman correlations and Kruskal–Wallis tests) were applied alongside multiple regression models to ensure robust inference. The results revealed that efficiency indicators did not exhibit a statistically significant impact on stock prices, suggesting that short-term operational management is not a strong determinant of market valuation in PEX. Conversely, effectiveness indicators demonstrated significant associations with stock prices at the model level, although individual coefficients for ROA and ROE were weakened by multicollinearity. Control variables (firm size, firm age, and sector) did not materially alter the relationships, underscoring the limited role of structural firm characteristics in a thin and politically sensitive market.

The findings contribute to the literature by highlighting the weak pricing role of efficiency ratios in frontier markets and the partial relevance of profitability indicators in explaining stock price movements. This suggests that investors in PEX place greater emphasis on broader financial effectiveness and external macroeconomic conditions than on operational turnover metrics. The study provides practical implications for investors, corporate managers, and policymakers, emphasizing the need for enhanced market transparency and liquidity to improve the informational efficiency of PEX.

Keywords: Efficiency, Effectiveness, Stock Prices, Palestine Exchange, Financial Ratios.

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Chapter One: Introduction

1.1 Introduction

In stock markets worldwide, efficiency and effectiveness indicators serve as essential tools for assessing a company's operational success and profitability. These indicators help stakeholders understand how well firms utilize their resources and generate returns, providing insights into overall business sustainability. However, the application of these indicators in emerging and constrained economies, such as Palestine, remains underexplored, necessitating further investigation.

The relationship between financial performance indicators and stock prices has been a subject of extensive research in developed markets, yet there is limited evidence from developing markets like Palestine with a unique financial environment characterized by political instability, restricted market access, and limited foreign investment, all of which influence corporate financial performance and investor behavior in ways not observed in more developed markets.

Understanding whether efficiency and effectiveness indicators significantly impact stock prices in the PEX can bridge this research gap. This study aims to analyze if and how efficiency indicators (e.g., turnover ratios) and effectiveness indicators (e.g., profitability ratios) explain variations in stock prices for firms listed on the PEX. By exploring these linkages, the research will provide actionable insights for decision-makers, enabling them to make more informed investment decisions and enhancing the predictive tools available in the Palestinian financial market.

1.2 Research Problem

The relationship between financial performance indicators and stock prices has been widely examined in financial research, with studies consistently highlighting the role of financial analysis in predicting stock price movements. Prior research has shown that financial ratios, such as return on assets (ROA), return on equity (ROE), and various turnover ratios, can provide meaningful insights into a company's value, helping investors assess potential risks and returns (Kohansal, Dadrasmoghaddam, Karmozdi, & Mohseni, 2013). For instance, Kohansal et al. (2013) demonstrated a strong positive relationship between profitability indicators and stock prices in emerging markets. Similarly, Patin, Rahman, & Mustafa (2020) found that operational efficiency, as measured by asset turnover ratios, positively influenced stock performance across diverse industries. These studies underscore the importance of financial analysis as a tool for stock price prediction, providing a framework for investors and decision makers to understand value generation within companies.

However, stock prices are influenced by a multitude of factors beyond financial performance. Studies have highlighted those macroeconomic factors, such as GDP growth, inflation, and interest rates, as well as firm-specific elements like size and age, play a crucial role in stock price fluctuations (Amanda, 2019; Zaman, 2021). External influences, such as geopolitical events and regulatory policies, also impact stock prices, particularly in politically sensitive regions (Warrad & Al Omari, 2015). Therefore, while financial ratios provide essential insights, they must be considered alongside broader economic and firm-level factors to accurately predict stock movements.

Despite extensive research on this topic, there is a significant gap in studies focusing on the Palestine Exchange (PEX), which operates within a unique economic and political context. The Palestinian market is shaped by specific challenges, including economic volatility, geopolitical instability, and regulatory constraints, which distinguish it from other emerging markets. These factors may alter the way financial performance indicators interact with stock prices, making it essential to examine these variables in the context of the PEX. Financial performance in Palestine could play a distinct role in stock price prediction, affected by the region's unique economic and political landscape.

Therefore, this study seeks to fill this gap by analyzing the impact of financial performance indicators on stock prices within the Palestinian market. By examining efficiency ratios (such as inventory, accounts receivable turnover and accounts payable turnover) and effectiveness ratios (such as return on equity, assets and sales and return on assets), this research will assess whether these indicators can reliably predict stock prices in the context of the PEX. The findings are expected to provide insights for investors, analysts, and decision makers, enhancing their understanding of stock price drivers within the Palestinian market and contributing to more informed investment and managerial decisions.

1.3 Research Significance and Justifications

This research addresses a critical gap in understanding the role of financial performance indicators in predicting stock prices within the unique environment of the Palestine Exchange (PEX).

By focusing on Palestine, this research brings added value by adapting and testing these financial indicators in a context where external factors—such as political instability, economic sanctions, and limited market liquidity—can significantly influence stock performance. The findings could provide local investors with more reliable tools for assessing stock value, thereby enhancing their ability to make informed decisions in a volatile environment.

Additionally, this study will expand academic knowledge on the interplay between financial performance and stock prices in emerging and frontier markets. The results are expected to contribute to the literature on stock price determinants, offering comparative insights for researchers interested in studying similar economies facing political and economic challenges.

1.4 Research Objectives

Main Objective

The primary objective of this research is to examine whether financial analysis, specifically through the use of selected financial performance indicators, plays a significant role in determining stock prices for companies listed on the Palestine Exchange (PEX). By evaluating the impact of key financial ratios, this study aims to determine if these indicators can serve as reliable tools for predicting stock price performance in the unique context of the Palestinian market.

Sub-Objectives

To achieve the main objective, the study will address the following specific sub-objectives:

1. To assess the impact of efficiency indicators on stock prices of firms listed on the PEX. This includes:
    - Analyzing the statistical significance of inventory turnover (IT)on stock prices.
    - Evaluating the influence of accounts receivable turnover (ART) on stock prices.
    - Investigating the effect of accounts payable turnover (APT) on stock prices.
2. To evaluate the role of effectiveness indicators in influencing stock prices of firms listed on the PEX. This includes:
    - Determining the statistical significance of return on sales (ROS) on stock prices.
    - Assessing the effect of return on assets (ROA) on stock prices.
    - Examining the impact of return on equity (ROE) on stock prices.
3. To explore the impact of control variables (firm’s age, size &economic sector) on stock prices.

1.5 Research Hypotheses

This study proposes two main hypotheses, focusing on the roles of efficiency and effectiveness indicators in predicting stock prices, along with sub-hypotheses for each category. Additionally, a hypothesis is included to test for the effect of control variables.

Main Hypothesis:

1. **Efficiency Indicators:**

   H1: Efficiency indicators have a statistically significant impact on stock prices of firms listed on the Palestine Exchange (PEX).

- **Sub-Hypotheses for Efficiency Indicators**:

- *H1.1:* Inventory turnover has a statistically significant impact on stock prices.
- *H1.2:* Accounts receivable turnover has a statistically significant impact on stock prices.
- *H11.3:* Accounts payable turnover has a statistically significant impact on stock prices.

2. **Effectiveness Indicators:**

   H2: Effectiveness indicators have a statistically significant impact on stock prices of firms listed on the Palestine Exchange (PEX).

- **Sub-Hypotheses for Effectiveness Indicators**:

  - *H2.1:* Return on sales has a statistically significant impact on stock prices.
  - *H2.2:* Return on assets has a statistically significant impact on stock prices.
  - *H2.3:* Return on equity has a statistically significant impact on stock prices.

3. **Control Hypothesis:**

   H3: There is no statistically significant difference in the relationship between financial ratios and stock prices when accounting for firm size, firm age and economic sector.

- **Sub-Hypotheses for control Indicators**:

  - H3.1: There is no statistically significant difference in the relationship between inventory turnover and stock prices when accounting for firm size, firm age, and economic sector.

- H3.2: There is no statistically significant difference in the relationship between accounts receivable turnover and stock prices when accounting for firm size, firm age, and economic sector.
- H3.3: There is no statistically significant difference in the relationship between accounts payable turnover and stock prices when accounting for firm size, firm age, and economic sector.
- H3.4: There is no statistically significant difference in the relationship between return on sales and stock prices when accounting for firm size, firm age, and economic sector.
- H3.5: There is no statistically significant difference in the relationship between return on assets and stock prices when accounting for firm size, firm age, and economic sector.
- H3.6: There is no statistically significant difference in the relationship between return on equity and stock prices when accounting for firm size, firm age, and economic sector.

1.6 Research Methodology

This study employed a quantitative research methodology using secondary data gathered from financial statement of listed companies between period of 2015-2024 to examine the relationship between financial performance indicators and stock prices for companies listed on the Palestine Exchange (PEX).

1.6.1 Data Collection and Source

The research relied on secondary data gathered from audited financial statements of companies listed on the PEX. This data covered the period from 2015 to 2024, allowing for a comprehensive analysis over an extended timeframe. Secondary data sourced directly from the official PEX website, as well as from financial reports published by the companies. These data sources provided reliable and consistent information on key financial performance indicators, such as inventory turnover, accounts receivable turnover, return on assets, and return on equity, which are central to this study.

1.6.2 Population and Sampling

The study's population includes all non-financial companies listed on the PEX during the period from 2015 to 2024. The non-financial sector is chosen to avoid the unique financial reporting characteristics and regulatory requirements specific to financial institutions, which could introduce variability in the data. A purposive sampling technique applied to select companies that have been consistently listed on the exchange during the study period and have complete and accessible financial records for the required variables.

1.6.3 Variables definitions and measurement:

1. Independent Variables (Efficiency Indicators)

- **Inventory Turnover (IT)**

  Inventory turnover measures how efficiently a company uses its inventory to generate sales. It is calculated as the ratio of cost of goods sold (COGS) to the average inventory value. A higher inventory turnover ratio indicates effective inventory management and quick conversion of inventory into sales (CFA Institute, 2011).

- **Accounts Receivable Turnover (ART)**

  Accounts receivable turnover measures how effectively a company collects its receivables from customers. It is calculated by dividing net credit sales by the average accounts receivable. A higher ratio implies efficient credit management and timely collection from customers (Brigham & Ehrhardt, 2016).

- **Accounts Payable Turnover (APT)**

  Accounts payable turnover indicates how quickly a company pays its suppliers. It is calculated by dividing net credit purchases by the average accounts payable. A higher ratio suggests that the company is paying its obligations quickly, which may help establish good relationships with suppliers (Ross, Westerfield, & Jaffe, 2013).

2. **Independent Variables (Effectiveness Indicators)**

- **Return on Sales (ROS)**

  Return on sales, or operating margin, shows the percentage of revenue remaining after operating expenses. It is calculated as operating profit divided by net sales, expressed as a percentage. ROS reflects the efficiency of core business operations in generating profit (Gitman & Zutter, 2015).

- **Return on Assets (ROA)**

  Return on assets measures how efficiently a company utilizes its assets to generate profit. It is calculated by dividing net income by total assets. A higher ROA indicates better asset utilization in producing income (CFA Institute, 2011).

- **Return on Equity (ROE)**

  Return on equity measures the profitability relative to stockholders' equity. It is calculated by dividing net income by stockholders' equity, showing how effectively a company uses equity investment to generate profit (Bodie, Kane, & Marcus, 2014).

3. **Control Variables**

- **Company Size**

Company size is typically measured as the natural logarithm of total assets. This measure is used to control for the influence of firm size on stock performance, as larger firms may have different financial behaviors compared to smaller ones (Dang, Li, & Yang, 2018).

- **Company Age**

Company age is measured as the natural logarithm of the number of years a firm has been in operation. Older companies are often more established, which can impact stock performance and stability (Pastor & Veronesi, 2003).

- **Economic Sector**

Economic sector categorizes companies based on their industry (e.g., industrial, consumer goods, technology). Each sector can behave differently in terms of stock performance, as market conditions and risks vary by sector (Fama & French, 1997).

4. Dependent Variable

- **Stock Price (SP)**

Stock price represents the market value of a company's stocks. It can be influenced by both internal financial performance and external factors like economic conditions. In this study, stock price performance is calculated as the percentage change in the stock price, adjusted for dividends. Stock prices reflect investor sentiment and perceptions about a company's future earnings potential (Brealey, Myers, & Allen, 2014).

TABLE 0.1:VARIABLES MEASUREMENTS

Acronym	Variables Measurement	Source
1.Independent Variables		
Independent Variables (Efficiency Indicators)		
IT	COGS / Average Value of Inventory	CFA Institute, 2011
ART	Net Credit Sales / Average Accounts Receivable	Brigham & Ehrhardt, 2013
APT	Net Credit Purchases / Average Account Payable	Ross, Westerfield, & Jaffe, 2013
Independent Variables (Effectiveness Indicators		
ROS	Operating Profit / Net Sales * 100%	Gitman & Zutter, 2012
ROA	Net Income / Total Assets	CFA Institute, 2011
ROE	Net Income / Shareholders' Equity	Bodie, Kane, & Marcus, 2014
2.Control Variables		
Size	Natural log of total assets	Dang, Li, & Yang, 2018
Age	Natural log of age	Pastor & Veronesi, 2003
sector	Dummy Variables	Fama & French, 1997
3.Dependent Variable		
SP	((Ending Price-Beginning Price) + Dividends) / Beginning Price	Brealey, Myers, & Allen, 2014

1.6.4 Theoretical framework

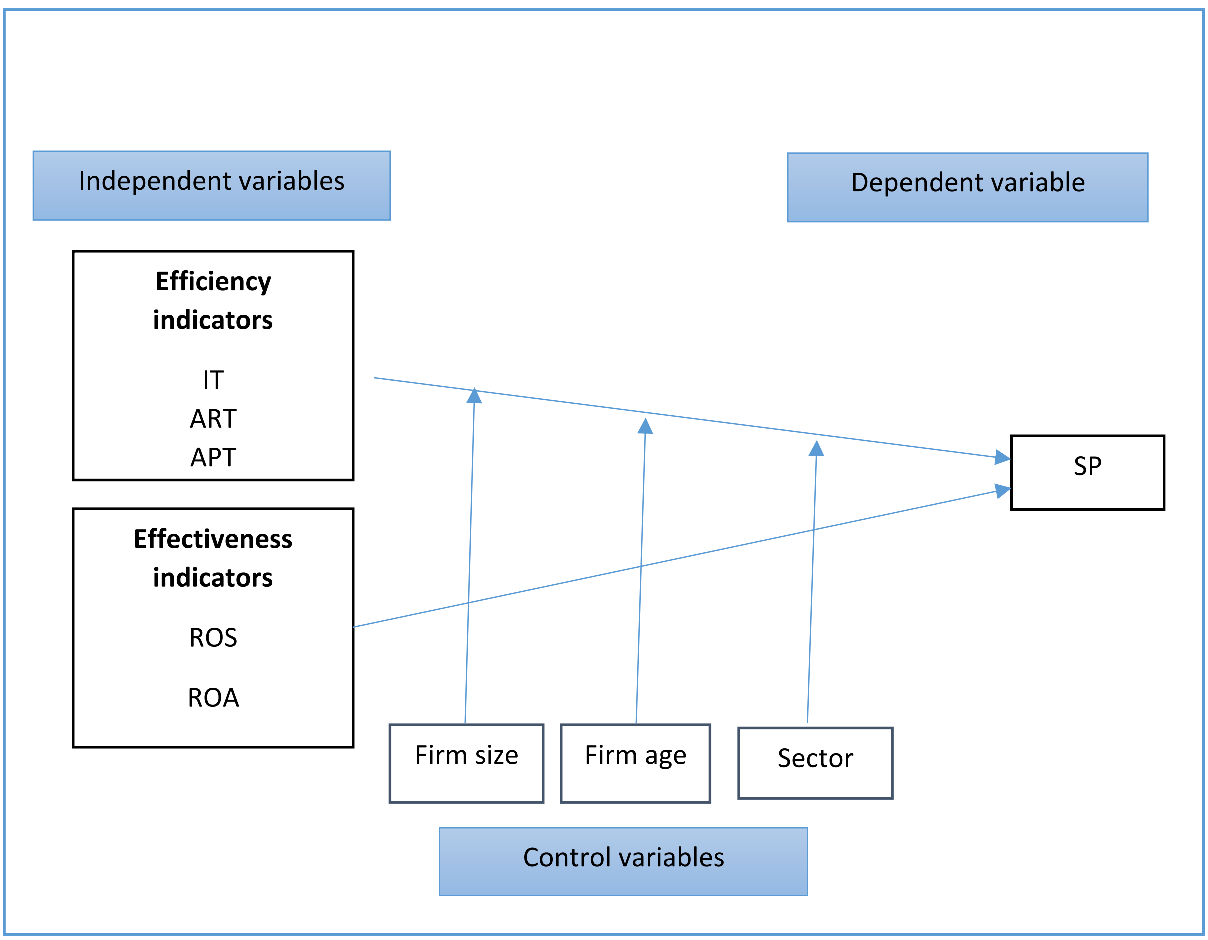

FIGURE 0.1: THEORETICAL FRAMEWORK

Chapter Two: Literature Review

2.1 Palestine Stock Exchange

The Palestine Exchange (PEX) was established in 1995 as a private shareholding company with the aim of creating an organized marketplace for securities trading. It officially commenced operations in February 1997 with full electronic trading, clearing, and settlement systems, becoming one of the first fully automated exchanges in the region (SSE Initiative, n.d.). In 2010, PEX was transformed into a publicly listed company, making it distinctive among Arab exchanges as both a trading platform and a listed entity (SSE Initiative, n.d.). Oversight is exercised by the Palestinian Capital Market Authority (PCMA), which enforces regulations on disclosure, listing, and brokerage to ensure transparency and investor protection (PCMA, 2025). Over nearly three decades, PEX has evolved into a central component of Palestine's financial infrastructure despite persistent political and economic instability.

The market is organized into five primary sectors**:** banking and financial services, insurance, investment, industry, and services. This composition mirrors the structure of the Palestinian economy, where financial institutions and service companies dominate formal activity (PCMA, 2024). As of 2024, forty-eight companies were listed, with an aggregate market capitalization estimated between USD 4.1 and 4.3 billion (SSE Initiative, n.d.; Trading Economics, 2024). The banking sector represents the largest share of capitalization, followed by investment and service firms, while the insurance and industrial sectors remain comparatively small. This sectoral distribution has important implications for index performance and liquidity since large banks and investment firms often drive overall market trends.

The flagship benchmark of the exchange is the **Al-Quds Index**, which measures the performance of the most actively traded companies. Constituents are selected annually according to liquidity and turnover criteria to maintain representativeness (Palestine Exchange, n.d.). In addition to the Al-Quds Index, the exchange has developed specialized indices, including an Islamic index to accommodate Shariah-compliant investment needs (PCMA, 2024). The indices are widely monitored by domestic and regional investors as barometers of corporate performance and broader economic sentiment.

Trading activity at PEX has been highly volatile. For instance, the total value of traded shares declined sharply from about USD 331 million in 2023 to approximately USD 164 million in 2024, reflecting reduced investor confidence and a slowdown in economic activity (Bureau of News, 2025). Market capitalization during 2024 stood at around USD 4.2 billion, but the turnover ratio—value traded relative to market capitalization—remained modest compared to regional peers (Trading Economics, 2024). Despite these fluctuations, December 2024 recorded a rebound in trading volume and values, indicating some resilience within the market (MAS, 2025).

The investor base of PEX consists of domestic institutional investors such as banks, insurers, and investment companies, alongside individual retail investors and a smaller number of foreign participants. The broker community remains limited in number, and ownership concentration in leading companies restricts free-float shares available for trading (PCMA, 2024). These structural characteristics influence liquidity, bid–ask spreads, and overall market efficiency. Furthermore, reports highlight gender disparities in trading participation, with female investors accounting for a relatively low share of volume and value (PCMA, 2025).

PEX also faces multiple challenges that constrain its development. The Palestinian economy has been severely affected by geopolitical instability, restrictions on movement, and recurrent conflicts. The Palestine Monetary Authority (2024) reported a sharp contraction in 2024, driven by disruptions in Gaza, clearance-revenue shortfalls, and liquidity pressures, which adversely affected financial stability. Additional constraints include dependence on multiple foreign currencies, particularly the Israeli shekel, and the problem of excess-shekel liquidity, which complicates monetary policy and intermediation (PMA, 2024). These macroeconomic conditions, combined with thin market depth and concentration risk, have heightened volatility and undermined investor confidence.

Despite these obstacles, PEX retains institutional strengths that could support its future development. Its transparent index methodology, fully electronic infrastructure, and regulated oversight framework offer a foundation for greater efficiency once broader economic conditions improve (Palestine Exchange, n.d.; IMF, n.d.). For researchers, PEX provides a relevant context to analyze how efficiency and effectiveness interact in shaping stock prices. Variations in liquidity, turnover, and firm performance metrics directly influence the pricing process, making PEX an instructive case study for evaluating the link between corporate effectiveness and market valuation.

2.2 Efficiency and effectiveness Indicators

Efficiency refers to the ability to achieve a desired outcome with the least amount of resources, time, or effort. It focuses on maximizing outputs while minimizing inputs, ensuring that processes are performed in the most economical way possible. Effectiveness, on the other hand, is about achieving the intended or desired results. It measures the extent to which objectives are met, regardless of the resources used. Effectiveness is concerned with the quality and impact of the outcomes rather than how efficiently they were produced(Pitofsky,1998)

2.2.1 Efficiency Indicators

Turnover ratios, such as inventory turnover, accounts receivable turnover, and accounts payable turnover, are essential tools in financial analysis, providing insights into a company's operational efficiency and liquidity. These ratios can significantly influence corporate stock prices by reflecting how effectively a company manages its assets, receivables, and payables. This section explores how these turnover ratios explain changes in corporate stock prices through financial analysis methods, supported by evidence from various studies.

2.2.1.1 Inventory Turnover (IT)

Inventory turnover is a fundamental financial ratio that reflects the efficiency with which a company manages its inventory relative to the cost of goods sold. Conceptually, it measures the number of times inventory is sold and replaced over a given period, typically a fiscal year. A high inventory turnover ratio generally indicates efficient inventory management, which can positively impact stock prices by signaling strong demand and operational efficiency. Studies have shown that efficient inventory management, as indicated by a healthy inventory turnover ratio, can lead to higher stock prices due to improved profitability and reduced holding. In contrast, a low inventory turnover ratio may suggest weak sales or excess inventory, potentially leading to decreased investor confidence and lower stock prices costs (Wirasedana & Setiawan, 2020) (Fitriani et al., 2022). However, a very high inventory turnover ratio may signal potential issues such as low margins or poor demand, which could negatively impact stock prices (Şanlı, 2024) (Dayi & Ulusoy, 2020) (Brigham & Daves, 2021). It is calculated as the ratio of cost of goods sold (COGS) to the average inventory value. (CFA Institute, 2011).

The average inventory is typically derived by averaging the beginning and ending inventory balances for the same period. From an analytical standpoint, the inventory turnover ratio offers valuable insights into how efficiently a firm utilizes its resources to generate sales revenue, making it particularly relevant in evaluating operational performance across various industries (Atrill & McLaney, 2019).

The interpretation of inventory turnover must be contextualized within industry norms. For example, firms operating in the retail or consumer goods sectors typically exhibit high turnover ratios due to fast-moving inventories, whereas companies in capital-intensive sectors such as heavy manufacturing or aerospace may display lower turnover figures due to longer production cycles and higher unit costs (Hillier et al., 2019). Therefore, benchmarking this ratio against industry averages is crucial for accurate financial analysis.

Several internal and external factors influence inventory turnover performance. Internally, firms with advanced demand forecasting systems and integrated supply chains—such as those employing just-in-time (JIT) inventory systems—are better positioned to maintain optimal stock levels and reduce holding costs (Fullerton et al., 2003). Moreover, the use of inventory classification methods such as ABC analysis can enhance decision-making by prioritizing high-value or high-turnover items. External factors such as seasonality, macroeconomic conditions, and changes in consumer preferences also impact inventory flows and should be carefully considered.

The inventory turnover ratio plays a significant role in assessing a firm's liquidity and operational efficiency. It directly influences the cash conversion cycle (CCC), which measures the time it takes for a company to convert its investments in inventory and other resources into cash flows from sales. A high inventory turnover ratio generally corresponds to a shorter CCC, thereby improving working capital efficiency and enabling firms to reinvest cash more rapidly (Deloof, 2003). Furthermore, inventory turnover feeds into broader profitability analyses, such as the DuPont framework, by affecting asset turnover and, ultimately, return on equity (ROE).

Nonetheless, the utility of the inventory turnover ratio is not without limitations. For instance, the ratio may be distorted by inventory valuation methods, particularly under inflationary conditions or when inventory is reported at historical cost. Moreover, management may manipulate either the cost of goods sold or the average inventory balance to present a more favorable picture of efficiency (Schroeder et al., 2020). Therefore, it is recommended that this ratio be interpreted alongside complementary indicators, such as gross profit margin, inventory days, and sales growth, to gain a holistic understanding of inventory performance.

Technological advancements and internal control systems play a pivotal role in enhancing inventory turnover. The integration of Enterprise Resource Planning (ERP) systems has enabled real-time inventory tracking, improved demand forecasting, and more agile procurement strategies. Furthermore, robust internal controls, including regular inventory audits, cycle counting, and segregation of duties, help ensure the accuracy and reliability of inventory records, thereby supporting informed decision-making (Romney & Steinbart, 2020). The adoption of predictive analytics has also allowed firms to proactively adjust stock levels in response to shifting demand patterns, minimizing the risk of overstocking or stockouts.

From a capital markets perspective, inventory turnover may influence stock price performance by signaling managerial competence and operational agility. According to the Efficient Market Hypothesis (Fama, 1970), financial ratios that reflect a company's economic fundamentals—such as inventory turnover—are quickly incorporated into market valuations. High turnover ratios can be interpreted as a positive signal of effective inventory control and strong product demand, thereby attracting investor interest. Similarly, signal theory posits that managerial decisions affecting operational metrics, such as turnover ratios, convey information to investors regarding the firm's strategic direction and operational health (Spence, 1973).

Empirical studies have substantiated the theoretical link between inventory turnover and firm value. For instance, Gaur, Fisher, and Raman (2005) found that retail firms with higher inventory turnover and balanced service levels tended to generate superior shareholder returns. In a more recent study, Şanlı (2024) analyzed firms listed on the BIST 30 Index and found a statistically significant positive relationship between inventory turnover and stock return, particularly in manufacturing and consumer sectors. Similarly, Chen et al. (2020) reported that Chinese firms with efficient inventory management practices experienced enhanced market valuation and profitability, highlighting the global relevance of this financial metric.

Despite these findings, gaps remain in the literature. Most studies emphasize linear relationships, neglecting the possibility of diminishing returns when turnover is pushed beyond optimal levels. Furthermore, cross-country analyses are limited, particularly in emerging markets where structural and institutional differences may affect the dynamics between inventory efficiency and stock performance. Future research could benefit from exploring these dimensions and investigating the moderating roles of governance quality, industry competition, and macroeconomic volatility.

In conclusion, inventory turnover is a multidimensional indicator that provides critical insights into a firm's operational effectiveness, liquidity, and strategic foresight. When interpreted carefully within the appropriate industry context and alongside other financial ratios, it can serve as a reliable predictor of firm performance and investor perception. As business environments grow increasingly dynamic and data-driven, maintaining an optimal balance between inventory efficiency and market responsiveness remains essential for sustainable value creation.

2.2.1.2 Accounts Receivable Turnover (ART)

The accounts receivable turnover ratio is a critical indicator of a firm's efficiency in managing its credit policies and collecting payments from customers. It measures how many times, on average, a firm collects its receivables during a specific accounting period, typically one year. A high ratio indicates efficient collection processes, which can improve cash flow and, in turn, positively impact stock prices. (Brigham & Ehrhardt, 2016). Research has found that a high accounts receivable turnover ratio is positively correlated with stock prices, as it reflects efficient cash flow management and reduced liquidity risks (Dayi & Ulusoy, 2020) (Lubis & Purwanto, 2022).in contrast a low accounts receivable turnover ratio may indicate poor credit management, leading to reduced cash flow and lower stock prices (Wulandari, Pakpahan, Toni, & Simorangkir, 2022) (Asadanie, 2024). It is calculated by dividing net credit sales by the average accounts receivable. Theoretically, A high ratio indicates efficient collection processes, which can improve cash flow and, in turn, positively impact stock prices. (Brigham & Ehrhardt, 2016)

Efficient management of accounts receivable is essential for maintaining healthy cash flows, especially in firms where a significant portion of sales is conducted on credit. Delays in receivable collection can adversely affect liquidity, increase reliance on external financing, and reduce profitability. In contrast, swift collection cycles reduce the need for working capital financing and contribute positively to the firm's cash conversion cycle (Deloof, 2003).

The receivables turnover ratio also plays a strategic role in evaluating operational efficiency. It reflects not only the firm's internal credit control mechanisms but also its relationships with customers and their payment behaviors. A consistently high turnover ratio can be an indicator of strong customer creditworthiness or robust enforcement of payment terms. However, excessively high turnover may also suggest overly restrictive credit policies that could constrain sales growth and market competitiveness, especially in sectors where credit-based transactions are standard practice (Pandey, 2021).

From an analytical standpoint, the interpretation of this ratio requires caution. For example, if net credit sales are not reported separately from total sales, the ratio may be overstated. Furthermore, seasonal sales fluctuations and end-of-period collections can distort average accounts receivable, thereby affecting the reliability of the ratio. As such, analysts often supplement the ratio with accounts receivable days or aging schedules to gain a more nuanced understanding of collection efficiency (White, Sondhi, & Fried, 2003).

Technological advancements have had a profound impact on receivables management. The implementation of automated invoicing systems, customer relationship management (CRM) platforms, and integrated enterprise resource planning (ERP) software allows firms to track receivables in real time, send timely payment reminders, and segment customers based on payment behaviors. These tools enable more accurate risk assessment and facilitate proactive credit management strategies (Romney & Steinbart, 2020).

In theoretical terms, the accounts receivable turnover ratio can be linked to firm value through the lens of agency theory and signaling theory. Efficient receivables management signals competent financial stewardship and reduces the risk of cash flow constraints, which can enhance investor confidence and positively influence stock prices (Spence, 1973). Moreover, effective credit control reduces agency costs by ensuring that managers optimize working capital in the interest of shareholders (Jensen & Meckling, 1976).

Empirical evidence supports the relevance of accounts receivable turnover in explaining firm performance. For example, Şanlı (2024) identified a statistically significant positive relationship between accounts receivable turnover and stock returns among firms listed on the BIST 30 Index. The study noted that firms with superior collection efficiency often exhibited higher profitability and market valuation. Similarly, Lazaridis and Tryfonidis (2006), using data from Greek listed firms, found that shorter accounts receivable cycles were associated with improved firm profitability.

Nonetheless, the literature still lacks consensus on the optimal level of receivables turnover, particularly across different industries and economic contexts. While tight credit policies may reduce default risk, they may also limit customer acquisition and retention. Future research may explore the trade-off between sales growth and collection risk, as well as the moderating role of industry norms, credit ratings, and macroeconomic volatility.

In summary, the accounts receivable turnover ratio is a vital indicator of a firm's financial discipline, credit risk exposure, and working capital efficiency. When interpreted within the broader financial context and complemented with other liquidity and profitability metrics, it provides a meaningful lens through which to assess firm performance and potential value creation. For investors, creditors, and management alike, improving receivable efficiency remains a key strategic objective.

2.2.1.3 Accounts Payable Turnover (APT)

The accounts payable turnover ratio is a key financial efficiency indicator that measures how frequently a firm settles its obligations to suppliers within a specific accounting period. It reflects the firm's payment practices and its short-term liquidity position.

A high ratio indicates efficient payment processes, which can improve supplier relationships and reduce financing costs. Studies shows an efficient payment processes, as indicated by a high accounts payable turnover ratio, can lead to better supplier relationships and reduced financing costs, positively impacting stock prices (Gupta, Patni, Choubey, & Sharma, 2022) (Husni & Wijaya, 2023).in contrast, a low accounts payable turnover ratio may indicate poor cash flow management or strained supplier relationships, which could negatively impact stock prices (Wang, 2024) (Adiandari & Astuti, 2023). It is calculated by dividing net credit purchases by the average accounts payable (Ross, Westerfield, & Jaffe, 2013)

From a working capital management perspective, the accounts payable turnover ratio plays a crucial role in the firm's cash conversion cycle (CCC). It directly affects the duration of time the company can retain cash before paying suppliers. Extending accounts payable—within reasonable and ethical bounds—can provide a form of interest-free financing that enhances liquidity. However, excessively delayed payments may harm supplier relationships, result in penalties, or damage the firm's reputation (Deloof, 2003).

The interpretation of this ratio is highly context-dependent and varies across industries. For example, firms in retail or fast-moving consumer goods (FMCG) often negotiate short credit terms due to the rapid turnover of goods, leading to higher accounts payable turnover. In contrast, industrial manufacturers may negotiate extended payment cycles to match longer production schedules and working capital needs (Hillier et al., 2019).

Importantly, a high accounts payable turnover ratio is not universally positive. While prompt payment may signal strong financial health, it may also indicate a failure to utilize credit terms effectively, thereby foregoing opportunities to reinvest cash in other revenue-generating activities. On the other hand, a very low turnover ratio may suggest over-reliance on trade credit, which can expose the firm to interest rate risks, supplier concentration, or disruptions in the supply chain (Pandey, 2021).

Technological integration and supplier management systems have significantly enhanced firms' ability to optimize accounts payable practices. Enterprise Resource Planning (ERP) platforms enable automatic tracking of due dates, dynamic discount management, and improved cash forecasting. These tools allow companies to align payment cycles with their broader liquidity strategies, contributing to both operational efficiency and strategic supplier partnerships (Romney & Steinbart, 2020).

From a theoretical perspective, the accounts payable turnover ratio is often analyzed within the framework of trade credit theory, which views accounts payable as a form of short-term financing. According to pecking order theory, firms may prefer internal financing, followed by trade credit, before seeking external debt or equity (Myers &

Majluf, 1984). Thus, the ratio reflects not only payment behavior but also managerial preferences in financing operations.

Empirical studies support the relevance of the accounts payable turnover ratio in explaining financial performance and stock price behavior. For instance, Lazaridis and Tryfonidis (2006) found that longer accounts payable periods were positively associated with profitability among Greek firms, particularly when coordinated with efficient inventory and receivables management. Similarly, Shin and Soenen (1998) demonstrated that firms optimizing their working capital components, including accounts payable turnover, tend to enhance shareholder value. In a more recent study, Şanlı (2024) observed that firms with stable and strategically managed payables exhibited better stock returns and lower volatility.

Despite its importance, the accounts payable turnover ratio must be interpreted with caution. It may be distorted by inconsistent recording of purchases, seasonal procurement fluctuations, or end-of-period payment practices. Furthermore, the ratio alone cannot capture qualitative aspects of supplier relationships, such as dependency, negotiation power, or the impact of early payment discounts. Therefore, it is often complemented with additional metrics such as days payable outstanding (DPO) and supplier concentration ratios.

In conclusion, the accounts payable turnover ratio is a vital tool for evaluating a firm's short-term financial obligations and its strategy in managing trade credit. When balanced effectively with receivables and inventory management, it contributes significantly to liquidity optimization, cost control, and sustainable financial performance. However, its effectiveness as a performance indicator is contingent upon industry norms, firm-specific strategies, and the quality of supplier relationships.

2.2.2 Effectiveness Indicators

Financial effectiveness ratios, such as Return on Sales (ROS), Return on Assets (ROA), and Return on Equity (ROE), are critical metrics used by investors and analysts to evaluate a company's performance and its potential impact on stock prices. This response examines the impact of these ratios on stock prices, drawing insights from various studies across different industries and regions.

2.2.2.1 Return on Sales (ROS)

Return on Sales (ROS) is a key profitability indicator used to evaluate the effectiveness with which a company converts its revenue into operating profit. While ROS is an important indicator, its direct impact on stock performance is less frequently studied compared to ROA and ROE, its impact on stock prices can be inferred through related profitability metrics. For instance, higher ROS indicates better profitability, which can positively influence investor sentiment and, consequently, stock prices (Adhyma & Rahadi, 2024) (Nugroho, A. C., Fatonah, & Susanti, 2022).It is calculated as operating profit divided by net sales, expressed as a percentage (Gitman & Zutter, 2012).

This ratio provides insights into the firm's ability to control costs and maintain pricing strategies that sustain profitability. A higher ROS suggests that a greater portion of each unit of sales is retained as operating income, indicating efficient cost management, favorable pricing, and strong operational performance (Brigham & Daves, 2021).

Unlike gross profit margin, which considers only direct production costs, ROS accounts for broader operational expenses, including selling, general, and administrative (SG&A) costs. As such, it is a more comprehensive metric for evaluating managerial effectiveness in running the core business. For firms operating in competitive or cost-sensitive industries, ROS serves as a critical performance indicator in benchmarking against peers and evaluating strategic initiatives (Hillier et al., 2019).

ROS also plays a pivotal role in investment decision-making and firm valuation. According to the DuPont analysis, ROS—when combined with asset turnover and financial leverage—contributes to a firm's return on equity (ROE), thus linking operating efficiency with overall shareholder value. Investors often interpret stable or improving ROS as a signal of consistent internal control, disciplined expense management, and pricing power (White et al., 2003).

From a theoretical perspective, ROS can be analyzed through the lens of resource-based theory, which posits that firms with unique operational capabilities and superior resource deployment achieve sustained competitive advantage. High ROS may signal such capabilities, especially when driven by process innovation, brand strength, or supply chain efficiency (Barney, 1991). Furthermore, signaling theory suggests that firms reporting consistently high ROS ratios send positive signals to the market regarding future cash flows and risk management competence (Spence, 1973).

Empirical research has documented the association between ROS and firm performance across various sectors. For instance, Nanda and Panda (2018) found that ROS was a strong predictor of firm value among Indian manufacturing firms, especially in contexts where pricing competition was intense. In the context of the Turkish stock market, Şanlı (2024) reported a positive and statistically significant relationship between ROS and stock price performance among firms listed on the BIST 30 Index, highlighting the metric's relevance for both operational and market-based evaluations.

Nonetheless, ROS should not be viewed in isolation. As it is sensitive to fluctuations in operating income and revenue, sudden changes—such as those caused by price wars, regulatory shifts, or macroeconomic shocks—may distort the ratio's interpretive value. Moreover, ROS does not capture the impact of financing or tax strategies, which can significantly affect net profitability. Therefore, it is advisable to use ROS in conjunction with other profitability ratios, such as return on assets (ROA) and return on equity (ROE), for a comprehensive assessment.

In conclusion, Return on Sales is a robust measure of operational effectiveness that reflects a firm's ability to generate profit from its core business activities. It is widely regarded as a critical tool for internal performance evaluation, peer comparison, and investment analysis. When consistently monitored and interpreted within the broader financial context, ROS can provide valuable insights into strategic positioning, operational discipline, and long-term value creation.

2.2.2.2 Return on Assets (ROA)

Return on Assets (ROA) measures a company's efficiency in using its assets to generate profit from its total assets. serves as a fundamental measure of managerial efficiency in utilizing the company's resources to create value for shareholders. A higher ROA indicates better asset utilization in producing income (CFA Institute, 2011). Research on Indonesian manufacturing companies found that ROA has a positive and significant effect on stock prices, indicating that efficient asset utilization enhances investor confidence (Fari & Kurniawan, 2024) (Asadanie, 2024). Conversely, studies on technology sector companies and food and beverage manufacturers found that ROA does not have a significant impact on stock prices, suggesting that other factors may dominate investor decisions in these sectors (Fauziyanti, Linanjung, & Wanuri, 2024) (Yunior & Sirait, 2023). It is calculated by dividing net income by total assets

This ratio captures the relationship between profitability and asset base, offering insights into how effectively management is converting investments in assets—both current and non-current—into earnings. A higher ROA indicates superior operational performance, implying that the firm is able to extract more profit from each unit of asset employed (Brigham & Ehrhardt, 2016).

ROA is particularly useful for comparing companies across different sectors or of varying sizes, as it standardizes profitability relative to the asset structure. It is also essential for analyzing asset-intensive industries—such as manufacturing, utilities, and transportation—where significant capital investments are required. In such contexts, even modest increases in ROA may reflect substantial improvements in efficiency and cost control (Hillier et al., 2019).

From a theoretical standpoint, ROA aligns with the resource-based view (RBV) of the firm, which emphasizes the importance of utilizing strategic resources—such as capital assets, infrastructure, and intellectual property—effectively to gain a competitive advantage (Barney, 1991). Moreover, according to stewardship theory, a consistently high ROA may indicate responsible resource management and alignment of managerial interests with those of shareholders (Davis, Schoorman, & Donaldson, 1997).

ROA is also closely associated with investor perceptions and stock price behavior. Firms with higher ROA ratios are often viewed as being more efficient and less risky, thereby attracting investor confidence. According to the Efficient Market Hypothesis (Fama, 1970), financial indicators such as ROA are rapidly incorporated into market valuations. Empirical research supports this view; for instance, Chen et al. (2020) found that ROA had a significant positive impact on market valuation among listed Chinese industrial firms. Likewise, Şanlı (2024) observed that ROA was one of the most significant financial ratios associated with stock return performance in firms listed on the BIST 30 Index in Turkey.

However, like other financial ratios, ROA has its limitations. It is sensitive to changes in accounting policies, particularly those affecting asset valuation or depreciation methods. For example, firms using accelerated depreciation may report lower total assets and thus a higher ROA, even if underlying performance has not improved. Furthermore, ROA does not capture the effect of financial leverage, making it less useful for firms with high debt levels, where Return on Equity (ROE) may offer complementary insights (White et al., 2003).

In addition, ROA can be distorted in the presence of significant non-operating income or one-time gains, such as asset sales or revaluations. As such, analysts often rely on operating ROA, which excludes non-core income and focuses strictly on profits generated from core business operations. This variant provides a more accurate reflection of operational effectiveness, especially in comparative analyses.

In conclusion, Return on Assets is a central measure of organizational effectiveness and strategic resource utilization. Its significance lies in its ability to reflect how well management is deploying the firm's total asset base to produce sustainable profits. When interpreted in conjunction with other performance metrics, such as ROE, ROS, and turnover ratios, ROA provides a comprehensive picture of financial and operational efficiency that is highly relevant to internal stakeholders and external investors alike.

2.2.2.3 Return on Equity (ROE)

Return on Equity (ROE) is one of the most widely used financial effectiveness indicators, reflecting a firm's ability to generate net income relative to shareholders' equity. It measures how efficiently a company utilizes the capital invested by its owners to generate profits. It is calculated by dividing net income by stockholders’ equity, showing how effectively a company uses equity investment to generate profit (Bodie, Kane, & Marcus, 2014)

As a performance metric, ROE is highly regarded by investors and financial analysts because it captures both profitability and capital structure within a single ratio. A high ROE generally suggests effective management, strong operational performance, and potentially higher returns for equity holders (Brigham & Daves, 2021). For this reason, it is often considered a proxy for shareholder value creation.

ROE is also integral to the DuPont decomposition framework, which breaks the ratio into three components: profit margin, asset turnover, and equity multiplier. This breakdown provides a clearer understanding of the underlying drivers of equity returns—whether they stem from operational efficiency, asset utilization, or financial leverage (White et al., 2003). The DuPont analysis helps identify whether high ROE is the result of genuine performance or simply increased financial risk through debt financing.

From a theoretical standpoint, ROE aligns with both agency theory and shareholder value maximization principles. According to agency theory, a consistently high ROE may indicate that management is acting in the best interest of shareholders by allocating resources efficiently and minimizing agency costs (Jensen & Meckling, 1976). In capital markets, signaling theory posits that firms with high and stable ROE send positive signals regarding future profitability and managerial competence, which can positively influence stock price performance (Spence, 1973).

Empirical evidence confirms the relevance of ROE in evaluating financial performance and market valuation. For instance, Şanlı (2024) found that ROE was among the most statistically significant predictors of stock return in firms listed on the BIST 30 Index, suggesting that equity investors respond favorably to efficient capital utilization. Similarly, Nanda and Panda (2018), analyzing Indian firms, observed that ROE had a strong positive association with market-based performance indicators such as earnings per share and market-to-book ratio.

Despite its importance, ROE is not without limitations. One major drawback is its sensitivity to changes in capital structure. A firm may artificially boost its ROE by increasing financial leverage—i.e., taking on more debt—which reduces equity and inflates the ratio, but also increases financial risk. Additionally, companies with significant non-recurring income or accounting adjustments may report misleadingly high ROE figures, not reflective of sustainable performance (Hillier et al., 2019). For this reason, analysts often examine return on invested capital (ROIC) or economic value added (EVA) as complementary metrics.

Moreover, ROE may not be comparable across industries with differing capital intensity or regulatory environments. For example, financial institutions naturally report higher ROE due to their reliance on leverage, whereas utility or manufacturing firms may show lower but more stable equity returns. Therefore, industry benchmarking is essential when interpreting ROE in comparative analyses.

Studies on Indonesian LQ45 companies and retail sector firms found that ROE has a positive and significant effect on stock prices, highlighting its importance in assessing shareholder value (Adhyma & Rahadi, 2024) (Hasanudin, 2024). However, some research, such as a study on manufacturing companies in Sri Lanka, found that ROE can have a negative impact on stock prices, possibly due to over-leveraging or poor equity management (Ekanayake & Indrani, 2023).

In conclusion, Return on Equity is a fundamental measure of financial effectiveness, capturing the essence of how well a firm transforms equity capital into profits. While it offers valuable insights into operational efficiency and capital management, its interpretation requires a nuanced understanding of leverage, industry context, and earnings quality. When used alongside other effectiveness and efficiency ratios, ROE becomes a powerful tool for internal evaluation and external investment decisions.

2.2.3 Joint effect of Efficiency and Effectiveness on Stock Price

Understanding the dynamics behind stock price performance requires a multifaceted approach that incorporates both efficiency and effectiveness dimensions of financial performance. Efficiency ratios—such as inventory turnover, accounts receivable turnover, and accounts payable turnover—offer insights into a firm's operational agility and working capital management. In parallel, effectiveness indicators—namely return on sales (ROS), return on assets (ROA), and return on equity (ROE)—capture the firm’s ability to generate profits relative to its revenues, assets, and equity base. Together, these ratios provide a comprehensive framework for evaluating how well a firm converts its internal processes and resource base into shareholder value.

When examined collectively, these indicators allow analysts and investors to assess not only how efficiently a firm operates but also how effectively it transforms its operations into financial gains. For example, a firm with high inventory turnover and strong ROS may be interpreted as both operationally lean and commercially profitable. Similarly, a company demonstrating high ROA and receivables turnover signals an ability to manage assets and cash inflows proficiently. Conversely, mismatches between efficiency and effectiveness—for instance, low ROS despite high asset turnover—may reveal underlying structural or strategic issues that hinder value creation (Gaur et al., 2005; Deloof, 2003).

The synergy between these indicators becomes particularly relevant in the context of stock price behavior. According to signaling theory, financial ratios serve as signals to investors regarding firm quality and risk (Spence, 1973). Firms with high performance across both sets of ratios are likely to attract investor confidence, contributing to stronger market valuations and lower cost of capital. Moreover, the Efficient Market Hypothesis (Fama, 1970) posits that markets quickly incorporate publicly available financial information into asset prices. Therefore, the combined performance across multiple financial ratios is likely to be reflected in stock price movements.

Empirical literature supports the explanatory power of integrated ratio analysis. Şanlı (2024), in a study of Turkish BIST 30 firms, found that both efficiency and effectiveness indicators were significant predictors of stock returns, with ROE, ROA, and inventory turnover exerting the strongest influence. Similarly, Lazaridis and Tryfonidis (2006) emphasized the importance of balanced working capital management in enhancing profitability and firm value. These findings suggest that firms optimizing both their operational processes and financial strategies are more likely to achieve superior market performance.

However, the explanatory strength of these indicators is not uniform across all contexts. Industry characteristics, macroeconomic conditions, firm size, and financial leverage can all moderate the relationship between internal performance measures and stock prices. For instance, in high-growth technology sectors, investors may prioritize ROE and ROA over inventory turnover, whereas in manufacturing or retail, working capital efficiency may carry greater weight. Furthermore, short-term market sentiment, regulatory developments, and geopolitical risks can distort the impact of financial fundamentals on share prices.

Therefore, while efficiency and effectiveness ratios jointly provide a solid foundation for stock valuation and performance prediction, they should be interpreted in conjunction with qualitative factors, forward-looking indicators, and industry-specific benchmarks. Additionally, the integration of these metrics into multivariate regression models or factor-based investment strategies can enhance their predictive power and improve investment decision-making.

In conclusion, the combined use of efficiency and effectiveness indicators offers a robust and multi-dimensional approach to analyzing stock price performance. This integrated perspective not only deepens understanding of firm fundamentals but also supports more informed and nuanced evaluations in both academic research and professional investment practice.

2.3 Control Variables

The relationship between company size, age, and economic sector and their impact on stock prices has been extensively studied in various contexts. These factors often serve as control variables in financial studies, as they can significantly influence stock price movements.

2.3.1 Company Size

Company size is typically measured as the natural logarithm of total assets. This measure is used to control for the influence of firm size on stock performance, as larger firms may have different financial behaviors compared to smaller ones (Dang, Li, & Yang, 2018).

Company size is a widely recognized determinant of stock price performance. Larger firms tend to exhibit more stable and predictable financial performance compared to smaller firms. Studies have shown that firm size acts as a predictor for both short-term and long-term stock price performance (Siev, 2023) (Siev & Qadan, 2022) This stability can be attributed to factors such as greater resource availability, lower perceived risk, and more publicly available information about larger firms. The impact of firm size on stock prices varies across economic sectors. For instance, smaller firms in the healthcare and technology sectors often underperform in the long term compared to their larger counterparts within the same sectors (Siev, 2023) (Siev & Qadan, 2022) . This underperformance can be linked to higher risks associated with smaller firms, such as limited access to capital and higher volatility in their earnings. Firm size also interacts with macroeconomic factors to influence stock prices. For example, larger firms tend to be less vulnerable to adverse macroeconomic conditions, such as inflation and interest rate changes, compared to smaller firms (Toro & Hardyanti, 2013) (Baek, Baek, & Glambosky, 2023) . This resilience is often due to the diversified revenue streams and stronger financial positions of larger companies.

2.3.2 Company Age

Firm age is another important control variable that influences stock price. measured as the natural logarithm of the number of years a firm has been in operation. Older companies are often more established, which can impact stock performance and stability (Pastor & Veronesi, 2003).

Younger firms, particularly those in the technology and healthcare sectors, tend to go public at an earlier stage and often exhibit higher growth potential (Siev, 2023) (Siev & Qadan, 2022) . However, this growth potential comes with higher risks, as younger firms may lack the stability and track record of older, more established companies. The relationship between firm age and stock price is also mediated by financial distress. Older firms are generally less likely to experience financial distress, which can positively impact their stock prices. (Murni, Supriyanto, Ritonga, Wardayani, Azmi, Hamdani, Ismail, Dahlia, Mediyanti, & Bahgia, 2019). Conversely, younger firms may face challenges in managing their financial health, leading to greater volatility in their stock prices. The impact of firm age on stock prices varies across industries. For example, firms in the technology sector often benefit from going public at a younger age, as this allows them to capitalize on rapid innovation and growth opportunities (Siev, 2023) (Siev & Qadan, 2022). In contrast, older firms in more traditional industries may struggle to adapt to changing market conditions, leading to relatively weaker stock performance.

2.3.3 Economic Sector

Economic sector categorizes companies based on their industry (e.g., industrial, consumer goods, technology). Each sector can behave differently in terms of stock performance, as market conditions and risks vary by sector (Fama & French, 1997).

The economic sector in which a company operates plays a crucial role in determining its stock price performance. Studies have shown significant variations in long-term stock performance across different sectors (Siev, 2023) (Siev & Qadan, 2022) . For instance, firms in the technology and healthcare sectors tend to outperform those in more traditional industries, driven by their higher growth potential and innovation capabilities. Macroeconomic factors, such as inflation, interest rates, and exchange rates, also interact with the economic sector to influence stock prices. For example, firms in the manufacturing and financial sectors are more sensitive to changes in interest rates and exchange rates compared to firms in other sectors (Toro & Hardyanti, 2013) (Irsyadillah, Yusnaini, & Ferina, 2024). This sensitivity can lead to significant fluctuations in stock prices for companies in these sectors.

The impact of firm size on stock prices also varies across sectors. For example, smaller firms in the technology sector may experience more pronounced underperformance compared to smaller firms in other sectors (Siev, 2023) (Siev & Qadan, 2022). This highlights the importance of considering both firm size and sector when analyzing stock price performance.

2.3.4 Conclusion

Company size, age, and economic sector are critical control variables that influence stock prices. Larger firms generally exhibit more stable performance, while younger firms in growth-oriented sectors like technology and healthcare often experience higher volatility but also greater growth potential. The economic sector further moderates these effects, with firms in high-growth sectors tend to outperform those in traditional industries. Understanding these relationships is essential for investors and researchers seeking to make informed decisions in the stock market.

2.4 Stock Price

Stock price represents the market value of a company’s stocks. determined by the interaction of supply and demand in the stock market. It can be influenced by both internal financial performance and external factors like economic conditions. In this study, stock price performance is calculated as the percentage change in the stock price, adjusted for dividends. (Brealey, Myers, & Allen, 2014).

The importance of stock prices lies in their role as a barometer of a company's financial health and future prospects. Higher stock prices generally indicate company's ability to generate profits and grow (Corrado & Jordan, 1999) (Harford, 2009)

2.4.1 Stock Prices and Managerial Decision-Making

Stock prices function as a central reference point for managerial decisions, as they embody investors' collective assessments of a company's performance, prospects, and governance practices. When stock valuations are high, they reflect strong investor confidence and market approval of management strategies, which can reinforce existing policies or motivate the pursuit of new growth initiatives. Managers often interpret rising stock prices as an endorsement of their corporate policies, encouraging them to allocate more resources to research and development, product diversification, or international expansion. In contrast, declining stock prices signal concerns about inefficiency, weak financial performance, or poor governance, thereby pressuring executives to adopt corrective measures such as cost restructuring, strategic realignment, or enhanced transparency in reporting (Baker & Wurgler, 2002; Liu & Zhang, 2023).

Furthermore, stock prices influence managerial decision-making through their effect on financing opportunities. Firms with higher market valuations enjoy greater flexibility in raising funds through equity issuance, as investors are more willing to provide capital when the firm is perceived as stable and profitable. This, in turn, enhances managerial discretion in pursuing long-term projects that may otherwise be financially constrained. Conversely, when stock prices decline, firms may face challenges in securing affordable financing, limiting managerial ability to invest in innovation or expansion (Myers & Majluf, 1984). In this sense, stock performance is not only a reflection of managerial quality but also a determinant of managerial capacity to implement strategic decisions.

Finally, the stock market creates a powerful disciplinary mechanism for managers through the threat of hostile takeovers or shareholder activism.

Persistently undervalued stock prices may invite intervention from external parties seeking to influence or replace management in order to restore value. As a result, managers are incentivized to align their decisions with shareholder interests and maximize firm value to maintain control and legitimacy in the eyes of investors. Thus, stock prices play a dual role: they act as both a barometer of managerial effectiveness and a constraint that shapes the scope of administrative and strategic decisions (Jensen & Meckling, 1976).

2.4.2 Stock Prices and Investor Decision-Making

For investors, stock prices serve as the primary indicator of a firm's market value, financial health, and growth potential, making them essential in shaping portfolio strategies. Price movements are often interpreted as signals of expected future performance; rising prices typically encourage increased investment due to anticipated capital gains, while falling prices may prompt caution, divestment, or diversification into safer assets. By continuously monitoring stock prices, investors are able to rebalance portfolios, manage risk exposure, and pursue opportunities aligned with their financial objectives and risk tolerance (Fama, 1970; World Bank, 2020).

Stock prices also serve as a mechanism for information transmission in capital markets. Even in contexts where financial disclosures may be delayed or incomplete, stock prices aggregate available information, including market rumors, macroeconomic developments, and industry trends. This makes them an indispensable tool for investors seeking to form expectations about firm performance and market dynamics. For instance, price volatility may signal uncertainty regarding earnings stability, prompting risk-averse investors to adjust their strategies, while consistent upward trends may attract momentum-driven investment. Moreover, stock indices, which are based on aggregate price movements, provide investors with benchmarks to evaluate portfolio performance relative to broader market trends (Liu & Zhang, 2023).

Additionally, stock prices are vital for long-term investment planning. Institutional investors such as pension funds, mutual funds, and insurance companies rely heavily on market valuations to optimize asset allocation strategies and secure sustainable returns. Individual investors, on the other hand, often use price levels and trends to decide on entry and exit points in the market. In both cases, stock prices directly influence decisions about wealth accumulation, retirement planning, and capital preservation. Therefore, stock prices do not merely represent the outcome of investment activities; they actively shape the decision-making process by providing critical guidance on when, where, and how much to invest (Malkiel, 2019).

2.4.3 Stock Prices and Lending Decisions

Lenders and financial institutions also consider stock prices as an important factor in assessing a firm's creditworthiness and ability to meet debt obligations. A strong market valuation often signals financial stability and investor confidence, leading to more favorable lending conditions such as reduced interest rates, extended loan maturities, or increased credit lines. On the other hand, declining stock prices may indicate deteriorating financial performance or heightened business risks, prompting lenders to tighten credit standards, demand additional collateral, or impose restrictive loan covenants (Mishkin & Eakins, 2018). Thus, stock prices provide valuable insights that help lenders mitigate default risks and protect the integrity of the financial system.

Moreover, stock prices are frequently incorporated into credit risk models and rating assessments. For example, sudden drops in a firm's stock value may negatively affect its credit rating, limiting access to external financing. This is particularly important for firms in emerging markets where information asymmetry is higher, and lenders depend on observable market indicators to complement financial statements in evaluating borrower risk. By relying on stock market performance as a proxy for firm stability, financial institutions can refine their lending decisions and align them more closely with prevailing market conditions (Altman, 2005).

Finally, stock prices influence not only lending conditions but also the broader capital structure decisions of firms. Companies with consistently strong stock performance may prefer to issue equity rather than rely heavily on debt, reducing their financial leverage and interest obligations. Conversely, firms with declining stock prices may be forced to depend more on bank financing, but under stricter terms, which can increase financial strain and limit growth potential. As such, stock prices shape a dynamic relationship between borrowers and lenders, influencing not only the supply of credit but also the cost and sustainability of corporate financing (Baker & Wurgler, 2002).

2.4.4 Determinants of Stock Prices

The determination of stock prices is a complex process, influenced by both internal and external factors. Internal factors include the company's financial performance, such as earnings per share (EPS), return on equity (ROE), and debt-to-equity (D/E) ratio. External factors include macroeconomic variables like interest rates, inflation, and GDP growth, as well as market sentiment and industry trends. grow (Corrado & Jordan, 1999) (Harford, 2009) (Brealey, Myers, & Allen, 2014).

2.4.4.1 Internal Factors

1. Earnings Per Share (EPS): EPS is a key driver of stock prices, as it reflects a company's profitability. Higher EPS typically leads to higher stock prices, as investors are willing to pay more for companies with strong earnings (Singh, 2024)
2. Return on Equity (ROE): ROE measures a company's profitability relative to shareholders' equity. A higher ROE indicates better returns for shareholders, which can positively impact stock prices (Nagina & Othman, 2024) (Aprianti & Wahyuningsih, 2022).
3. Debt-to-Equity (D/E) Ratio: The D/E ratio reflects a company's financial leverage. A high D/E ratio may indicate higher risk, which can negatively impact stock prices (Nagina & Othman, 2024) .

4. Dividend Payout Ratio (DPR): The DPR indicates the proportion of earnings distributed as dividends. A higher DPR can attract income-seeking investors, potentially increasing stock prices (Dwiyanti & Imronudin, 2024) (Adhyma & Rahadi, 2024).

2.4.4.2 External Factors

1. Interest Rates: Interest rates influence the cost of capital and investor demand for stocks. Lower interest rates can make stocks more attractive, leading to higher stock prices (Irsyadillah et al., 2024) (Wang, 2024).
2. Inflation: Inflation can erode the purchasing power of future cash flows, negatively impacting stock prices. However, companies with strong pricing power may be able to maintain their stock prices in inflationary environments (Konchitchki & Yaniv, 2011)
3. Market Sentiment: Investor sentiment plays a significant role in stock price movements. Positive sentiment can drive stock prices higher. (Baker & Wurgler, 2007)

2.5 Previous studies

Sagala & Fadjar (2025) investigates into the effects of financial ratios on the stock prices of digital banking institutions, concentrating on a selection of seven digital banks that are publicly traded on the Indonesia Stock Exchange during the period spanning from 2018 to 2023. The results indicate that crucial financial indicators, including Return on Assets, Total Assets Turnover, and Operating Expenses Operating Income, do not exert a statistically significant influence on stock prices; conversely, the Debt to Equity ratio exhibits a detrimental effect on stock prices, whereas the Loan Deposit Ratio demonstrates a positive correlation with them.

Şanlı (2024) conducts an examination of the correlation between financial ratios and stock returns for entities listed on the BIST 30 Index, spanning from the second quarter of 2016 to the fourth quarter of 2023, with particular emphasis on diverse financial ratios including the current ratio, return on equity ratio, asset turnover ratio, inventory turnover ratio, debt/equity ratio, and debt/asset ratio, and stock returns quantified by the rate of return. The findings indicate that both the current ratio and inventory turnover ratios exhibit a statistically significant negative correlation with stock returns, whereas the return on equity ratio, asset turnover ratio, and debt/equity ratio demonstrate a statistically significant positive correlation; conversely, the debt/asset ratio does not exert a substantial influence on stock returns.

Asadanie (2024) examines the correlation between various financial ratios, specifically the Current Ratio, Return on Equity (ROE), Debt to Equity Ratio (DER), Earnings Per Share (EPS), and Net Profit Margin (NPM), and stock prices, underscoring their critical role in facilitating the decision-making processes of investors through a comparative analysis of these ratios across analogous firms. Through the utilization of secondary data derived from the annual financial statements of companies listed on the LQ45 index of the Indonesia Stock Exchange for the period spanning 2020 to 2022, the findings indicate that the Current Ratio, ROE, EPS, and NPM exert a substantial influence on stock prices, whereas the Debt-to-Equity Ratio does not demonstrate a significant effect; collectively, these financial ratios do indeed affect stock prices.

Fauziyanti et al. (2024) elucidates the impact of Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS) on the stock prices of corporations within the technology sector that are listed on the Indonesia Stock Exchange (IDX) during the period from 2021 to 2023, employing quantitative analytical methodologies such as descriptive statistics and multiple linear regression analysis on a sample comprising 15 out of 22 firms. The results indicate that neither ROA nor ROE has a statistically significant effect on stock prices, as evidenced by their respective t-values and significance thresholds, whereas EPS demonstrates a noteworthy influence on stock prices with a significance level of 0.020, thereby underscoring the critical role of EPS in the assessment of stock valuation.

Fari & Kurniawan (2024) examines the effect of financial performance indicators, specifically Return on Assets (ROA), Return on Equity (ROE), and Earnings per Share (EPS), on the stock prices of firms operating within the service sector that are listed on the Indonesian Stock Exchange during the period from 2018 to 2021, employing a cohort of 25 manufacturing entities chosen through purposive sampling. The results indicate that both ROA and ROE exert a negative and statistically insignificant influence on stock prices, whereas EPS reveals a positive and statistically significant relationship with stock prices.

Mouffok & Mouffok (2024) The present investigation employs Genetic Algorithms for the optimization of Panel Data modeling to scrutinize the correlation between stock prices and financial performance metrics of ten prominent publicly traded corporations in Saudi Arabia over the preceding twelve years. A Mixed Effects Panel Data model was constructed, integrating variables such as Return on Equity (ROE), Return on Assets (ROA), Earnings per Share (EPS), Financial Leverage, and Current Ratio. The research endeavor estimated the Mixed Effects model by maximizing a modified Quasi-Likelihood function through the implementation of Genetic Algorithms and Evolver software, in conjunction with conventional Fixed Effects and Random Effects models. The results reveal a notable influence of ROE, ROA, and EPS on stock prices, with the model founded upon Genetic Algorithms exhibiting enhanced precision and adaptability in its outcomes. The investigation concluded that the Mixed Effects Panel Data model, which encompasses stock price indicators including Return on Equity (ROE), Return on Assets (ROA), and Earnings per Share (EPS), demonstrates a significant effect of these financial performance metrics on the stock prices of the foremost publicly listed companies in Saudi Arabia. The optimized Mixed Effects model derived using Genetic Algorithms exhibited superior accuracy and enhanced statistical properties when compared to traditional

Fixed Effects and Random Effects models, thereby underscoring its versatility and efficacy in modeling the interplay between stock prices and financial performance.

Pawulandari & Nurasik, (2024) examines the effects of Return On Assets (ROA), Return On Equity (ROE), and Net Profit Margin (NPM) on the stock prices of manufacturing firms within the consumer goods sector that are listed on the Indonesia Stock Exchange (IDX) during the period from 2019 to 2022, employing a quantitative research methodology and purposive sampling technique with a total sample size of 68 firms. The results demonstrate that both ROA and ROE exert a positive and statistically significant impact on stock prices, whereas NPM exhibits a negative and statistically significant relationship with stock prices, thereby offering critical insights for investors to facilitate informed investment choices.

Husni & Wijaya (2023) examines the effects of profitability and solvency ratios on the stock prices of manufacturing firms listed on the Indonesia Stock Exchange during the period from 2018 to 2020, with inflation serving as a moderating variable. A total of 72 companies were meticulously selected through purposive sampling for the purposes of this investigation. The results reveal that the profitability ratio, quantified by Return on Assets, and the solvency ratio, assessed via the Debt-to-Equity Ratio, exert a positive and statistically significant effect on stock prices, whereas the profitability ratio indicated by Return on Equity demonstrates a negative influence on stock prices. Furthermore, inflation serves to moderate the relationships between these financial ratios and stock prices.

Adiandari & Astuti (2023) examines the cumulative effects of the current ratio, return on equity, and price-earnings ratio on the stock valuations of 35 corporations spanning diverse sectors listed on the Indonesia Stock Exchange during the period from 2018 to 2021, employing secondary quantitative data along with multiple linear regression analysis as the methodological framework. The results indicate that although all three financial indicators exert a significant influence on stock valuations, both return on equity and price-earnings ratio individually demonstrate a positive and considerable impact, suggesting that enhancements in these ratios correlate with increases in stock valuations.

Suhari, Sibarani, and Soegieharto (2023) examines the influence of liquidity ratios, profitability metrics, solvency measures, and asset turnover ratios on the equity valuations of firms within the energy sector that are listed on the Indonesia Stock Exchange during the period from 2019 to 2022, emphasizing that the stock index for the energy sector experienced substantial growth in the year 2022. The results reveal that the Current Ratio and Debt to Equity Ratio exert a negative impact on stock prices, whereas the Net Profit Margin and Total Asset Turnover ratios have a positive effect on stock valuations; in aggregate, these factors significantly influence share prices.

Ilyas, Haeruddin, Sahabuddin, and Musa (2023) comprehensively examines the influence of return on assets (ROA), return on equity (ROE), and net profit margin (NPM) on the stock valuations of food and beverage enterprises listed on the Indonesia Stock Exchange over the period from 2019 to 2021, utilizing secondary data derived from 84 samples and employing multiple linear regression analysis facilitated by SPSS version 22. The results elucidate that, while ROA and NPM do not exert a statistically significant effect on stock prices and demonstrate a negative relationship, ROE exhibits a significant positive correlation with stock prices, thereby implying that investors ought to meticulously evaluate these financial metrics to enhance profitability.

Wulandari et al., (2022) examines the effects of the Debt-to-Equity Ratio, Working Capital Turnover, and Accounts Receivable Turnover on the stock prices of manufacturing enterprises within the food and beverage subsector that are listed on the Indonesia Stock Exchange, covering the period from 2018 to 2021 and utilizing a sample comprising 20 firms selected through purposive sampling methodology. The findings reveal that both the Debt-to-Equity Ratio and Working Capital Turnover exert a partial influence on stock prices, whereas the Accounts Receivable Turnover does not; nonetheless, the collective impact of all independent variables significantly affects stock prices, with an adjusted R Square value of 0.514, indicating that 54.1% of the variability in stock prices can be elucidated by these variables.

Lubis & Purwanto (2022) The objective of the research is to examine the influence of various financial ratios, specifically the current ratio, the debt-to-equity ratio, return on equity, total asset turnover ratio, and earnings per share, on the valuation of stock prices of pharmaceutical firms listed on the Indonesia Stock Exchange. The analysis demonstrates that the current ratio, debt to equity ratio, total asset turnover ratio, and earnings per share exert a significant impact on stock prices, with the price-earnings ratio serving as a moderating variable that affects the relationship between the current ratio and debt to equity ratio on stock prices.

Fitriani et al. (2022) examines the nexus between a variety of financial ratios (specifically return on assets, debt to equity ratio, cash ratio, and total assets turnover ratio) and the stock prices of Indonesian corporations listed on the Indonesia Stock Exchange from the years 2015 to 2020, employing signaling theory and asymmetric information as its conceptual framework. A comprehensive analysis was conducted on a total of 1603 firm-year observations through regression analysis to evaluate the proposed hypotheses. The principal findings elucidate that both return on assets and cash ratios demonstrate a positive and significant correlation with stock prices, whereas the debt-to-equity ratio reveals a negative and significant correlation. Conversely, the total assets turnover ratio does not manifest a significant correlation with stock prices, thus contributing to the existing literature on financial ratios and offering insights for investors engaged in fundamental analysis.

Nugroho et al.(2022) examines the influence of various financial indicators, encompassing Price Earning Ratio (PER), Price to Book Value (PBV), Dividend per Share (DPS), Earning Per Share (EPS), Debt to Equity Ratio (DER), Return On Equity (ROE), Return On Assets (ROA), and Net Profit Margin (NPM), on the equity valuations of corporations listed on the LQ45 index of the Indonesia Stock Exchange over the period from 2010 to 2019, employing multiple linear regression analysis as the methodological approach. The principal findings reveal that PER, PBV, and EPS exert a positive and statistically significant effect on stock valuations, whereas ROE is found to exert a negative influence on stock prices. Furthermore, while DPS, ROA, and NPM demonstrate positive effects, these are deemed insignificant; conversely, DER is shown to have a negative and insignificant impact, with EPS identified as the most critical variable influencing stock prices.

Azmeh & Hamada (2022) examines the influence of seven internal financial determinants on the stock valuations of 23 publicly traded banking institutions within the Dubai and Abu Dhabi stock exchanges during the period spanning from 2014 to 2017, employing Pooled Least Squares, Fixed Effects, and Random Effects models for data analysis. The objective is to ascertain whether the internal determinants affecting stock valuations exhibit consistency across both financial markets. The results indicate a positive and statistically significant correlation between Earnings Per Share (EPS) and market price in both financial markets, whereas Dividend Per Share (DPS) exerts a positive influence on market price solely in Abu Dhabi. In contrast, Return on Equity (ROE), Dividend Yield (DY), and Price Earnings (PE) manifest a detrimental effect on market prices, thereby underscoring the divergent impacts of dividend policies across the two markets.

Mohamed, Ahmed, Mehdi, and Hussain (2021) examines the forecasting of stock prices within the United Arab Emirates markets through the implementation of an adaptive neuro-fuzzy model, encompassing 58 publicly listed companies from the Abu Dhabi Securities Exchange and the Dubai Financial Market during the timeframe from 2014 to 2018, with the objective of discerning the primary determinants that affect fluctuations in stock prices. The analysis assesses four indicators of corporate performance-return on assets (ROA), return on equity (ROE), earnings per share (EPS), and profit margin (PM) concluding that ROE emerges as the most pivotal predictor of stock prices, whereas ROA is determined to be the least influential;

furthermore, EPS is recognized as the most significant measure of profitability, with PM being the least consequential.

Rangi & Aithal (2021) elucidates the influence of essential accounting metrics, including returns on assets, equity, and cash flow cycles, on the market valuations of five publicly traded paint enterprises in India over a temporal span of nine years (2012-2020). It utilizes panel data econometric methodologies, encompassing pooled ordinary least squares (OLS), fixed effects, and random effects approaches, to scrutinize the correlation between these accounting ratios and stock returns, revealing a statistically significant positive correlation of accounting data on stock valuations. The investigation demonstrates that the fixed effects model elucidates approximately 55% of the variability in stock returns, whereas the random effects model accounts for roughly 44%. The analysis concludes that accounting information serves as a pivotal determinant of stock returns, while also acknowledging inherent limitations such as the examination of a restricted sample of firms and accounting ratios, thereby suggesting that forthcoming research endeavors might benefit from the inclusion of supplementary performance metrics.

Zaman (2021) Examined the effect of current ratio, debt to total asset rate, and total asset turnover on return on asset and their impact with share prices in mining firms listed on the Indonesia share exchange from 2008 to 2017. The study revealed a positive relationship between these ratios and return on assets, but found that return on assets had an insignificant positive effect on share prices.

Dayi & Ulusoy (2020) conducts a comprehensive examination of the influence exerted by activity ratios on the market valuation of European airlines, accentuating the criticality of proficient asset deployment to augment profitability and, in turn, enhance corporate value. The study scrutinizes empirical data from the foremost 10 airlines over a span of seven years (2010-2016) and implements panel data methodologies to evaluate an array of activity ratios, such as asset turnover and accounts receivables turnover. The findings indicate that while both accounts receivables turnover and asset turnover exert a positive impact on firm value, inventory turnover and financial leverage ratio are observed to have a detrimental effect. The research elucidates those airlines, characterized by their service-centric nature and minimal inventory levels, encounter a distinctive association between these ratios and their market valuation, thereby highlighting the necessity for rigorous financial analysis within the airline sector.

Patin, Rahman, & Mustafa (2020) analyzes how turnover of total asset ratio impacts the share performances of 1961 US public businesses in diverse industries from 2001 to 2015. Share prices are significantly affected by a company's operational effectiveness in using its assets efficiently. Total asset turnover ratio affects portfolio investment decisions by reflecting operating efficiency. Researchers employs a variety of panel co-integration methods such as generalized method of moments (GMM), model of bivariate error-correction (ECM), dynamic ordinary least squares (DOLS). Share returns and total asset turnover ratios display nonstationary behavior at the 1% significance level. Both variables are later shown to be co-integrated. The panel ECM estimates suggest that variables are slowly approaching a long-term balance with positive feedback effects in the short run. Both Dynamic Ordinary Least Squares (DOLS) and Generalized Method of Moments (GMM) calculations indicate that total asset turnover ratios have immediate positive impacts on share returns at the current levels. Companies should prioritize improving operational efficiency to boost competitiveness and ultimately improve share prices for the benefit of shareholders, as shown by the study's findings.

AMANDA (2019) examined the effect of (Receivables, Cash, Inventory Turnover), (Current, and Debt to Equity Ratio) on Profitability. The study focused on the Basic Chemical Industry Sector at the Indonesia stock Exchange between 2013 and 2017. Researcher examines the Basic Chemical Industry Sector in the Indonesia stock Exchange financial statements, chosen according to certain criteria. The researcher used Purposive Sampling method by selecting 8 leading firms. The data analysis conducted with step regression using SPSS 16 for Windows shows that Receivable, Cash, and Inventory Turnover have no effect on Profitability. Current Ratio positively influences Profitability, however Debt to Equity Ratio does not affect Profitability.

Shawer & Al-Ajlouni (2018) examines the correlation between profitability, quantified through ROI, ROE, and NPR, and the stock market valuations of firms within the petrochemical sector in Saudi Arabia from 2008 to 2015, employing a multiple regression framework accompanied by Cross Section–Time Series (Panel Data) analysis. The results reveal that the stock valuations of petrochemical enterprises registered on the Saudi Stock Market do not precisely mirror their profitability outcomes, with disparate effects discerned contingent upon various profitability indicators. The investigation determined that the stock valuations of petrochemical enterprises listed on the Saudi Stock Market do not accurately correspond with their profitability outcomes, suggesting an incongruity between profitability indicators and market valuations. The influence of profitability on stock valuations fluctuates according to the particular profitability indicators employed, such as ROI, ROE, and NPR, implying that distinct metrics may differentially shape market perceptions.

Manoppo (2016) examines the repercussions of financial performance indicators, namely Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS), and Earnings Per Share (EPS), on stock valuations, underscoring their profound impact both collectively and independently. It accentuates the imperative for corporations to elevate their ROA, ROE, ROS, and EPS to enhance their stock market performance, while addressing the shortcomings of conventional profitability measures that fail to account for capital costs in the evaluation of value creation.

Warrad & Al Omari (2015)Analyzed the effect of turnover rates on the performance of service sectors in Jordan between 2009 and 2012. The study concluded that turnover ratios do not significantly affect the profitability of service industries in Jordan. Testing main and sub hypotheses showed that turnover ratios, working capital, total asset, and fixed asset turnover ratios had no significant impact on the assets return of Jordanian service sectors. The study found that turnover, working capital, total asset, and fixed asset turnover ratios do not significantly affect the equity return in Jordanian service sectors.

Manoppo (2015) Employed multiple linear regression to analyze the data and assess the significant influence of ROA, ROE, ROS, and EPS on Share Price, both as a group and individually. The company has to enhance its Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS), and Earnings Per Share (EPS) in order to increase the share price.

NALURITA (2015) Examined the combined and partial impact of Debt to Equity, assets return, and price earnings ratios on the share returns of Real Estate and Construction firms listed on the Indonesia stock exchange market from 2010 to 2014. This analysis found a substantial impact of Debt-to-Equity Ratio on share returns. However, there’s no substantial impact of performance on asset and Price Earnings Ratio on share performance. The Return on Assets, Debt to Equity Ratio, and Price Earnings Ratio have a major impact on share return.

Kohansal et al. (2013) Examined the relationship among financial measures and share price of firms on the food stock exchange. This study utilized liquidity ratios using current ratio, activity ratio using asset turnover ratio, profitability by using rate of return on assets and return on equity, leverage by using debt ratio, and food share prices as variables. The researchers discovered a notable beneficial impact of assets return, current rate, and return on equity on share prices.

In summary, previous studies have extensively explored the relationship between efficiency and effectiveness indicators and stock price performance, primarily in developed and emerging markets. Research by Kohansal et al. (2013) and Patin et al. (2020) demonstrated strong correlations between profitability ratios (e.g., ROA, ROE) and stock prices, while turnover ratios (e.g., inventory, receivables) were found to reflect operational efficiency and influence investor confidence. However, these studies largely focused on stable economic environments, such as the BIST 30 Index

(Şanlı, 2024) and Indonesian markets (Wulandari et al., 2022; Lubis & Purwanto, 2022), where macroeconomic and political conditions are relatively predictable.

In contrast, the Palestinian Exchange (PEX) operates under unique constraints, including geopolitical instability, restricted market access, and dependence on foreign aid—factors rarely addressed in existing literature. Studies like Warrad & Al Omari (2015) and Mohamed et al. (2021) examined similar indicators in volatile contexts (e.g., Jordan, UAE) but overlooked the systemic challenges faced by Palestine, such as Israeli occupation and fragmented economic policies. Notably, no prior research has comprehensively analyzed how efficiency and effectiveness indicators function in a market as politically and economically constrained as the PEX.

This study fills critical gaps by:

1. Investigating the PEX, where external shocks (e.g., conflict, aid volatility) may alter the predictive power of financial indicators compared to stable markets.
2. Integrating control variables (firm size, age, sector) to isolate the impact of Palestine-specific risks on stock price dynamics.
3. Providing actionable insights for local investors and policymakers navigating a high-risk environment, where traditional financial metrics may require adaptation.

By bridging these gaps, the research not only advances academic understanding of frontier markets but also offers a tailored toolset for financial decision-making in Palestine’s unparalleled economic landscape.

Chapter Three: Research Methodology

3.1 Research Design

This study employs a quantitative research design to examine the relationship between efficiency, effectiveness, and stock prices in the Palestine Stock Exchange (PEX). The design is both explanatory and correlational, as it seeks to identify the extent to which financial efficiency and effectiveness indicators account for variations in stock prices. The analysis is based exclusively on secondary data, collected from published annual reports of listed companies and official disclosures available through the PEX. The study covers the period from 2015 to 2024, providing a longitudinal perspective that captures trends and dynamics in financial performance and market valuation.

The research population consists of all companies listed on the PEX during the specified period. However, to enhance comparability and avoid distortions caused by sector-specific regulations, the study excludes firms in the financial sector, namely banks and insurance companies, due to their distinct financial structures and regulatory frameworks. Consequently, the final sample includes 21 non-financial companies representing a wide range of economic sectors. This design provides a robust empirical foundation for evaluating whether efficiency and effectiveness indicators can be considered reliable determinants of stock price movements in the Palestinian context (Creswell, 2018; Saunders, Lewis, & Thornhill, 2019).

3.2 Population and Sample

This study applies a purposive sampling strategy to identify the firms included in the analysis of the Palestine Stock Exchange (PEX) over the period 2015–2024. The initial population consisted of all 48 companies listed on the PEX, encompassing both financial and non-financial sectors. Firms in the banking and insurance sectors (16 companies in total) were excluded due to their distinctive regulatory environments and unique financial reporting structures, which differ substantially from those of non-financial firms and may undermine the comparability of results.

To ensure data reliability and temporal consistency, the sampling framework incorporated only those firms that were continuously listed throughout the study period. Companies that entered the exchange after 2015 or delisted before 2024 were excluded from the analysis. In addition, firms with incomplete or inconsistent financial disclosures were omitted.

Applying these criteria resulted in a final sample of 21 non-financial companies, representing diverse sectors – industrial, service and investment sectors - of the Palestinian economy. This approach ensures that the dataset is both comprehensive and analytically robust, enabling meaningful examination of the relationship between efficiency, effectiveness, and stock prices. The adoption of purposive sampling is consistent with methodological recommendations in financial research, where data completeness and relevance are prioritized over random selection (Etikan, Musa, & Alkassim, 2016; Saunders, Lewis, & Thornhill, 2019).

3.3 Data Collection

This study relies exclusively on secondary data collected from publicly available financial and market reports. The primary sources include the audited annual financial statements of the sampled companies, as published on their official websites or disclosed through the Palestine Stock Exchange (PEX) and the Palestine Capital Market Authority (PCMA). These reports provide consistent and standardized information on firms' financial performance, which is essential for deriving the efficiency and effectiveness indicators examined in this study.

In addition to firm-level financial statements, supplementary data on stock prices, trading volumes, and the Al-Quds Index were obtained directly from the official database of the PEX. This combination of firm-level and market-level information ensures comprehensive coverage of both accounting-based and market-based variables. The study period of 2015–2024 was selected to enable longitudinal analysis across a complete decade, thereby capturing cyclical trends and mitigating the effects of short-term anomalies.

use of secondary data is widely recognized in financial and accounting research for its ability to provide access to large-scale, reliable, and standardized datasets while avoiding limitations associated with primary data collection methods, such as subjectivity or limited scope (Johnston, 2017; Saunders, Lewis, & Thornhill, 2019). Prior studies on emerging markets and stock exchanges have similarly employed secondary data from financial statements and exchange databases to investigate the link between financial performance indicators and stock price behavior (Alrabba, 2016; Al-Najjar, 2017; Khatib & Nour, 2021). To ensure accuracy and reliability, the collected data in this study were cross-verified across multiple sources, including company websites, PEX disclosures, and regulatory filings, before being consolidated into the final dataset for analysis.

3.4 Variable definitions and measurement:

This study investigates the extent to which efficiency and effectiveness indicators explain variations in stock prices of companies listed on the Palestine Stock Exchange (PEX) during the period 2015–2024. To achieve this objective, the study specifies one dependent variable and a set of independent variables, which are derived from firms' published financial statements and market data. These variables are selected based on established financial literature and previous empirical studies, ensuring both theoretical and practical relevance to the Palestinian context. The measurement formulas and sources for each variable are presented in Table 3.1: Variables measurement.

3.4.1 Independent Variables (Efficiency Indicators)

3.4.1.1 Inventory Turnover (IT)

Inventory turnover measures how efficiently a company uses its inventory to generate sales. It is calculated as the ratio of cost of goods sold (COGS) to the average inventory value. A higher inventory turnover ratio indicates effective inventory management and quick conversion of inventory into sales (CFA Institute, 2011).

3.4.1.2 Accounts Receivable Turnover (ART)

Accounts receivable turnover measures how effectively a company collects its receivables from customers. It is calculated by dividing net credit sales by the average accounts receivable. A higher ratio implies efficient credit management and timely collection from customers (Brigham & Ehrhardt, 2013).

3.4.1.3 Accounts Payable Turnover (APT)

Accounts payable turnover indicates how quickly a company pays its suppliers. It is calculated by dividing net credit purchases by the average accounts payable. A higher ratio suggests that the company is paying its obligations quickly, which may help establish good relationships with suppliers (Ross, Westerfield, & Jaffe, 2013).

3.4.2 Independent Variables (Effectiveness Indicators)

3.4.2.1 Return on Sales (ROS)

Return on sales, or operating margin, shows the percentage of revenue remaining after operating expenses. It is calculated as operating profit divided by net sales, expressed as a percentage. ROS reflects the efficiency of core business operations in generating profit (Gitman & Zutter, 2012).

3.4.2.2 Return on Assets (ROA)

Return on assets measures how efficiently a company utilizes its assets to generate profit. It is calculated by dividing net income by total assets. A higher ROA indicates better asset utilization in producing income (CFA Institute, 2011).

3.4.2.3 Return on Equity (ROE)

Return on equity measures the profitability relative to stockholders’ equity. It is calculated by dividing net income by stockholders’ equity, showing how effectively a company uses equity investment to generate profit (Bodie, Kane, & Marcus, 2014).

3.4.3 Control Variables

3.4.3.1 Company Size

Company size is typically measured as the natural logarithm of total assets. This measure is used to control for the influence of firm size on stock performance, as larger firms may have different financial behaviors compared to smaller ones (Dang, Li, & Yang, 2018).

3.4.3.2 Company Age

Company age is measured as the natural logarithm of the number of years a firm has been in operation. Older companies are often more established, which can impact stock performance and stability (Pastor & Veronesi, 2003).

3.4.3.3 Economic Sector

Economic sector categorizes companies based on their industry (e.g., industrial, consumer goods, technology). Each sector can behave differently in terms of stock performance, as market conditions and risks vary by sector (Fama & French, 1997).

3.4.4 Dependent Variable

3.4.4.1 Stock Price (SP)

Stock price represents the market value of a company's stocks. It can be influenced by both internal financial performance and external factors like economic conditions. In this study, stock price performance is calculated as the percentage change in the stock price, adjusted for dividends. This measurement is consistent with prior financial research, where stock price or stock return is commonly employed as a proxy for firm value and investor perception (Fama & French, 1992; Alrabba, 2016). Stock prices reflect investor sentiment and perceptions about a company's future earnings potential (Fama & French, 1992; Alrabba, 2016) (Brealey, Myers, & Allen, 2014). (Fama & French, 1992; Alrabba, 2016).

TABLE 0.1: VARIABLES MEASUREMENT

Acronym	Variables Measurement	Source
1.Independent Variables		
Independent Variables (Efficiency Indicators)		
IT	COGS / Average Value of Inventory	CFA Institute, 2011
ART	Net Credit Sales / Average Accounts Receivable	Brigham & Ehrhardt, 2013
APT	Net Credit Purchases / Average Account Payable	Ross, Westerfield, & Jaffe, 2013
Independent Variables (Effectiveness Indicators		
ROS	Operating Profit / Net Sales * 100%	Gitman & Zutter, 2012
ROA	Net Income / Total Assets	CFA Institute, 2011
ROE	Net Income / Shareholders' Equity	Bodie, Kane, & Marcus, 2014
2.Control Variables		
Size	Natural log of total assets	Dang, Li, & Yang, 2018
Age	Natural log of age	Pastor & Veronesi, 2003
sector	Dummy Variables	Fama & French, 1997
3.Dependent Variable		
SP	((Ending Price-Beginning Price) + Dividends) / Beginning Price	Brealey, Myers, & Allen, 2014

3.5 Theoretical framework

The Theoretical framework of this study is grounded in financial performance theory, which posits that stock prices are influenced not only by external market conditions but also by firm-level financial efficiency and effectiveness (Brealey, Myers, & Allen, 2014). Efficiency indicators such as inventory turnover, accounts receivable turnover, and accounts payable turnover capture how well a company manages its resources and short-term obligations. Effectiveness indicators, including return on sales, return on assets, and return on equity, reflect the firm's ability to generate profit from its operations, assets, and equity base.

These efficiency and effectiveness measures are theorized to directly influence stock price performance, as firms that demonstrate stronger financial management and profitability are more likely to attract investor confidence and achieve higher market valuations (Fama & French, 1997). At the same time, company-specific characteristics such as firm size, age, and economic sector act as control variables, accounting for heterogeneity in financial structure and market behavior.

The dependent variable, stock price performance, is operationalized as the annual percentage change in the market price of shares, adjusted for dividends. This measure reflects both investor sentiment and the firm's long-term value creation.

The framework thus establishes a causal pathway in which efficiency and effectiveness indicators (independent variables) are hypothesized to explain variations in stock prices (dependent variable), while company size, age, and sector (control variables) are included to enhance the robustness of the analysis.

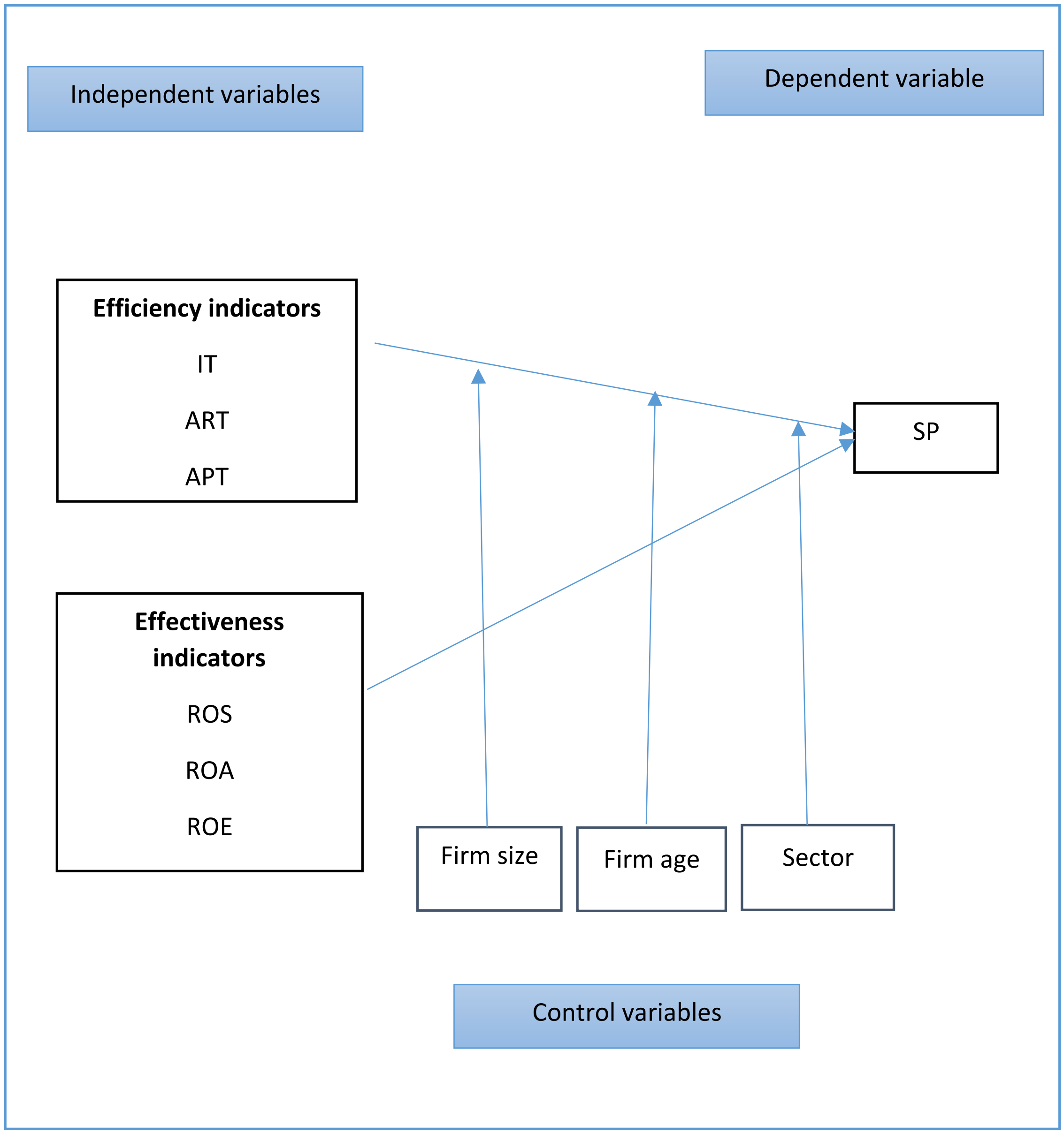

FIGURE 0.1:THEORETICAL FRAMEWORK

3.6 Models of the Study

Based on the theoretical framework, the study develops panel regression models to empirically examine the effect of efficiency and effectiveness indicators on stock price performance of firms listed on the Palestine Stock Exchange (PEX). The models are structured to separately test the impact of efficiency measures, effectiveness measures, and a combined specification that integrates both sets of indicators. Control variables are included in all models to account for firm-level heterogeneity.

Model 1: Efficiency Indicators and Stock Price

$$SP_{it}=\beta_0+\beta_1 IT_{it}+\beta_2 ART_{it}+\beta_3 APT_{it}+\beta_4 SIZE_{it}+\beta_5 AGE_{it}+\beta_6 SECTOR_{it}+\varepsilon_{it}$$

Where**:**

SP_{it} = Stock price performance of firm i at time t

IT = Inventory turnover

ART = Accounts receivable turnover

APT = Accounts payable turnover

SIZE = Company size (log of total assets)

AGE = Company age (log of years in operation)

SECTOR = Economic sector dummy variable

ε_{it} = Error term

Model 2: Effectiveness Indicators and Stock Price

$$SP_{it}=\beta_0+\beta_1 ROS_{it}+\beta_2 ROA_{it}+\beta_3 ROE_{it}+\beta_4 SIZE_{it}+\beta_5 AGE_{it}+\beta_6 SECTOR_{it}+\varepsilon_{it}$$

Where:

ROS = Return on sales

ROA = Return on assets

ROE = Return on equity

Model 3: Integrated Efficiency and Effectiveness Model

$SP_{it}=\beta_0+\beta 1ITit+\beta_2ART_{it}+\beta_3APT_{it}+\beta_4ROS_{it}+\beta_5ROA_{it}+\beta_6ROE_{it}+\beta_7SIZE_{it}+\beta_8AGE_{it}+\beta_9SECTOR_{it}+\varepsilon_{it}$

This integrated model enables an assessment of the relative explanatory power of efficiency and effectiveness measures when considered simultaneously.

The three models are estimated using panel regression techniques with fixed-effects and random-effects specifications, and the Hausman test is applied to select the appropriate model. Robustness checks are performed by comparing the results across the three specifications.

3.7 Statistical Analysis

The study employs a combination of descriptive and inferential statistical techniques to analyze the relationship between efficiency, effectiveness, and stock prices of companies listed on the Palestine Stock Exchange (PEX). Descriptive statistics, including mean, median, standard deviation, and range, are first applied to summarize the characteristics of the variables and to provide an overview of the data distribution across the sample.

Correlation Analysis

Given that preliminary tests of normality (Kolmogorov–Smirnov and Shapiro–Wilk) and the Kruskal–Wallis test indicated that the study variables did not follow a normal distribution, the use of parametric correlation measures such as Pearson's r would not be appropriate. Instead, this study employs Spearman's rank correlation coefficient (rho) as the primary method for measuring associations. Spearman's rho is a non-parametric statistic that assesses the strength and direction of monotonic relationships between two variables, making it suitable for data that deviate from normality (Pallant, 2020).

The use of Spearman's correlation serves two purposes. First, it allows the study to capture the extent to which efficiency indicators (IT, ART, APT) and effectiveness measures (ROS, ROA, ROE) are associated with stock price performance (SP) in a manner that is robust to distributional irregularities. Second, it helps identify potential multicollinearity among the independent variables. High correlations among explanatory variables—particularly between profitability indicators—may distort regression estimates, and thus require careful consideration before model estimation (Hair, Black, Babin, & Anderson, 2019).

Regression Analysis

To examine the explanatory power of efficiency and effectiveness indicators on stock price performance while controlling for company size, age, and sector, the study adopts a bootstrapped multiple regression approach. Unlike ordinary least squares (OLS) regression, which assumes normally distributed residuals, bootstrapping is a resampling method that repeatedly draws sub-samples from the dataset to generate bias-corrected confidence intervals for regression coefficients (Efron & Tibshirani, 1993). This procedure produces robust estimates even when assumptions of normality and homoscedasticity are violated.

The regression is conducted in three stages:

Model 1 (Efficiency model) — tests IT, ART, and APT with controls.

Model 2 (Effectiveness model) — tests ROS, ROA, and ROE with controls.

Model 3 (Integrated model) — combines efficiency and effectiveness indicators with controls.

Although the dataset covers multiple firms over a ten-year period, the relatively small sample size and distributional violations preclude the use of advanced panel data regression models (fixed effects or random effects). Instead, the study prioritizes robust non-parametric estimation techniques to ensure validity and reliability of inference.

Hypotheses Testing

The hypotheses regarding the effects of efficiency and effectiveness indicators on stock price performance are evaluated through the bootstrapped regression results. Each independent variable is examined for statistical significance using bootstrap-generated p-values and bias-corrected confidence intervals.

If the 95% confidence interval for a coefficient does not include zero, the null hypothesis (no effect) is rejected.

Results with $p < 0.05$ are considered statistically significant, while values between 0.05 and 0.10 are reported as marginally significant.

This approach ensures that statistical inference remains reliable even under non-normal data conditions.

Diagnostic Testing

To further validate the regression results, the study applies several diagnostic checks. Variance inflation factors (VIFs) are calculated to detect multicollinearity, given the strong correlations observed between ROA and ROE. Bootstrapping inherently addresses concerns of non-normality and heteroskedasticity, but additional checks, such as the Kruskal–Wallis test, are applied to confirm significant distributional differences across firms and sectors.

By combining non-parametric correlation, bootstrapped regression, and robust diagnostics, the study adopts a methodological framework that balances statistical rigor with the empirical realities of the dataset.

Statistical Tools

All statistical analyses are conducted using SPSS (version 25) and supplemented with Stata for diagnostic testing. SPSS provides functionality for Spearman correlation and bootstrapped regression estimation, while Stata offers additional tools for verifying robustness. Results are presented in tabular and graphical formats, with interpretations grounded in both financial theory and econometric principle

Chapter Four: Analysis of Results

4.1 Introduction

This chapter presents the empirical findings of the study, which investigates the ability of efficiency and effectiveness indicators to explain stock price performance in companies listed on the Palestine Exchange (PEX) during the period 2015–2024. The analysis follows a systematic approach to ensure methodological rigor and clarity in interpretation.

Section **4.2** describes the data screening process, including checks for completeness, outliers, and normality testing. Section **4.3** provides descriptive statistics of the variables, offering insights into the central tendency and dispersion of efficiency, effectiveness, and control variables. Section **4.4** reports the results of correlation analysis using Spearman's rank correlation to evaluate associations between variables, given the non-normal distribution of the dataset. Section **4.5** presents the hypotheses testing through regression analysis **4.6**The chapter concludes by summarizing the key results and setting the stage for the broader interpretation and implications, which are discussed in Chapter Five.

4.2 Data Screening

Prior to conducting statistical analyses, the dataset underwent a rigorous screening process to ensure accuracy, reliability, and suitability for hypothesis testing. This procedure included checks for missing values, outliers, and normality.

4.2.1 Data Completeness

The study sample comprised 210 firm-year observations drawn from companies listed on the Palestine Exchange (PEX) during the period 2015–2024. Initial screening confirmed that the dataset was complete, with no missing values detected in the efficiency variables (inventory turnover [IT], accounts receivable turnover [ART], and accounts payable turnover [APT]), effectiveness indicators (return on sales [ROS], return on assets [ROA], and return on equity [ROE]), control variables (firm size, firm age, and sector), and the dependent variable (stock price [SP]). Completeness of data is crucial to maintaining statistical validity and avoiding biases that may arise from imputation or listwise deletion (Pallant, 2020).

4.2.2 Outlier Detection

Outlier detection was carried out using standardized values (z-scores) and casewise diagnostics generated in SPSS. According to the conventional threshold of ±3 standard deviations (Hair et al., 2019), a small number of extreme observations were identified across efficiency ratios, particularly in inventory turnover and accounts payable turnover. These cases were retained in the dataset because they reflect actual firm-level performance variability within the PEX, rather than data entry errors. Retaining genuine outliers aligns with the objective of capturing the full dynamics of the market, especially in emerging and thinly traded exchanges such as PEX.

4.2.3 Normality Testing

The normality of study variables was examined using both the Kolmogorov–Smirnov (K–S) and Shapiro–Wilk (S–W) tests. Results (see table 4.1) revealed that all variables had significance levels below the 0.05 threshold, indicating significant deviations from normality. While ROA approached normality under the Shapiro–Wilk test (S–W = .978, $p = .002$), the null hypothesis of normal distribution was rejected for all variables.

These findings confirm that the dataset does not satisfy the assumption of normality required for parametric testing. Consequently, the study employed non-parametric statistical techniques—Spearman's rank correlation and regression models adjusted for distributional violations. The adoption of non-parametric methods enhances the robustness of the analysis when traditional assumptions of parametric procedures cannot be met (Ghasemi & Zahediasl, 2012; Razali & Wah, 2011).

TABLE 0.1:TESTS OF NORMALITY FOR STUDY VARIABLES (KOLMOGOROV–SMIRNOV AND SHAPIRO–WILK)

Variable	Kolmogorov–Smirnov Statistic	df	Sig.	Shapiro–Wilk Statistic	df	Sig.
IT	.253	210	.000	.627	210	.000
ART	.289	210	.000	.653	210	.000
APT	.335	210	.000	.375	210	.000
ROS	.266	210	.000	.416	210	.000
ROA	.077	210	.004	.978	210	.002
ROE	.125	210	.000	.915	210	.000
Size	.102	210	.000	.964	210	.000
Age	.118	210	.000	.961	210	.000
SP	.145	210	.000	.819	210	.000

Note. Both Kolmogorov–Smirnov and Shapiro–Wilk tests returned significance values below the 0.05 threshold for all variables, indicating rejection of the null hypothesis of normality.

4.3 Descriptive Statistics

Descriptive statistics were computed to summarize the distributional characteristics of the study variables (Table 4.2). The dataset consisted of 210 firm-year observations drawn from companies listed on the Palestine Exchange (PEX) over the period 2015–2024. The table reports the minimum, maximum, mean, and standard deviation for efficiency ratios (IT, ART, APT), effectiveness indicators (ROS, ROA, ROE), control variables (Size, Age, Sector), and the dependent variable (SP).

4.3.1 Efficiency Indicators

Inventory Turnover (IT) exhibited a wide range, from 0.14 to 87.44, with a mean of 9.47 (SD = 13.81). The high dispersion reflects substantial variation in inventory management practices across sectors, consistent with the mixed structure of the PEX, where manufacturing firms coexist with service-oriented companies. Accounts Receivable Turnover (ART) had a mean of 1.27 (SD = 1.91), with extreme negative and positive values, suggesting diverse credit management policies among firms. Accounts Payable Turnover (APT) demonstrated the largest variability, ranging from 0.07 to 326.42, with a mean of 14.62 (SD = 34.19). This indicates heterogeneous payment practices, which may be influenced by liquidity constraints and sectoral characteristics in the Palestinian economy (Lazaridis & Tryfonidis, 2006; Şanlı, 2024).

4.3.2 Effectiveness Indicators

Profitability measures were more stable but still showed meaningful variation. Return on Sales (ROS) averaged 0.19 (SD = 0.90), with values spanning from –8.67 to 3.58, indicating that while some firms generated healthy margins, others experienced losses during the study period. Return on Assets (ROA) reported a modest mean of 0.04 (SD = 0.06), while Return on Equity (ROE) averaged 0.06 (SD = 0.10). These results suggest that, on average, listed firms in PEX generate relatively low profitability compared to global benchmarks, reflecting the structural challenges of operating in a politically and economically constrained environment (Hamed, 2008; PMA, 2024).

4.3.3 Control Variables

Firm size, measured as the natural logarithm of total assets, had a mean of 7.80 (SD = 0.59), with values ranging from 6.69 to 9.01. This indicates that the sample included both relatively small and large companies, ensuring cross-sectional variability. Firm age, also logged, averaged 1.43 (SD = 0.21), corresponding to firms with varying degrees of maturity and market experience. Sectoral distribution (M = 1.81, SD = 0.85) indicates representation across investment, services, and industry sectors, with financial and insurance firms excluded in line with the sampling criteria.

4.3.4 Stock Price

The dependent variable, Stock Price (SP), showed a mean of 0.07 (SD = 0.26), with a range from –0.47 to 1.73. This suggests relatively modest stock price changes in PEX compared to more liquid markets. The limited volatility aligns with previous reports highlighting thin trading and low turnover ratios in PEX (PCMA, 2024; MAS, 2025).

Overall, the descriptive results reveal substantial heterogeneity in firm efficiency and effectiveness, which is expected to provide sufficient variation for examining their relationship with stock price performance.

Table 0.2:Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
IT	210	0.14	87.44	9.47	13.81
ART	210	-7.09	10.97	1.26	1.91
APT	210	0.07	326.42	14.62	34.19
ROS	210	-65.78	4.17	-0.15	4.66
ROA	210	-0.19	0.22	0.04	0.06
ROE	210	-0.49	0.32	0.06	0.10
Size	210	6.69	9.01	7.80	0.59
Age	210	0.71	1.86	1.43	0.21
SP	210	-0.47	1.73	0.07	0.26

4.4 Correlation Analysis

To examine the relationships among the study variables, Spearman's rho correlation test was applied because the normality assumption was violated (Razali & Wah, 2011; Ghasemi & Zahediasl, 2012). The results are presented in Table 4.3, which summarizes the correlation coefficients, significance levels, and directions of association.

Table 0.3:SPEARMAN'S Correlation Matrix (N = 210)

variable	IT	ART	APT	ROS	ROA	ROE	Size	Age	SP
IT	1.000	.351**	-0.087	-0.123	0.034	0.123	-0.099	-.218**	0.006
ART		1.000	-.161*	0.003	.536**	.545**	0.002	0.029	.182**
APT			1.000	.249**	.181**	.165*	-0.130	.216**	0.109
ROS				1.000	.476**	.415**	0.031	0.125	.146*
ROA					1.000	.950**	-0.070	.361**	.338**
ROE						1.000	-0.013	.319**	.371**
Size							1.000	-.186**	-.164*
Age								1.000	0.096
SP									1.000

Note. **p < .01 (two-tailed)**; *p < .05 (two-tailed).

The correlation results indicate several noteworthy associations. First, efficiency ratios showed mixed relationships. Inventory turnover (IT) was positively correlated with accounts receivable turnover (ART; $\rho = .351$, $p < .01$), consistent with the notion that effective inventory management often complements receivables efficiency (Gaur, Fisher, & Raman, 2005). Accounts payable turnover (APT) displayed a positive correlation with both return on sales (ROS; $\rho = .249$, $p < .01$) and return on assets (ROA; $\rho = .181$, $p < .01$), reflecting the role of supplier management in enhancing liquidity and profitability (Deloof, 2003).

Second, effectiveness indicators were more strongly associated with stock price performance. Both ROA ($\rho = .338$, $p < .01$) and ROE ($\rho = .371$, $p < .01$) demonstrated significant positive correlations with stock price (SP), reinforcing findings from prior studies in emerging markets (Şanlı, 2024; Pawulandari & Nurasik, 2024). ROS also showed a weaker but statistically significant association ($\rho = .146$, $p < .05$), aligning with evidence that operational profitability can influence investor confidence (Nanda & Panda, 2018).

Third, the control variables revealed nuanced effects. Firm size exhibited a negative correlation with SP ($\rho = -.164$, $p < .05$), suggesting that in the context of the Palestine Exchange, larger firms do not always outperform smaller ones, possibly due to liquidity constraints or concentration risk (Siev & Qadan, 2022). Firm age was not significantly associated with SP ($\rho = .096$, $p > .05$), implying that company maturity does not directly influence valuation in this market.

Overall, these results suggest that effectiveness ratios (ROA, ROE, ROS) are more influential in explaining stock price variation than efficiency ratios, although working capital measures such as APT remain relevant in linking operational processes with financial outcomes.

4.5 Hypothesis Testing

4.5.1 Efficiency Indicators

H1: Efficiency indicators have a statistically significant impact on stock prices of firms listed on the Palestine Exchange (PEX).

- **H1.1:** Inventory turnover (IT) has a statistically significant impact on stock prices.
- **H1.2:** Accounts receivable turnover (ART) has a statistically significant impact on stock prices.
- **H1.3:** Accounts payable turnover (APT) has a statistically significant impact on stock prices.

These hypotheses are grounded in the expectation that higher operational efficiency should enhance investor confidence by signaling better liquidity management and working capital utilization (Gitman & Zutter, 2015). However, in thin and emerging markets, such as the PEX, the role of efficiency ratios in price formation may be weaker due to limited investor attention and liquidity constraints (Bekaert & Harvey, 2014).

To test H1 and its sub-hypotheses, a regression model was specified with stock price performance (SP) as the dependent variable and IT, ART, and APT as the main predictors, while controlling for firm size, age, and sector.

4.5.1.1 Regression Analysis: Model 1 (Efficiency indicators)

The first regression model was specified to examine the extent to which operational efficiency indicators—namely inventory turnover (IT), accounts receivable turnover (ART), and accounts payable turnover (APT)—together with the control variables of firm size, firm age, and economic sector, explain variations in stock price performance (SP) among firms listed on the Palestine Exchange (PEX).

4.5.1.2 Model Fit and Summary

The model summary is presented in Table 4.4 . The regression produced a modest coefficient of determination ($R^2 = 0.030$), with an adjusted R^2 close to zero (0.001), suggesting that the explanatory power of efficiency and control variables is limited. The Durbin–Watson statistic of 2.115 falls within the acceptable range (1.5–2.5), indicating that serial correlation among residuals was not a concern (Field, 2018; Pallant, 2020).

TABLE 4.4: MODEL SUMMARY FOR REGRESSION OF EFFICIENCY INDICATORS ON STOCK PRICES

Model	R	R^2	Adjusted R^2	Std. Error	F Change	Sig. F Change	Durbin–Watson
1	.173	.030	.001	0.260475	1.042	.399	2.115

4.5.1.3 ANOVA Results

The analysis of variance (ANOVA) shown in Table 4.5, indicates that the overall model was not statistically significant ($F(6, 203) = 1.042$, $p = .399$). This outcome implies that, in aggregate, efficiency ratios and firm characteristics do not significantly predict stock price variation across the sample.

TABLE 4.5:ANOVA RESULTS FOR REGRESSION OF EFFICIENCY INDICATORS ON STOCK PRICES

Source	**SS**	**df**	**MS**	**F**	**Sig.**
Regression	0.424	6	0.071	1.042	.399
Residual	13.773	203	0.068		
Total	14.197	209			

4.5.1.4 Regression Coefficients

As reported in Table 4.6, none of the predictors were statistically significant at the 5% level. The coefficients for IT ($\beta = 0.036$, $p = .626$), ART ($\beta = 0.101$, $p = .171$), and APT ($\beta = 0.041$, $p = .567$) were weak and insignificant, suggesting that short-term operational efficiency does not directly translate into stock price performance within the PEX. Similarly, firm size, age, and sector exhibited no significant effects.

TABLE 4.6:COEFFICIENTS FOR REGRESSION OF EFFICIENCY INDICATORS AND CONTROL VARIABLES ON STOCK PRICES

Predictor	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	0.081	0.313	—	0.258	.796	—	—
IT	0.001	0.001	0.036	0.487	.626	0.891	1.122
ART	0.014	0.010	0.101	1.375	.171	0.887	1.128
APT	0.000	0.001	0.041	0.573	.567	0.934	1.070
Size	-0.033	0.039	-0.075	-0.839	.403	0.605	1.653
Age	0.150	0.108	0.122	1.389	.166	0.616	1.622
Sector	0.003	0.032	0.009	0.082	.934	0.438	2.284

Collinearity diagnostics showed tolerance values above 0.4 and VIF values below 2.3, well under the critical threshold of 10, indicating that multicollinearity did not distort the results (Hair et al., 2019).

The result summary

1. As shown in Table 4.4, The model produced an R^2 of 0.030 and an adjusted R^2 of 0.001, indicating minimal explanatory power.
2. As shown in Table 4.5, The ANOVA test confirmed that the model was not statistically significant ($F(6, 203) = 1.042$, $p = .399$).
3. As shown in Table 4.6, none of the efficiency indicators were significant predictors:

   - IT ($\beta = 0.036$, $p = .626$)
   - ART ($\beta = 0.101$, $p = .171$)
   - APT ($\beta = 0.041$, $p = .567$).

4. Control variables (Size, Age, Sector) also yielded insignificant results.

Hypotheses Decision

- **H1 (main hypothesis):** Rejected.
- **H1.1, H1.2, H1.3 (sub-hypotheses):** Rejected.

The results indicate that efficiency ratios did not exert a statistically significant impact on stock prices in the PEX context. This finding suggests that investors in this emerging market may not heavily rely on turnover ratios in their valuation processes.

One explanation is that efficiency signals may be overshadowed by broader factors such as profitability, macroeconomic instability, and geopolitical risks, which weigh more heavily on stock prices in frontier markets (MAS, 2025; PCMA, 2024). Furthermore, the low trading volume and concentrated ownership structure of the PEX reduce informational efficiency (Fama, 1970), meaning that operational performance indicators are less likely to be reflected in price formation.

These results align with Warrad and Al-Omari (2015), who found no significant role of efficiency ratios in Jordanian service sectors, while diverging from studies in more liquid markets (e.g., Şanlı, 2024), where operational efficiency is priced into stock values.

Thus, in the PEX, efficiency indicators appear to be weak tools for predicting stock price behavior, underscoring the need for investors to focus more on profitability and external risk factors.

4.5.2 Effectiveness indicators

H2: Effectiveness indicators have a statistically significant impact on stock prices of firms listed on the Palestine Exchange (PEX).

- **H2.1:** Return on sales (ROS) has a statistically significant impact on stock prices.
- **H2.2:** Return on assets (ROA) has a statistically significant impact on stock prices.
- **H2.3:** Return on equity (ROE) has a statistically significant impact on stock prices.

These hypotheses are based on the premise that profitability ratios capture a firm's ability to generate shareholder wealth, which should be reflected in stock valuations (Damodaran, 2012). Prior studies emphasize that profitability indicators such as ROA and ROE often exert stronger influence on stock returns than efficiency measures, particularly in less efficient markets (Adiandari & Astuti, 2023).

To test H2 and its sub-hypotheses, A regression model was estimated with stock price (SP) as the dependent variable, and ROS, ROA, and ROE as the main predictors, alongside firm size, age, and sector as controls.

4.5.2.1 Regression Analysis: Model 2 (Effectiveness indicators)

The second regression model was specified to assess the extent to which effectiveness indicators—return on sales (ROS), return on assets (ROA), and return on equity (ROE)—alongside firm size, firm age, and sector, explain variations in stock price performance (SP) among firms listed on the Palestine Exchange (PEX). These indicators are widely regarded as measures of profitability and resource utilization, and they have been shown in prior studies to influence stock prices more directly than efficiency ratios (Adhyma & Rahadi, 2024; Şanlı, 2024).

4.5.2.1.1 Model Fit and Summary

The model summary is presented in Table 4.7. The regression produced a coefficient of determination ($R^2 = 0.084$) and an adjusted R^2 of 0.057, suggesting that the explanatory power of profitability indicators and controls is greater than that of efficiency ratios alone. The model was statistically significant at the 1% level ($F(6, 203) = 3.102$, $p = .006$), indicating that effectiveness measures collectively provide explanatory value. The Durbin–Watson statistic of 2.132 fell within the acceptable range of 1.5–2.5, confirming that autocorrelation among residuals was not present (Field, 2018; Pallant, 2020).

TABLE 0.7:MODEL SUMMARY FOR REGRESSION OF EFFECTIVENESS INDICATORS ON STOCK PRICES

Model	R	R^2	Adjusted R^2	Std. Error	F Change	Sig. F Change	Durbin–Watson
1	.290	.084	.057	0.253109	3.102	.006	2.132

4.5.2.1.2 ANOVA Results

The ANOVA presented in Table 4.8 shows that the overall regression was statistically significant ($F(6, 203) = 3.102$, $p = .006$). This finding suggests that profitability indicators and firm characteristics, taken together, have a meaningful though modest effect on stock price variation within the PEX sample.

TABLE 0.8:ANOVA RESULTS FOR REGRESSION OF EFFECTIVENESS INDICATORS ON STOCK PRICES

Source	SS	df	MS	F	Sig.
Regression	1.192	6	0.199	3.102	.006
Residual	13.005	203	0.064		
Total	14.197	209			

4.5.2.1.3 Regression Coefficients

The coefficients are presented in Table 4.9. None of the individual predictors achieved statistical significance at the 5% level, although ROA ($\beta = 0.123$, $p = .587$) and ROE ($\beta = 0.157$, $p = .461$) demonstrated positive but weak associations with stock price performance. ROS exhibited no meaningful impact ($\beta = 0.009$, $p = .903$). Among the control variables, firm size showed a negative but non-significant coefficient ($\beta = -0.127$, $p = .149$), firm age was positive but insignificant ($\beta = 0.027$, $p = .746$), and sector effects were also insignificant ($\beta = 0.067$, $p = .520$).

Table 4.9:COEFFICIENTS for Regression of Effectiveness Indicators and Control Variables on Stock Prices

Predictor	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	0.376	0.298	—	1.262	.208	—	—
ROS	0.002	0.020	0.009	0.122	.903	0.914	1.094
ROA	0.545	1.002	0.123	0.544	.587	0.089	11.256
ROE	0.399	0.540	0.157	0.739	.461	0.100	10.003
Size	-0.056	0.038	-0.127	-1.447	.149	0.587	1.703
Age	0.032	0.100	0.027	0.324	.746	0.672	1.487
Sector	0.021	0.032	0.067	0.645	.520	0.414	2.416

Collinearity diagnostics revealed elevated variance inflation factor (VIF) values for ROA (11.256) and ROE (10.003), exceeding the conventional threshold of 10. This indicates the presence of multicollinearity between these profitability measures, which is expected given their conceptual overlap in financial performance assessment (Hair et al., 2019).

The results summary

1. As shown in Table 4.7, the model achieved an R^2 of 0.084 and an adjusted R^2 of 0.057, indicating slightly improved explanatory power compared to efficiency indicators.

2. As shown in Table 4.8, the ANOVA results revealed that the overall model was statistically significant ($F(6, 203) = 3.102$, $p = .006$), suggesting that profitability and control variables, in combination, have explanatory relevance for stock prices.

3. However, as shown in Table 4.9, none of the individual profitability ratios were statistically significant at the 5% level:

- ROS ($\beta = 0.009$, $p = .903$)
- ROA ($\beta = 0.123$, $p = .587$)
- ROE ($\beta = 0.157$, $p = .461$).

Hypotheses Decision

- **H2 (main hypothesis):** Accepted (model is significant overall).
- **H2.1, H2.2, H2.3 (sub-hypotheses):** Rejected (individual coefficients insignificant).

The results suggest that while effectiveness indicators collectively exert a statistically significant influence on stock prices, no single profitability ratio independently predicts price variation in the PEX. This indicates that investors may consider profitability in aggregate rather than focusing on individual metrics like ROA, ROS, or ROE.

The high multicollinearity between ROA and ROE (VIF > 10) indicates redundancy between these measures, complicating their interpretation as separate predictors (Hair et al., 2019). This overlap may explain why neither variable was significant individually, yet the combined model was.

These findings resonate with prior research in emerging markets, which emphasizes the importance of aggregate profitability signals but highlights weaker reliance on disaggregated ratios due to limited analytical sophistication among investors (Adhyma & Rahadi, 2024). At the same time, the results diverge from studies in developed markets (Lev & Thiagarajan, 1993; Penman, 2013), where specific profitability measures are directly priced.

In the Palestinian context, this pattern may reflect structural features such as thin trading volumes, concentrated ownership, and high exposure to macro-political risks (MAS, 2025; PCMA, 2024), which overshadow firm-specific profitability in shaping investor sentiment.

4.5.3 Efficiency and Effectiveness Indicators alongside with control variables.

H3: There is no statistically significant difference in the relationship between financial ratios and stock prices when accounting for firm size, firm age, and economic sector.

- **H3.1:** There is no significant difference in the relationship between inventory turnover and stock prices when accounting for size, age, and sector.
- **H3.2:** There is no significant difference in the relationship between accounts receivable turnover and stock prices when accounting for size, age, and sector.
- **H3.3:** There is no significant difference in the relationship between accounts payable turnover and stock prices when accounting for size, age, and sector.
- **H3.4:** There is no significant difference in the relationship between return on sales and stock prices when accounting for size, age, and sector.
- **H3.5:** There is no significant difference in the relationship between return on assets and stock prices when accounting for size, age, and sector.
- **H3.6:** There is no significant difference in the relationship between return on equity and stock prices when accounting for size, age, and sector.

The inclusion of control variables reflects theoretical expectations that firm-specific characteristics, such as size, age, and sector classification, may moderate the relationship between financial ratios and stock prices. Larger and older firms tend to exhibit more stable earnings and investor confidence (Dang et al., 2018), while sectoral differences capture structural heterogeneity across industries (Fama & French, 1997).

To test H3 and its sub-hypotheses, a regression model was estimated with stock price (SP) as the dependent variable, all variables—efficiency indicators (IT, ART, APT), effectiveness indicators (ROS, ROA, ROE), and the control variables (size, age, sector).

4.5.3.1 Regression Analysis: Model 3 (Efficiency and Effectiveness Indicators with control variables)

4.5.3.1.1 Model Specification

The third regression model was specified to jointly examine the explanatory power of both efficiency indicators (inventory turnover [IT], accounts receivable turnover [ART], and accounts payable turnover [APT]) and effectiveness indicators (return on sales [ROS], return on assets [ROA], and return on equity [ROE]), alongside firm size, age, and sector. This integrated model provides a comprehensive assessment of whether operational efficiency and financial profitability measures, taken together, can better explain variations in stock price performance (SP) among companies listed on the Palestine Exchange (PEX).

4.5.3.1.2Model Fit and Summary

The model summary is reported in Table 4.10. The regression yielded an R^2 of 0.091 and an adjusted R^2 of 0.050, suggesting that the full set of predictors explains about 9.1% of the variance in stock price performance. While the explanatory power remains modest, it is slightly higher than Model 1 ($R^2 = 0.030$) and Model 2 ($R^2 = 0.084$). The F-statistic confirmed that the model was statistically significant at the 5% level ($F(9, 200) = 2.231$, $p = .022$), indicating that efficiency and effectiveness measures, when considered jointly, contribute meaningfully to stock price variation. The Durbin–Watson statistic of 2.160 confirmed that residuals were free from autocorrelation (Field, 2018; Pallant, 2020).

TABLE 4.10: MODEL SUMMARY FOR REGRESSION OF EFFICIENCY AND EFFECTIVENESS INDICATORS ON STOCK PRICES

Model	R	R^2	Adjusted R^2	Std. Error	F Change	Sig. F Change	Durbin–Watson
1	.302	.091	.050	0.253989	2.231	.022	2.160

4.5.3.1.3 ANOVA Results

The analysis of variance is presented in Table 4.11. The regression was statistically significant ($p = .022$), supporting the notion that, as a group, efficiency and effectiveness indicators together improve the model fit relative to the control variables alone.

TABLE 4.11: ANOVA RESULTS FOR REGRESSION OF EFFICIENCY AND EFFECTIVENESS INDICATORS ON STOCK PRICES

Source	SS	df	MS	F	Sig.
Regression	1.295	9	0.144	2.231	.022
Residual	12.902	200	0.065		
Total	14.197	209			

4.5.3.1.4 Regression Coefficients

The coefficients are shown in Table 4.12. Similar to the results of Models 1 and 2, none of the individual predictors achieved statistical significance at the 5% level. Among efficiency indicators, IT showed a positive but weak effect (β = 0.090, p = .220), while ART and APT were negligible. For effectiveness indicators, ROA (β = 0.121, p = .604) and ROE (β = 0.173, p = .419) maintained positive but non-significant relationships with stock price. ROS remained insignificant (β = 0.019, p = .792). Among controls, firm size (β = -0.127, p = .152), age (β = 0.048, p = .592), and sector (β = 0.072, p = .497) all failed to show significant effects.

TABLE 4.12:COEFFICIENTS FOR REGRESSION OF EFFICIENCY AND EFFECTIVENESS INDICATORS AND CONTROL VARIABLES ON STOCK PRICES

Predictor	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	0.315	0.312	—	1.008	.315	—	—
IT	0.002	0.001	0.090	1.231	.220	0.846	1.182
ART	-0.002	0.011	-0.013	-0.156	.877	0.695	1.439
APT	0.000	0.001	0.034	0.485	.628	0.929	1.076
ROS	0.006	0.021	0.019	0.264	.792	0.856	1.168
ROA	0.537	1.033	0.121	0.520	.604	0.084	11.884
ROE	0.441	0.544	0.173	0.810	.419	0.099	10.089
Size	-0.056	0.039	-0.127	-1.439	.152	0.586	1.705
Age	0.059	0.110	0.048	0.536	.592	0.563	1.778
Sector	0.022	0.032	0.072	0.680	.497	0.410	2.440

Collinearity diagnostics revealed very high VIF values for ROA (11.884) and ROE (10.089), confirming multicollinearity between these profitability measures, consistent with their conceptual overlap.

The result summary

1. As shown in table 4.10, the model fit was slightly improved compared to earlier models, with an R^2 of 0.091 and an adjusted R^2 of 0.050.

2. As shown in table 4.11, the ANOVA results indicated that the model was statistically significant overall ($F(9, 200) = 2.231$, $p = .022$), suggesting that the combined set of indicators and controls had explanatory power for stock price variation.

3. However, as presented in Table 4.12, none of the control variables were statistically significant individually:

- Firm size ($\beta = -0.127$, $p = .152$)
- Firm age ($\beta = 0.048$, $p = .592$)
- Sector ($\beta = 0.072$, $p = .497$).

Hypotheses Decision

- **H3 (main hypothesis):** Rejected (model is significant, no significant moderating effect of size, age, or sector on the relationship between financial ratios and stock prices).
- **H3.1–H3.6 (sub-hypotheses):** Accepted (no significant moderating effect of size, age, or sector on the relationship between financial ratios and stock prices).

The findings suggest that firm-level characteristics such as size, age, and sector classification do not exert an independent influence on stock price formation within the PEX. This implies that investors in the Palestinian market do not systematically differentiate between small and large firms, or between older and younger firms, when translating financial ratios into pricing decisions.

This contrasts with evidence from more developed markets where firm size and age often moderate stock returns (Fama & French, 1997). Instead, the absence of such effects aligns with prior findings in frontier and emerging markets where trading activity is thin, investor bases are concentrated, and informational asymmetry is high (Bekaert & Harvey, 2014).

The lack of sectoral differentiation may also reflect the relatively small scale and interconnected nature of the Palestinian economy, where sector-specific shocks quickly spill across industries (MAS, 2025). Consequently, investors appear to evaluate firms more on aggregate profitability signals rather than on structural attributes.

4.6 Conclusion

This chapter presented the empirical analysis of the relationship between efficiency and effectiveness indicators and stock price performance (SP) among non-financial firms listed on the Palestine Exchange (PEX) during the period 2015–2024. As presented in table 4.13 a summary of series of regression models were employed to evaluate the explanatory power of operational efficiency (IT, ART, APT), profitability and effectiveness measures (ROS, ROA, ROE), and control variables (firm size, age, and sector) .

TABLE 0.13: SUMMERY OF FINDINGS

Hypothesis	Statement	Result	Interpretation
H1	Efficiency indicators (IT, ART, APT) have a statistically significant impact on stock prices.	**Rejected**	The overall model was insignificant (F = 1.042, p = .399), and none of the efficiency ratios showed significance. Efficiency does not explain stock prices in the PEX.
H1.1	Inventory turnover impacts stock prices.	Rejected	IT (β = 0.036, p = .626) was insignificant.
H1.2	Accounts receivable turnover impacts stock prices.	Rejected	ART (β = 0.101, p = .171) was insignificant.
H1.3	Accounts payable turnover impacts stock prices.	Rejected	APT (β = 0.041, p = .567) was insignificant.
H2	Effectiveness indicators (ROS, ROA, ROE) have a statistically significant impact on stock prices.	**Partially Accepted**	The overall model was significant (F = 3.102, p = .006), but individual coefficients were insignificant. Profitability matters collectively, not individually.
H2.1	Return on sales impacts stock prices.	Rejected	ROS (β = 0.009, p = .903) was insignificant.
H2.2	Return on assets impacts stock prices.	Rejected	ROA (β = 0.123, p = .587) was insignificant.
H2.3	Return on equity impacts stock prices.	Rejected	ROE (β = 0.157, p = .461) was insignificant.
H3	There is no significant difference in the relationship between ratios and	**Rejected** (Null)	The full model was significant (F = 2.231, p = .022), but control variables were individually

	stock prices when controlling for firm size, age, and sector.		insignificant. Size, age, and sector do not moderate the relationship.
H3.1–H3.6	Control variables moderate individual ratio–price relationships.	Accepted (Null)	None of the control variables were statistically significant ($p > .05$).

The next chapter (Chapter 5) will interpret these findings in light of existing literature, discuss their theoretical and practical implications, and provide recommendations for policymakers, firms, and future researchers.

Chapter Five: Discussion and Conclusion

5.1 Introduction

This chapter synthesizes the empirical findings presented in Chapter Four with the theoretical and empirical literature reviewed in Chapter Two. The purpose is to interpret the results within the broader framework of financial efficiency, effectiveness, and stock price determination, while highlighting their implications for theory, practice, and policy.

The research was guided by the central objective of examining the ability of efficiency indicators (inventory turnover, accounts receivable turnover, accounts payable turnover) and effectiveness indicators (return on sales, return on assets, return on equity) to explain stock price performance in the Palestine Exchange (PEX) during the period 2015–2024. Control variables of firm size, firm age, and economic sector were included to capture structural differences among firms.

The findings indicated that efficiency indicators alone were insufficient to explain stock price variations, while effectiveness measures provided slightly greater explanatory power, though still limited. The combined model yielded the strongest results, yet overall explanatory power remained modest. These outcomes raise important questions about the role of accounting-based indicators in frontier markets such as Palestine, where structural, institutional, and external conditions may weaken the informational role of firm-level financial data.

The chapter is organized as follows. Section 5.2 provides a detailed discussion of the findings in relation to prior literature. Section 5.3 addresses theoretical implications, while Section 5.4 outlines practical implications for market participants and policymakers. Section 5.5 presents the study’s limitations, and Section 5.6 offers directions for future research. Finally, Section 5.7 concludes the study by summarizing its key contributions and insights.

5.2 Discussion of Findings

This section discusses the study's empirical results in light of the research objectives and relevant literature. The findings are examined to determine how efficiency and effectiveness indicators contribute to explaining stock price performance in the Palestine Exchange.

5.2.1 Discussion of the (H1): Efficiency indicators have a statistically significant impact on stock prices of firms listed on the Palestine Exchange (PEX).

The first regression model demonstrated that inventory turnover (IT), accounts receivable turnover (ART), and accounts payable turnover (APT) did not significantly explain stock price performance. This finding aligns with Warrad and Al-Omari (2015), who observed that turnover ratios in Jordanian service sectors had no significant effect on stock returns. The lack of explanatory power may be attributed to structural characteristics of frontier markets, where thin trading, limited liquidity, and concentrated ownership structures diminish the role of operational efficiency in the price discovery process (MAS, 2025; PCMA, 2024).

In contrast, studies in more developed markets—such as Şanlı (2024) in Turkey—have reported significant relationships between turnover ratios and stock performance, reflecting higher levels of informational efficiency. The divergence suggests that in the PEX context, operational efficiency indicators are not fully priced into stocks, consistent with the weak-form efficiency described by Fama (1970).

5.2.2 Discussion of the (H2): Effectiveness indicators have a statistically significant impact on stock prices of firms listed on the Palestine Exchange (PEX).

The second regression model revealed that return on sales (ROS), return on assets (ROA), and return on equity (ROE) collectively improved explanatory power ($R^2 = 0.084$), though individual coefficients remained statistically insignificant. This suggests that profitability and effectiveness ratios are relatively more informative to investors than turnover measures, yet still insufficient to drive strong stock price responses.

The positive but insignificant coefficients for ROA and ROE are consistent with Adhyma and Rahadi (2024), who reported modest but meaningful links between profitability ratios and stock returns in the Indonesian LQ45 index. However, the strong multicollinearity between ROA and ROE highlights a measurement overlap, as both ratios capture profitability from different but related perspectives. This issue is common in financial research, where profitability ratios often move together and may distort regression outcomes unless carefully managed (Hair et al., 2019).

5.2.3 Discussion of the (H3): There is no statistically significant difference in the relationship between financial ratios and stock prices when accounting for firm size, firm age and economic sector.

The third regression model, which integrated both efficiency and effectiveness indicators with firm-level controls, yielded the highest explanatory power ($R^2 = 0.091$, $p = .022$). While modest, this result demonstrates that profitability and efficiency measures together provide more explanatory capacity than either group in isolation. However, the insignificance of individual predictors underscores that accounting-based indicators are weak signals for stock valuation in the PEX.

From a theoretical perspective, this finding resonates with signaling theory (Spence, 1973), which suggests that financial ratios should serve as credible signals to investors. In practice, however, the weak explanatory power indicates that in the PEX context, these signals are either muted or overshadowed by external factors such as political instability, macroeconomic shocks, and investor sentiment. Similar conclusions were drawn by Warrad and Al-Omari (2015) for Jordan and by Şanlı (2024) for Turkey, albeit in more liquid and developed markets.

Across all models, firm size, age, and sector failed to demonstrate significant effects on stock price performance. While size and age are often associated with stability and market confidence in larger and older firms (Dang, Li, & Yang, 2018; Pastor & Veronesi, 2003), these effects appear muted in the PEX. This outcome may reflect the relatively small scale of Palestinian firms, limited investor base, and weak market segmentation by sector, which together reduce the discriminating power of these control variables.

5.2.4 Synthesis with Literature

Overall, the findings suggest that the Palestine Exchange exhibits characteristics of a frontier market with weak informational efficiency, where accounting-based indicators play only a minor role in price determination. This is consistent with the view that financial ratios are more strongly priced in developed and liquid markets (Fama, 1970; Şanlı, 2024) but less impactful in emerging or politically constrained markets (Warrad & Al-Omari, 2015; MAS, 2025).

The study thus adds to the growing evidence that in markets such as Palestine, stock price performance is influenced less by firm-level efficiency and profitability, and more by external and macroeconomic factors. This interpretation will be further expanded in the subsequent sections on theoretical and practical implications.

5.3 Theoretical Implications

This section outlines the theoretical contributions of the study by linking its findings to existing financial and accounting literature. It highlights how the results support, extend, or challenge prior theories on market efficiency and firm performance. In doing so, the discussion positions the study within broader academic debates on stock price determinants in emerging markets.

5.3.1 Efficient Market Hypothesis (EMH)

The weak explanatory power of both efficiency and effectiveness indicators for stock price performance in the Palestine Exchange (PEX) raises important implications for the Efficient Market Hypothesis (EMH) as formulated by Fama (1970). EMH posits that stock prices fully reflect all available information, whether historical (weak form), publicly available (semi-strong form), or even insider (strong form).

The findings of this study suggest that PEX operates closer to a weak-form efficiency frontier market. While descriptive statistics and correlation results indicated some associations between profitability indicators (ROA, ROE) and stock prices, regression analysis revealed that these ratios collectively explained less than 10% of stock price variability. Such limited explanatory power implies that accounting-based measures are not efficiently impounded into prices, consistent with previous evidence from other developing or thinly traded markets (Warrad & Al-Omari, 2015; Alrabba, 2016).

This contrasts with developed markets, where similar indicators often show stronger and more consistent predictive ability (Şanlı, 2024; Adhyma & Rahadi, 2024). Hence, this study supports the view that market efficiency is context-dependent, and that in politically volatile and structurally constrained markets such as PEX, efficiency remains weak.

5.3.2 Signaling Theory

Signaling theory (Spence, 1973) suggests that firms convey critical information to investors through observable indicators such as financial ratios, dividend policies, or capital structure. In theory, higher efficiency and profitability should serve as positive signals to the market, thereby influencing stock prices.

The results, however, show that such signals are weak or muted in the Palestinian context. Neither efficiency ratios (IT, ART, APT) nor profitability ratios (ROA, ROE, ROS) produced significant coefficients in the regression models. This suggests that investors in PEX either do not rely heavily on these signals or that these signals are overshadowed by external macroeconomic and political risk factors (MAS, 2025; PCMA, 2024).

This finding refines signaling theory in emerging markets: while firms do emit financial signals, the market may lack the depth, liquidity, or investor sophistication necessary to interpret and price these signals effectively. It highlights that the efficacy of signaling mechanisms is contingent upon institutional quality, investor base, and market development.

5.3.3 Agency Theory

Agency theory (Jensen & Meckling, 1976) emphasizes the potential conflicts between managers and shareholders, and how financial performance measures can serve as monitoring tools. In developed markets, ratios such as ROE and ROA often help investors evaluate managerial performance and align incentives. However, in PEX, the weak relationship between these indicators and stock prices suggests that agency mechanisms may be less effective.

This may reflect the concentrated ownership structures common in Palestinian firms, where family or block holders dominate governance. In such settings, minority shareholders may have limited influence, and market prices may not fully incorporate agency-related information. This interpretation is consistent with regional evidence showing that ownership concentration dilutes the monitoring role of financial indicators (Alabdullah, 2018).

5.3.4 Broader Theoretical Contribution

Overall, this study contributes to the theoretical discourse by showing that traditional financial theories (EMH, signaling, agency) must be contextualized for frontier markets like Palestine.

- **For EMH**, the evidence supports weak-form efficiency but rejects semi-strong efficiency, as publicly available accounting information is not fully priced into stocks.
- **For signaling theory**, financial indicators provide weak or ambiguous signals, reflecting institutional and market limitations.
- **For agency theory**, ownership structures and governance patterns limit the extent to which accounting-based measures are used for monitoring in the market.

By situating these results within the unique institutional, political, and economic environment of Palestine, the study underscores the importance of contextualizing global financial theories when applied to frontier and emerging markets.

5.4 Practical Implications

The findings of this study carry several important implications for investors, corporate managers, and policymakers operating within the Palestinian financial system. While efficiency and effectiveness indicators demonstrated only limited explanatory power over stock price variations in the Palestine Exchange (PEX), the results underscore broader lessons for decision-making in a frontier market characterized by thin trading volumes, limited liquidity, and heightened exposure to external shocks.

5.4.1 Implications for Investors

The weak relationship between operational efficiency ratios—such as inventory turnover (IT), accounts receivable turnover (ART), and accounts payable turnover (APT)—and stock price performance indicates that investors should not rely solely on these traditional measures when forming portfolio strategies. Instead, profitability indicators, particularly return on assets (ROA) and return on equity (ROE), which displayed relatively stronger correlations with stock prices, deserve greater attention. Moreover, investment decisions in the PEX should integrate macroeconomic and geopolitical risk assessments, as external conditions often outweigh firm-level financial signals (Bekaert & Harvey, 2014; MAS, 2025). This highlights the need for a multidimensional approach that combines fundamental, technical, and contextual analyses. Portfolio diversification across sectors, coupled with robust risk management practices, is also critical for mitigating volatility in such a vulnerable market environment.

5.4.2 Implications for Corporate Managers

For corporate managers of listed companies, the findings suggest that improvements in operational efficiency, though vital for internal competitiveness and cost control, are not necessarily rewarded by the market in terms of stock valuation. Managers must therefore complement efficiency gains with strategies that enhance investor confidence. These include transparent reporting, strong corporate governance, and clear communication of long-term strategic goals. Profitability indicators (ROA, ROE) appear to carry greater weight among investors and should be emphasized as part of corporate communication. In addition, the adoption of non-financial signals—such as environmental, social, and governance (ESG) practices and forward-looking disclosures—can strengthen credibility, broaden the shareholder base, and attract long-term institutional investors (Alabdullah, 2018).

5.4.3 Implications for Policymakers and Regulators

For regulators such as the Palestinian Capital Market Authority (PCMA) and the Palestine Exchange, the limited responsiveness of stock prices to efficiency and effectiveness ratios highlights structural weaknesses in market informational efficiency. Addressing these challenges requires multifaceted reforms:

- Enhancing disclosure standards – mandating timely, transparent, and comprehensive corporate reporting.
- Promoting investor education – enabling retail investors to better interpret and utilize financial data.
- Strengthening market infrastructure – encouraging institutional investor participation, facilitating cross-listings, and reducing trading frictions.
- Improving liquidity mechanisms – through the development of electronic trading platforms and incentives for higher trading volumes.

By addressing these priorities, regulators can improve transparency, investor sophistication, and liquidity, thereby ensuring that accounting information is more effectively incorporated into stock valuations (PCMA, 2024). At a broader level, policies that mitigate geopolitical uncertainty and macroeconomic instability are essential for building investor confidence and ensuring greater market resilience.

5.4.4 Broader Practical Contribution

Taken together, these findings emphasize that in frontier markets like Palestine, traditional accounting indicators alone are insufficient for explaining stock price behavior.

Investors must adopt diversified evaluation frameworks, managers should align both financial and non-financial signals to investor expectations, and regulators must strengthen institutional quality. Collectively, these efforts can enhance confidence in the PEX, attract more foreign and institutional capital, and gradually align its practices with global standards of market efficiency.

5.5 Limitations of the Study

Every empirical investigation is subject to certain limitations that shape the interpretation and generalizability of its findings. Acknowledging these constraints is essential to provide context for the results and guide future research directions.

1. Data-Related Limitations

The study is based exclusively on firms listed on the Palestine Exchange (PEX) between 2015 and 2024, excluding banks and insurance companies due to differences in financial reporting standards. This purposive sampling approach ensured comparability but limited the breadth of sectoral representation. Moreover, some firms were excluded due to incomplete annual reports, reducing the final sample size to 210 firm-year observations. The relatively small dataset may restrict statistical power and limit the detection of subtle relationships between efficiency/effectiveness indicators and stock prices (Hair et al., 2019).

2. Market Characteristics

The PEX operates in a thin and relatively illiquid environment, with concentrated ownership structures and limited foreign investor participation. These structural characteristics may dampen the reflection of firm-level fundamentals in stock prices (Warrad & Al-Omari, 2015). Consequently, the weak explanatory power of efficiency and effectiveness ratios observed in this study may be partly attributed to market inefficiencies rather than inherent irrelevance of accounting information.

3. Methodological Limitations

Given that normality tests indicated significant deviations from normal distribution across variables, non-parametric methods were employed for correlation analysis. While Spearman's rho and regression techniques provide robustness under non-normality, they may not capture potential nonlinear or dynamic relationships. In addition, multicollinearity was detected between profitability measures (ROA and ROE), which may have attenuated the individual significance of these predictors in regression models (Gujarati & Porter, 2009).

4. External Validity

The findings are specific to the Palestinian context and may not be generalizable to other frontier or emerging markets without caution. Political instability, macroeconomic shocks, and regulatory differences uniquely shape investor behavior in Palestine, limiting direct comparison with more developed capital markets (MAS, 2025).

5. Time Frame Considerations

The dataset spans a ten-year period (2015–2024). While this enhances robustness by capturing multiple market cycles, it also aggregates over periods of geopolitical turbulence and economic disruption. Such external shocks may have distorted normal firm–price linkages, complicating the isolation of purely financial determinants of stock price movements.

5.6 Recommendations for Future Research

Building on the limitations identified in this study, several avenues for future research are recommended to enhance the understanding of how efficiency and effectiveness indicators influence stock price performance in frontier markets such as the Palestine Exchange (PEX).

1. Expanding the Dataset and Sample Coverage

Future research should extend the sample to include banks and insurance companies, provided appropriate adjustments are made for differences in financial reporting frameworks. In addition, incorporating firms listed after 2015 or re-listed following restructuring could improve representation and provide insights into the dynamics of new market entrants. Expanding the time horizon beyond 2024 would also allow researchers to examine whether the relationships observed in this study persist under evolving economic and regulatory conditions.

2. Addressing Market Microstructure Effects

Since the PEX operates under conditions of low liquidity and concentrated ownership, subsequent studies should integrate microstructure variables such as bid–ask spreads, trading volume, and ownership concentration into their models. These variables could reveal whether informational inefficiencies or transaction frictions mediate the link between accounting indicators and stock prices (Chordia, Roll, & Subrahmanyam, 2008).

3. Employing Advanced Econometric and Statistical Techniques

Future research could employ non-linear modeling techniques, quantile regressions, or machine learning approaches to capture potential asymmetric and non-linear effects of financial ratios on stock performance. Similarly, panel vector autoregression (PVAR) models could help to account for feedback loops between financial performance and stock price dynamics (Love & Zicchino, 2006).

4. Incorporating External Macroeconomic and Geopolitical Factors

The Palestinian economy is highly sensitive to regional shocks and political instability. Future research should consider macroeconomic variables such as GDP growth, inflation, interest rates, and exchange rates, as well as geopolitical risk indicators, to examine how external conditions interact with firm-level fundamentals in shaping stock returns (Bekaert & Harvey, 2014).

5. Comparative and Cross-Market Studies

Comparing the PEX with other frontier and emerging markets in the Middle East and North Africa (MENA) could yield insights into whether the limited predictive power of efficiency and effectiveness indicators is a uniquely Palestinian phenomenon or reflective of broader patterns in less efficient markets. Such cross-country analyses would strengthen the external validity of the findings.

6. Behavioral and Investor-Perception Approaches

Finally, future studies could incorporate surveys or experimental methods to investigate how local investors perceive and utilize financial ratios in their decision-making. Behavioral finance perspectives may reveal cognitive biases or information-processing constraints that moderate the relationship between accounting indicators and stock prices (Barberis & Thaler, 2003).

5.7 Chapter Summary

This chapter has discussed the findings of the empirical analysis and situated them within the broader theoretical and practical context of stock price determination in emerging markets. The primary aim of the study was to examine whether efficiency indicators (inventory turnover, accounts receivable turnover, and accounts payable turnover) and effectiveness measures (return on sales, return on assets, and return on equity) explain stock price performance among firms listed on the Palestine Exchange (PEX). Control variables such as firm size, age, and economic sector were incorporated to account for firm-specific heterogeneity.

The results revealed that operational efficiency ratios did not have a statistically significant effect on stock price performance. By contrast, profitability measures—particularly ROA and ROE—exhibited relatively stronger associations with stock prices, although their explanatory power remained modest. These findings highlight the limited role of efficiency indicators in influencing stock valuation within the PEX, reflecting its characteristics as a thin, frontier market. The evidence suggests that investors in this context place greater weight on profitability and external conditions, such as macroeconomic and geopolitical stability, rather than on operational efficiency alone.

The discussion further emphasized that the weak link between efficiency ratios and stock prices is consistent with prior evidence from similar developing markets, but diverges from patterns observed in more developed exchanges where such ratios are more actively incorporated into valuation. This divergence underscores the structural constraints of the PEX, including illiquidity, concentrated ownership, and vulnerability to external shocks.

Finally, the chapter outlined practical implications for investors, managers, and regulators. For investors, profitability indicators emerged as more reliable valuation tools than efficiency measures. For managers, the results underscored the importance of transparency and profitability over efficiency metrics in influencing market perceptions. For policymakers, the findings highlighted the urgent need to strengthen market infrastructure, enhance disclosure practices, and foster liquidity to improve price discovery.

Overall, the results of this study provide valuable insights into the dynamics of stock price formation in the PEX and contribute to the broader literature on market efficiency in emerging and frontier economies.

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Appendices

Appendix A: list of abbreviations

The following list provides the abbreviations used throughout this thesis along with their full forms to facilitate clarity and consistency.

APPENDIX A :LIST OF ABBREVIATIONS

Abbreviation	Title
APT	Accounts Payable Turnover
ART	Accounts Receivable Turnover
CCC	Cash Conversion Cycle
CRM	Customer Relationship Management
D/E or DER	Debt-to-Equity Ratio
DPO	Days Payable Outstanding
EMH	Efficient Market Hypothesis
EPS	Earnings Per Share
ERP	Enterprise Resource Planning
GDP	Gross Domestic Product
IT	Inventory Turnover
PCMA	Palestinian Capital Market Authority
PEX	Palestine Exchange
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SG&A	Selling, General, and Administrative Expenses
SP	Stock Price

Appendix B : List of Data Collected

This appendix provides a summary of the financial and market data collected for the empirical analysis. The dataset includes firm-level financial indicators and stock price information for industrial and service companies listed on the Palestine Exchange (PEX) during the period 2015–2024

APPENDIX B: LIST OF DATA COLLECTED

Sample				Independent variables						Control variables		dependent variable
no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
1	ARAB COMPANY FOR PAINTS PRODUCTS	Industrial	2015	3.10	10.97	7.72	0.22	0.22	0.32	6.69	1.41	0.32
			2016	3.11	10.61	7.62	0.23	0.21	0.32	6.75	1.43	0.21
			2017	2.72	7.41	6.08	0.23	0.19	0.27	6.81	1.45	0.30
			2018	2.72	5.91	5.52	0.10	0.09	0.12	6.76	1.46	0.17
			2019	2.56	5.75	5.32	0.18	0.12	0.18	6.82	1.48	(0.03)
			2020	2.05	4.29	4.96	0.20	0.12	0.17	6.87	1.49	0.08
			2021	2.09	5.75	6.90	0.19	0.13	0.18	6.89	1.50	0.12
			2022	2.36	7.25	6.69	0.11	0.08	0.11	6.84	1.52	0.07
			2023	1.96	5.78	5.41	0.05	0.03	0.04	6.82	1.53	0.21
			2024	2.24	7.02	5.52	0.13	0.10	0.13	6.87	1.54	-
2	JERUSALEM PHARMACEUTICALS	Industrial	2015	1.43	1.60	2.62	0.13	0.04	0.06	7.71	1.67	0.21
			2016	1.40	1.54	3.51	0.16	0.06	0.08	7.72	1.68	(0.06)
			2017	1.25	1.72	4.40	0.22	0.10	0.12	7.79	1.69	0.87
			2018	1.27	1.81	3.89	0.18	0.09	0.11	7.78	1.70	0.02
			2019	1.26	1.88	3.94	0.18	0.07	0.09	7.85	1.71	(0.10)
			2020	1.38	1.65	3.80	0.15	0.05	0.06	7.89	1.72	0.03
			2021	1.56	1.68	4.32	0.17	0.07	0.09	7.94	1.72	0.05
			2022	1.76	1.48	2.96	0.19	0.08	0.11	7.92	1.73	0.20
			2023	1.70	1.29	3.26	0.22	0.08	0.10	7.94	1.74	0.20
			2024	2.10	1.37	4.63	0.17	0.06	0.07	7.95	1.75	0.03

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
3	THE NATIONAL CARTON INDUSTRY	Industrial	2015	11.03	0.56	9.42	0.47	0.07	0.08	6.84	1.36	0.08
			2016	11.16	0.48	6.84	0.41	0.04	0.05	6.83	1.38	0.20
			2017	7.96	0.45	5.93	0.31	0.02	0.03	6.87	1.40	(0.04)
			2018	5.38	0.41	4.68	0.13	(0.02)	(0.03)	6.88	1.41	(0.10)
			2019	4.68	0.57	5.04	0.32	0.03	0.05	6.93	1.43	0.08
			2020	4.35	1.09	6.74	0.58	0.09	0.12	6.97	1.45	0.48
			2021	4.06	1.35	16.10	0.57	0.10	0.14	7.05	1.46	0.42
			2022	3.54	0.97	22.43	0.44	0.07	0.09	7.00	1.48	(0.05)
			2023	3.44	1.06	15.56	0.54	0.09	0.12	7.01	1.49	(0.02)
			2024	4.55	0.97	12.38	0.48	0.08	0.11	7.03	1.50	0.13
4	NATIONAL ALUMINUM AND PROFILE "NAPCO"	Industrial	2015	2.01	0.63	13.38	0.25	0.00	0.01	7.37	1.38	0.01
			2016	2.22	0.66	11.64	0.31	0.01	0.03	7.36	1.40	(0.08)
			2017	3.12	0.53	19.02	0.29	0.02	0.04	7.38	1.42	(0.16)
			2018	3.17	0.44	16.42	0.39	0.02	0.05	7.43	1.44	0.28
			2019	2.50	0.39	14.21	0.39	0.01	0.04	7.49	1.45	0.40
			2020	2.03	0.33	10.10	0.20	0.00	0.00	7.52	1.47	(0.11)
			2021	3.66	0.42	18.79	0.44	0.02	0.05	7.55	1.48	0.44
			2022	3.86	0.27	26.33	0.01	(0.02)	(0.06)	7.61	1.49	(0.01)
			2023	1.78	0.23	8.75	(0.22)	(0.03)	(0.12)	7.68	1.51	(0.23)
			2024	1.95	0.24	8.52	(0.59)	(0.06)	(0.19)	7.64	1.52	(0.10)
5	BEIT JALA PHARMACEUTICAL	Industrial	2015	3.00	1.05	16.65	0.59	0.14	0.18	7.10	1.66	1.10
			2016	3.00	0.97	14.19	0.63	0.13	0.17	7.18	1.67	0.16
			2017	2.76	1.14	12.91	0.57	0.10	0.13	7.23	1.68	0.06
			2018	2.57	0.80	13.50	0.35	0.05	0.07	7.19	1.68	0.06
			2019	2.52	1.04	8.21	0.50	0.08	0.11	7.22	1.69	0.07
			2020	2.50	0.70	4.86	0.41	0.04	0.06	7.23	1.70	0.12
			2021	2.56	0.62	6.50	0.39	0.04	0.07	7.29	1.71	0.10
			2022	2.17	0.78	5.49	0.58	0.10	0.15	7.28	1.72	0.09
			2023	1.98	0.71	7.14	0.62	0.10	0.13	7.26	1.73	0.02
			2024	1.94	0.63	10.62	0.60	0.09	0.11	7.30	1.74	0.04

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
6	BIRZEIT PHARMACEUTICALS	Industrial	2015	1.59	0.67	2.06	0.59	0.07	0.09	7.84	1.63	0.11
			2016	1.96	0.71	3.54	0.60	0.10	0.12	7.87	1.64	0.43
			2017	1.73	0.67	4.78	0.58	0.14	0.16	7.91	1.65	0.17
			2018	1.95	0.53	4.67	0.57	0.09	0.11	7.96	1.66	(0.01)
			2019	1.64	0.58	3.50	0.52	0.10	0.12	7.99	1.67	0.07
			2020	1.83	0.55	3.78	0.49	0.07	0.09	8.00	1.68	0.05
			2021	2.36	0.61	4.43	0.58	0.11	0.13	8.05	1.69	0.07
			2022	2.53	0.48	4.55	0.56	0.06	0.08	8.09	1.70	(0.21)
			2023	2.22	0.40	3.79	0.47	0.05	0.06	8.10	1.71	0.01
			2024	2.20	0.34	2.49	0.58	0.04	0.05	8.11	1.71	0.01
7	PALESTINE POULTRY	Industrial	2015	11.11	1.07	5.66	0.62	0.10	0.13	7.50	1.28	(0.11)
			2016	15.12	0.94	7.09	0.59	0.10	0.13	7.52	1.30	0.20
			2017	13.04	0.74	6.85	0.57	0.08	0.11	7.59	1.32	(0.01)
			2018	11.04	0.39	5.92	0.36	0.02	0.03	7.55	1.34	0.05
			2019	11.62	0.88	7.06	0.64	0.10	0.13	7.61	1.36	0.15
			2020	11.10	0.87	8.30	0.66	0.10	0.13	7.66	1.38	(0.05)
			2021	10.73	0.58	9.43	0.58	0.06	0.08	7.67	1.40	0.16
			2022	10.26	0.61	8.56	0.56	0.07	0.09	7.62	1.41	0.06
			2023	10.13	0.63	8.18	0.65	0.07	0.10	7.66	1.43	0.10
			2024	8.79	0.81	6.66	0.67	0.10	0.12	7.66	1.44	(0.01)
8	JERUSALEM CIGARETTE	Industrial	2015	5.27	0.13	6.42	0.15	0.00	0.00	7.59	1.71	(0.19)
			2016	6.35	0.12	9.40	0.03	(0.01)	(0.02)	7.60	1.72	(0.04)
			2017	7.62	0.19	12.42	0.25	0.01	0.02	7.65	1.73	0.29
			2018	5.67	0.18	10.47	0.08	0.00	0.00	7.65	1.74	(0.06)
			2019	6.89	0.23	8.55	0.07	0.00	0.01	7.64	1.74	0.02
			2020	9.33	0.22	11.90	0.10	0.05	0.10	7.64	1.75	0.01
			2021	11.53	0.40	17.07	0.43	0.08	0.16	7.71	1.76	1.73
			2022	10.70	0.54	11.31	0.48	0.04	0.08	7.71	1.77	(0.17)
			2023	12.24	0.43	7.62	0.37	0.03	0.06	7.77	1.77	0.31
			2024	11.61	0.22	5.26	0.03	0.01	0.03	7.83	1.78	(0.31)

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
9	THE VEGETABLE OIL INDUSTRIES	Industrial	2015	2.61	0.68	21.99	0.09	0.22	0.23	7.40	1.80	0.28
			2016	2.88	0.70	8.76	0.19	0.20	0.21	7.45	1.81	0.10
			2017	3.64	0.75	13.07	0.31	0.15	0.22	7.66	1.81	0.37
			2018	3.71	0.79	30.04	0.26	0.13	0.19	7.70	1.82	0.14
			2019	3.58	1.00	26.50	0.47	0.13	0.17	7.71	1.83	(0.04)
			2020	4.62	1.03	31.04	0.50	0.13	0.15	7.69	1.83	(0.15)
			2021	5.89	1.17	34.64	0.54	0.15	0.22	7.92	1.84	0.73
			2022	3.39	0.76	26.21	0.26	0.11	0.15	7.89	1.85	0.02
			2023	3.15	1.00	20.73	0.26	0.10	0.13	7.89	1.85	(0.06)
			2024	3.17	1.52	19.91	0.45	0.11	0.12	7.89	1.86	(0.47)
10	GOLDEN WHEAT MILLS	Industrial	2015	2.19	0.03	73.62	(6.76)	(0.06)	(0.08)	7.30	1.31	(0.07)
			2016	4.48	0.16	97.88	(0.00)	0.00	0.00	7.31	1.33	(0.06)
			2017	4.11	0.27	65.45	0.49	0.07	0.09	7.35	1.35	0.25
			2018	2.55	0.23	46.22	0.49	0.00	0.00	7.32	1.37	(0.23)
			2019	2.91	0.17	61.98	0.40	0.04	0.05	7.29	1.39	0.19
			2020	2.98	0.14	41.44	0.15	0.00	0.00	7.26	1.40	0.07
			2021	4.46	0.32	112.71	(0.32)	(0.03)	(0.05)	7.38	1.42	0.15
			2022	3.09	0.70	62.26	0.58	0.06	0.10	7.46	1.44	0.01
			2023	3.03	0.21	47.67	0.40	0.00	0.00	7.39	1.45	0.12
			2024	3.22	0.30	53.22	0.51	0.03	0.05	7.39	1.47	(0.11)
11	PALESTINE TELECOMMUNICATIONS	service	2015	15.82	3.26	1.51	0.32	0.11	0.15	8.87	1.31	0.05
			2016	16.01	3.26	0.49	0.32	0.08	0.14	9.01	1.33	(0.02)
			2017	16.94	2.68	0.34	0.25	0.08	0.12	8.97	1.35	(0.00)
			2018	18.42	2.53	0.50	0.28	0.08	0.14	8.93	1.37	0.03
			2019	25.57	2.83	0.85	0.27	0.07	0.13	8.94	1.39	0.06
			2020	23.64	2.78	1.16	0.27	0.05	0.10	8.91	1.40	(0.00)
			2021	37.81	2.64	2.32	0.31	0.08	0.13	8.94	1.42	0.56
			2022	29.51	2.73	1.59	0.29	0.12	0.29	8.72	1.44	0.04
			2023	29.43	3.21	1.29	0.25	0.08	0.20	8.71	1.45	(0.05)
			2024	32.42	3.11	0.94	0.21	0.08	0.19	8.71	1.47	(0.12)

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
12	PALESTINIAN DIST. & LOGISTICS SERVICES	service	2015	10.32	0.46	2.11	(0.17)	(0.02)	(0.06)	7.46	1.04	(0.09)
			2016	9.63	0.33	2.38	(0.17)	0.01	0.02	7.08	1.08	(0.25)
			2017	9.01	0.38	3.80	(0.62)	0.00	0.01	7.13	1.11	(0.39)
			2018	8.72	0.49	3.44	(0.28)	0.00	0.01	7.10	1.15	0.04
			2019	12.91	0.71	3.17	(0.06)	0.01	0.02	7.16	1.18	(0.23)
			2020	20.73	0.59	3.24	(0.17)	0.01	0.02	7.14	1.20	(0.14)
			2021	34.19	0.92	5.00	0.02	0.05	0.09	7.15	1.23	1.09
			2022	62.96	1.13	6.02	0.27	0.06	0.10	7.21	1.26	0.57
			2023	61.11	0.78	4.75	0.15	0.03	0.06	7.24	1.28	(0.10)
			2024	54.65	0.82	5.53	0.36	0.05	0.10	7.26	1.30	0.06

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
13	THE ARAB HOTELS	service	2015	35.58	1.27	2.45	(0.24)	(0.03)	(0.05)	7.48	1.29	0.04
			2016	40.34	1.19	2.15	(0.74)	(0.05)	(0.08)	7.46	1.31	(0.07)
			2017	46.90	1.39	2.24	(1.07)	(0.05)	(0.11)	7.45	1.33	(0.31)
			2018	55.24	1.55	2.71	(0.33)	(0.04)	(0.09)	7.44	1.35	0.14
			2019	57.57	0.89	3.00	(0.86)	(0.05)	(0.11)	7.42	1.37	(0.05)
			2020	37.93	(2.30)	1.73	2.21	(0.12)	(0.34)	7.39	1.39	-
			2021	38.97	7.30	1.21	(0.24)	(0.05)	(0.18)	7.40	1.41	0.66
			2022	87.44	8.16	3.05	(0.15)	(0.04)	(0.15)	7.37	1.42	-
			2023	59.30	1.08	5.31	(8.67)	(0.07)	(0.19)	7.36	1.44	-
			2024	38.24	(7.09)	4.24	3.58	(0.08)	(0.27)	7.36	1.46	(0.09)
14	NABLUS SURGICAL CENTER	service	2015	3.51	0.45	0.31	(0.01)	(0.01)	(0.01)	6.91	1.30	(0.09)
			2016	5.86	0.65	0.47	0.17	0.05	0.11	7.02	1.32	0.18
			2017	6.31	0.48	0.47	0.10	0.03	0.07	7.08	1.34	0.26
			2018	4.66	0.44	0.34	0.08	0.01	0.03	7.11	1.36	0.12
			2019	3.28	0.41	0.23	0.15	0.02	0.06	7.18	1.38	0.26
			2020	2.67	0.36	0.19	0.09	0.02	0.08	7.23	1.40	0.01
			2021	2.25	0.49	0.18	0.23	0.06	0.18	7.24	1.42	0.08
			2022	2.08	0.45	0.16	0.29	0.06	0.16	7.28	1.43	0.31
			2023	5.29	0.19	0.34	0.42	0.04	0.10	7.32	1.45	0.26
			2024	7.14	0.08	0.45	(0.27)	(0.02)	(0.06)	7.29	1.46	(0.08)
15	WATANIYA PALESTINE MOBILE TELECOMM.	service	2015	14.07	5.20	1.37	(0.09)	(0.02)	(0.07)	8.39	0.71	-
			2016	9.98	4.88	1.32	0.05	(0.01)	(0.02)	8.35	0.79	0.02
			2017	9.35	4.22	1.46	(0.06)	(0.02)	(0.10)	8.45	0.86	0.20
			2018	11.78	4.69	1.26	0.03	0.00	0.00	8.40	0.91	(0.21)
			2019	18.42	4.49	1.25	0.06	0.00	0.01	8.38	0.96	0.15
			2020	24.77	3.99	1.30	0.16	0.03	0.07	8.36	1.01	(0.12)
			2021	29.52	3.69	1.24	0.26	0.06	0.11	8.37	1.05	0.19
			2022	26.56	3.72	1.05	0.29	0.08	0.12	8.33	1.09	(0.05)
			2023	33.88	3.16	0.91	0.25	0.07	0.11	8.34	1.12	(0.02)
			2024	53.13	2.77	0.99	0.17	0.05	0.07	8.38	1.15	(0.18)

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
16	UNION CONSTRUCTION AND INVESTMENT	Investment	2015	1.44	0.36	23.39	(0.05)	0.00	0.00	8.37	1.03	(0.15)
			2016	1.52	0.42	34.17	0.48	0.02	0.02	8.37	1.07	0.32
			2017	0.90	0.35	36.29	0.40	0.01	0.02	8.37	1.10	0.91
			2018	3.52	0.71	253.20	0.63	0.04	0.05	8.38	1.13	(0.13)
			2019	1.16	0.37	326.42	0.32	0.01	0.02	8.38	1.17	0.18
			2020	1.04	0.39	140.12	0.37	0.02	0.03	8.39	1.19	(0.06)
			2021	1.83	0.32	155.99	0.48	0.02	0.03	8.39	1.22	0.04
			2022	0.90	0.43	44.73	0.69	0.04	0.06	8.40	1.25	(0.23)
			2023	1.10	0.26	42.85	0.40	0.02	0.02	8.40	1.27	0.07
			2024	1.17	0.15	47.47	0.10	0.00	0.00	8.40	1.29	(0.20)
17	ARAB PALESTINIAN INVESTMENT "APIC"	Investment	2015	7.89	1.05	16.07	0.33	0.04	0.11	8.41	1.34	0.12
			2016	8.32	1.02	15.06	0.28	0.04	0.10	8.41	1.36	0.74
			2017	8.32	1.06	12.13	0.34	0.05	0.14	8.42	1.38	0.07
			2018	8.42	1.01	12.05	0.31	0.04	0.12	8.42	1.40	0.22
			2019	9.80	1.02	15.32	0.35	0.05	0.14	8.42	1.42	0.11
			2020	10.40	1.00	16.33	0.35	0.05	0.14	8.43	1.43	0.12
			2021	10.23	0.90	15.12	0.37	0.06	0.20	8.43	1.45	0.20
			2022	8.24	0.83	13.70	0.33	0.04	0.14	8.43	1.46	0.18
			2023	6.89	4.88	12.19	0.06	0.03	0.11	8.44	1.48	(0.13)
			2024	6.47	0.73	11.88	0.33	0.02	0.07	8.44	1.49	(0.19)
18	AL-AQARIYA TRADING INVESTMENT	Investment	2015	1.99	0.32	2.58	0.17	0.00	0.00	8.45	1.08	0.12
			2016	0.86	0.47	13.27	0.57	0.04	0.05	8.45	1.11	(0.03)
			2017	0.62	0.62	2.06	0.70	0.06	0.07	8.45	1.15	(0.04)
			2018	0.61	0.35	7.33	0.22	0.00	0.00	8.46	1.18	0.01
			2019	1.43	0.49	3.43	0.63	0.05	0.08	8.46	1.20	-
			2020	2.66	0.52	4.60	0.73	0.07	0.11	8.46	1.23	(0.08)
			2021	1.08	0.25	3.67	0.52	0.05	0.09	8.47	1.25	0.18
			2022	1.63	0.61	4.52	0.68	0.05	0.08	8.47	1.28	(0.05)
			2023	1.18	0.71	8.22	0.62	0.04	0.07	8.47	1.30	0.08
			2024	0.14	0.12	2.70	(1.66)	(0.03)	(0.04)	8.48	1.32	(0.01)

no	firm name	sector	year	IT	ART	APT	ROS	ROA	ROE	size	AGE	stock return
19	PALESTINE INDUSTRIAL INVESTMENT	Investment	2015	10.32	0.90	5.58	0.54	0.08	0.11	7.70	1.32	0.09
			2016	14.89	0.99	7.19	0.52	0.08	0.11	7.76	1.34	0.13
			2017	12.26	0.83	6.12	0.51	0.07	0.11	7.88	1.36	0.25
			2018	10.54	0.57	5.27	0.31	0.05	0.08	7.87	1.38	(0.05)
			2019	11.10	1.00	6.45	0.55	0.06	0.10	7.93	1.40	(0.11)
			2020	10.12	1.02	7.06	0.58	0.06	0.09	7.95	1.41	(0.16)
			2021	9.23	0.80	8.34	0.47	0.07	0.11	8.02	1.43	0.81
			2022	8.53	0.82	7.74	0.43	0.06	0.09	8.01	1.45	(0.21)
			2023	8.25	0.81	7.18	0.47	0.05	0.08	8.03	1.46	(0.17)
			2024	7.90	0.91	6.72	0.49	0.06	0.08	8.05	1.48	(0.10)
20	PALESTINE REAL ESTATE INVESTMENT	Investment	2015	0.97	0.45	2.63	0.49	0.01	0.02	8.09	1.33	0.04
			2016	0.40	0.13	0.51	(0.22)	(0.03)	(0.04)	8.07	1.35	0.07
			2017	0.33	0.05	0.07	(5.38)	(0.13)	(0.23)	8.01	1.37	(0.07)
			2018	0.31	(0.26)	0.42	4.17	(0.04)	(0.08)	7.96	1.39	(0.14)
			2019	0.37	0.01	0.13	(65.78)	(0.08)	(0.16)	7.92	1.40	(0.12)
			2020	0.30	0.12	0.14	(2.21)	(0.06)	(0.13)	7.89	1.42	-
			2021	0.37	0.22	0.28	(0.04)	(0.01)	(0.03)	7.87	1.44	-
			2022	0.43	0.47	0.25	0.59	0.01	0.02	7.88	1.45	-
			2023	0.37	0.27	0.28	0.10	(0.19)	(0.49)	7.82	1.47	(0.08)
			2024	0.23	0.15	0.18	(0.35)	(0.03)	(0.08)	7.75	1.48	(0.20)
21	PALESTINE DEVELOPMENT & INVESTMENT	Investment	2015	2.62	0.57	6.68	(0.17)	0.03	0.04	8.91	1.35	(0.11)
			2016	1.87	0.53	4.21	(0.31)	0.02	0.04	8.93	1.37	(0.04)
			2017	2.33	0.65	2.11	0.01	0.01	0.01	8.92	1.38	0.29
			2018	2.01	0.37	1.89	(0.54)	0.02	0.03	8.92	1.40	(0.15)
			2019	2.22	0.60	4.10	(0.04)	0.02	0.04	8.91	1.42	(0.14)
			2020	2.56	0.26	5.12	(0.34)	0.01	0.01	8.89	1.44	(0.29)
			2021	2.87	0.19	6.70	(0.94)	0.03	0.05	8.91	1.45	0.60
			2022	3.30	0.30	6.85	(0.24)	0.03	0.06	8.90	1.47	0.12
			2023	3.14	0.33	5.68	(0.15)	(0.03)	(0.05)	8.86	1.48	(0.15)
			2024	3.15	0.39	6.04	(0.18)	0.00	0.01	8.86	1.49	(0.16)

قدرة مؤشرات الكفاءة والفعالية على تفسير أداء أسعار الاسهم: دليل من بورصة فلسطين.

علي حسن علي عبادي

أسماء أعضاء لجنة الاشراف

د. اكرم رحال

د. طارق درابيع

د. فادي أبو دياك

الملخص

تهدف هذه الدراسة إلى فحص قدرة مؤشرات الكفاءة والفعالية على تفسير أداء أسعار الأسهم في بورصة فلسطين خلال الفترة 2015–2024. يتركّز التحليل على ثلاث نسب للكفاءة هي: معدل دوران المخزون، معدل دوران الذمم المدينة، ومعدل دوران الذمم الدائنة؛ وثلاث نسب للفعالية هي: هامش العائد على المبيعات، العائد على الأصول، والعائد على حقوق الملكية، مع الأخذ بعين الاعتبار حجم الشركة، وعمرها، والقطاع الاقتصادي كمتغيرات ضابطة. اعتمدت الدراسة على عينة قصدية مكوّنة من 21 شركة غير مالية من القطاعات الصناعي والخدماتي والاستثماري، بإجمالي 210 مشاهدة سنوية للشركات.

ونظراً لأن اختبارات التوزيع الطبيعي (كولموغوروف–سميرنوف وشابيرو–ويلك) أظهرت انحراف المتغيرات عن التوزيع الطبيعي، فقد تم استخدام أساليب إحصائية لا معلمية مثل معاملات ارتباط سبيرمان واختبار كروسكال–واليس، إلى جانب نماذج الانحدار المتعدد لضمان قوة الاستدلال. أظهرت النتائج أن مؤشرات الكفاءة لم يكن لها تأثير معنوي على أسعار الأسهم، مما يشير إلى أن إدارة العمليات قصيرة الأجل لا تعد محدداً رئيسياً لقيمة السوق في بورصة فلسطين. في المقابل، أظهرت مؤشرات الفعالية ارتباطات معنوية مع أسعار الأسهم على مستوى النموذج الكلي، وإن كانت معاملات العائد على الأصول والعائد على حقوق الملكية قد تأثرت بالتعدد الخطي. أما المتغيرات

الضابطة (الحجم، العمر، القطاع) فلم تُظهر تأثيراً معنوياً، مما يؤكد محدودية دور الخصائص الهيكلية للشركات في سوق صغير وحساس سياسياً مثل بورصة فلسطين.

تُسهم هذه النتائج في إثراء الدراسات العلمية من خلال تسليط الضوء على ضعف دور نسب الكفاءة في تحديد التسعير في الأسواق الناشئة، والدور الجزئي لمؤشرات الربحية في تفسير تحركات أسعار الأسهم. ويشير هذا إلى أن المستثمرين في بورصة فلسطين يُولون اهتمامًا أكبر للفعالية المالية الأوسع نطاقًا والظروف الاقتصادية الكلية الخارجية مقارنةً بمقاييس دوران رأس المال التشغيلي. وتُقدم الدراسة تداعيات عملية للمستثمرين ومديري الشركات وصانعي السياسات، مُشددةً على ضرورة تعزيز شفافية السوق والسيولة لتحسين الكفاءة المعلوماتية لبورصة فلسطين.

الكلمات المفتاحية :الكفاءة، الفعالية، أسعار الأسهم، بورصة فلسطين، النسب المالية.