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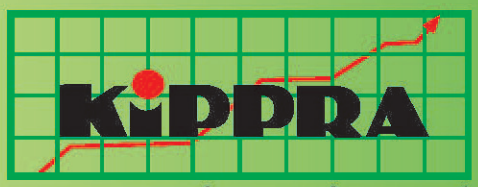

The KENYA INSTITUTE for PUBLIC POLICY RESEARCH and ANALYSIS

Cost Structure and Profitability of Manufacturing Firms in Kenya

Elizabeth Emongor and Silas Ongudi

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THE KENYA INSTITUTE FOR PUBLIC POLICY RESEARCH AND ANALYSIS (KIPPRA)

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Abstract

The Kenya manufacturing sector is vital to achieving socioeconomic development and is critical to achieving the Kenya Vision 2030 target of propelling the economy to a 10 per cent growth rate. However, high costs of production have the potential to constrain firms from achieving optimal performance. This study examined the cost structure of Kenyan manufacturing firms and its influence on the profitability of firms listed in the Nairobi Securities Exchange. The various cost components of these firms included manufacturing costs that comprised cost of goods sold, and non-manufacturing costs comprising administrative costs, marketing and distribution costs, finance costs, and compliance costs. A panel random-effects model was applied in the analysis using data for the period 2014 to 2023. The findings showed that manufacturing costs measured by the cost of goods sold formed the largest share of total costs and had a negative effect on firm profitability. The cost of raw materials and electricity significantly contributed to elevated production expenses. On non-manufacturing costs, tax obligations, especially corporate taxes, negatively influenced firms' profitability. To ease the cost-related constraints facing the manufacturing sector, the following policy recommendations are proposed. First, under manufacturing costs, there is need to promote a predictable taxation regime for imported raw materials and intermediate goods that is cognizant of the EAC Common External Tariff and the Export-Led Duty Remission Scheme. Second, reviewing the threshold for power consumption to allow more manufacturing firms access the time-of-use tariff to lower electricity costs is critical. Lastly, for non-manufacturing costs, particularly compliance costs, exploring additional tax relief measures, such as lower tax rates for firms investing in research and development, in medium- to high-technology manufacturing, are key in enhancing the sector's competitiveness.

Abbreviations and Acronyms

COGS	Cost of Goods Sold
EAC	East Africa Community
EPS	Earnings per Share
ERS	Economic Recovery Strategy
GDP	Gross Domestic Product
NSE	Nairobi Securities Exchange

Table of contents

List of Tables

1. Introduction

Global, regional, and national development frameworks, including the Sustainable Development Goals, African Union Agenda 2063, East African Community Vision 2050, and Kenya Vision 2030, emphasize the manufacturing sector's role in economic growth and job creation. In 2023, the sector accounted for 15.9 per cent of private sector wage employment, providing jobs to approximately 362,300 individuals. In the informal sector, it was the second-largest job creator, generating about 3.4 million jobs. Recognizing its significance, the Kenya Vision 2030 aims for a 10 per cent annual manufacturing growth rate and a 15 per cent GDP contribution, positioning the sector as a key driver of the economy's targeted 10 per cent growth rate.

However, the sector's contribution to GDP declined to 7.6 per cent between 2018 and 2023, with an average annual growth of only 3.0 per cent, far below the 10-15 per cent target (KNBS, 2024). High production costs, particularly for raw materials, electricity, and logistics, hinder the competitiveness of the sector, with Kenya's electricity costs being the highest in the region (Kenya Association of Manufacturers, 2024). The National Industrialization Policy Framework (2012-2030) and the Medium-Term Plan IV identify these costs as key constraints to industrial growth. Rising production costs have also eroded firm profitability, forcing some manufacturers to relocate or shut down (Kariithi and Kihara, 2017). While multiple factors affect profitability, cost is a key determinant of financial sustainability (Oyedokun et al., 2019).

Several newly industrialized economies successfully leveraged cost competitiveness as a foundation for industrial growth. South Korea relied on cost-efficient mass production in industries such as textiles, shipbuilding, and electronics during the 1960s and 1970s (Lall, 2003). The government provided targeted subsidies, infrastructure, and credit support, enabling firms to scale production and achieve economies of scale. Similarly, China became one of the world's leading manufacturing hubs by capitalizing on low labour costs, large-scale production, and special economic zones, which provided tax incentives and regulatory flexibility (Lall, 2003). More recently, Vietnam emerged as a competitive manufacturing hub by maintaining lower production costs than China, implementing investor-friendly policies, and integrating into global value chains.

Addressing this constraint requires targeted policies to lower production costs. However, effective interventions depend on a clear understanding of the cost components influencing firm profitability. A firm's cost structure—the relative proportions of input, processing, and distribution costs—shapes pricing, budgeting, forecasting, and decision-making (Roos, 2014). Firms face significant cost-related constraints that influence profitability. The Kenya Vision 2030 aims to establish a competitive manufacturing sector as a driver of industrialization and economic transformation. However, costs limit profitability and investment in the sector. This study examined the cost structure of listed manufacturing firms to identify the key cost elements and their effect on profitability, providing insights to inform policies that enhance cost efficiency to promote sustainability.

Further, a profitable and resilient manufacturing sector is essential for attracting investment, expanding value addition, and positioning Kenya as a regional industrial hub.

2. Policy Framework on the Manufacturing Agenda

Various state actors spearhead the formulation, coordination, and implementation of national industrialization policies. The Ministry of Trade, Investments, and Industry promotes industrialization with the support of state corporations, including the Kenya Investment Authority; the Micro and Small Enterprises Authority; Kenya Industrial Research and Development Institute; and Kenya Industrial Property Institute. Other state corporations include the Anti-Counterfeit Agency; Export Processing Zone Authority; and the Special Economic Zones Authority. Further, the Export Promotion and Branding Agency; and Kenya Development Corporation provide support for industrialization in the country.

Kenya's industrialization policy, legislative, and regulatory framework has evolved significantly since independence. Initially, the changes mirrored the continuation of colonial policies with a focus on import substitution (1963-1989). The Structural Adjustment Programme was embraced in the late 1980s. Further, during the 1989-96 period, the government focused on restructuring the industrial sector through policy instruments that were expected to steer the sector towards increased production for export. These included the Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth, Sessional Paper No. 2 of 1992 on Small Enterprise and Jua Kali Development in Kenya, which focused on enhancing the informal sector, and Sessional Paper No. 2 of 1996 on Industrial Transformation to the Year 2020.

Policy reforms since 2000 included the Economic Recovery Strategy (ERS) for Wealth and Employment Creation 2003-2007, the Industrial Master Plan 2008, Sessional Paper No. 9 of 2012 on the National Industrialization Policy Framework for Kenya 2012-2030, and the Kenya Vision 2030. The policy, legislative, and regulatory support promoted industrial growth since independence. However, to further unlock the sector's competitiveness, there was a need to address the business environment issues related to the high cost of industrial inputs, access to industrial land, value addition, and counterfeit goods flooding the market.

The policy framework focused on tariff protection, support and recognition of the informal sector, liberalization of the domestic economy, and export promotion. The expected outcomes of the policy framework were improved growth and productivity, efficiency, and competitiveness. More recently, the National Industrialization Policy framework for Kenya 2012-2030, the Kenya Vision 2030, and the Medium-Term Plans support Kenya's manufacturing sector with objectives in three key areas: i) reducing production costs; ii) boosting investment, exports, and employment; and iii) addressing skills gaps, especially in priority areas (Table 2.1). The Bottom-Up Economic Transformation Agenda, implemented through the MTP IV, is cognizant of the existing bottlenecks and has embraced a value chain approach that will holistically promote the sector's contribution to GDP. The approach is forward-looking, considering critical changes within the business environment. The key interventions expected include financial inclusion focused on enterprises within the industrial sector, product market diversification, investment promotion, industrial infrastructure expansion, improving the cost of doing business, and promotion of fair-trade practices.

Table 2.1: Policies guiding the manufacturing sector in Kenya: 2012-2030

Policy	Key challenges to be addressed	Goals	Objectives	Proposed interventions	Gaps
Sessional Paper No. 10 of 2012 on Kenya Vision 2030	• High costs of production emanating from inputs and infrastructure • Low productivity levels • Low sector value addition • Low share of manufactured goods in exports • Costly business environment	• Enhanced productivity and efficiency • Increased investments	• Increase contribution of manufacturing to Gross Domestic Product by at least 10 per cent annually • Raise the share of manufacturing products in the regional market from 7 to 15 per cent • Attract strategic investors in key agro-processing industries • Reduce imports in key local industries by 25 per cent	• Strengthen local production capacity • Develop niche markets for accessing international markets • Enhanced capacity utilization for firms and mitigation of constraints to competitiveness • Offer incentives to attract strategic investors in agro-based industries	There are no specific interventions for high input costs
Sessional Paper No. 9 of 2012 on the National Industrialization Policy Framework for Kenya 2012-2030	• Low sector value addition • Weak institutional support for the development and growth of micro and small enterprises	• Export growth • Employment creation • Increased productivity and competitiveness • Enhanced industrial sector investments	• Annual industrial sector growth rate of 15 per cent • Increase manufacturing sector productivity and value addition by 20 per cent • Improve share of Kenyan products in the regional market from 7 to 15 per cent • Increase the share of Foreign Direct Investment in the industrial sector by 10 per cent • Increase the share of locally sourced industrial components by 25 per cent • Establish Kenya shillings 10 billion industrial fund for finance manufacturing firms • Increase the local content of locally manufactured goods for exports to at least 60 per cent • Increase the share of industries located outside major towns to at least 50 per cent • Increase by 20 per cent the share of manufacturing in total micro, small and medium enterprises • Develop at least two special economic zones and five small and medium enterprises industrial parks	• Create an enabling environment for attracting local and foreign investments • Promote resource based and labour-intensive industries, especially those with high forward and backward linkages • Support innovation to continually improve production process and quality of products • Development of human resources • Legislative and institutional support for intra-governmental coordination	There are no specific interventions for the cost of industrial inputs
Fourth Medium Term Plan 2023-2027	• Non-availability and high cost of industrial land • Limited access to affordable long-term finance • High costs of production • Influx of counterfeits and sub-standard products • Inadequate and costly infrastructure • Low value addition	• Lower costs of production • Enhanced productivity • Increase manufacturing sector investment	• To transform the economy into an industrialized middle-income status.	• Implementation of a value chain approach • Promoting value addition • Enhancing market access • Attracting local and foreign investments	The plan does not provide specific interventions on how to reduce the cost of industrial inputs, energy, transport, and logistics

Source: Authors' compilations from the review of the respective policies

NB: While policy goals refer to the range of desired outcomes by implementing the policy, measurability is key in setting the policy objectives.

3. Literature Review

3.1 Theoretical Literature

3.1.1 The Theory of the Firm

The neoclassical theory of the firm developed by economists including Alfred Marshall and Leonn Walras asserts that firms operate with the primary objective of profit maximization by efficiently managing costs and revenue. In a perfectly competitive market, firms rely on market signals to make decisions, guiding resource allocation and production strategies. The competitive environment facilitates efficient information processing, enabling firms to adjust their input-output mix to maximize owners' welfare, which is measured by profit.

This theory serves as a framework for understanding how firms adapt to external changes, such as variations in production costs. It conceptualizes the firm as a collection of viable production plans, where managers select the most cost-effective combination of inputs to achieve maximum output (Hart, 1995). The key factors such as labour, raw materials, and technology play a crucial role in shaping firm performance (Nicholson, 2005). The theory informs critical business decisions, including resource distribution, production techniques, pricing strategies, and output levels. While the neoclassical theory effectively explains firm behaviour, it has been criticized for not addressing the internal organization of production and the practical mechanisms through which firms achieve profit maximization. It assumes market efficiency and perfect information, overlooking complexities in managerial decision-making and strategic considerations beyond cost minimization.

3.1.2 The Resource-Based Theory

The resource-based theory of Barney (1991) offers insights into the relationship between a firm's internal characteristics such as human capital, intellectual property rights, and its performance. Therefore, firms are said to achieve competitive advantage where their resources are valuable, rare, not perfectly imitable, and with no substitutes (Barney, 1991). At the core of the theory is the premise that firms possess unique resources and capabilities (such as technology, skilled labour, efficient processes, and geographic location) that give a competitive advantage (Barney, 1991). In the manufacturing sector, this perspective shifts the focus from external market forces to internal factors that influence cost structures. For example, a manufacturing firm's ability to lower its costs can be attributed to the possession of unique resources and capabilities. These resources and capabilities are not uniformly available to all competitors and thus create disparities in cost structures across firms. Further, the theory emphasizes the strategic management of these unique resources for sustained competitive advantage. This includes investments in technology upgrades, continuous training for workers, and process innovation, all aimed at enhancing efficiency and reducing costs. By leveraging unique resources, a firm minimizes its manufacturing costs, and therefore differentiates itself in a competitive marketplace.

The theory has been criticized for its limited managerial applicability due to its broad and abstract nature, which makes it challenging for managers to implement in practice (Kraaijenbrink et al., 2010). While the theory emphasizes a firm's unique resources as the foundation of competitive advantage, it provides little guidance on how managers can identify, develop, and deploy these resources effectively. Managers often struggle to translate the theory's insights into actionable strategies, as it does not offer clear decision-making frameworks or tools for operationalizing resource-based advantages.

3.1.3 Transaction Cost Theory

Transaction cost theory explains the existence of firms by highlighting the costs associated with market transactions, such as planning, contracting, and negotiation (Rindfleisch, 2020). According to Ronald Coase, firms arise when conducting transactions internally reduces these costs compared to relying on market exchanges. Long-term transactions can be expensive due to repeated bargaining, and firms mitigate these expenses by centralizing decision-making. However, this structure also introduces inefficiencies, such as bureaucratic rigidity and potential decision-making errors (Rindfleisch, 2020).

Williamson (1979) expanded the theory by emphasizing relationship-specific investments, where firms commit resources tailored to partners or assets. He argued that enforcing contracts in such cases is costly due to negotiation difficulties and the risk of opportunistic behaviour (Hart, 1995). This can lead to bargaining inefficiencies and under-investment. Williamson (1979) suggested that vertical integration reduces these risks and improves investment incentives by keeping key transactions within the firm.

Despite its contributions, transaction cost theory has limitations. It over-emphasizes cost reduction while overlooking firms' strategic goals, such as innovation and market expansion. The theory also measures transaction costs, which are often intangible (Hart, 1995). The theory is relevant to this study as it provides insights into how firms manage sourcing and production costs. Firms may internalize certain activities to reduce procurement costs and supply chain risks, influencing profitability. However, given that listed firms face capital market pressures and regulatory requirements, alternative cost-minimization strategies, such as outsourcing and strategic partnerships, may be more relevant than vertical integration as informed by the theory.

3.2 Empirical Review

3.2.1 Cost structure

Effective planning is crucial for business success, requiring a clear understanding of costs and performance to enhance efficiency and competitiveness (Cardos and Peter, 2011; Horngren and Murali, 2019). Wiener (1962) asserts that planning cannot be effective without analyzing a firm's cost structure, while Hansen (2009) emphasizes that understanding cost behaviour in relation to activity levels is essential for informed decision-making. Cost classification methods include

managerial judgment, engineering approaches, and quantitative techniques such as high-low and regression analysis (Horngren et al., 2003; Drury, 2000).

Firms classify costs based on various criteria, including product or period costs, manufacturing versus non-manufacturing, behaviour, relevance, controllability, and avoidance. Wiener (1962) distinguishes between costs contributing to unit costs and profits (regular work) and additional costs incurred post-production (additional and combined work), further outlining a twelve-component cost structure based on work type. Cost classification plays a fundamental role in cost analysis, as different frameworks exist for categorizing costs. Synek (2011) identifies five cost types: material, labour, depreciation, external services, and finance costs, whereas Novák and Popesko (2014) simplify this into direct and indirect costs. Drury (2007) defines direct costs as those specifically assigned to a cost object, while indirect (overhead) costs cannot be directly attributed. This classification facilitates cost allocation, enabling firms to manage expenses efficiently. Additionally, costs are categorized as variable or fixed, where some fixed costs may become variable over time (Novák and Popesko, 2014; Hansen, 2009).

Determining cost drivers, particularly those affecting development costs, is often challenging due to their weak intensity compared to other relational values (Wagner, 2012). To address this, manufacturers classify costs as fixed or variable for pricing, cost reduction, profit planning, budgeting, and cost-volume-profit analysis (Horngren et al., 1999). Variable costs can be either true variable or step-variable, while fixed costs can be committed or discretionary. Capital-intensive firms, characterized by high fixed costs and low variable costs, typically experience high contribution margins, operating leverage, and profit volatility. As a result, they rely on fixed and variable cost classifications for strategic financial planning, including cost-benefit and cost-volume-profit analysis (Oberholzer and Ziemerink, 2004).

In strategic cost management, cost drivers fall into two categories: structural and operational (Shank and Govindarajan, 1994). Structural cost drivers stem from a firm's economic structure, including scale, scope, technology, and product strategy. Operational cost drivers, on the other hand, influence a firm's cost position and depend on the efficiency of operations, such as workforce involvement, total quality management, plant layout, and product design. A firm's cost structure—whether fixed, variable, or mixed—shapes its production costs, with high fixed costs increasing sensitivity to activity level changes and influencing operating risk (Correia et al., 2003). Benedetti (2000) found that firms experiencing declining demand often shift fixed costs to variable costs through flexible contracts, outsourcing, or pay-for-performance schemes.

Technological advancements are critical to a firm's competitive advantage and can be assessed through automation levels, e-commerce adoption, and production process improvements (Horngren et al., 2003; Fry et al., 1998; Hilton, 1997). Capital-intensive firms with high automation levels tend to incur significant fixed costs, resulting in high contribution margins, operating leverage, and profit volatility (Garrison and Noreen, 2000; La Roy, 2000). Consequently, a firm's

technological capabilities can indicate whether it is capital-intensive or labour-intensive, influencing cost structures and overall competitiveness.

3.2.2 Cost factors and firm profitability

Several studies have identified various cost-related determinants of firm profitability. Nwarogu and Lormbagah (2020) found that rent costs and administrative expenses positively influenced profitability in Nigeria's brewery industry, while salaries and wages had a negative effect. Amaniampong et al. (2018) examined mining companies in Ghana and reported a significant negative relationship between corporate income tax and profitability.

In Nigeria, Oyedokun et al. (2019) found that the cost of raw materials, selling expenses, and distribution expenses negatively impacted manufacturing firms' profitability, while salaries and wages had a positive effect. Similarly, Agegnew and Gujral (2022) discovered that operating costs significantly reduced profitability in Ethiopian manufacturing firms. Pattitoni et al. (2014) reported that the opportunity cost of capital negatively affected profitability in EU private firms.

Financial leverage has been widely studied as a cost-related factor. Dalci (2018) found an inverted U-shaped relationship between leverage and profitability in Chinese manufacturing firms, where the tax shield provided a positive effect, but financial distress costs resulted in a negative impact. Santosuosso (2014) reported an inverse relationship between the cost of debt and profitability among Italian firms. Akin and Cevger (2019) highlighted the importance of input costs in Turkey's dairy farming sector, where raw material purchase prices, input quantity, and selling prices were key profitability determinants.

3.2.3 Non-cost factors

Firm-specific characteristics also play a critical role in profitability. Fareed et al. (2016) found that firm size and growth positively influenced profitability in Pakistan's power and energy sectors, while firm age had a negative effect. Similarly, Goddard et al. (2005) observed a significant negative relationship between firm size and profitability in European manufacturing and service firms.

Lagged profitability has also been shown to have a strong influence on firm performance. Odusanya et al. (2018) reported that past profitability significantly impacted current profitability in Nigerian non-financial firms. McDonald (1999) found similar results for Australian manufacturing firms.

Macroeconomic conditions further shape profitability outcomes. Odusanya et al. (2018) found that inflation, interest rates, and financial risk had significant negative effects on Nigerian firms. Pattitoni et al. (2014) revealed that GDP growth and financial market returns positively influenced profitability in the EU, while inflation had a negative impact.

Studies across various regions have also linked capital intensity and liquidity to firm performance. Pervan et al. (2019) found that capital intensity and firm age positively influenced profitability in Croatian manufacturing firms. Nanda and

Panda (2018) reported that liquidity and firm size had a positive effect on Indian manufacturing firms' profitability, while leverage had a negative effect. Susilo (2020) found that working capital, firm size, and growth positively influenced manufacturing firms' profitability in Indonesia.

4. Methodology

This section provides the theoretical framework, analytical framework, and the data sources used in the study.

4.1 Theoretical Framework

The study adapted the theory of the firm in explaining how costs influence profitability. This theory opines that a firm's goal is to maximize its profit subject to costs. To competitively price its products, a manufacturing firm needs to minimize its cost of production. For a manufacturing firm, these costs are categorized into two: manufacturing costs, which include expenditure on direct materials, direct labour, and production overheads; and non-manufacturing costs, which include administrative, selling, distribution, finance, and compliance expenditure. Other non-cost factors that also influence firm profitability include firm size, leverage, capital intensity, capital structure, and economic growth.

This relationship can be written mathematically as:

$$\pi_{it}=(Q_{it},N_{it},X_{it},M_t) \quad \text{.....4.1}$$

Where π_{it} is the profitability of a given firm i in period t. Q and N captures firms' manufacturing and non-manufacturing costs, respectively. Moreover, X are non-cost factors, including firm characteristics and macroeconomic factors (M) influencing profitability to constitute the control variables (see Table 4.1 for details).

4.2 Analytical Framework

The study employed a dynamic panel fixed effects model to analyze how various costs affect a manufacturing firm's profit levels (Oyedokun et al., 2019). We adopted a dynamic fixed over random effects based on Hausman tests results, which support rejection of null hypothesis: Chi Square (12) = 72.520 and a probability 0.0000. A dynamic model was estimated due to its ability to capture persistence in profitability over time. Standard estimation methods such as OLS, fixed effects, or random effects may produce biased and inconsistent estimates in this analysis. The following model was estimated:

$$ROA_{it}= \beta v+ROA_{it-1}+ \beta_1 MANF_{it}+\beta_2 NONMANUF_{it}+\beta_3 X_{it}+\beta_4 M_t+\beta_5 \varphi_i+\pi_k+\varepsilon_{it} \quad \text{.....4.2}$$

ROA_{it} and ROA_{it-1} are the return on assets in the current and previous period, which proxies the level of profitability of firm i, in time t. As a robustness check, Equation 4.2 proxies firm profitability using earnings per share (EPS). Although ROA is chosen as the primary measure of profitability due to its effectiveness in capturing a firm's efficiency in generating returns from its total assets, EPS is used for robustness check as it allows for more precise comparisons across firms with varying characteristics. For instance, a firm in the construction materials sub-sector of manufacturing with a larger asset base may show smaller ROA values than a less capital-intensive firm with biological assets in the agro-processing sub-

sector. $MANF_{it}$ represents raw material costs (purchase price and taxes), direct labour, production overheads, and other direct expenses. $NONMANUF_{it}$ are the non-manufacturing costs from supportive functions that are not directly related to the production of goods. These costs include marketing and distribution, finance, administration, and compliance.

Non-cost factors, including firm characteristics and macroeconomic factors identified from literature that influence profitability were also included. These characteristics are captured as X. They include firm size, leverage ratio, capital intensity, capital structure, and a macroeconomic variable proxied by the annual growth of gross domestic product (GDP). Finally, φ_i are time-invariant factors such age of the firm, sub-sector, π_k represents unobserved fixed effects while ε_{it} is the error term, which is normally distributed with a mean of zero and constant variance.

4.3 Data Sources and Types, Variable Construction, and Apriori Assumption

This study used firm-level secondary data extracted from the annual reports of 20 manufacturing firms listed on the Nairobi Securities Exchange (NSE) over a ten-year period, from 2014 to 2023. These firms were selected due to the availability of data and to capture a representative cross-section of Kenya's manufacturing sector, spanning various sub-sectors. The data included detailed financial and operational metrics, such as total assets, revenue, cost structures, and net income. The key profitability metrics, including Return on Assets (ROA) and Earnings per Share (EPS), were also available to facilitate an in-depth cost-profitability analysis. Following previous studies (Seshaiah and Sarma, 2007; Oberholzer and Ziemerink, 2004), the study proxied a firm's profitability by its return on assets. ROA was calculated as a ratio between a firm's net income and the value of total assets.

The cost of goods sold, representing the expenses related to production, including direct materials, direct labour, other direct expenses, and production overheads was measured as a ratio between the cost of goods sold to sales. The marketing and distribution costs of a firm, covering expenses related to advertising, market research, logistics, warehousing, and transportation, were measured as a ratio between a firm's marketing and distribution costs and sales. Freight and logistics comprised the largest share of this expenditure.

The administrative costs including salaries, office supplies, rent, and utilities, which ensure the smooth operation of a manufacturing entity, were also captured. High administrative costs erode a firm's savings and reduce the competitiveness of its products in the market. A firm's finance cost was captured as the ratio between interest paid on loans and total sales over a given period. A high level of finance cost negatively impacts a firm's ability to invest in new technologies or expand its operations, especially in a competitive manufacturing landscape where agility and innovation are key. This means that effective management of finance cost has a direct implication on the operational and competitive position of firms. Compliance costs were measured as the ratio between total taxes paid by a firm

and its net sales revenue. Corporate taxes significantly influence profitability by reducing net earnings. As a major component of operational costs, they affect cost efficiency and financial performance. Tax liabilities also shape capital structure choices, as firms adjust financing strategies to optimize tax burdens.

On non-cost factors, the size of a firm influences its performance through economies of scale, market power, and access to resources. Therefore, when firms are large, they can access more resources for investment in research and development. This can lead to innovation and improved product offerings. Further, the capital intensity ratio measured as a firm's fixed assets to its total sales revenue influences operational efficiency, competitiveness, and overall profit. A higher capital intensity ratio implies greater reliance on production assets such as machinery, equipment, and technology than manual labour. Firms with high capital intensity ratios are better positioned to scale their operations and penetrate new markets. Moreover, the capital structure of a firm was measured as the ratio between a firm's long-term debt and its total assets, while the leverage ratio captured total liabilities to total assets. A firm's capital structure can influence profitability positively or negatively, as explained by agency cost, trade-off, and pecking order theories (Dalci, 2018). Debt financing may enhance profitability through tax deductibility and reduced agency costs, as management prioritizes debt repayment over personal interests. However, excessive debt can increase financial distress, while firms may favour external debt over equity to minimize information asymmetry.

A final factor was the growth rate of gross domestic product. This indicator reflects the degree of change in the economic development of the country in which the firm operates. There is a positive association between economic growth and a firm's profit. This is because when an economy grows, consumer spending increases. This enables a firm to scale its production and explore new markets.

Table 4.1 shows the variables definition and their measurement.

Table 4.1: Variables definition and measurement

Variable	Description	Variable construction	Apriori Assumption
a) Dependent variables			
ROA	Return on assets	Profit after interest and tax /Total assets	
EPS	Earnings per share	Profit after tax less preferred dividends/ Number of outstanding ordinary shares	
b) Independent variables			
i)	**Manufacturing cost variables**		
COGS	Cost of goods sold	Cost of goods sold/Total sales	-
ii)	**Non-manufacturing cost variables**		
MDC	Marketing and distribution costs	Marketing and distribution costs/ Total sales	+/-
AC	Administrative costs	Administrative costs/ Total sales	+/-
FC	Finance costs	Interest payments/ Total sales	+/-

Variable	Description	Variable construction	Apriori Assumption
CC	Tax compliance costs	Total current taxes/Total sales	+/
iii)	**Non-cost factors**		
Size	Firm size	Natural logarithm of Total assets	+
Lev	Leverage ratio	Total liability/Total assets	+/-
CI	Capital intensity	Fixed assets/Total sales	+
CRS	Capital structure	Total long-term debt/Total assets	+/-
EG	Economic growth	Annual growth rate on Gross Domestic Product	+

4.4 Descriptive Statistics

The summary statistics of the variables are provided in Table 4.2.

Table 4.2: Descriptive statistics

Variable	Mean	S.D.	Min	Max
ROA	0.042	0.238	-2.004	0.961
EPS	7.901	16.697	-37.350	87.260
COGS	0.725	0.229	0.228	1.522
MDC	0.069	0.072	0.000	0.456
AC	0.181	0.219	0.005	2.378
FC	0.027	0.053	0.000	0.337
CC	0.051	0.066	-0.158	0.460
CRS	0.564	0.216	0.004	0.856
CI	2.633	2.934	0.057	19.509
Size	14.893	1.944	9.992	18.703
Lev	0.444	0.426	0.064	5.044
EG	0.044	0.026	-0.030	0.076

Note: Number of observations are 200; S.D. Is the standard deviation; Min and Max are minimum and maximum values, respectively. ROA – return on assets, COGS – cost of goods sold, MDC - marketing and distribution costs, AC - administration costs, FC - finance costs, CC - capital compliance, CRS - capital structure, CI - capital intensity, Size - firm size, Lev - is the leverage ratio; EG - GDP growth rate.

The Return on Assets (ROA) averaged 4.2 per cent. This indicates that manufacturing firms in Kenya made modest profits between 2014 and 2023, where ROA levels of 5.0 per cent and above are considered optimal. The average earnings per share was 7.901. The cost of goods sold was high at about 72.5 per cent of the total sales where optimal percentages were below 65 per cent, reflecting increased pressure on the manufacturing revenue. This finding is consistent with the fact that the cost of production forms the largest proportion of the manufacturing firm's total costs (Oberholzer and Ziemerink, 2004). Marketing and distribution

expenses averaged 6.9 per cent of the total revenue generated by firms, which is above the 2-5 per cent optimal threshold. Further, the cost of administration to total sales revenue exceeded those of marketing and distribution.

On average, administration costs contributed about 18 per cent of the total sales revenue, which is above the threshold of about 10-15 per cent. In addition, the cost of servicing loans averaged about 3.0 per cent of the total sales revenue. Compliance costs averaged 5.0 per cent of sales revenue, where negative values implied some firms received tax credits. In terms of capital structure, firms on average had a debt-to-asset ratio of 56.4 per cent, with some firms relying heavily on debt financing, while others had very small debt levels. The level of capital intensity was highly variable, with an average ratio of 2.63 per cent, with firms ranging from being very capital-intensive to having low capital requirements for their operations. Firm size showed moderate variability, with an average size of 14.9 while leverage also varied significantly, averaging 44.4 per cent, with some firms showing very low leverage and others having extremely high levels of liability. Finally, the economic growth rate, as reflected by the annual GDP growth, was on average positive at 4.4 per cent.

4.5 Diagnostic Tests and Correlation Analysis

A heteroskedasticity test using the Breusch-Pagan test was performed to determine whether adjustments were necessary to ensure valid results (Wooldridge et al., 2016). The presence of heteroscedasticity can lead to biased standard errors, affecting the accuracy of statistical inferences. There was no presence of heteroskedasticity ($p = 0.09$). Secondly, a Bias-Corrected Born and Breitung Q(p) test to detect any autocorrelation problems in the dataset was also performed. This was important to ensure the independence of residuals in the regression model, which is a key assumption for valid inference. There was no presence of serial autocorrelation ($p = 0.643$). Table 4.3 presents a matrix of the correlation coefficients of the main variables used in the study. This was the first step to identifying the likelihood of multicollinearity between variables, which can result in biased regression outputs.

The results showed that the independent variables were not highly correlated with each other. The correlation between ROA and firm size was positive and statistically significant at conventional levels. However, the results revealed a negative and statistically significant correlation between ROA and MDC, COGS, AC, and leverage ratios. These findings are also in line with the apriori assumption.

Finally, the study also tested for the presence of multicollinearity using variance inflation factor (VIF). VIF is effective for detecting multicollinearity because it measures how much the variance of each regression coefficient is inflated due to relationships with other predictors (Zhu and Yuan, 2022). By quantifying the dependency between each predictor and all others, VIF allows for the identification of specific predictors with high multicollinearity, which is indicated by values above 10. The VIF averaged 1.84, was smaller than the threshold boundary of 10.

Table 4.3: Bonferroni correlation analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ROA	1.000											
(2) EPS	0.327*	1.000										
(3) COGS	-0.251*	-0.366*	1.000									
(4) MDC	-0.246*	0.162*	-0.211*	1.000								
(5) AC	-0.469*	-0.098	0.076	0.329*	1.000							
(6) FC	-0.095	-0.111	0.215*	-0.023	0.226*	1.000						
(7) CC	0.027	-0.012	-0.159*	-0.111	-0.005	-0.072	1.000					
(8) CRS	0.071	-0.002	0.199*	-0.220*	-0.038	0.290*	0.137	1.000				
(9) CI_	-0.029	-0.195*	0.433*	-0.162*	0.398*	0.332*	0.169*	0.573*	1.000			
(10) Size	0.279*	0.269*	-0.222*	0.035	-0.102	0.247*	-0.131	0.153*	0.066	1.000		
(11) Lev	-0.514*	-0.100	-0.069	0.233*	0.511*	0.201*	0.015	-0.320*	-0.194*	-0.106	1.000	
(12) EG	-0.001	0.062	-0.055	0.023	-0.053	-0.049	-0.044	0.027	-0.097	-0.006	0.026	1.000
*** p<0.01, ** p<0.05, * p<0.1												

*Notes: *** p<0.01, ** p<0.05, * p<0.1; ROA – return on assets, COGS – cost of goods sold, MDC - marketing and distribution costs, AC - administration costs, FC - finance costs, CC - capital compliance, CRS - capital structure, CI - capital intensity, Size - firm size, Lev - is the leverage ratio; EG - GDP growth rate.*

5. Results and Discussions

This section presents results obtained from a stepwise estimation of the panel random effects regression. In general, the results showed that eight (8) out of the 10 control variables had a statistically significant effect on the levels of profits of manufacturing firms (Table 5.1).

The manufacturing costs measured by the cost of goods sold had a statistically significant and negative effect on firms' profitability in models 4, 5 and 6. The coefficient on the cost of goods sold ranged between 17 and 23 per cent, signifying its influence on a firm's profitability. A negative association between COGS and a firm's level of profit shows that firms are likely to increase their overall performance by managing their manufacturing costs. These results are consistent with those reported by Akin and Cevger (2019), who showed that high production costs negatively influenced the profitability of firms in the dairy sub-sector in Turkey.

The non-manufacturing costs that were significant in influencing profitability were administrative and compliance costs. The administrative costs had a significantly negative effect on a firm's profit levels in models 2, 4, and 6, with a reduction of between 33-45 per cent. This implies that higher administrative expenses are linked to reduced profitability. The negative effect suggests that increased administrative costs, which include overhead and management expenses, consume a larger portion of revenue, thereby decreasing the firm's profit margins. The findings corroborate those of Saleem and Ali (2023), who showed the importance of regulating administrative costs due to their effect on profitability.

The compliance costs had a negative but significant impact on a firm's profit levels with a reduction of 48 per cent. The negative relationship suggests that these costs burden firms with additional financial pressures, which can reduce their overall profit margins and financial performance. Moreover, the findings showed that firm characteristics such as the level of capital intensity had a significant positive effect on profitability. The coefficient was about 14.2 per cent, and this indicated that higher capital intensity, reflecting increased investment in capital assets, was associated with improved profitability. Firms with higher capital intensity can benefit from enhanced productivity and operational efficiency, leading to better financial performance and higher profit margins consistent with the results of Pervan et al. (2019).

Lastly, the study found that the leverage ratio had a significant negative effect on a firm's profitability. A 1.0 per cent increase in the leverage ratio reduced a firm's profitability by about 17.4 to 27.5 per cent. This indicated that a higher leverage ratio is associated with lower profitability. The negative relationship suggests that as firms increase their reliance on debt financing, their profitability tends to decrease, consistent with the findings of Apergis et al. (2011). This can be due to several factors, such as increased financial risks, and potential constraints on operational flexibility. The burden of debt payments can reduce the funds available for investment and growth, adversely impacting overall profitability.

Table 5.1: Determinants of firm profitability measured using return on assets (dynamic panel fixed effects regression)

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**Manufacturing costs**	**Non manufacturing costs**	**Non cost variables (Control variables)**	**Manufacturing and non manufacturing costs**	**Manufacturing costs and non cost variables (Control variables)**	**All factors**
ROA (-1)	-0.0721 (0.189)	0.0341 (0.129)	0.0746 (0.136)	0.0877 (0.117)	0.0668 (0.128)	0.160 (0.109)
COGS	-0.230 (0.152)			-0.173** (0.0828)	-0.209* (0.118)	-0.237*** (0.0641)
MDC		-0.515 (0.535)		-0.514 (0.432)		-0.276 (0.188)
AC		-0.458* (0.274)		-0.457* (0.238)		-0.339*** (0.112)
FC		0.0290 (0.832)		0.304 (0.946)		0.0463 (0.302)
CC				0.481* (0.285)		0.372 (0.374)
Size			0.0231 (0.0173)		0.0127 (0.00944)	0.0101 (0.00732)
LEV			-0.274*** (0.0855)		-0.275*** (0.0884)	-0.174*** (0.0300)
CI			-0.00991 (0.00752)		-0.000704 (0.00799)	0.0142*** (0.00519)
CRS			-0.0578 (0.0881)		-0.0403 (0.0874)	-0.106 (0.0703)
EG			0.175 (0.252)		0.190 (0.162)	0.0665 (0.167)
Constant	0.216** (0.105)	0.166*** (0.0550)	0.675 (0.837)	0.250*** (0.0917)	0.559 (0.556)	0.625 (0.479)
Observations	180	180	180	180	180	180
Number of ID	20	20	20	20	20	20

*Notes: Standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1; Dependent variable is ROA; Standard errors are in parenthesis; variables include ROA – return on assets, COGS – cost of goods sold, MDC – marketing and distribution costs, AC – administration costs, FC – finance costs, CC – compliance cost, Size-size, Lev – leverage, CI – capital intensity, CRS – capital structure, and EG – economic growth*

Sensitivity analysis

Table 5.2 reports the results of the panel regression using an alternative measure of profitability: earnings per share. The study controlled for year and industry-fixed effects in the regression and clustered the standard errors.

Table 5.2: Determinants of firm profitability measured using earnings per share (a dynamic panel fixed effects regression)

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**Manufacturing costs**	**Non manufacturing costs**	**Non cost variables (Control variables)**	**Manufacturing and non manufacturing costs**	**Manufacturing costs and non cost variables (Control variables)**	**All factors**
EPS (-1)	0.430***	0.609***	0.327	0.422***	-0.364	0.450
	(0.108)	(0.169)	(0.223)	(0.131)	(0.531)	(0.293)
COGS	-1.665			-1.459	-3.363	-2.720
	(1.596)			(1.489)	(2.215)	(4.400)
MDC		2.887**		1.697		2.406
		(1.167)		(1.353)		(4.458)
AC		0.483		-0.352		-0.100
		(1.142)		(2.321)		(3.344)
FC		-5.053		0.258		-43.82
		(13.25)		(13.55)		(61.84)
CC				2.145		-5.705
				(9.633)		(16.19)
Size			0.254**		0.249	0.138
			(0.123)		(0.194)	(0.309)
Lev			-1.004**		-1.610*	0.343
			(0.487)		(0.842)	(2.242)
CI			-0.133		-0.230	-0.114
			(0.0932)		(0.234)	(0.237)
CRS			1.007		0.894	2.791
			(1.226)		(1.487)	(2.982)
EG			1.778		0.0399	4.340
			(2.971)		(3.223)	(6.058)
Constant	1.733	0.188	-3.654	1.447	-1.170	-0.128
	(1.223)	(0.308)	(2.474)	(1.334)	(4.602)	(8.798)
Observations	123	123	123	123	123	123
Number of ID	18	18	18	18	18	18

*Notes: Standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1; Dependent variable is ROA; Standard errors are in parenthesis; variables include ROA – return on assets, COGS – cost of goods sold, MDC- marketing and distribution costs, AC – administration costs, FC – finance costs, CC – compliance cost, Size-size, Lev – leverage, CI – capital intensity, CRS – capital structure, and EG – economic growth.*

The coefficient of one-year lagged profitability exerted positively on the current period profitability. Therefore, the higher the profit earned in the preceding year the higher tends to be the profit earned in the current year. This is in line with the findings of other works such as Odusanya et al. (2018). Further, leverage had a significant negative effect on firm profitability, highlighting financial risks that may arise from taking on debt, the findings corroborated those of Dalci (2018). Conversely, firm size positively influenced profitability, indicating that larger firms leveraged scale efficiencies to generate higher returns for shareholders.

6. Conclusion and Policy Recommendations

The study examined the cost structure and its effect on the profitability of manufacturing firms listed on the Nairobi Securities Exchange, focusing on two broad cost components: manufacturing costs and non-manufacturing costs. The results underscore the significance of cost efficiency in enhancing firm profitability. The manufacturing cost measured by the cost of goods sold formed the largest share of total costs and had a strong negative effect on firm profitability. The cost of raw materials and electricity are key contributors to elevated production expenses. Among non-manufacturing costs, tax obligations, particularly corporate taxes, were found to have a substantial negative influence on profitability.

Based on these findings, the following policy recommendations are proposed. First, regarding manufacturing costs, there is a need to put in place a predictable taxation regime for imported raw materials and intermediate goods that is cognizant of the EAC Common External Tariff and the Export-Led Duty Remission Scheme. Second, a review of the power consumption threshold to allow more manufacturing firms to benefit from the time-of-use tariff to lower electricity costs is necessary. Lastly, for non-manufacturing costs, specifically compliance costs, exploring additional tax relief measures, such as lower tax rates for firms investing in research and development, in medium- to high-technology manufacturing is critical.

References

Agegnew, A., and Gujral, T. (2022), "Determinants of profitability: Evidence from selected manufacturing company in Hawassa, Ethiopia". *Journal of Positive School Psychology*, 6(6): 8309-8322.

Akin, A. C., and Cevger, Y. (2019), "Analysis of factors affecting production costs and profitability of milk and dairy products in Turkey". *Food Science and Technology*, 39(3): 781-787.

Amaniampong, M., Kumi, J.A., and Kumi, M.A. (2018), "Effects of corporate income tax on the profitability of mining companies: Evidence from Ghana Stock Exchange". *Journal of Business Management*, 4(2): 55-64.

Apergis, N., Johnson, S., and Sorros, J. (2011), "Profitability performance and the role of manufacturing cost: Evidence from a panel of US manufacturing firms". *Global Review of Accounting and Finance*, 2(1): 1-17.

Banker, R.D., Potter, G., and Schroeder, R.G. (1995), "An empirical analysis of manufacturing overhead cost drivers". *Journal of Accounting and Economics*, 19(1): 115-137.

Barney, J. (1991), "Firm resources and sustained competitive advantage". *Journal of Management*, 17(1): 99-120.

Benedetti, C. (2000), "8 ways to protect your business". *Strategic Finance*, 81(11): 77-77.

Cardos, I.R., and Pete, S. (2011), "Activity-based costing (ABC) and activity-based management (ABM) implementation–is this the solution for organizations to gain profitability". *Romanian Journal of Economics*, 32(1): 151-168.

Correia, C., Flynn, D., Uliana, E, and Wormald, M. (2003), *Financial management*. Juta (Pty) Limited.

Covaleski, M. A., and Dirsmith, M.W. (1988), "An institutional perspective on the rise, social transformation, and fall of a university budget category". *Administrative Science Quarterly*, 33(4): 562-587. https://doi.org/2392644. https://doi.org/2392644.

Dalci, I. (2018), "Impact of financial leverage on profitability of listed manufacturing firms in China". *Pacific Accounting Review*, 30(4): 410-432.

Drury, C. (2000), *Management and cost accounting*. London: Thomson Learning.

Fareed, Z., Ali, Z., Shahzad, F., Nazir, M.I., and Ullah, A. (2016), "Determinants of profitability: Evidence from power and energy sector". *Studia Universitatis Babes-Bolyai Oeconomica*, 61(3): 59-78.

Fry, F.L., Stoner, C.R. and Hattwick, R.E. (1998), *Business: Integrative framework*. Irwin, Boston.

Garrison, R.H. and Noreen, E.W. (2000), *Managerial accounting*. Boston: McGraw-Hill.

Goddard, J., Tavakoli, M., and Wilson, J. O. (2005), "Determinants of profitability in European manufacturing and services: Evidence from a dynamic panel model". *Applied Financial Economics*, 15(18): 1269-1282.

Gunarathne, N., and Samudrage, D. (2018), "Analysis of the cost structure: Perspectives from the manufacturing companies in Sri Lanka". *Asia-Pacific Management Accounting Journal*, 13(3): 197-223.

Hansen, Don R., Mowen, M.M. and Guan, L. (2009), *Cost management: Accounting and control*. Mason: South-Western.

Hart, O. (1995), "An economist's perspective on the theory of the firm". *Columbia Law Review*, 89(7): 1757-1774.

Hausmann, R., Hwang, J. and Rodrik, D. (2007), "What you export matters". *Journal of Economic Growth*, 12(1): 1-25.

Hilton, R.W. (1997), *Managerial accounting*. New York: McGraw-Hill.

Horngren, C., and Murali, B. (2019), *Cost-accounting-a-managerial-emphasis*. Pearsons Education Limited.

Horngren, C.T., Datar, S.M. and Foster, G. (2003), *Cost accounting: A managerial emphasis*. Upper Saddle River: Prentice-Hall.

Horngren, C.T., Foster, G., Datar, S.M. and Uliana, E. (1999), *Cost accounting in South Africa: A managerial perspective*. Prentice Hall.

Kariithi, J.N., and Kihara, A. (2017), "Factors affecting performance of manufacturing firms in Kenya: A case of pharmaceutical firms in Nairobi County". *Strategic Journal of Business and Change Management*, 4(2): 234-257. Ekonomska istraživanja, 32(1), 968-981.

Kenya National Bureau of Statistics – KNBS (2020), Economic Survey 2020. Nairobi: KNBS.

Kraaijenbrink, J., Spender, J.C., and Groen, A.J. (2010), "The resource-based view: A review and assessment of its critiques". *Journal of Management*, 36(1): 349-372.

Lall, S. (2003), Reinventing industrial strategy: The role of government policy in building industrial competitiveness (G24 Discussion Paper Series No. 28). The Intergovernmental Group on Monetary Affairs and Development (G-24). UNCTAD http://www. g24. org/Dpseries/un-lal04. pdf.

La Roy, G. (2000), "Getting a grip on costs", *NZ Business*, 14(1): 28-32.

Lim, H. (1998), *Korea's growth and industrial transformation*. London: St. Martin's Press, Inc.

Manufacturing Priority Agenda (2024), Kenya Association of Manufacturers.

McDonald, J.T. (1999), "The determinants of firm profitability in Australian manufacturing". *Economic Record*, 75(2): 115-126.

Nanda, S., and Panda, A.K. (2018), "The determinants of corporate profitability: An investigation of Indian manufacturing firms". *International Journal of Emerging Markets*, 13(1): 66-86.

Nicholson, W. (2005), *Microeconomic theory: Basic principles and extensions*. Thomson South-West, Mason.

Nimocks, S.P. (2005), *Managing overhead costs*. McKinsey Quarterly.

Noreen, E. (1991), "Conditions under which activity-based cost systems provide relevant costs". *Journal of Management Accounting Research*, 3: 159-168.

Novák, P., and Popesko, B. (2014), "Cost variability and cost behaviour in manufacturing enterprises". *Economics and Sociology*, 7(4): 89-103

Nwarogu, I.A., and Lormbagah, A.J. (2020), "Effect of indirect cost on the profitability of listed firms in Nigeria". *Nigerian Journal of Management Sciences*, 6(2).

Oberholzer, M., and Ziemerink, J.E.E. (2004), "Cost behaviour classification and cost behaviour structures of manufacturing companies". *Meditari: Research Journal of the School of Accounting Sciences*, 12(1): 179-193.

Odusanya, I. A., Yinusa, O. G., and Ilo, B.M. (2018), "Determinants of firm profitability in Nigeria: Evidence from dynamic panel models". *SPOUDAI-Journal of Economics and Business*, 68(1): 43-58.

Oyedokun, G.E., Tomomewo, A.O., and Owolabi, S.A. (2019), "Cost control and profitability of selected manufacturing companies in Nigeria". *Journal of Accounting and Strategic Finance*, 2(1): 14-33.

Pattitoni, P., Petracci, B., and Spisni, M. (2014), "Determinants of profitability in the EU-15 area". *Applied Financial Economics*, 24(11): 763-775.

Pervan, M., Pervan, I., and Ćurak, M. (2019), "Determinants of firm profitability in the Croatian manufacturing industry: Evidence from dynamic panel analysis". *Economic Research-Ekonomska istraživanja*, 32(1): 968-981.

Popesko, B. and Novak, P. (2011), Changes in the enterprise cost structure – Czech

Rindfleisch, A. (2020), "Transaction cost theory: Past, present and future". *AMS Review*, 10(1): 85-97.

Roos, G. (2014), "Business model innovation to create and capture resource value in future circular material chains". *Resources*, 3(1): 248-274. https://doi.org/10.3390/resources3010248.

Saleem, S., and Ali, T. (2023), "Impact of administrative expenses on the profitability of FMCG companies. A case study of three leading FMCG organizations of Pakistan". *International Journal of Global Business*, 16(2): 1-20.

Santosuosso, P. (2014), "Cost of debt and corporate profitability". *International Business Research*, 7(2): 13-21.

Seshaiah, S.V., and Sarma, I.R.S. (2007), "Cost structure of Indian manufacturing Sector, 1971-2003". *Regional and Sectoral Economic Studies*, 7(1): 19-32.

Shank, J. K., and Govindarajan, V. (1994), "Measuring the cost of quality: A strategic cost management perspective". *Journal of Cost Management*, 8(2): 5-17.

Susilo, D., Wahyudi, S., and Demi Pangestuti, I.R. (2020), "Profitability determinants of manufacturing firms in Indonesia". *International Journal of Economics and Business Administration*, 8(2): 53-64.

Synek, M. (2011), *Managerial Economics*. Praha: Grada.

Wagner, J. (2012), "Recognition and behavior of variable and fixed costs". *Politická ekonomie*, 60(5): 668-678.

Wiener, J. (1962), "The cost structure of the industrial enterprise: Pattern of analysis". *The Accounting Review*, 37(3): 438-451.

Williamson, O.E. (1979), "Transaction-cost economics: The governance of contractual relations". *The Journal of Law and Economics*, 22(2): 233-261.

Wooldridge, J. M., Wadud, M., and Lye, J. (2016), Introductory econometrics: Asia pacific edition with online study tools 12 months. Cengage AU.

World Bank (2014), *Kenya economic update: Anchoring high growth - Can manufacturing contribute more?* Kenya Economic Update Edition No. 11. Washington, DC; World Bank Group.

Zhu, B., and Yuan, M. (2022), "The business cycle and cost structure's adjustment speed". *Research in International Business and Finance*, 62: 101731. https://doi.org/10.1016/j.ribaf.2022.101731.

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