

Dynamic Capabilities, Organizational Resilience and Firm Performance of Manufacturing Firms in Nairobi, Kenya

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ABSTRACT

Scholars have long observed that manufacturing firms in Kenya operate in highly competitive environments characterized by limited performance variability, prompting many firms to adopt various survival strategies. Increasingly, the literature highlights dynamic capabilities as critical for sustaining firm performance within the manufacturing sector. However, existing empirical studies on dynamic capabilities have been conducted across diverse industries and methodological contexts, yielding mixed and inconclusive findings. This study sought to examine the moderating effect of organizational resilience on the relationship between dynamic capabilities and firm performance among manufacturing firms in Nairobi County. The study was grounded in Dynamic Capability Theory and the Resource-Based View (RBV). Adopting a quantitative paradigm and an explanatory research design, the study targeted 6,038 manufacturing firms, from which a sample of 375 firms was selected. Primary data were collected using structured questionnaires and analyzed using both descriptive and inferential statistics. Multiple regression and hierarchical regression analyses were employed to test the direct and moderating effects. Key findings revealed that dynamic capabilities ($\beta = .744$, $p < .001$) and organizational resilience ($\beta = .418$, $p < .001$) have significant positive effects on firm performance among manufacturing firms. In addition, organizational resilience positively moderates the relationship between dynamic capabilities and performance ($\beta = .184$, $p < .05$), indicating that firms with higher adaptability and agility gain greater performance benefits from their capabilities. The study concludes that the joint development of dynamic capabilities and organizational resilience is essential for sustained competitiveness. It recommends that manufacturing firms prioritize capability enhancement, resilience-building mechanisms, and continuous technology and skills investment to improve long-term performance.

Keywords: Dynamic capabilities; Organizational resilience; Firm performance; Manufacturing firms in Kenya.

INTRODUCTION

Firm performance remains a central indicator of organizational success in both developed and developing economies, encompassing small and medium enterprises as well as large corporations. It reflects the extent to which organizations achieve their strategic objectives and sustain competitiveness. Recent scholarship defines organizational performance as a multidimensional construct capturing how effectively firms utilize resources to realize their goals (Navimipour *et al.*, 2018; Latifi *et al.*, 2021). Despite its importance, prior studies have not fully converged on the most appropriate performance metrics, with debates persisting on whether financial, non-financial, or hybrid measures provide the most comprehensive assessment (Singh *et al.*, 2016; Trumpp *et al.*, 2015). Contemporary literature increasingly supports a balanced approach incorporating financial indicators such as; profitability, market share, and business growth and non-financial indicators including product quality, operational efficiency, and employee productivity (Tsang *et al.*, 2004; Yoon & Chung, 2018).

In highly competitive environments such as the manufacturing sector, firms continuously seek mechanisms to enhance performance and ensure survival. Strategic management research emphasizes that superior performance depends on how effectively organizations deploy both tangible and intangible resources (Wang *et al.*, 2015). While earlier studies focused heavily on resource possession, more recent work highlights the importance of dynamic capabilities the firm's ability to integrate, build, and reconfigure internal and external competencies in rapidly changing environments (Teece, 2007; Baía & Ferreira, 2024). Dynamic capabilities enable firms to sense

opportunities and threats, seize emerging opportunities, and transform resource bases to maintain competitiveness.

The Resource-Based View (RBV) provides a theoretical foundation for understanding performance differentials among firms. RBV posits that heterogeneity in firm resources and capabilities explains variations in performance across firms within the same industry (Barney, 2005). However, critics argue that resource possession alone is insufficient in volatile environments, where the ability to renew and reconfigure resources becomes more critical (Eisenhardt & Martin, 2000; Fainshmidt et al., 2019). Consequently, dynamic capability theory extends RBV by emphasizing adaptive processes that enable firms to remain competitive amid environmental turbulence.

Empirical evidence on the dynamic capabilities–performance relationship remains mixed. Several studies report a positive and significant relationship (Fainshmidt *et al.*, 2016; Baía & Ferreira, 2024), while others find weak, negative, or insignificant effects (Drnevich & Kriauciunas, 2011; Ringov, 2017). These inconsistencies suggest the presence of contextual or moderating variables that shape how dynamic capabilities translate into performance outcomes. Scholars increasingly point to organizational resilience as a critical complementary capability that may strengthen this relationship.

Organizational resilience refers to a firm’s capacity to anticipate, prepare for, respond to, and adapt to environmental disruptions while maintaining functional continuity and growth (Linnenluecke, 2017; Iftikhar et al., 2021). Resilient organizations are better positioned to withstand shocks, recover quickly, and even leverage turbulence for strategic advantage. Empirical studies indicate that resilience enhances long-term effectiveness and efficiency and supports sustained performance (Umoh *et al.*, 2013). More recent research also highlights the growing importance of digital capabilities and strategic orientation in strengthening resilience, particularly in the post-COVID-19 business environment (Ciasullo *et al.*, 2022; Isensee *et al.*, 2023).

Nevertheless, much of the resilience literature has focused on internal organizational factors such as; structure, resources, and leadership traits while paying limited attention to how resilience interacts with dynamic capabilities to influence firm performance (Williams & Shepherd, 2016; Ortiz-de-Mandojana & Bansal, 2016). Scholars have therefore called for more integrative studies examining the mechanisms through which resilience shapes capability–performance linkages (Iftikhar et al., 2021). Emerging evidence suggests that organizational resilience may amplify the effectiveness of dynamic capabilities by enabling firms to better absorb shocks and sustain adaptive processes (Liu et al., 2024).

Within the manufacturing sector particularly in developing economies such as Kenya, firms operate under intense competitive pressure, technological change, and environmental uncertainty. Despite the recognized importance of dynamic capabilities, their practical application in manufacturing contexts remains limited and under-researched (Fitriati et al., 2020; Nedzinskas et al., 2013). Moreover, few empirical studies have examined the moderating role of organizational resilience in this relationship within the Kenyan context. Accordingly, this study focused on empirically examining how dynamic capabilities and organizational resilience jointly influence firm performance among manufacturing firms. By addressing this gap, the study contributes to strategic management literature and provides practical insights for firms seeking to enhance adaptability, competitiveness, and sustained performance in turbulent environments.

Objective of the Study

The objective of this study was to examine the moderating effect of organizational resilience on the relationship between dynamic capabilities and firm performance among manufacturing firms in Nairobi County, Kenya.

LITERATURE REVIEW AND HYPOTHESES

Dynamic capabilities and firm performance

Dynamic capabilities (DCs) remain a prominent construct in strategic management, though the field continues to exhibit diverse conceptualizations (Di Stefano et al., 2010). Broadly, DCs are understood as organizational processes that enable firms to purposefully create, extend, and reconfigure their resource base to address environmental change (Helfat & Peteraf, 2009). The widely cited definition by Teece, Pisano, and Shuen (1997)

describes DCs as the firm's ability to integrate, build, and reconfigure internal and external competencies in rapidly changing environments. Subsequent work conceptualizes DCs as higher-order routines that support sensing opportunities, seizing them, and transforming resource configurations to sustain competitiveness (Teece, 2007; Winter, 2003).

The sensing–seizing–transforming framework highlights the micro-foundations through which firms adapt and innovate. Sensing involves environmental scanning and opportunity recognition; seizing focuses on mobilizing resources and business model adjustments; while transforming (or reconfiguring) entails continuous renewal of organizational assets and structures (Day & Schoemaker, 2016; Teece, 2012). These processes are strongly influenced by managerial cognition, human capital, and social capital, underscoring the strategic role of top management in capability deployment (Ambrosini & Altintas, 2019).

Empirical evidence generally supports a positive association between DCs and firm performance, particularly through improved adaptability, innovation, and resource alignment (Wilden *et al.*, 2013; Zollo & Winter, 2002). However, findings remain inconsistent. Meta-analyses and recent reviews indicate that the DC–performance link is contingent and context-dependent rather than universally direct (Baía & Ferreira, 2024; Pezeshkan *et al.*, 2016). While early proponents argued that DCs can directly generate sustained competitive advantage when they meet VRIO conditions (Barney, 1991; Teece *et al.*, 1997), others contend that DCs are necessary but not sufficient, emphasizing that performance gains depend on how effectively capabilities are deployed within specific environments (Barreto, 2010; Eisenhardt & Martin, 2000). Thus, the literature suggests that DCs influence firm performance through complex, non-linear mechanisms.

Organizational Resilience and Firm Performance

Organizational resilience has become a central construct in strategic management research, recognized as a capability that enables firms to absorb disruption, adapt to change, and sustain performance in volatile environments. Contemporary studies commonly conceptualize resilience through adaptability the capacity to adjust organizational processes, strategies, and structures in response to changing environments and agility, which emphasizes rapid and flexible responsiveness to emerging threats and opportunities (Christopher & Peck, 2021; Lee & Trimi, 2022). Adaptability is defined as the organization's ability to accommodate change while preserving core functions, whereas agility reflects the speed and efficiency of adaptive responses (Hamel & Välikangas, 2023).

Research suggests that strategic resources such as financial slack, resource redundancy, and robust inter-organizational relationships, which help buffer against disruption and facilitate recovery (Ortiz-de-Mandojana & Bansal, 2021; Pettit *et al.*, 2020), support organizational resilience. Workforce diversity and knowledge diversity have also been identified as resilience enablers, enhancing problem-solving capacity and innovative responses when environmental conditions shift (Nishii *et al.*, 2021; Chen *et al.*, 2022).

Resilient organizations exhibit proactive characteristics, including scenario planning, rapid decision-making, and learning orientation, which enable them to not only recover from adversity but also capitalize on change as a source of competitive advantage (Duchek, 2020; Lengnick-Hall *et al.*, 2021). Contemporary interpretations extend beyond “bouncing back” to emphasize bouncing forward, wherein resilience leads to transformation and improved future performance (Williams *et al.*, 2023; Bhamra *et al.*, 2022).

Although multiple resilience measurement frameworks exist, recent scholarship increasingly links resilience to firm performance outcomes, demonstrating that resilient firms tend to maintain operational continuity, innovate under pressure, and realize strategic opportunities despite disruptions (Annarelli & Nonino, 2020; Ruiz-Martin *et al.*, 2023). However, empirical research still diverges on how resilience interacts with other strategic capabilities to influence performance, pointing to a need for more integrated studies that examine resilience jointly with constructs such as dynamic capabilities.

Organizational Resilience, Dynamic Capabilities, and Firm Performance

Empirical research increasingly demonstrates that dynamic capabilities (DCs) play a significant role in enhancing firm performance within manufacturing environments characterized by volatility and technological

change. Studies show that firms with strong sensing, seizing, and reconfiguring capabilities tend to achieve superior operational and financial outcomes because they can realign resources and respond effectively to market shifts (Fainshmidt *et al.*, 2016; Baía & Ferreira, 2024). In manufacturing contexts specifically, DCs have been linked to improved innovation output, production flexibility, and competitive positioning (Wilden *et al.*, 2013; Wang *et al.*, 2015). However, the strength and consistency of this relationship remain mixed across empirical settings, suggesting the presence of important boundary conditions (Pezeshkan *et al.*, 2016).

Recent scholarship identifies organizational resilience (OR) as a critical complementary capability that conditions the effectiveness of dynamic capabilities. Resilient manufacturing firms—those characterized by adaptability and agility—are better able to absorb shocks, maintain operational continuity, and leverage DCs during environmental turbulence (Duchek, 2020; Annarelli & Nonino, 2020). Empirical evidence indicates that resilience strengthens firms' capacity to translate dynamic capability investments into sustained performance outcomes (Ortiz-de-Mandojana & Bansal, 2021).

More directly, emerging studies report a significant moderating effect of organizational resilience on the DC–performance relationship. For instance, Liu *et al.* (2024) found that resilience amplifies the positive impact of dynamic capabilities on firm performance by enabling faster recovery and more effective resource reconfiguration under uncertainty. Similarly, manufacturing-focused research shows that firms exhibiting both high dynamic capabilities and strong resilience achieve superior growth and operational efficiency compared to firms possessing only one of these capabilities (Chen *et al.*, 2022). Thus, empirical evidence suggests that while dynamic capabilities are important drivers of manufacturing firm performance, their performance benefits are significantly enhanced when supported by strong organizational resilience, highlighting the importance of examining these capabilities jointly, hence the following hypotheses derived for the study;

H₀₁ : Dynamic capabilities has no significant effect on firm performance of manufacturing firms in Nairobi County, Kenya.

H₀₂ : Organizational resilience has no significant moderating effect on the dynamic capabilities and firm performance of s manufacturing firms in Nairobi County, Kenya.

Theoretical Review (Dynamic capabilities theory & Resource-Based View)

The Dynamic Capabilities Theory (DCT) and the Resource-Based View (RBV) jointly underpin the relationship among dynamic capabilities, organizational resilience, and firm performance examined in this study. RBV conceptualizes firms as bundles of heterogeneous resources; assets, knowledge, and capabilities that can generate competitive advantage when they are valuable, rare, inimitable, and non-substitutable (VRIN/VRIO) (Barney, 1991, 1997; Wernerfelt, 1984). Empirical work grounded in RBV shows that firms with superior strategic resources tend to achieve stronger financial and non-financial performance outcomes (Amit & Schoemaker, 1993; Mahoney & Pandian, 1992). In this study, RBV provides the foundational logic linking organizational resources and capabilities to firm performance among manufacturing firms.

However, RBV has been criticized for its static orientation and limited ability to explain sustained advantage under environmental turbulence (Priem & Butler, 2001; Samsudin & Ismail, 2019). Dynamic Capabilities Theory extends RBV by emphasizing the firm's ability to integrate, build, and reconfigure competencies in response to rapid change (Teece & Pisano, 1994). Through sensing, seizing and transforming processes, dynamic capabilities enable manufacturing firms to realign resources, innovate, and maintain competitiveness (Teece, 2007; Eisenhardt & Martin, 2000). Accordingly, DCT directly supports the study's independent variable dynamic capabilities as a key driver of firm performance.

Importantly, DCT also implies that the effectiveness of dynamic capabilities depends on complementary organizational conditions. In this study, organizational resilience captured through adaptability and agility is posited as a moderating capability that strengthens the translation of dynamic capabilities into superior performance. Resilient firms are better positioned to absorb shocks and sustain reconfiguration efforts, thereby enhancing the performance impact of dynamic capabilities. Thus, the integration of RBV and DCT provides a coherent theoretical lens for examining how dynamic capabilities influence firm performance and how organizational resilience conditions this relationship in manufacturing firms.

CONCEPTUAL FRAMEWORK

The conceptual framework illustrates the relationship between dynamic capabilities, organizational resilience, and firm performance. Dynamic capabilities comprising sensing, seizing, and reconfiguring represent the independent variable that enables firms to identify opportunities, mobilize resources, and adapt to changing environments. These capabilities are hypothesized (H_{01}) to positively influence firm performance, measured through return on investment, market growth, and operational efficiency. Organizational resilience, consisting of adaptive, response, and recovery capabilities, acts as a moderating variable (H_{02}), strengthening the relationship between dynamic capabilities and firm performance by enabling firms to effectively withstand disruptions and sustain performance in turbulent environments.

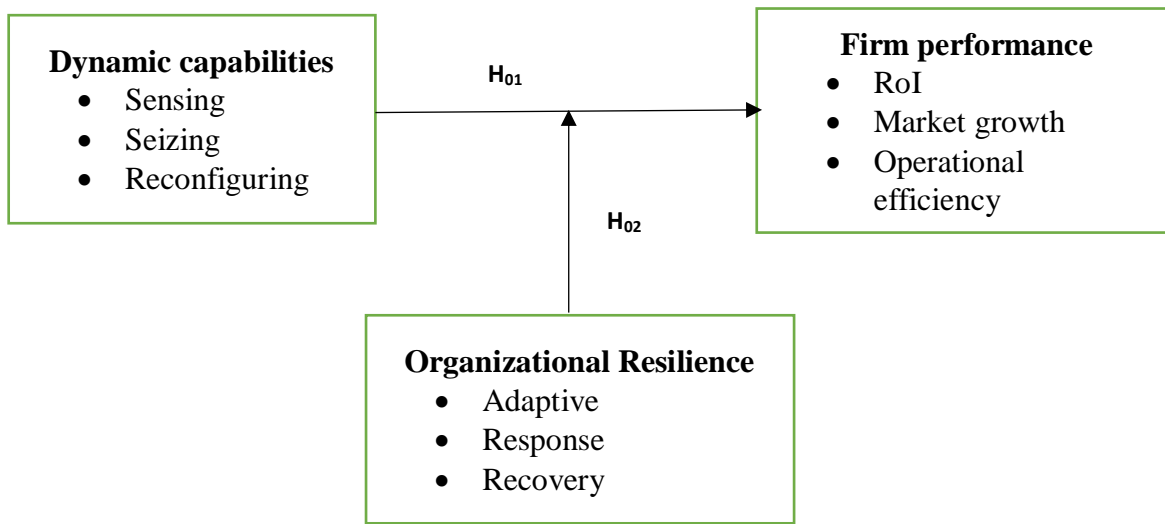


Figure 1- Conceptual framework

Source: (Author, 2025)

METHODOLOGY

Research design and Population

This study adopted an explanatory research design, which is appropriate for examining relationships among variables. The design sought to determine how the independent variable influenced the dependent variable and to provide a clear explanation of the cause–effect relationships among the study constructs (Hair *et al.*, 2013; Cooper & Schindler, 2006). The survey was conducted in Nairobi County, Kenya, targeting private manufacturing firms that are members of the Kenya Association of Manufacturers (KNBS, 2025). The study specifically focused on the manufacturing sector, with other sectors excluded from the scope of analysis. The target population comprised 6,038 manufacturing firms, as presented in Table 1 below.

Table 1: Classification of manufacturing firms in Nairobi City County

Classification	Number of employees	Percentage of enterprises	Number of enterprises
Micro – enterprises	1 – 9	64.40	3,888
Small-scale enterprises	10 – 49	19.0	1,147
Medium-scale enterprises	50 – 149	9.60	580
Large-scale enterprises	More than 150	7.0	423
Total		100	6,038

Source: KNBS (2025)

Sample size and data

From the target population of 6038, a total sample size of 375 respondents was selected. Taro Yamane (1973) sample size formula and modified by Singh & Masuku (2014) was used to select a sample size of 375 respondents. This was considered satisfactory for the explanatory research design. The confidence level was set at 95%, and correspondingly the accepted margin of error was set at ±5% (Teigen, & Jorgensen, 2005).

$$n = \frac{N}{1 + N e^2}$$

Where:

n = Sample size

N = Population size

e = the error of Sampling

$$\frac{6038}{1 + 6038(0.05)^2} = 375$$

Model specification

The study examined whether firm resilience moderates the relationship between dynamic capabilities (DC) and firm performance (FP) in manufacturing firms in Kenya. Generally, a moderator (OR) is a third variable that adjusts the causal relationship between independent and dependent variables (Rose *et al.*, 2004; Baron & Kenny, 1986) The study used the moderated hierarchical regression approach where a moderator variable is computed as a product of two variables i.e. a moderator and independent variable (Aiken & West, 1991) as illustrated in figure 1 below:

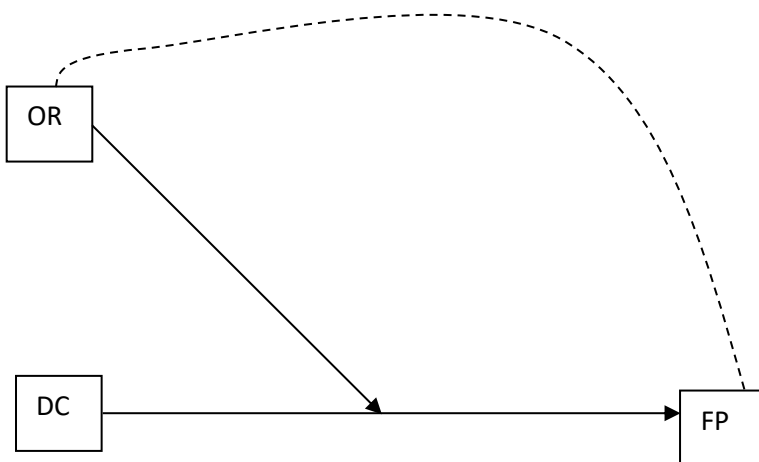


Figure 1- Hierarchical Regression Model

The hierarchical model above was tested and guided by the following equations:

i) $FP = \beta_0 + C + \epsilon$

ii) $FP = \beta_0 + C + \beta_1 DC + \epsilon$

$$\text{iii) } FP = \beta_0 + C + \beta_1 DC + \beta_2 OR + \varepsilon$$

$$\text{iv) } FP = \beta_0 + C + \beta_1 DC + \beta_2 OR * DC + \varepsilon$$

Measurement of Study Variables and Scales

The study variables were measured using structured questionnaire items rated on a five-point Likert scale ranging from 1 (poor) to 5 (very high). Dynamic capability was measured using ten items (DC1–DC10) assessing the firm’s capacity to sense opportunities, adapt business models, integrate knowledge, and respond to market changes. Organizational resilience was measured using twelve items covering adaptability (4 items) and agility (8 items), reflecting the firm’s ability to respond and adjust to environmental changes. Finally, firm performance was measured using eight items evaluating growth in sales, profits, market share, capital, and customer loyalty relative to expectations and competitors.

Limitation

One limitation of this study is that data were collected using a structured questionnaire, which relies on self-reported responses that may be subject to social desirability bias and common method variance. Additionally, the study focused only on manufacturing firms in Nairobi County that are members of KAM, which may restrict the generalizability of the findings to other sectors or regions. Finally, the use of quantitative methods alone may have constrained deeper contextual insights that could have been captured through qualitative approaches.

FINDINGS

Descriptive Statistics for Dynamic Capabilities

Table 2 below presents descriptive statistics for the independent variable (dynamic capabilities). The results indicate that firms moderately agreed they continuously invest in research and development to identify new technologies and market opportunities (mean = 3.366, SD = 1.00). Respondents also agreed that firms monitor and understand current and future market, supplier, and competitor demands (mean = 3.588, SD = .963) and effectively manage market change and uncertainty (mean = 3.647, SD = .953). However, respondents were relatively undecided regarding their firms’ capacity to create and redesign business plans (mean = 3.274, SD = .929). Other capabilities scored moderately high, including clarity of value proposition (mean = 3.593, SD = .900), value chain knowledge (mean = 3.577, SD = .952), flexibility (mean = 3.635, SD = 1.014), external partnership opportunities (mean = 3.540, SD = .903), knowledge integration with partners (mean = 3.717, SD = .988), and protection of intellectual property (mean = 3.690, SD = .929). Overall, the data were negatively skewed but approximated normal distribution.

Table 2: Descriptive Statistics for Dynamic Capabilities

Questions	Mean	Std. Deviation	Skewness	Kurtosis
Our firm is constantly investing in research and development activities to identify new	3.366	1.00131	-.635	.104
Our company monitors and understands the current (future) demands of the market, suppliers, and competitors.	3.588	.90639	-.117	-.255
Our enterprise tends to deal very well with market change and uncertainty.	3.647	.95331	-.612	.460
Our company has a great capacity to create, adjust and, when necessary, redesign our business plan	3.274	.92878	-.170	.177
Our business plan makes it clear what our value proposal is and how it is articulated.	3.593	.89960	-.505	.363
Our firm has a profound knowledge of the value chain through which we reach our customers.	3.577	.95272	-.379	-.236
Our firm is flexible.	3.635	1.01486	-.552	-.089

Our business constantly identifies opportunities for partnerships with external organizations.	3.543	.90345	-.349	.215
Our firm has a strong ability to integrate knowledge and know-how with external partners.	3.717	.98792	-.464	-.047
Our business manages and monitors ways of protecting our secrets and our intellectual property	3.694	.92061	-.443	.178
Valid N (listwise) 357				

Source: (Researcher 2025)

Descriptive Statistics for Organization Resilience

Organizational resilience was measured using 12 items on a five-point Likert scale, and the results indicated an approximately normal distribution. Respondents generally agreed that their firms swiftly adapt to regulatory changes (mean = 3.782, SD = .979), frequently adopt new technologies and skills to remain competitive (mean = 3.521, SD = 1.029), and take timely action when required (mean = 3.555, SD = 1.008). Firms were also reported to respond quickly to customer needs (mean = 3.616, SD = .946) and competitors’ product launches (mean = 3.358, SD = .995).

Moderate agreement was observed on technology adoption for improved service delivery (mean = 3.451, SD = .957), product innovation (mean = 3.437, SD = .950), product modification (mean = 3.434, SD = .994), and proactive action under environmental change (mean = 3.333, SD = 1.043). Respondents were relatively undecided regarding frequent adoption of new marketing techniques (mean = 3.313, SD = .981). Overall, the data were negatively skewed but sufficiently normal, supporting subsequent factor analysis.

Table 3: Descriptive Statistics for Organization Resilience

Questions	Mean	Std. Deviation	Skewness	Kurtosis
Our company frequently adopts new marketing techniques as changes occur.	3.3137	.98138	-.447	.079
Our company frequently introduces new products so as to satisfy the customer’s changing needs.	3.4370	.95080	-.439	-.124
Our company frequently modifies our products to cope with changes in the environment.	3.4342	.99395	-.317	-.367
Our company frequently adopts new technologies and skills to be as par with our competitors.	3.5210	1.02920	-.476	-.304
We rapidly take action as changes occur in the environment.	3.3333	1.04308	-.298	-.304
We develop alternatives in order to benefit from negative circumstances.	3.4650	.94037	-.520	.085
Our firm is quick in taking required action when needed.	3.5546	1.00865	-.505	.013
We quickly react to new products launched by competitors.	3.5378	.99541	-.432	-.145
Our firm quickly switches suppliers to take advantage of lower costs, better quality or improved delivery items.	3.4510	.95751	-.352	.044
We quickly respond to customers’ needs.	3.6162	.94576	-.568	.190
Our organization quickly adopts new technologies to deliver better, faster and cheaper services.	3.6275	.92020	-.564	.294

We swiftly adapt to changes due to new regulations.	3.7815	.97865	-.635	.049
Valid N (listwise) 357				

Source: (Researcher 2025)

Correlation matrix

The correlation results indicated strong and positive relationships among the study variables. Dynamic capabilities are highly correlated with firm performance ($r = .726, p < .01$), suggesting that firms with stronger sensing, seizing, and reconfiguring abilities tend to achieve better performance outcomes. Organizational resilience also shows a strong positive association with firm performance ($r = .731, p < .01$), implying that adaptable and agile firms perform better in turbulent environments. Overall, the findings support the study’s premise that both dynamic capabilities and organizational resilience are critical drivers of manufacturing firm performance.

Table 4: Correlation Matrix

Variables	Firm performance	Dynamic capabilities	Organization resilience
Firm performance	1		
Dynamic capabilities	.726**	1	.
Organization resilience	.731**	.806**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Source: (Researcher 2025)

Multivariate Linear Regression Assumptions

Multicollinearity results

The multicollinearity diagnostics indicate that multicollinearity was not a concern in the regression model. The tolerance values for the variables were above the recommended threshold of 0.10, with firm performance (0.258), dynamic capability (0.31), and organizational resilience (0.401). Similarly, the Variance Inflation Factor (VIF) values were below the commonly accepted cutoff of 10, with firm performance recording a VIF of 3.876, dynamic capability 3.23, and organizational resilience 2.494. These statistics indicate that the independent variables are not highly correlated to the extent of distorting regression estimates. Therefore, the model satisfies the multicollinearity assumption, and the variables can reliably be included in the regression analysis to explain variations in firm performance.

Table 5: Multicollinearity results

Variables/Item		Collinearity Statistics	
		Tolerance	VIF
	Firm performance	0.258	3.876
	Dynamic Capability	0.31	3.23
	Organization Resilience	0.401	2.494

Source: (Researcher 2025)

Normality results

The Shapiro–Wilk test was used to assess whether the study variables followed a normal distribution. The results show that firm performance ($W = 0.82382, Z = 1.793, p = 0.9633$), dynamic capability ($W = 0.90706, Z = 1.313, p = 0.9049$), and organizational resilience ($W = 0.99547, Z = -0.678, p = 0.7517$) all recorded p-values greater

than 0.05. This indicates that the null hypothesis of normality cannot be rejected. Additionally, the *W* statistics are reasonably close to 1, further suggesting that the data approximate a normal distribution. Therefore, the variables satisfy the normality assumption, implying that the dataset is suitable for parametric statistical analysis, including correlation and regression techniques used in the study.

Table 6: Shapiro–Wilk results

Variable	Obs	W	V	Z	P > Z
FP	357	0.82382	29.016	1.793	0.9633
DC	357	0.90706	15.307	1.313	0.9049
OR	357	0.99547	0.746	-0.678	0.7517

Source: (Researcher 2025)

Reliability tests

The reliability of the measurement scales was assessed using Cronbach’s alpha coefficient to determine the internal consistency of the constructs. The results indicated that all variables met the acceptable reliability threshold of 0.70. Firm performance, measured using eight items, recorded a Cronbach’s alpha of 0.766, indicating good internal consistency among the items. Dynamic capabilities, measured using ten items, had a Cronbach’s alpha of 0.707, which is within the acceptable reliability range. Organizational resilience, measured using twelve items, recorded the highest reliability with a Cronbach’s alpha of 0.775. These results suggested that the measurement instruments used in the study were reliable and the items consistently measured the intended constructs

Table 7: Reliability results

Variable	No.of items	Cronbach alpha
Firm Performance (FP)	8	0.766
Dynamic Capabilities (DC)	10	0.707
Organization resilience (OR)	12	0.775

Source: (Researcher 2025)

Factor analysis for Dynamic capabilities

The study conducted factor analysis using Principal Component Analysis (PCA) to examine the construct validity of the measurement items in dynamic capabilities variable. The results showed that three components had Eigenvalues greater than 1, indicating that they were significant factors for explaining the variance in the data. The first component had an eigenvalue of 3.310 and explained 33.096% of the variance, while the second and third components had eigenvalues of 1.288 and 1.146, explaining 12.875% and 11.458% of the variance respectively. Cumulatively, the three factors accounted for 57.429% of the total variance. After rotation, the components explained 22.293%, 18.495%, and 16.641% of the variance respectively. These results indicated that the measurement items loaded adequately on the underlying constructs, confirming the validity of the measurement scales used in the study.

Table 8: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.310	33.096	33.096	3.310	33.096	33.096	2.229	22.293	22.293
2	1.288	12.875	45.971	1.288	12.875	45.971	1.849	18.495	40.788

3	1.146	11.458	57.429	1.146	11.458	57.429	1.664	16.641	57.429
4	.864	8.638	66.067						
5	.806	8.064	74.131						
6	.667	6.667	80.798						
7	.613	6.133	86.931						
8	.522	5.216	92.147						
9	.461	4.612	96.759						
10	.324	3.241	100.000						

Extraction Method: Principal Component Analysis.

Direct Effect (Multivariate Regression Model)

The direct regression results indicated that both dynamic capabilities and organizational resilience significantly and positively influence firm performance. Dynamic capabilities exhibit a strong positive effect ($\beta = .744$, $t = 19.857$, $p < .001$), indicating that firms with stronger capability reconfiguration and market responsiveness achieve superior performance. Organizational resilience also shows a significant positive effect ($\beta = .418$, $t = 7.219$, $p < .001$), suggesting that adaptability and agility enhance performance outcomes. The model explains a substantial proportion of variance in firm performance ($R^2 = .623$; Adj. $R^2 = .617$) and is statistically significant ($F = 115.923$, $p < .001$). Overall, the findings confirmed that both dynamic capabilities and organizational resilience are key drivers of manufacturing firm performance.

Table 9: Direct Multivariate Regression Model

Variables	Model 1
	Coeff. (β)
Constant	3.720e-15
Dynamic Capability (DC)	.744(19.857)***
Organizational Resilience (OR)	.418(7.219)***
R^2	.623
Adj. R^2	.617
F- statistic	115.923
P>F	.000

*** -Significance of 1%

Source: (Researcher 2025)

Moderation Analysis (Hayes Model)

The hierarchical regression results indicate that both dynamic capabilities and organizational resilience have significant positive direct effects on firm performance ($\beta = .744$, $t = 19.857$, $p < .001$; $\beta = .418$, $t = 7.219$, $p < .001$, respectively). Importantly, the interaction term between dynamic capabilities and organizational resilience is positive and statistically significant ($\beta = .184$, $t = 2.478$, $p < .05$), demonstrating a positive moderating effect. This implies that organizational resilience strengthens the impact of dynamic capabilities on firm performance; manufacturing firms that are more adaptable and agile derive greater performance benefits from their dynamic capabilities. The model explains a substantial proportion of variance in firm performance ($R^2 = .623$) and is statistically significant overall ($F = 96.428$, $p < .001$). Overall, the findings support the hypothesized moderating role of organizational resilience in the relationship between dynamic capabilities and firm performance.

Table 10: Moderation results

Variables	Firm Performance Coef. (t)
Constant	-.2.597E-16
Dynamic capabilities (X)	.744*** (19.857)
Organizational resilience (Z)	.418 ***(7.219)

Interaction (X*Z)	.184**(2.478)
	R ² = .623
	Adj. R ² change= 617
	F=96.428
	P= .000

Source: (Researcher 2025)

Hypothesis Testing Results

The study tested two null hypotheses regarding the effects of dynamic capabilities and organizational resilience on firm performance. For *H₀₁*, the direct regression results show that dynamic capabilities have a strong and statistically significant positive effect on firm performance ($\beta = .744, t = 19.857, p < .001$). Since the p-value is less than .05, the null hypothesis is rejected. This indicates that dynamic capabilities significantly enhance the performance of manufacturing firms in Nairobi County.

For *H₀₂*, the moderation analysis reveals that the interaction between dynamic capabilities and organizational resilience is positive and significant ($\beta = .184, t = 2.478, p < .05$). Therefore, the null hypothesis is also rejected. This implies that organizational resilience significantly strengthens the relationship between dynamic capabilities and firm performance. Overall, the models are statistically significant (Direct: $F = 115.923$; Moderation: $F = 96.428; p < .001$), confirming the robustness of the findings, see table 11 below.

Table 11: Hypotheses results

Hypothesis	Statement	Result	Decision
H ₀₁	Dynamic capabilities have no significant effect on firm performance	$\beta = .744, p < .001$	Rejected
H ₀₂	Organizational resilience has no significant moderating effect on relationship between dynamic capabilities and firm performance	$\beta = .184, p < .05$	Rejected

Source: (Researcher 2025)

DISCUSSION OF THE FINDINGS

The findings demonstrated that manufacturing firms in Nairobi moderately exhibit dynamic capabilities such as sensing market opportunities, integrating knowledge with partners, and adapting to environmental changes. These results are consistent with Dynamic Capabilities Theory, which posits that firms must continuously sense, seize, and reconfigure resources to maintain competitiveness in dynamic environments (Teece, Pisano, & Shuen, 1997; Teece, 2007). The strong positive relationship between dynamic capabilities and firm performance therefore supports the theoretical argument that firms capable of effectively monitoring markets, integrating external knowledge, and maintaining operational flexibility are more likely to achieve superior performance outcomes. The study also established that organizational resilience significantly strengthens the relationship between dynamic capabilities and firm performance.

This finding suggests that firms capable of adapting quickly to regulatory shifts, technological change, and competitive pressures are better positioned to leverage their dynamic capabilities for improved performance. In this context, resilience enhances the effectiveness of sensing and reconfiguration processes by enabling firms to respond rapidly to disruptions and environmental turbulence (Lengnick-Hall, Beck, & Lengnick-Hall, 2011). These findings are consistent with earlier empirical studies which found that dynamic capabilities enable firms to adapt strategies and resources in response to environmental uncertainty, thereby improving organizational performance (Eisenhardt & Martin, 2000; Burnard & Bhamra, 2011). However, the present study extends prior research by empirically demonstrating the moderating role of organizational resilience within manufacturing firms in a developing economy context. This highlights that resilience does not only contribute directly to firm

performance but also strengthens the effectiveness of dynamic capabilities in achieving sustained competitive advantage.

CONCLUSION

This study concludes that dynamic capabilities and organizational resilience are vital drivers of firm performance among manufacturing firms in Nairobi County. The descriptive findings indicated that most firms demonstrate a reasonable level of adaptability and responsiveness, particularly in adjusting to regulatory changes, adopting new technologies, and responding to customer needs. This suggests that the sector is moderately prepared to cope with environmental uncertainty. The inferential results further establish that firms with stronger dynamic capabilities tend to achieve better performance outcomes. Organizational resilience also plays an important role by enhancing firms' ability to remain stable and competitive during periods of change. More importantly, the study confirms that organizational resilience strengthens the effectiveness of dynamic capabilities, enabling firms to derive greater performance benefits when both capabilities are developed simultaneously. Consequently, the study affirms that manufacturing firms seeking sustained performance should invest in building robust dynamic capabilities while simultaneously fostering organizational resilience to navigate turbulent and competitive environments successfully.

MANAGERIAL IMPLICATION AND RECOMMENDATIONS

Based on the study findings, several managerial implications and recommendations emerge for manufacturing managers seeking to enhance organizational Resilience and overall firm performance.

Strengthening Dynamic Capabilities for Strategic Adaptation

Managers should deliberately invest in mechanisms that enhance sensing, seizing, and reconfiguring capabilities. This can be achieved through continuous market intelligence systems, investment in research and development, and fostering a culture that encourages innovation and experimentation. By doing so, firms can simultaneously exploit existing competencies while exploring new opportunities, thereby supporting organizational resilience and improving strategic decision-making in dynamic markets.

Building Organizational Resilience to Support Innovation and Adaptability

Manufacturing managers should develop organizational structures that enhance adaptability and rapid response to environmental disruptions. This includes implementing scenario planning, strengthening crisis management frameworks, and encouraging flexible decision-making processes. Such resilience enables firms to absorb shocks while maintaining operational stability, which in turn supports both exploratory and exploitative innovation activities.

Aligning Dynamic Capabilities with Resilience Strategies

The findings indicate that the benefits of dynamic capabilities are amplified when supported by strong organizational resilience. Managers should therefore integrate capability development with resilience-building strategies, such as cross-functional collaboration, knowledge sharing, and digital transformation initiatives. This alignment enables firms to balance efficiency with innovation, strengthening their ability to adapt to technological and market changes.

Strategic Collaboration and Industry-Level Support

Managers should actively engage with industry associations and policy initiatives that promote innovation, technological upgrading, and resilience preparedness. Participation in collaborative networks and capacity-building programs can help firms access knowledge, resources, and partnerships that support long-term competitiveness.

Overall, these managerial actions can enhance organizational adaptability, innovation capacity, and resilience, thereby enabling manufacturing firms to sustain performance in turbulent business environments.

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