Original Researcher Article

The Role of Financial Analytics in Managerial Decision-Making: A Data-Driven Approach to Organizational Performance

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ABSTRACT

This study investigates the impact of financial analytics capability on managerial decision-making and organizational performance in small and medium-sized enterprises (SMEs). Using an integrated quantitative design, survey-based managerial constructs were combined with objective financial statement indicators from 214 SMEs to provide a rigorous data-driven assessment. Financial analytics capability was conceptualized as a strategic organizational competence that enhances managers' ability to interpret financial information and structure evidence-based decisions. Structural equation modeling results reveal that financial analytics capability significantly improves managerial decision-making ($\beta = 0.58$, $p < 0.001$), explaining 34% of its variance. In turn, managerial decision-making positively influences organizational performance ($\beta = 0.41$, $p < 0.001$), with the full model explaining 47% of performance variance. Although financial analytics capability also demonstrates a direct effect on performance ($\beta = 0.24$, $p < 0.001$), mediation analysis confirms that managerial decision-making partially mediates this relationship. These findings indicate that performance gains are not solely technology-driven but are substantially behavioral, arising from managerial competence in leveraging analytical insights. By integrating perceptual managerial measures with objective financial metrics, the study strengthens empirical validity and advances understanding of how financial analytics capability creates sustainable value through decision effectiveness in SME contexts

Keywords: Financial Analytics Capability, Managerial Decision-Making, Organizational Performance, SMEs, PLS-SEM, Data-Driven Strategy, Financial Performance

INTRODUCTION:

The rapid expansion of financial analytics technologies has fundamentally transformed how organizations interpret information and make strategic decisions. Advances in big data analytics, artificial intelligence, and business intelligence systems have enabled firms to move beyond intuition-driven management toward evidence-based decision frameworks (Xu & Lu, 2026; Imerman & Fabozzi, 2020). In increasingly volatile markets, firms are expected to leverage financial data not merely for reporting purposes but as a strategic resource that enhances competitive positioning and long-term value creation. Empirical evidence suggests that data-driven decision-making contributes significantly to sustainable value creation and international firm performance (Xu & Lu, 2026). Similarly, analytics capability has been shown to strengthen operational performance and organizational effectiveness when embedded within managerial processes (Wong & Ngai, 2023).

The growing reliance on analytics-driven systems is evident across industries. Studies demonstrate that big data analytics capability improves competitive performance through optimized resource allocation and strategic alignment (Huang et al., 2022). Organizational contexts such as supply chains, healthcare operations, and innovation networks increasingly rely on analytics to support managerial judgment and operational optimization (Benzidia et al., 2023; Ji et al., 2022). Moreover, analytics-enabled systems enhance decision quality by improving information visibility and strategic coordination (Dubey et al., 2021). These findings collectively indicate that financial analytics is no longer a peripheral technical function but a core managerial capability that influences organizational outcomes.

Small and medium-sized enterprises (SMEs), in particular, face substantial pressure to adopt analytics-based tools to improve efficiency and performance. Evidence suggests that SMEs utilizing big data analytics achieve improved sustainable performance and strategic responsiveness (Khan et al., 2024). However, while prior research highlights the performance benefits of analytics adoption, less attention has been paid to the behavioral mechanisms through which financial analytics translates into improved organizational outcomes. Managerial decision-making remains a critical intervening process. Research across sectors confirms that analytics tools enhance administrative and managerial decision-making quality by structuring information flows and reducing uncertainty (Darach et al., 2025; Faridoon et al., 2025). Nevertheless, the extent to which improved decision attributes mediate the analytics–performance relationship remains insufficiently examined.

Another limitation in existing scholarship concerns the measurement of organizational performance. Many studies rely on perceptual or self-reported performance indicators, potentially introducing bias. Although objective financial performance metrics such as profitability, efficiency ratios, and revenue growth provide stronger empirical grounding (Sar & Panigrahi, 2025; Wang et al., 2022), few studies integrate such financial statement data with survey-based measures of analytics capability and managerial decision attributes. Additionally, emerging research demonstrates the importance of dashboard systems and financial reporting tools in enhancing productivity and financial outcomes (Kidd et al., 2022; Vest et al., 2021). Yet, the combined analysis of behavioral financial decision constructs and objective firm-level financial data remains limited.

Consequently, a clear research gap emerges. First, much of the literature examines analytics capability or firm performance independently rather than investigating their interconnected pathways. Second, there is limited empirical evidence connecting financial analytics capability, managerial decision attributes, and objective organizational performance indicators in a unified framework. Third, few studies combine survey-based behavioral data with secondary financial statement datasets to validate performance outcomes. Addressing these gaps is particularly important in SME contexts, where managerial cognition, risk attitudes, and financial literacy significantly shape strategic decisions and performance trajectories.

To respond to these gaps, this study integrates two complementary datasets: (1) a survey-based SME financial decision dataset capturing financial analytics capability, financial literacy, risk attitudes, and managerial decision attributes, and (2) objective financial statement data including profitability and performance indicators such as return on assets and revenue measures. By combining behavioral and financial performance data, this research adopts a data-driven empirical approach that strengthens analytical rigor and reduces common method bias.

The objectives of this study are:
1. To examine the influence of financial analytics capability on managerial decision-making.
2. To evaluate the impact of managerial decision-making on organizational performance.
3. To assess whether financial analytics capability directly enhances firm performance.
4. To integrate behavioral and financial statement data in a unified analytical model.

Guided by these objectives, the study addresses the following research questions: How does financial analytics capability influence managerial decision-making in SMEs? What is the relationship between managerial decision-making and organizational performance? Does financial analytics capability directly contribute to improved firm performance? To what extent does managerial decision-making explain the linkage between analytics capability and performance?

By answering these questions, this study contributes to the growing body of literature on analytics capability and organizational performance (Waqas & Tan, 2023; Trincanato & Vagnoni, 2024). It extends prior research by empirically examining managerial decision-making as a central mechanism linking analytics capability to measurable financial outcomes. In doing so, the study advances understanding of how financial analytics functions not merely as a technological tool but as a strategic enabler of data-driven managerial effectiveness and sustainable organizational performance.

2. LITERATURE REVIEW

2.1 Financial Analytics Capability

Financial analytics capability refers to an organization's ability to systematically gather, process, interpret, and apply financial and operational data to support strategic and operational decisions. In contemporary business environments characterized by volatility and technological disruption, analytics has evolved from a reporting function to a strategic organizational resource. Advances in artificial intelligence and data-driven systems have enabled firms to transform financial data into actionable

insights that enhance value creation and competitive positioning (Xu & Lu, 2026).

Empirical studies consistently demonstrate that analytics capability strengthens organizational performance when embedded within managerial processes. Big data analytics capability has been linked to improved competitive outcomes through resource optimization and strategic alignment (Huang et al., 2022). Similarly, analytics capability enhances operational performance when supported by a data-driven culture and strong sensing capabilities (Wong & Ngai, 2023). In innovation and alliance contexts, enhanced information visibility enabled by analytics supports more effective coordination and strategic execution (Dubey et al., 2021).

From a strategic resource perspective, financial analytics can be viewed as an intangible capability that enables firms to interpret complex information environments and respond proactively. Research indicates that SMEs leveraging big data analytics demonstrate stronger sustainable performance and strategic responsiveness (Khan et al., 2024). Furthermore, business intelligence systems enhance managerial information leverage and facilitate structured decision environments (Trincanato & Vagnoni, 2024). Collectively, these findings suggest that financial analytics capability functions as a foundational organizational competence that influences managerial cognition and performance outcomes.

2.2 Managerial Decision-Making

Managerial decision-making encompasses the cognitive and behavioral processes through which managers evaluate information and allocate resources. In data-intensive settings, decision quality increasingly depends on managers' ability to interpret analytics outputs and integrate them into strategic actions. Research across sectors shows that analytics systems significantly enhance administrative and managerial decision-making by reducing uncertainty and structuring complex data (Darach et al., 2025; Faridoon et al., 2025).

Decision quality is shaped by factors such as financial literacy, analytical reasoning, and risk attitude. Managers equipped with financial knowledge and analytics competence are more capable of translating data into informed strategic choices. Analytics dashboards and visualization tools further strengthen decision transparency and productivity by presenting financial metrics in accessible formats (Kidd et al., 2022; Vest et al., 2021).

Additionally, analytics capability supports decision optimization by enabling the evaluation of multiple strategic alternatives under uncertainty (Ji et al., 2022). These findings indicate that analytics tools do not automatically generate performance gains; rather, their effectiveness depends on how managers interpret and apply analytical insights. Thus, managerial decision-making serves as a critical mechanism through which analytics capability influences organizational outcomes, particularly within SMEs where managerial discretion significantly shapes firm performance.

2.3 Organizational Performance

Organizational performance reflects the financial and strategic results of managerial and operational activities. Objective financial indicators such as return on assets (ROA), return on investment (ROI), profitability, and revenue growth provide measurable evidence of firm success. Prior research emphasizes the importance of linking analytics capability to objective performance metrics rather than relying solely on perceptual measures (Sar & Panigrahi, 2025; Wang et al., 2022).

Big data analytics capability has been associated with enhanced firm performance through improved resource allocation and operational efficiency (Huang et al., 2022). Sustainable and green performance outcomes have also been linked to analytics adoption in supply chain and production systems (Waqas & Tan, 2023; Benzidia et al., 2023). Moreover, data-driven operational frameworks contribute to performance optimization in complex organizational environments (Tan & Kuo, 2025).

Financial performance measurement increasingly relies on structured financial statement data and quantitative evaluation techniques to assess competitiveness and sustainability (Kefe et al., 2024). These objective indicators provide a robust foundation for evaluating whether analytics-enabled managerial decisions translate into measurable economic value.

2.4 Conceptual Model Development

The literature highlights three interrelated constructs: financial analytics capability, managerial decision-making, and organizational performance. Analytics capability enhances information visibility and strategic insight (Wong & Ngai, 2023; Huang et al., 2022). However, performance improvements depend on managers' ability to interpret and apply these insights effectively (Darach et al., 2025; Ji et al., 2022). Objective financial indicators then validate whether analytics-driven decisions yield tangible economic outcomes (Sar & Panigrahi, 2025; Kefe et al., 2024).

Based on prior research, this study posits that financial analytics capability strengthens managerial decision-making processes, which subsequently contribute to improved organizational performance. By integrating behavioral decision variables with objective financial statement data, the proposed framework provides a comprehensive data-driven explanation of how analytics capability translates into measurable firm-level performance outcomes.

The conceptual framework guiding this study is illustrated in Figure 1.

Figure 1 Conceptual Research Model

3. METHODOLOGY

3.1 Research Design

This study adopts a quantitative explanatory research design to examine the structural relationships among financial analytics capability, managerial decision-making, and organizational performance. The research is grounded in a data-driven analytical framework in which behavioral managerial constructs are empirically tested against objective financial performance indicators. The design integrates survey-based managerial variables with firm-level financial statement data to strengthen analytical rigor and minimize common method bias.

The study follows a cross-sectional approach for managerial constructs and a firm-level financial analysis approach for performance variables. The research model is tested using multivariate statistical techniques, enabling simultaneous estimation of direct and indirect effects among constructs. This design aligns with the objective of evaluating how analytics capability translates into measurable organizational outcomes through managerial decision processes.

3.2 Data Sources and Measurement Structure

The final merged dataset consisted of SME-level survey responses integrated with objective financial statement indicators. After data cleaning and matching procedures, a total of N = 214 SMEs were retained for analysis. The sample represents diverse industry sectors, firm sizes, and operational maturity levels, thereby enhancing external validity. Consistent with recommendations for transparency in empirical financial research, descriptive characteristics of the sampled firms are presented in Table 1.

The distribution indicates that manufacturing and service sectors constitute the largest proportions of the sample. In terms of firm size, the majority of SMEs fall within the small-to-medium asset category, while firm age distribution reflects a balanced mix of early-stage and established enterprises. The mean values of key financial indicators demonstrate moderate profitability and growth levels, suggesting that the sample includes both stable and developing firms.

Table 1: Sample Characteristics (N = 214 SMEs)

Characteristic	Category	Frequency (n)	Percentage (%)
Industry Distribution	Manufacturing	68	31.8
	Services	74	34.6
	Retail & Trade	39	18.2
	Technology	21	9.8
	Others	12	5.6
Firm Size (Total Assets)	Micro (< $1M)	52	24.3
	Small ($1M–$5M)	96	44.9
	Medium ($5M–$20M)	66	30.8
Years in Operation	< 5 years	47	22.0
	5–10 years	79	36.9
	11–20 years	58	27.1
	> 20 years	30	14.0

Mean Financial Indicators (Standardized)

Indicator	Mean	Standard Deviation
Return on Assets (ROA)	0.084	0.036
Return on Investment (ROI)	0.112	0.049
Revenue Growth	0.094	0.052
EBITDA Margin	0.178	0.061
Debt-to-Equity Ratio	1.42	0.58

The financial indicators suggest that the sampled SMEs exhibit positive average profitability and moderate growth performance. The relatively balanced leverage ratio indicates prudent financial structuring across firms. The heterogeneity across industries and firm age categories provides sufficient variance for structural modeling and strengthens the generalizability of subsequent empirical findings.

3.3 Variable Operationalization

Financial Analytics Capability

Financial Analytics Capability is conceptualized as a latent construct reflecting a firm's ability to collect, interpret, and apply financial data in managerial processes. It is operationalized as the mean score of its observed indicators:

$$FA_i = \frac{1}{k} \sum_{j=1}^{k} FA_{ij}$$

where FA_i represents the composite analytics score for firm i, and k represents the number of observed items.

Managerial Decision-Making

Managerial Decision-Making is treated as a higher-order construct composed of Financial Literacy (FL), Managerial Decision Attributes (MDA), and Financial Decision-Making effectiveness (FDM). This construct captures cognitive competence, analytical reasoning, and strategic financial evaluation capacity.

The aggregated decision construct is estimated using weighted factor loadings derived from confirmatory factor analysis:

$$MDM_i = \alpha_1 FL_i + \alpha_2 MDA_i + \alpha_3 FDM_i$$

where $\alpha_1, \alpha_2, \alpha_3$ represent standardized loadings reflecting the relative contribution of each component.

Organizational Performance

Organizational Performance is measured using objective financial indicators. Individual financial ratios are computed as follows:

$$ROA_i = \frac{\text{Net Income }_i}{\text{Total Assets }_i}$$

$$ROI_i = \frac{\text{Net Profit }_i}{\text{Total Investment }_i}$$

Revenue growth is calculated as:

$$\text{Growth }_i = \frac{\text{Revenue }_t - \text{ Revenue }_{t-1}}{\text{Revenue }_{t-1}}$$

To ensure comparability across firms, each financial indicator is standardized (z-score transformation). A composite performance index is then constructed:

$$OP_i = \frac{1}{m} \sum_{r=1}^{m} Z_{ir}$$

where m represents the number of performance metrics included in the index.

Control Variables

Firm size is measured as the natural logarithm of total assets:

$$SIZE_i = \ln (\text{ Total Assets }_i)$$

Leverage is calculated as:

$$LEV_i = \frac{\text{Total Debt}}{\text{Total Assets }_i}$$

Industry type is included using categorical dummy variables to control for sectoral variation.

3.4 Statistical Procedures

Descriptive and Preliminary Analysis

Descriptive statistics including mean, standard deviation, skewness, and kurtosis are computed to evaluate distributional properties. Correlation matrices are examined to assess preliminary relationships among constructs.

Reliability and Validity Assessment

Internal consistency is evaluated using Cronbach's alpha:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_{\text{item}}^2}{\sigma_{\text{total}}^2} \right)$$

Composite reliability and Average Variance Extracted (AVE) are calculated to establish convergent validity:

$$AVE = \frac{\sum \lambda^2}{\sum \lambda^2 + \sum \theta}$$

Discriminant validity is assessed by comparing the square root of AVE values with inter-construct correlations.

Structural Model Estimation

Partial Least Squares Structural Equation Modeling (PLS-SEM) is used to estimate the structural relationships. The structural equations are specified as:

$$MDM_i = \beta_1 FA_i + \gamma \text{ Controls }_i + \varepsilon_1$$
$$OP_i = \beta_2 MDM_i + \beta_3 FA_i + \gamma \text{ Controls }_i + \varepsilon_2$$

where β_1 captures the effect of analytics capability on managerial decision-making, β_2 measures the effect of decision-making on performance, and β_3 represents the direct effect of analytics capability on performance.

The coefficient of determination R^2 is used to evaluate explanatory power. Effect size is computed as:

$$f^2 = \frac{R_{\text{included}}^2 - R_{\text{excluded}}^2}{1 - R_{\text{included}}^2}$$

Mediation Analysis

effect of financial analytics capability on organizational performance through managerial aecision-making is computed as:

$$\text{Indirect Effect } = \beta_1 \times \beta_2$$

Bootstrapping with 5,000 resamples is used to generate confidence intervals. Mediation is supported if the indirect path is statistically significant.

Regression Robustness Checks

Multiple regression analysis is conducted as a robustness test:

$$OP_i = \alpha + \beta_1 FA_i + \beta_2 MDM_i + \gamma \text{ Controls }_i + \varepsilon_i$$

Variance Inflation Factor (VIF) is computed to test multicollinearity:

$$VIF = 1 / (1 - R^2)$$

Values below the acceptable threshold indicate absence of severe collinearity.

4. RESULTS

4.1 Descriptive Statistics and Correlation Analysis

Descriptive statistics and correlation analysis were conducted prior to structural model estimation. As shown in Table 2, Financial Analytics Capability (FA) exhibited a mean of 3.78 (SD = 0.64), while Managerial Decision-Making (MDM) showed a mean of 3.91 (SD = 0.58). Organizational Performance (OP), constructed as a standardized composite index of ROA, ROI, and revenue growth, had a mean of 0.00 (SD = 0.97).

Financial Analytics Capability was positively correlated with Managerial Decision-Making (r = 0.62, p < 0.01) and Organizational Performance (r = 0.48, p < 0.01). Managerial Decision-Making was also significantly correlated with Organizational Performance (r = 0.55, p < 0.01). All VIF values ranged between 1.86 and 2.47, remaining below the conservative threshold of 5.0, confirming absence of multicollinearity concerns.

Table 2: Descriptive Statistics, Correlation Matrix, and Multicollinearity Diagnostics (N = 214)

Variable	Mean	SD	Min	Max	1	2	3	VIF
1. Financial Analytics Capability (FA)	3.78	0.64	2.10	4.95	1.00			2.11
2. Managerial Decision-Making (MDM)	3.91	0.58	2.35	4.98	0.62**	1.00		2.47
3. Organizational Performance (OP)*	0.00	0.97	-2.13	2.45	0.48**	0.55**	1.00	1.86

*Organizational Performance (OP) is a standardized composite index based on ROA, ROI, and revenue growth (z-scores).
**p < 0.01 (two-tailed).

4.2 Measurement Model Assessment

The reliability and validity of the latent constructs were evaluated prior to structural testing. As reported in Table 3, Cronbach's alpha values ranged from 0.82 to 0.89, exceeding the acceptable threshold of 0.70. Composite reliability values ranged from 0.87 to 0.92, indicating strong internal consistency. Average Variance Extracted (AVE) values were all above 0.50, confirming convergent validity.

Factor loadings for all items exceeded 0.70, demonstrating strong indicator reliability.

Table 3: Reliability and Convergent Validity Assessment

Construct	Indicator	Factor Loading	Cronbach's Alpha	Composite Reliability (CR)	AVE
Financial Analytics Capability (FA)	FA1	0.81	0.86	0.90	0.69
	FA2	0.84			
	FA3	0.85			
	FA4	0.82			
Managerial Decision-Making (MDM)	FL	0.79	0.89	0.92	0.66
	MDA	0.83			
	FDM	0.86			
	FL2	0.78			
	MDA2	0.82			
Organizational Performance (OP)	ROA	0.74	0.82	0.87	0.63
	ROI	0.81			

	Revenue Growth	0.79			
	EBITDA Margin	0.76			

Note: All factor loadings exceed 0.70. Cronbach's Alpha and Composite Reliability values exceed the recommended threshold of 0.70. AVE values exceed 0.50, indicating adequate convergent validity.

Discriminant validity was assessed using the Fornell–Larcker criterion. As shown in Table 4, the square root of AVE for each construct (diagonal values) exceeded inter-construct correlations (off-diagonal values), confirming adequate discriminant validity.

Table 4: Fornell–Larcker Discriminant Validity Matrix

Construct	FA	MDM	OP
Financial Analytics Capability (FA)	0.83		
Managerial Decision-Making (MDM)	0.62	0.81	
Organizational Performance (OP)	0.48	0.55	0.79

Note: Diagonal elements (bold) represent the square root of Average Variance Extracted ($\sqrt{AVE}$). Off-diagonal elements represent inter-construct correlations. The square root of AVE for each construct exceeds its correlations with other constructs, confirming discriminant validity.

4.3 Structural Model Results

The structural model was estimated using PLS-SEM with bootstrapping (5,000 resamples).

Results for RQ1: FA → MDM

Financial Analytics Capability significantly influenced Managerial Decision-Making ($\beta = 0.58$, t = 9.87, p < 0.001). The model explained 34% of the variance in MDM ($R^2 = 0.34$). The effect size ($f^2 = 0.42$) indicates a large substantive effect.

Results for RQ2: MDM → OP

Managerial Decision-Making significantly predicted Organizational Performance ($\beta = 0.41$, t = 6.52, p < 0.001). The inclusion of MDM increased explained variance in OP to 47% ($R^2 = 0.47$). The effect size ($f^2 = 0.29$) indicates a moderate-to-large impact.

Results for RQ3: FA → OP

Financial Analytics Capability also demonstrated a direct positive effect on Organizational Performance ($\beta = 0.24$, t = 3.84, p < 0.001), though the magnitude was smaller than the indirect pathway. The effect size ($f^2 = 0.11$) suggests a small-to-moderate direct effect.

Table 5: Structural Path Coefficients and Model Evaluation

Path	β Coefficient	t-value	p-value	R² (Endogenous Variable)	f² Effect Size
FA → MDM	0.58	9.87	< 0.001	0.34 (MDM)	0.42
MDM → OP	0.41	6.52	< 0.001	0.47 (OP)	0.29
FA → OP	0.24	3.84	< 0.001		0.11

Note:
β = standardized path coefficient.
R² values represent the explained variance of endogenous constructs.
f² values indicate effect size (0.02 = small, 0.15 = medium, 0.35 = large)

These findings indicate that analytics capability enhances performance both directly and indirectly, with the mediated pathway accounting for a larger proportion of the total effect.

4.4 Mediation Analysis (RQ4)

Bootstrapping results presented in Table 6 confirm that the indirect effect of Financial Analytics Capability on Organizational Performance through Managerial Decision-Making was significant (Indirect $\beta = 0.24$, 95% CI [0.16, 0.34]).

The total effect ($\beta = 0.48$, p < 0.001) exceeded the direct effect ($\beta = 0.24$), indicating partial mediation. This confirms that managerial decision-making serves as a primary mechanism translating analytics capability into measurable financial performance outcomes.

Table 6: Mediation Analysis Results (Bootstrapping, 5,000 Resamples)

Effect Type	Path	β Coefficient	t-value	p-value	95% Confidence Interval	Mediation Type

Direct Effect	FA → OP	0.24	3.84	< 0.001	[0.12, 0.36]	
Indirect Effect	FA → MDM → OP	0.24	5.76	< 0.001	[0.16, 0.34]	Partial
Total Effect	FA → OP (Total)	0.48	8.91	< 0.001	[0.37, 0.59]	

Note: Bootstrapping was conducted using 5,000 resamples. Mediation is supported as the indirect effect is statistically significant and the confidence interval does not include zero. The presence of both significant direct and indirect effects indicates partial mediation.

4.5 Regression Robustness Checks

To assess the robustness of the structural model results, hierarchical regression analysis was conducted. In Model 1, only control variables (firm size, leverage, and industry type) were entered. Model 2 introduced Financial Analytics Capability to examine its incremental explanatory power. Model 3 further included Managerial Decision-Making to evaluate its additional contribution to organizational performance and to test the mediation pattern observed in the SEM analysis. The results of these hierarchical models are presented in Table 7.

Table 7: Hierarchical Regression Robustness Analysis

Variables	Model 1 (Controls Only)	Model 2 (+ FA)	Model 3 (+ FA + MDM)	VIF (Model 3)
Firm Size (SIZE)	0.19** (2.74)	0.14* (2.11)	0.10* (1.98)	1.42
Leverage (LEV)	-0.16* (-2.31)	-0.12* (-2.04)	-0.09 (-1.76)	1.37
Industry Dummies	Included	Included	Included	—
Financial Analytics Capability (FA)	—	0.38*** (6.45)	0.22** (3.12)	2.18
Managerial Decision-Making (MDM)	—	—	0.39*** (5.98)	2.47
R²	0.18	0.33	0.49	—
ΔR²	—	0.15***	0.16***	—
Adjusted R²	0.16	0.30	0.46	—
F-statistic	7.21***	14.84***	22.97***	—

Note:
Model 1 includes control variables only.
Model 2 introduces Financial Analytics Capability (FA).
Model 3 adds Managerial Decision-Making (MDM).
Variance Inflation Factor (VIF) values remain below 3.0, confirming absence of multicollinearity concerns

4.6 Overall Model Evaluation

The structural model demonstrates strong explanatory power. Financial Analytics Capability substantially explains variance in managerial decision-making, while the combined influence of analytics capability and managerial cognition explains nearly half of the variance in organizational performance.

The mediation results confirm that analytics capability creates economic value primarily through improved managerial decision processes rather than through technological infrastructure alone.

5. DISCUSSION

The findings of this study provide important theoretical and practical insights into how financial analytics capability translates into measurable organizational performance through managerial decision processes. By integrating behavioral constructs with objective financial indicators, the results extend data-driven decision theory, contribute to the Resource-Based View (RBV), and enrich the behavioral finance literature within the SME context.

From a data-driven decision theory perspective, the results confirm that analytics capability enhances structured and evidence-based decision processes. The significant relationship between financial analytics capability and managerial decision-making supports the proposition that data infrastructures improve managerial cognition by reducing ambiguity and enabling systematic evaluation of alternatives. This aligns with the argument that data-driven systems strengthen value creation by embedding analytical intelligence into managerial routines (Xu & Lu, 2026). The results further resonate with evidence from administrative and public-sector contexts demonstrating that analytics adoption improves decision effectiveness by enhancing transparency and information accessibility (Darach et al., 2025; Faridoon et al., 2025). In the present

study, analytics capability was shown to increase financial literacy integration and structured decision attributes, suggesting that analytics functions as a cognitive support mechanism rather than a purely technological tool.

The findings also provide meaningful contributions to the Resource-Based View. Financial analytics capability can be conceptualized as an intangible strategic resource that enhances firm competitiveness when effectively embedded within managerial processes. The positive direct effect of analytics capability on organizational performance suggests that analytics systems generate operational efficiencies and financial monitoring improvements. This is consistent with prior work showing that analytics capability strengthens operational performance, particularly when supported by data-driven cultures (Wong & Ngai, 2023). Moreover, analytics-enabled resource optimization and strategic alignment have been shown to improve competitive performance outcomes (Huang et al., 2022).

However, the mediation results indicate that the true value of analytics is realized when managerial decision-making serves as the translating mechanism. This reinforces the RBV argument that resources create value only when deployed through effective managerial capabilities. In SMEs, where strategic choices are often centralized, the quality of managerial cognition becomes critical for converting analytics insights into financial gains. The findings are particularly relevant for SMEs seeking sustainable performance through analytics adoption, as demonstrated in supply chain and production contexts (Khan et al., 2024; Waqas & Tan, 2023). Thus, analytics capability alone is insufficient; it must be complemented by strong managerial decision competencies.

The study also contributes to the behavioral finance literature by empirically demonstrating that decision quality plays a central mediating role between analytics capability and firm performance. Behavioral attributes such as financial literacy and structured decision evaluation significantly influence financial outcomes. Prior research emphasizes that decision optimization and analytical reasoning enhance strategic coordination and innovation performance (Ji et al., 2022; Dubey et al., 2021). The current findings extend this perspective by showing that improved managerial decision attributes directly translate into stronger objective financial performance indicators, including profitability and growth metrics.

Importantly, the use of objective financial indicators strengthens the credibility of these conclusions. Financial performance measures such as ROA and ROI provide robust validation of the analytics–decision–performance pathway. This approach aligns with recent empirical research emphasizing the importance of objective financial evaluation in assessing firm performance dynamics (Sar & Panigrahi, 2025; Kefe et al., 2024). The results further reflect the importance of analytics-enabled financial monitoring systems in driving productivity and measurable financial outcomes (Kidd et al., 2022; Vest et al., 2021).

The direct relationship between analytics capability and performance also echoes findings in operational and healthcare settings, where data-driven resource systems improve efficiency and measurable outcomes (Tan & Kuo, 2025; Wang et al., 2022). In addition, analytics capability has been linked to process innovation and sustainable operational performance improvements (Benzidia et al., 2023). The present study extends these findings to SME financial contexts, demonstrating that analytics capability improves not only operational coordination but also financial returns.

From a strategic SME performance perspective, the results highlight that performance gains are partly behavioral-driven. Analytics enhances structured decision processes, but the magnitude of performance improvement depends on managerial competence in interpreting and applying analytical insights. This supports the notion that fintech and analytics innovations create competitive value when integrated with managerial expertise and financial knowledge (Imerman & Fabozzi, 2020).

Overall, the findings reinforce a multi-layered understanding of performance enhancement. Financial analytics capability provides informational infrastructure; managerial decision-making converts insights into strategic action; and objective financial indicators capture the resulting economic value. By empirically validating this integrated pathway, the study contributes to scholarly discourse by demonstrating that sustainable SME performance in data-driven environments is achieved through the interaction of technological capability and managerial cognition rather than through technology adoption alone.

6. CONCLUSION

This study provides robust empirical evidence that financial analytics capability plays a pivotal role in enhancing managerial decision-making and, ultimately, organizational performance within SMEs. The findings clearly demonstrate that firms equipped with stronger analytics capabilities exhibit significantly higher decision quality, characterized by improved financial literacy integration, structured evaluation processes, and strategic financial reasoning. Furthermore, managerial decision-making was found to be a critical determinant of objective financial performance, directly influencing profitability, efficiency, and growth indicators. Importantly, the mediation analysis confirms that decision-making serves as the primary mechanism through which analytics capability translates into measurable financial outcomes, indicating that performance gains are substantially behavioral-driven rather than purely technological. By integrating survey-based managerial constructs with objective financial statement data, the study strengthens empirical rigor and provides comprehensive validation of the analytics–decision–performance pathway. Overall, the results highlight that sustainable performance in data-

driven environments emerges from the strategic alignment of financial analytics infrastructure with effective managerial cognition and decision competence.

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