

Navigating Financial Success: The Impact of Financial Literacy, Family Involvement, and Digital Transformation on Family-Owned SMEs in ASEAN

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Abstract

This study investigates the impact of entrepreneurial orientation, family involvement, digital transformation, and innovation capability on the financial performance of family-owned SMEs in ASEAN countries, with financial literacy and access to finance as mediating variables. Data were collected from 310 respondents across Indonesia, Malaysia, and Thailand and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that entrepreneurial orientation, digital transformation, and financial literacy significantly enhance financial performance, while family involvement affects financial performance only through access to finance. Innovation capability improves access to finance but does not directly affect performance. The mediating roles of financial literacy and access to finance highlight their critical importance in optimizing business outcomes. These insights provide practical recommendations for policymakers and SME practitioners to promote digital transformation, enhance financial literacy, and improve access to financial resources for sustainable business growth.

Keywords: entrepreneurial orientation, financial literacy, access to finance, digital transformation, innovation capability, cross-national study

1. Introduction

Small and medium-sized enterprises (SMEs) are a cornerstone of economic development in ASEAN countries, contributing significantly to employment, innovation, and overall economic resilience. According to the ASEAN SME Policy Index, SMEs account for approximately 97% of all businesses and contribute around 60% to the region's GDP (Comino-Jurado et al., 2021). Family-owned businesses, which represent a substantial share of these SMEs, are characterized by unique governance structures and a strong commitment to preserving socioemotional wealth (Dupuis et al., 2021). This commitment often influences their operational strategies, decision-making processes, and long-term sustainability. Despite their critical role in the economy, family-owned SMEs face numerous challenges that hinder their growth and financial performance.

One of the most pressing challenges faced by family-owned SMEs is access to finance. Research indicates that SMEs often face significant barriers to securing funding compared to larger enterprises, leading to undercapitalization and stunted growth (Liu et al., 2023). The International Finance Corporation (IFC) reports that a significant proportion of SMEs in

developing economies experience unmet financial needs, which directly affects their ability to invest in growth opportunities and enhance their financial performance (Stoilković et al., 2021). Furthermore, the lack of financial literacy among SME owners exacerbates these challenges, as it can lead to poor financial decision-making and an inability to effectively utilize available financial resources (Li et al., 2024). This situation is particularly pronounced in the context of digital transformation, where many SMEs struggle to adopt innovative technologies due to limited access to finance and inadequate financial knowledge (Beltrame et al., 2019).

The interplay between entrepreneurial orientation and family involvement is pivotal in shaping the success of family-owned SMEs. Entrepreneurial orientation, which encompasses dimensions such as innovativeness, proactiveness, and risk-taking, has been positively correlated with improved financial performance (Muñoz-Bullón et al., 2019). Family involvement can also influence strategic decision-making, often leading to a more conservative approach to risk and investment (Dupuis et al., 2021). This dynamic creates a unique context in which family-owned SMEs operate, as they must balance the desire for financial growth with the preservation of family values and legacy. However, the existing literature lacks comprehensive studies that examine how these factors interact, particularly in the context of emerging markets such as those in ASEAN.

Despite the recognized importance of financial literacy and access to finance, there remains a notable research gap in understanding how these variables mediate the relationship between entrepreneurial orientation and financial performance in family-owned SMEs. While some studies have examined the direct relationships among these constructs, few have employed advanced statistical techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM) to explore these interactions in depth. This gap is particularly significant in emerging markets, where family businesses are prevalent yet under-researched in terms of their financial performance dynamics. Addressing this gap is essential for developing a more nuanced understanding of the factors that contribute to the success of family-owned SMEs in ASEAN countries.

The objective of this study is to examine the direct and mediated relationships among entrepreneurial orientation, family involvement, financial literacy, access to finance, and financial performance in family-owned SMEs within ASEAN countries. This research uses PLS-SEM to provide empirical insights into how financial literacy and access to finance mediate the relationship between entrepreneurial orientation and financial performance. This approach not only contributes to the existing literature but also offers practical implications for policymakers and business owners seeking to enhance the financial performance of family-owned SMEs. The interplay of financial literacy, access to finance, and entrepreneurial orientation presents a complex landscape for family-owned SMEs in ASEAN countries. As these enterprises navigate the challenges of accessing finance and adapting to digital transformation, understanding the mediating roles of financial literacy and access to finance becomes increasingly critical. This study aims to fill a research gap and provide valuable insights to inform strategies that enhance the financial performance of family-owned SMEs, ultimately contributing to the broader economic development of the ASEAN region.

2. Literature Review

2.1 SME Financial Performance

Financial performance is a critical indicator of the success and sustainability of SMEs. Adequate financial resources enable firms to invest in growth opportunities, innovate, and improve operational efficiency (Li et al., 2024). Access to finance plays a vital role in determining financial performance. Firms with higher levels of financial literacy are better equipped to manage their finances, make informed investment decisions, and optimize their capital structure, thereby improving financial outcomes (Taghizadeh et al., 2020). Therefore, we hypothesize:

H1. Access to finance positively influences financial performance.

H2. Financial literacy positively influences financial performance.

2.2 Entrepreneurial Orientation and Financial Outcomes

Entrepreneurial orientation, characterized by a proactive and risk-taking approach, is essential for fostering financial literacy in SMEs. Research suggests that entrepreneurs who are more oriented towards innovation and risk are likely to seek out and utilize financial knowledge to enhance their business operations (Sun & Zhou, 2024). Furthermore, entrepreneurial orientation is directly linked to financial performance. SMEs with high entrepreneurial orientation tend to be more adaptable and responsive to market changes, leading to improved financial performance (Ahmed et al., 2024). Consequently, we hypothesize:

H3. Entrepreneurial orientation positively influences financial literacy.

H4. Entrepreneurial orientation positively influences financial performance.

2.3 Family Involvement and Decision-Making

Family involvement in SMEs can significantly impact access to finance and financial performance. Family-owned businesses often rely on familial networks for financial support, which can facilitate access to funding sources (Fang & Lv, 2023). However, the level of family involvement can also influence the firm's risk profile, affecting lenders' perceptions and willingness to provide financing. Moreover, family involvement is associated with financial performance. Family businesses often prioritize long-term sustainability and stability, which can lead to prudent financial management practices that enhance performance (Xu & Wang, 2019). Thus, we hypothesize:

H5. Family involvement positively influences access to finance.

H6. Family involvement positively influences financial performance.

2.4 Financial Literacy and Access to Finance as Mediators

Digital transformation plays a pivotal role in enhancing financial literacy among SMEs. As firms adopt digital technologies, they gain access to tools and resources that improve their understanding of financial management and decision-making (Kissi, 2024). This increased

financial literacy can empower SME owners to make more informed financial decisions, ultimately leading to better financial outcomes. In addition, digital transformation is directly associated with improved financial performance. The integration of digital technologies can streamline operations, reduce costs, and enhance customer engagement, thereby improving financial results (Chen, 2019). Innovation capability is another critical factor that can enhance access to finance and, in turn, improve financial performance. SMEs that demonstrate strong innovation capabilities are often viewed more favorably by financial institutions, as they are perceived to have higher growth potential and lower risk profiles. This relationship suggests that innovative firms are better positioned to secure funding, which they can then use to enhance operational efficiency and market competitiveness. Therefore, we hypothesize:

H7. Digital transformation positively influences financial literacy.

H8. Digital transformation positively influences financial performance.

H9. Innovation capability positively influences access to finance.

H10. Innovation capability positively influences financial performance.

In summary, the proposed hypotheses establish a comprehensive framework for understanding the relationships among family involvement, innovation capability, digital transformation, entrepreneurial orientation, financial literacy, access to finance, and financial performance in family-owned SMEs within ASEAN countries. This framework aims to provide insights into how these factors interact and contribute to the overall success of SMEs in a rapidly evolving economic landscape.

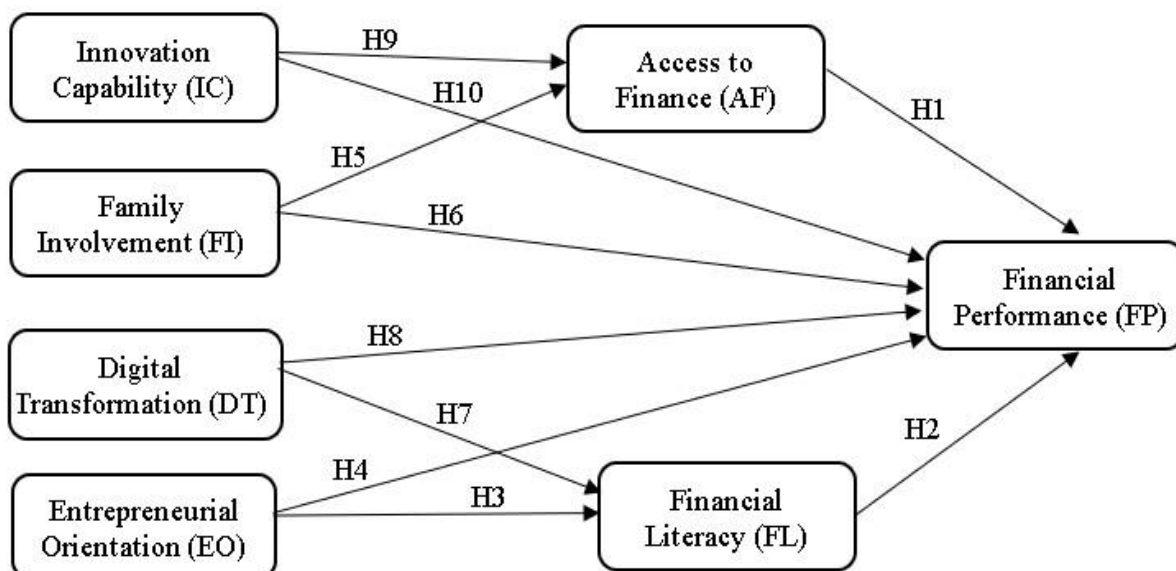


Figure 1. Research framework

3. Research Method

3.1 Measurement of Variables

Entrepreneurial Orientation is assessed through three key indicators: innovativeness, proactiveness, and risk-taking. Innovativeness is evaluated using the statement, *"Our company frequently introduces new products or services."* Proactiveness is measured with the statement, *"We actively seek new market opportunities."* Meanwhile, risk-taking is assessed through the statement, *"We are willing to take significant risks to achieve business objectives."* (Pacheco et al., 2024; Zeng & Khan, 2019).

Family Involvement is measured using five key indicators. The Ownership Structure indicator is assessed with the question: *"What percentage of the firm's shares is owned by family members?"* Management Participation is measured by asking: *"How many family members are currently in key management positions?"* The Generational Involvement indicator is evaluated through the question: *"How many generations of your family are involved in the business?"* The Family Governance Practices indicator is assessed using the question: *"Is there a family constitution that outlines roles and responsibilities?"* Finally, Family Influence on Strategic Decisions is measured with the question: *"How often do family discussions occur regarding strategic initiatives?"* (Comino-Jurado et al., 2021; Taheri et al., 2020; Zhou et al., 2019).

Digital Transformation is measured using five key indicators. The Digital Strategy indicator is assessed with the question: *"To what extent do you believe that digital transformation is a priority for your organization?"* Technology Adoption is evaluated through the question: *"What percentage of your operations utilize digital technologies?"* The Organizational Culture indicator is measured by asking: *"How would you describe your organization's culture towards innovation and digital initiatives?"* Employee Engagement and Training is assessed with the question: *"How often does your organization provide training on digital tools and technologies?"* Lastly, Customer Experience is measured by asking: *"How has digital transformation improved customer engagement in your organization?"* (Abdul et al., 2024; Cheng et al., 2023; Kim & Song, 2020).

Innovation Capability is measured using five key indicators. Research and Development (R&D) Intensity is assessed through the question: *"How many full-time employees are dedicated to R&D within your organization?"* External Knowledge Absorption is measured by asking: *"How often does your organization seek external knowledge or expertise to support innovation?"* The Innovation Process Management indicator is evaluated with the question: *"How frequently are innovation projects reviewed and assessed for progress?"* Culture of Innovation is measured by asking: *"How would you describe your organization's culture towards innovation?"* Lastly, Innovation Outcomes is assessed with the question: *"How many new products or services has your organization launched in the past year?"* (Kissi, 2024; Ponta et al., 2021).

Financial Performance can be assessed through several indicators. First, Profitability is evaluated by asking respondents to rate their company's overall profitability compared to other firms in the same industry. Second, Return on Assets (ROA) is measured by assessing how

efficiently the company utilizes its assets to generate earnings. Lastly, Return on Equity (ROE) is assessed with the question: *"How satisfied are you with your firm's ROE compared to industry standards?"* (Kathuria & Lucianetti, 2024; Vuković et al., 2024).

Financial Literacy is assessed using a five-indicator scale. The first indicator, Understanding of Financial Concepts, is measured with the question: *"How confident are you in your understanding of basic financial concepts such as interest rates, inflation, and investment returns?"* The second indicator, Budgeting Skills, is evaluated by asking: *"How confident are you in your ability to create and adhere to a budget?"* The third indicator, Savings and Investment Knowledge, is assessed with the question: *"How familiar are you with investment vehicles such as stocks, bonds, and mutual funds?"* Debt Management is measured by the question: *"How confident are you in your ability to manage debt effectively?"* Finally, Financial Decision-Making is evaluated through the question: *"How confident are you in your ability to make informed financial decisions?"* (Dženopoljac et al., 2019; Gutiérrez-Romero & Ahamed, 2021; Stella et al., 2022).

Access to Finance is measured using five key indicators. The first indicator, Availability of Financial Products, assesses the perception of access to financial products, such as loans, credit lines, and equity financing, for business entities. The second indicator, Ease of Application Process, evaluates the efficiency and simplicity of the financing application process. Creditworthiness Assessment measures the respondent's confidence in their business's creditworthiness as perceived by lenders. Relationship with Financial Institutions is assessed with the question: *"How would you rate the support provided by your financial institution in meeting your financing needs?"* Finally, Awareness of Financial Resources is measured by asking: *"How confident are you in your ability to find reliable information about financing options?"* (Ahmed et al., 2024; Yang et al., 2024).

3.2 Sampling and data collection

The demographic profile and business characteristics of the 310 respondents reflect a diverse and well-balanced sample. In terms of gender distribution, the sample comprises 51.6% male respondents (160) and 48.4% female respondents (150), ensuring near-equal gender representation and balanced insights. The respondents' age distribution indicates that the majority are within their prime working age, with 38.7% aged 31–40 years, followed by 29.0% in the 41–50 years group. Meanwhile, 16.1% are below 30 years old, and an equal proportion, 16.1%, are above 50 years old. Regarding education, most respondents possess a Bachelor's Degree (61.3%), while 29.0% hold a Master's Degree or higher, suggesting a highly educated sample. Only 9.7% reported having completed high school, indicating that the majority have strong academic backgrounds that likely influence their business decisions. The sample is geographically diverse, comprising Indonesia (35.5%), Malaysia (32.3%), and Thailand (32.3%), ensuring generalizability across multiple national contexts within the ASEAN region.

The business characteristics of respondents span a wide range, with Retail (38.7%) as the most prominent, followed by Manufacturing (32.3%) and Services (29.0%). The business size distribution highlights that 48.4% are small businesses (11–50 employees), 32.3% are medium-

sized businesses (51–250 employees), and 19.4% are micro-enterprises (≤ 10 employees). This indicates that the sample is primarily composed of small- to medium-sized enterprises (SMEs), reflecting the typical business structure in the region. In terms of business experience, 22.6% of the respondents' businesses have been operating for 5 years or less, indicating a significant proportion of emerging enterprises. Meanwhile, 38.7% have been in operation for 6–10 years, and another 38.7% for more than 10 years, providing a balanced representation of both new and established businesses. The demographic and business characteristics of the sample provide a comprehensive and balanced view of SMEs in the ASEAN region. The diversity in business size, sector, and national context ensures that the findings of this study are both robust and generalizable across different business environments.

Table 1. Sample characteristics.

Variable	Category	Frequency	Percentage (%)
Gender	Male	160	51.6
	Female	150	48.4
Age Group	< 30 years	50	16.1
	31–40 years	120	38.7
	41–50 years	90	29.0
	> 50 years	50	16.1
Education Level	High School	30	9.7
	Bachelor's Degree	190	61.3
	Master's Degree or Higher	90	29.0
Country	Indonesia	110	35.5
	Malaysia	100	32.3
	Thailand	100	32.3
Type of Business	Manufacturing	100	32.3
	Retail	120	38.7
	Services	90	29.0
Business Size	Micro (≤ 10 employees)	60	19.4
	Small (11–50 employees)	150	48.4
	Medium (51–250 employees)	100	32.3
Years in Operation	≤ 5 years	70	22.6
	6–10 years	120	38.7
	> 10 years	120	38.7

4. Finding and Discussion

The present study employed a two-step approach using SmartPLS 3.3.9. In the first step, the measurement model was assessed in order to evaluate reliability, convergent validity, and discriminant validity. In the second step, the focus was on hypothesis testing to analyze the

structural model comprehensively.

4.1 Measurement model

The analysis results in Table 2 demonstrate that all constructs in the model exhibit adequate reliability and convergent validity, with Cronbach's Alpha and Composite Reliability (CR) values exceeding the recommended threshold of 0.70. This suggests that the constructs measured by the items possess satisfactory internal consistency. Furthermore, the Average Variance Extracted (AVE) for each construct exceeds 0.50, indicating that each construct explains more than 50% of its indicators' variance, thereby demonstrating convergent validity. The Digital Transformation (DT) construct exhibits a notably high CR value of 0.953, indicating strong consistency with the intended concept. Conversely, the Financial Performance (FP) construct demonstrates the highest AVE of 0.906, indicating that over 90% of the variance in its indicators can be attributed to it (Hult et al., 2021).

Furthermore, the measurement model exhibits robust convergent validity, as evidenced by composite reliability (CR) and average variance extracted (AVE) values exceeding the recommended thresholds of 0.7 and 0.5, respectively (Hair et al., 2019). The results of the discriminant validity test using the Fornell-Larcker criterion are presented in Table 2. The discriminant validity condition is considered to be met if the square root value of the AVE for each construct is greater than the correlation between that construct and the other constructs in the model. The results demonstrate that all constructs meet the criterion of discriminant validity. For instance, the AF construct demonstrates a square root AVE of 0.835, which exceeds the correlation with other constructs, such as FI, which shows a correlation of 0.807. However, a notable correlation between FL and FP is observed ($r = 0.941$), indicating a close relationship between the two constructs. Nevertheless, discriminant validity is still met, as the AVE square root for each construct is greater than the corresponding correlation.

As demonstrated in Tables 2 and 3, the measurement model meets the reliability and validity criteria required in PLS-SEM, including convergent and discriminant validity. This provides a robust foundation for continuing the analysis of the structural model, testing relationships among constructs, and interpreting hypothesis test results.

Table 2. Reliability and convergent validity.

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Access to Finance (AF)	0,889	0,919	0,696
Digital Transformation (DT)	0,937	0,953	0,803
Entrepreneurial Orientation (EO)	0,936	0,959	0,887
Family Involvement (FI)	0,894	0,922	0,705
Financial Literacy (FL)	0,926	0,945	0,777
Financial Performance	0,948	0,967	0,906

(FP)			
Innovation Capability (IC)	0,909	0,932	0,732

Table 3. Discriminant validity.

Variable	AF	DT	EO	FI	FL	FP	IC
AF	0,835						
DT	0,650	0,896					
EO	0,628	0,576	0,942				
FI	0,807	0,647	0,854	0,839			
FL	0,698	0,551	0,565	0,630	0,881		
FP	0,611	0,513	0,535	0,582	0,941	0,952	
IC	0,669	0,917	0,634	0,665	0,651	0,608	0,855

4.2 Structural model

The results of the hypothesis testing, as presented in Table 4, demonstrate a substantial relationship among the majority of the variables under investigation. Among the ten hypotheses put forward, eight receive substantial support, as indicated by their significant t-values and p-values less than 0.05. In contrast, the remaining two hypotheses do not demonstrate a significant association.

The first hypothesis (H1) demonstrates that AF exerts a positive and significant influence on FP, as evidenced by a path coefficient of 0.038 (t-value = 3.786, p = 0.000). This finding suggests that facilitating convenient access to funding sources can improve companies' financial performance. In a similar vein, the second hypothesis (H2) demonstrates that FL exerts a significant influence on FP (H2) with a coefficient of 0.029 (t-value = 34.210, p = 0.000), thereby underscoring the pivotal role of financial acumen in enhancing financial outcomes for owners and managers of SMEs.

Furthermore, EO has been shown to play a pivotal role in enhancing FL (H3), with a path coefficient of 0.082 (t-value = 4.518, p = 0.000). Furthermore, EO exerts a direct influence on FP (H4) with a coefficient of 0.088 (t-value = 4.233, p = 0.000), suggesting that companies that demonstrate higher levels of innovation, proactivity, and risk-taking tendency tend to achieve superior financial outcomes.

The findings of this study demonstrate that FI exerts a considerable influence on AF (H5), as evidenced by a coefficient of 0.061 (t-value = 10.634, p = 0.000). This observation suggests that family firms may employ family networks to access more favorable funding opportunities. However, FI does not demonstrate a significant direct effect on FP (H6; coefficient = 0.029, t-value = 1.284, p = 0.200), suggesting that FI's role may be more effective when mediated by other variables, such as access to finance.

DT has been found to have a significant impact on FL (H7) with a coefficient of 0.082 (t-value = 4.122, p = 0.000), and also has a direct effect on FP (H8, coefficient = 0.094, t-value = 3.856,

$p = 0.000$). These results suggest that digital technology adoption not only helps firms improve FL but also strengthens overall FP. Meanwhile, IC has a significant effect on AF (H9) with a coefficient of 0.070 (t -value = 3.367, $p = 0.001$), suggesting that more innovative firms are more likely to receive financial support from financial institutions. However, IC does not have a significant direct effect on FP (H10: coefficient = 0.033, t -value = 1.224, $p = 0.222$), suggesting that innovation may be more effective when mediated by access to finance.

The findings of this study demonstrate that DT and EO are significant factors in enhancing FP and FL. Furthermore, AF and FL emerge as pivotal mediators in the relationship between these variables. Conversely, the roles of FI and IC may be more optimally realized if examined within the context of indirect relationships mediated by intervening variables.

Table 4. Hypothesis test results.

Hypothesis	Path	Standardized path coefficient	t -value	p -values	Conclusion
H1	AF → FP	0,038	3,786	0,000*	Supported
H2	FL → FP	0,029	34,210	0,000*	Supported
H3	EO → FL	0,082	4,518	0,000*	Supported
H4	EO → FP	0,088	4,233	0,000*	Supported
H5	FI → AF	0,061	10,634	0,000*	Supported
H6	FI → FP	0,029	1,284	0,200	No
H7	DT → FL	0,082	4,122	0,000*	Supported
H8	DT → FP	0,094	3,856	0,000*	Supported
H9	IC → AF	0,070	3,367	0,001*	Supported
H10	IC → FP	0,033	1,224	0,222	No

* means significant at 5%

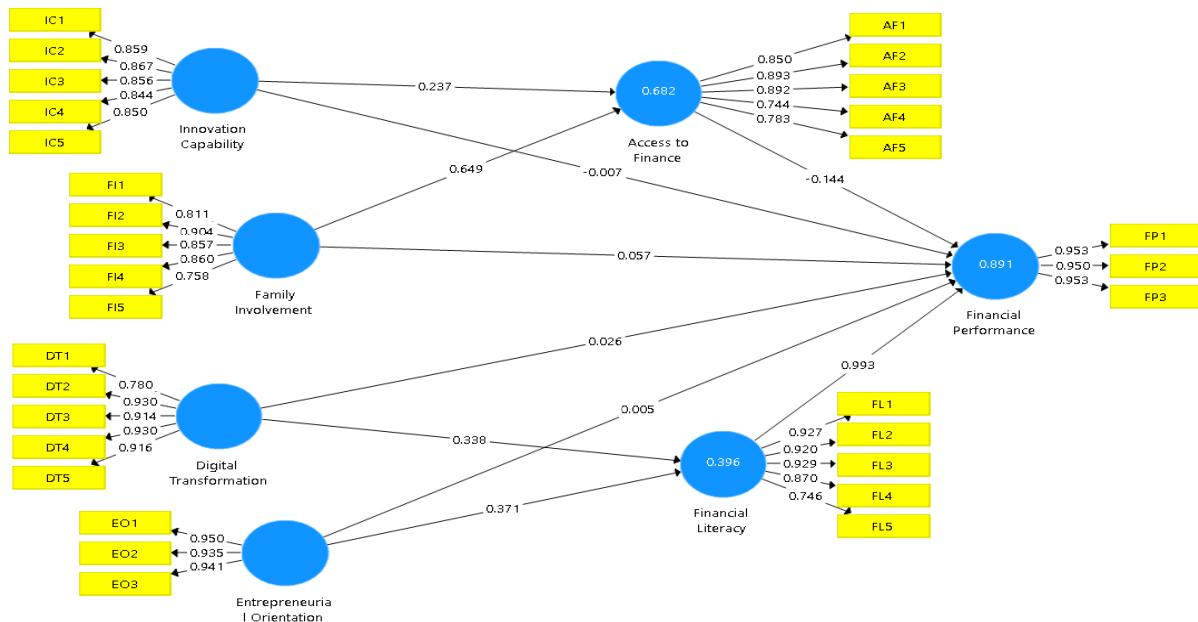


Figure 2. Results of hypothesis testing.

4.3 Model valuation

The results of the model evaluation presented in Table 5 demonstrate that this model exhibits excellent predictive quality, with an R^2 (Coefficient of Determination) of 0.682 for AF, indicating that 68.2% of the variance in the AF construct is explained by the exogenous constructs that influence it. The R^2 value for FL is 0.396, indicating that other constructs in the model account for 39.6% of the variance in this construct. Furthermore, the R^2 value for FP is notably high at 0.891, signifying that 89.1% of the variance in FP is explicable by the relevant constructs. This provides substantial empirical validation of the model.

Table 5. Model evaluation metrics.

Variable	R^2	Adjusted R^2	Q^2	GoF
Access to Finance	0,682	0,680	0,471	
Financial Literacy	0,396	0,392	0,304	
Financial Performance	0,891	0,889	0,800	0,587

The Q^2 (Predictive Relevance) values for Access to Finance (0.471), Financial Literacy (0.304), and Financial Performance (0.800) also indicate that the model has good predictive relevance. The Goodness of Fit (GoF) value of 0.587 indicates that the model as a whole has a very good fit, meaning that it is reliable enough to explain the relationship between constructs (Hwang et al., 2023).

$$GoF = \sqrt{0,656 \times 0,525} = 0,587$$

$$\sqrt{\text{Communality} \times b^2}$$

The results presented in Table 6 provide an F-Square (Effect Size) analysis, which quantifies each variable's contribution to explaining the dependent variable. FI exerts a substantial influence on AF, as evidenced by an effect size of 0.741. This finding signifies that family involvement is the prevailing factor in enhancing access to finance. In a similar vein, financial literacy exhibits a substantial effect on financial performance, as evidenced by an f^2 value of 3.798. This finding underscores the pivotal role of FL as a predictor of FP. Conversely, DT and EO demonstrate a moderate effect on FL, with f^2 values of 0.126 and 0.153, respectively. This observation signifies their substantial contribution to enhancing FL. However, the direct contribution of DT and EO to FP is negligible. IC has a small effect on AF ($f^2 = 0.099$), and its contribution to FP is insignificant.

As shown in Tables 5 and 6, the model demonstrates the relationships among constructs. This is particularly evident in the model's emphasis on the importance of FI in enhancing AF and FL as the primary predictors of FP. These findings provide a robust foundation for further analyses, including the exploration of the model's mediating or moderating role.

Table 6. F-Square (Effect Size).

Variable	Access to Finance	Financial Literacy	Financial Performance
Access to Finance			0,049
Digital Transformation		0,126	0,001
Entrepreneurial Orientation		0,153	0,000
Family Involvement	0,741		0,004
Financial Literacy			3,798
Innovation Capability	0,099		0,000

4.4 Mediation effect testing

The mediation test results presented in Table 7 indicate several significant mediation effects in the relationships among the constructs. The mediation path from FI to Financial Performance (FP) through AF shows a substantial negative effect, with an original sample estimate of -0.094, a t-value of 3.478, and a p-value of 0.001. This finding indicates that, while family involvement is associated with access to finance, it has a detrimental effect on overall financial performance. A similar effect is observed in the mediation path from IC to Financial Performance through AF, with an original sample value of -0.034, t-value of 2.548, and p-value of 0.011. This finding suggests that innovation capability, when mediated by access to finance, can negatively affect financial performance.

In contrast, the mediation path through FL demonstrates a highly positive and significant effect. DT exerts a positive effect on Financial Performance through FL, with an original sample value of 0.335, a t-value of 4.035, and a p-value of 0.000. This validates that digital transformation enhances FL, which in turn contributes positively to firm financial performance. A similar outcome is observed when analyzing the mediation path from EO to Financial Performance

through FL, which also demonstrates a significant positive effect (original sample value of 0.368, t-value of 4.529, and p-value of 0.000). This suggests that EO can improve FL, thereby improving financial performance.

The findings of this study indicate that the utilization of FL as a mediating mechanism significantly enhances financial performance. Conversely, the efficacy of access to finance as a mediating factor is less pronounced, with adverse impacts that may indicate inherent risks or the intricacies of its management. These observations underscore the pivotal role of FL in enhancing corporate financial performance.

Table 7. Summary of mediation effect results.

Construct	Original Sample	Sample Mean	Standard Deviation	t-value	p-values
FI ->AF-> Financial Performance	-0,094	-0,096	0,027	3,478	0,001*
IC ->AF-> Financial Performance	-0,034	-0,034	0,013	2,548	0,011*
DT ->FL-> Financial Performance	0,335	0,338	0,083	4,035	0,000*
EO ->FL-> Financial Performance	0,368	0,373	0,081	4,529	0,000*

* means significant at 5%

This study highlights several key relationships that enhance our understanding of the financial performance of family-owned SMEs in ASEAN countries. Firstly, financial literacy emerges as a critical determinant of financial performance, corroborating Taghizadeh et al. (2020), who emphasized that higher financial literacy equips firms with superior financial management capabilities. This finding underscores the importance of targeted financial education programs within the SME sector to strengthen decision-making processes and improve capital utilization.

Secondly, the study confirms that access to finance significantly influences financial performance, aligning with Liu et al. (2023), who identified access to capital as fundamental for SME growth. Family involvement plays a vital role in facilitating access to finance, as observed by Fang & Lv (2023), who noted that familial networks often provide essential support in securing funding.

Digital transformation is identified as a key driver of enhanced financial literacy among SMEs, reinforcing Kissi's (2024) findings. The integration of digital technologies provides SMEs with access to resources that improve financial understanding and management practices. Policymakers should therefore prioritize developing digital skills and expanding access to digital resources to improve financial acumen in the SME sector.

Lastly, while innovation capability exerts a modest influence on access to finance and financial performance, it aligns with Zeng & Khan (2019), who found that innovative firms are viewed

more favorably by financial institutions. Promoting an innovation-oriented culture within family-owned businesses could enhance their competitiveness and attractiveness to potential investors.

The interconnected roles of financial literacy, access to finance, family involvement, and digital transformation present significant implications for policymakers and practitioners. By focusing on these areas, stakeholders can help strengthen the financial viability of family-owned SMEs and contribute to broader economic growth in ASEAN. This study offers a comprehensive framework that integrates these critical concepts, filling a notable gap in the literature on family-owned SMEs in emerging markets.

Limitations and future research: While this study offers valuable insights into the financial performance of family-owned SMEs in ASEAN countries, it is not without limitations. Firstly, the research relies on cross-sectional data, which captures variables at a single point in time. This limits the ability to draw causal inferences and observe how the relationships between financial literacy, access to finance, digital transformation, and financial performance evolve. Future research could adopt a longitudinal approach to understand better these dynamics and their long-term impact on financial performance. Secondly, the study focuses exclusively on family-owned SMEs in ASEAN countries, which may limit the generalizability of the findings to other regions or types of businesses. Future research could examine similar relationships in non-family-owned SMEs or in diverse geographic contexts to compare results and identify unique factors influencing financial performance across various settings.

Additionally, this study does not explore in depth the specific mechanisms through which digital transformation enhances financial literacy and performance. Future research could investigate which digital tools and strategies are most effective in improving financial decision-making among SMEs.

Moreover, although the role of innovation capability was examined, its impact was found to be relatively modest. Further research could conduct more detailed analyses to understand the conditions under which innovation capability significantly influences access to finance and financial performance, and could incorporate qualitative methods to gain deeper insights.

Finally, while family involvement was shown to facilitate access to finance, the study does not differentiate between various forms of family involvement (e.g., ownership versus management roles). Subsequent research could explore how these different dimensions interact with financial management outcomes to provide a more nuanced understanding of their impact. Addressing these limitations in future research will improve our understanding of the factors influencing the financial performance of family-owned SMEs and help develop more effective strategies to support their growth and sustainability in an evolving economic landscape.

5. Conclusion

This study highlights the pivotal role of financial literacy, access to finance, and digital transformation in improving the financial performance of family-owned SMEs in ASEAN countries. By examining the interconnections among these factors, the research reveals that

enhanced financial literacy enables SME owners to make more informed financial decisions, improving access to funding and ultimately leading to better financial outcomes. Family involvement plays a significant role in facilitating access to finance, underscoring the importance of familial networks in overcoming financial challenges.

Moreover, the findings underscore the importance of integrating digital transformation into financial management strategies, as it equips SMEs with essential tools to improve financial understanding and operational efficiency. Innovation capability, while modest in its direct impact, remains crucial in fostering competitiveness, suggesting that cultivating an innovative culture can improve the market positioning of family-owned businesses.

Overall, this research contributes to the existing body of knowledge by offering a comprehensive framework that clarifies the complex dynamics influencing family-owned SMEs. The implications are particularly relevant for policymakers and practitioners aiming to strengthen the financial resilience and growth prospects of SMEs in the ASEAN region. Ongoing efforts to improve financial literacy, facilitate access to finance, and leverage digital advancements within supportive family structures will be essential for ensuring the long-term sustainability and success of these enterprises.

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