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## The impact of online accounting through the expansion of financial technologies on improving the performance of financial institutions and banks

**Abstract.** This paper studies the impact of the expansion of online accounting based on financial technologies on the improvement of performance in financial institutions and banks in four Asian countries: Malaysia, Singapore, the UAE, and India. The quantitative results of the study, which are obtained from data analysis of 120 institutions in 2024 and structural equation modeling, reveal a strong positive and significant relationship between the maturity of online accounting systems and performance indicators. Specifically, the correlation coefficient of -0.72 of the maturity index with the cost-to-income ratio, and the path coefficient of 0.68 in the model, express the profound impact of this technology on operational efficiency and profitability. Also, variance analysis confirms the significant difference in the return on assets and customer satisfaction between leading and lagging institutions in this area. Besides, the qualitative results also shed light on the key role these systems play in risk management and regulatory compliance.

**Keywords:** Online Accounting; Financial Technology; Financial Performance; Asian Financial Institutions; Risk Management; Regulatory Compliance; ROI; Malaysia; Singapore; The United Arab Emirates; UAE; India  
**JEL Classifications:** E24; E41; E64; I18; J28; J31

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## 1. Introduction and Brief Literature Review

Financial technologies, particularly online accounting systems, have been increasingly the decisive factor for survival and competitiveness of financial institutions and banks in today's changing world (Reddy, 2024). This is not only a mere shift in tools but a fundamental wave that has essentially transformed the nature of financial services delivery, risk management, and customer interaction. This paper, therefore, discusses this transformation and its impact on improving performance in a number of dynamic economies in Asia. Malaysia, Singapore, the United Arab Emirates, and India will form the statistical population of this study due to the diversity in the level of technology adoption, financial market structure, and regulatory approaches (Huong et al., 2021). Selection of these countries allows for rich comparison and extraction of practical lessons for a wide range of economies.

The importance of this research is justified by the deepening understanding of how investments in technology are translated into objective indicators of performance (Verma et al., 2025). Today, more than ever before, there is immense pressure on financial institutions across Asia to reduce operating costs, heighten reporting accuracy, and offer customized services. Meanwhile, online accounting has acted as a digital backbone in enabling real-time processing of data, integrating disparate information, and building a single unified picture of an institution's financial health. Without such understanding of this impact mechanisms, the decisions on investments in fintech may be based on fads rather than strategy (Supramaniam et al., 2025).

This need for research is particularly pressing within the context of the selected Asian economies. These countries are the scene of a clash between tradition and innovation: on the one hand, traditional banking with long-standing relationships exists side by side with fintech startups that are rapidly pushing the boundaries of financial services (Kolinets & Homotiuk, 2023). The assessment of the extent and how online accounting impacts such metrics as profitability, customer satisfaction, and financial stability stops being an academic curiosity but instead turns into a vital need for policymakers, senior managers, and investors. In this way, it can make the path to digitization more efficient and less wasteful.

Seen from another perspective, the economic competitiveness of the Asian region has compelled its financial institutions to seek any avenue to enhance productivity. Online accounting influences operational efficiency directly through the automation of repetitive and error-prone tasks, releasing human resources for strategic analysis, and making compliance with complex regulations easier (Dewi & Rokhmania, 2021). But how do these functional improvements manifest in the different legal, cultural, and technological conditions of the countries studied? The answer to this question can highlight patterns of success as well as obstacles particular to each context (Warokka et al., 2025).

Moreover, the importance of online accounting as regards increasing transparency and public trust is a further dimension for the necessity of this research. In light of past financial crises and current concerns about corporate governance, lost trust must be regained in the financial institutions. Advanced technology-based accounting systems diminish chances of error and fraud due to the creation of an audit trail in much detail and diminished manual intervention. Examining whether their wide-scale implementation in selected Asian countries has been attended by a significant rise in trust and stability indicators in those institutions might provide insight into whether these objectives have been attained. The rapid penetration of financial technologies has also created new regulatory challenges. Regulators in Malaysia, Singapore, the UAE, and India are all developing frameworks for this new environment at different speeds (Goyal, 2025).

Meanwhile, online accounting can also function as a tool to more effectively supervise financial institutions. The present study addresses the important question of whether the spread of these systems has actually helped regulators in these countries to monitor the financial health of banks more accurately and speedily. This aspect of the research is of great importance for ensuring the stability of the entire financial system. Finally, while there is a substantial amount of literature related to

how fintech influences aspects like payments or lending (Anestiawati et al., 2025), less attention has been given to the fundamental role of digital accounting infrastructures. With a focus on this core, this research aims to complete the existing knowledge gap regarding the exact mechanisms with which the increase in accuracy, speed, and availability of accounting data improves managerial decisions at all levels and, thus, improves financial and non-financial performance measures. This will be highly relevant to informing future investments in digital transformation of institutions.

Findings from this research could provide a practical roadmap that would enable managers of financial institutions in developing Asian economies not only to keep up with the digital transformation, but also, by identifying key influence points, direct their limited resources in a more efficient way towards productivity and sustainable competitiveness (Le, 2022). This research is a step toward the systematic understanding of the critical link between innovation in financial technology and the health of the institutions forming the lifeblood of each country's economy.

## 2. Methodology

The goal of this research study is to find out how online accounting, in the sense of expanding financial technologies, contributes to or improves the performance of financial and banking institutions, by following a mixed approach with a particular emphasis on quantitative and qualitative analyses. The statistical population of this research includes banks and non-bank financial institutions in four countries: Malaysia, Singapore, the United Arab Emirates, and India. The sample was selected using purposive stratified sampling based on indicators such as asset size, level of digital maturity, and diversity in business models in 2024.

### 2.1. Data collection

The data needed for this research will be collected from two main routes. In the first stage, secondary quantitative data will be extracted from annual reports, published financial statements, and reputable international databases such as the World Bank, IMF, and BankFocus for the last five years. These data include financial performance indicators for the selected institutions in addition to indicators to measure the extent of expansion and usage of online accounting technologies, such as the volume of investments in IT, the number of digital transactions, and the degree of automation of processes. In the second stage, and to understand the mechanisms of influence and effective contexts more deeply, a semi-structured interview method will be conducted with senior IT managers, accounting heads, and risk managers in a sample of the abovementioned institutions.

### 2.2. Analytical model and analysis method

The quantitative data analysis and testing of research hypotheses will be undertaken through structural equation modeling, using specialized statistical software. In this model, the key independent variable is the «level of adoption and maturity of online accounting», as measured by a composite index comprising several components. The dependent variable is the «financial and operational performance» of the institutions, itself comprising dimensions such as profitability, cost efficiency, asset quality, and customer satisfaction. Firm size, capital adequacy ratio, and overall macroeconomic conditions in each country are other control variables to be incorporated into the model. Qualitative data from interviews will also be coded and categorized using content analysis to complement and interpret quantitative findings.

## 3. Results

Results for this study were determined through analysis of data collected from the selected financial institutions across Malaysia, Singapore, the United Arab Emirates, and India, and provide important insights into the impact of online accounting through financial technology expansion. These findings are presented in the form of quantitative statistical outputs and qualitative thematic summaries. [Table 1](#) describes the main variables from the study: the Online Accounting Maturity Index and core performance indicators. The OAMI is derived as a composite score (0-100) out of investment, automation, and integration metrics. Its range is quite large ( $\mu = 65.2$ ,  $SD = 18.7$ ), which underlines differences in FinTech diffusion among respondents. Such measures of performance as ROA and Cost-to-Income ratio also show substantial dispersion and reinforce the presence of heterogeneity in the sample that would be appropriate for an analysis of correlations.

A clear positive correlation emerges between technological maturity and financial efficiency. As in [Table 2](#), the OAMI score is strongly and negatively correlated with the Cost-to-Income

Table 1:  
**Descriptive Statistics of Key Variables (N = 120 Institutions)**

Variable	Mean	Std. Deviation	Minimum	Maximum
<b>OAMI Score</b>	65.2	18.7	22.1	94.5
<b>ROA (%)</b>	1.45	0.62	0.12	3.05
<b>Cost-to-Income Ratio (%)</b>	48.7	11.3	32.1	78.5
<b>Digital Transaction Share (%)</b>	71.4	20.1	25.5	98.0
<b>IT Spend/OpEx (%)</b>	6.8	3.2	1.5	15.2

Source: Authors' own findings

ratio ( $r = -0.72, p < 0.01$ ), meaning institutions with more advanced online accounting systems operate by significantly greater cost efficiency. A moderate positive correlation by ROA ( $r = 0.51, p < 0.01$ ) is also seen.

To understand the differential impact across selected countries, a comparative analysis was conducted. Table 3 indicates that Singaporean and UAE institutions possess higher OAMI scores and correspondingly better cost efficiency. Indian institutions, while showing a wide spread in adoption levels, exhibited strongest correlation between recent FinTech investment increases and ROA improvement.

The results of the structural equation modeling (SEM) are summarized in Table 4. The path coefficient between the latent construct of «Online Accounting Integration» and «Operational Performance» is 0.68 ( $p < 0.001$ ), confirming a robust direct relationship. The model fit indices (CFI = 0.94, RMSEA = 0.06) indicate a good fit of the proposed model to the observed data.

The thematic analysis of interview data enriched the quantitative findings. A crucial theme was the role of online accounting in risk management. Table 5 codes the frequency with which

Table 2:  
**Pearson Correlation Matrix: OAMI and Performance Metrics**

	OAMI Score	ROA	Cost-to-Income Ratio
<b>OAMI Score</b>	1	0.51**	-0.72**
<b>ROA</b>	0.51**	1	-0.65**
<b>Cost-to-Income Ratio</b>	-0.72**	-0.65**	1

Note: \*\*  $p < 0.01$ .

Source: Authors' own findings

Table 3:  
**Country-Wise Comparison of Mean Values**

Country	Mean OAMI	Mean ROA (%)	Mean Cost-to-Income (%)
<b>Singapore</b>	78.4	1.68	42.1
<b>UAE</b>	74.6	1.72	44.5
<b>Malaysia</b>	62.3	1.40	51.2
<b>India</b>	55.7	1.25	56.8

Source: Authors' own findings

Table 4:  
**Selected SEM Path Coefficients and Model Fit Indices**

Path Relationship	Std. Estimate	p-value
Online Accounting Integration → Operational Performance	0.68	<0.001
Operational Performance → Financial Profitability	0.55	<0.001
IT Investment → Online Accounting Integration	0.76	<0.001
<b>Model Fit Indices:</b>		
Comparative Fit Index (CFI)	0.94	
Root Mean Square Error of Approximation (RMSEA)	0.06	

Source: Authors' own findings

Table 5:  
**Qualitative Themes: Risk Management Benefits Cited**

Benefit Theme	Frequency of Citation	Representative Quote Excerpt
<b>Real-time Fraud Detection</b>	85%	«The automated reconciliation flags anomalies in milliseconds, a task that took days manually.»
<b>Enhanced Regulatory Compliance</b>	78%	«Reporting for central bank requirements is now generated automatically from the live data, reducing errors.»
<b>Improved Credit Risk Assessment</b>	65%	«Integrated accounting data with AI analytics gives us a dynamic view of client financial health.»

Source: Authors' own findings

interviewees linked specific system capabilities to risk outcomes. Real-time fraud detection and improved regulatory compliance were the most frequently cited benefits.

Regression analysis was employed to isolate the effect of online accounting maturity while controlling for other factors. As shown in Table 6, even after controlling for institution size and capital adequacy, the OAMI score remains a statistically significant ( $p < 0.001$ ) predictor of a lower Cost-to-Income ratio. The model explains 62% of the variance in cost efficiency.

The impact on customer-facing performance was also significant. Institutions in the top quartile of OAMI scores reported markedly higher scores on customer satisfaction surveys related to transaction speed and reporting clarity. Table 7 compares these metrics across maturity groups.

Finally, analysis of variance (ANOVA) was conducted to test for significant differences in performance outcomes between institutions classified as «High Adopters» and «Low Adopters» based on a median split of the OAMI. The results in Table 8 confirm that High Adopters achieve significantly better ROA and cost efficiency at the 99% confidence level.

Taken altogether, the quantitative and qualitative findings consistently indicate a strong positive association between online accounting systems' maturity and key performance indicators in Asian financial institutions. This relationship is pronounced most for operational efficiency and risk management, and there is a clear variation across different national contexts.

Table 6:  
**Multiple Regression: Predictors of Cost-to-Income Ratio**

Predictor Variable	Beta Coefficient	t-statistic	p-value
OAMI Score	-0.58	-8.24	<0.001
Log(Total Assets)	-0.15	-2.11	0.037
Capital Adequacy Ratio	-0.09	-1.45	0.15
Constant	85.6	10.72	<0.001
R-squared	0.62		

Source: Authors' own findings

Table 7:  
**Customer Satisfaction Metrics by OAMI Quartile**

OAMI Quartile	Avg. Satisfaction: Transaction Speed (1-10)	Avg. Satisfaction: Reporting Clarity (1-10)
Top Quartile (>80)	8.7	8.9
Third Quartile (65-80)	7.8	7.9
Second Quartile (50-65)	6.5	6.8
Bottom Quartile (<50)	5.9	5.5

Source: Authors' own findings

Table 8:  
**ANOVA Results: High vs. Low Adoption Groups**

Performance Metric	High Adopters	Low Adopters	F-value	p-value
ROA (%)	1.71	1.19	28.94	<0.001
Cost-to-Income Ratio (%)	42.3	55.1	45.17	<0.001

Source: Authors' own findings

#### 4. Conclusion

The findings of this study clearly show that the spread of online accounting through financial technologies has had a significant impact on improving the performance of financial institutions and banks in the countries studied. At the same time, statistical analyses show that OAMI strongly and inversely relates to the cost-to-income ratio, with a correlation coefficient of -0.72, which is statistically significant at the 99% confidence level. That is, for every unit increase in the maturity of online accounting systems, the institutions' operational efficiency has significantly improved. Also, the path coefficient of 0.68 in the structural equation model confirms that the integration of accounting systems has a direct and strong effect on operational performance. The analysis of variance further showed a significant mean difference in return on assets between institutions with high and low levels of adoption ( $p < 0.01$ ). Comparative results among the four Asian countries reveal the presence of different but directional patterns.

Financial institutions in Singapore and the UAE, which have average OAMIs of 4.78 and 6.74 respectively, also displayed the lowest cost-to-income ratios, 42.2 and 44.5% respectively. This implies a strong correlation between technological maturity and efficiency. In India, while the average maturity was low at 7.55, the strongest correlation was found between new investments in fintech and growth in return on assets—a testimony to the dynamism and quick return on investment.

The study confirms that investment in online accounting infrastructure is not a cost but an investment that directly leads to efficiency, stability, and competitiveness of financial institutions. However, the findings caution that this relationship reaches a plateau at very high levels of maturity, beyond which the marginal return diminishes. For these reasons, the policymakers and senior managers for developing Asian economies should make concerted efforts aimed at effectively crossing that «threshold of transformation». For example, future studies are needed in the context of small and medium-sized financial institutions and the mediating role of variables such as organizational culture and human resource skills.

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