Determinants of the Implementation of Activity-Based Costing Method and Business Performance: Evidence from Foreign Direct Investment Companies in Vietnam

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ABSTRACT

The purpose of this research is to investigate the effect of the factors such as company size, product/service diversity, ABC system training, and top management support on the implementation of Activity-Based Costing (ABC) method within Foreign Direct Investment (FDI) companies in Vietnam. This study also examines the associations between the implementation of activity-based costing system and the outcome of business performance in both financial and non-financial aspects. The survey data was collected from foreign direct investment (FDI) firms in Vietnam. Logistic regression was utilized to test the relationship between various factors and the implementation of Activity-Based Costing (ABC). Furthermore, multiple regression analysis was conducted to identify the impact of these factors on the extent of ABC implementation. Multivariate analysis of variance (MANOVA) was used to investigate the link between ABC implementation and business performance. The research findings indicated that factors such as company size, and product/service diversity, have a statistically significant effect on the implementation of ABC method. In addition, the study found that the product/service diversity, ABC system training and top management support significantly improved the level of ABC implementation. The results of this study supported implementing ABC method has a significant impact on both financial performance and non-financial performance. The implementation of ABC contributed to improving cost efficiency and net profit margins and enhanced operational quality and decision-making capabilities.

Keywords: Foreign Direct Investment (FDI), ABC method, Business Performance, Vietnam

INTRODUCTION

In recent years, the role of Foreign Direct Investment (FDI) in Vietnam's economic development has been significant, contributing to both the country's industrialization and export growth. Vietnam's manufacturing sector has experienced significant growth in the huge number of investments from multinational companies around the world. FDI companies account for approximately 20-25% of Vietnam's GDP. This is a significant portion of the national economy, underscoring the importance of foreign investments. FDI continues to be a growth driver, helping Vietnam maintain a GDP growth rate of approximately 5-6% amid global economic challenges. In 2023, FDI enterprises in Vietnam made significant contributions to both the state budget and exports. These companies contributed 18.3 billion USD to the state budget, representing about 25.4% of total revenue, and were responsible for 73.1% of the nation's total exports, amounting to 259.1 billion USD. The role of FDI in GDP growth has been rising consistently since 2005. In 2023, FDI projects, particularly in high-tech sectors like electronics, semiconductor manufacturing, and supporting industries, saw an uptick. Notably, the number of FDI projects with investments exceeding 100 million USD in 2023 was twice that of 2022. The Ministry of Planning and Investment also reported that the FDI sector accounted for 16.1% of the total social investment in 2023, which show its vital role in Vietnam's economic growth.

In today's dynamic and rapid of market environments, organizations have to face high pressure to make strategic decisions regarding pricing, costing management, and operational efficiency. The Activity-Based Costing (ABC) method is one of the methods that have the significant influences on company's competitive and financial viability. Mwila, Masaka, and Tukumana (2022) emphasized the importance of product costing as a determinant of a company's financial performance and its competitiveness in the market to compete with other rivals. Companies consider applying the product cost method to calculate the accurate price. The managers need to understand and implement effective product costing method to optimize the financial outcomes for their business. The evolving competitive landscape and significant structural transformations within organizations underscore the increasing need for accurate and reliable product or service cost information (Al-Dhubaibi, 2021). ABC method is designed as a comprehensive system to assess the cost, and efficiency of activities of each product based on the resources utilized in their creation. The core principle of ABC method is to estimate the costs of resources consumed within a specific process. ABC method serves as a strategic tool in cost management. Through continual process improvement driven by ABC insight, companies can drive down product costs, thereby enhancing their competitiveness in the market.

FDI enterprises, particularly those implementing advanced management systems such as Activity-Based Costing (ABC), have demonstrated a clear advantage in financial performance (Tran & Ngo, 2020). This aligns with the growth of FDI in Vietnam, where foreign-invested enterprises have not only contributed significantly to the country's GDP but also driven technological advancements and improvements in efficiency. However, little researches on the determinants that influence the deployment of the ABC method to improve the performance of FDI companies in Vietnam. This study aims to provides a better understanding of the extent of ABC method implementation within the FDI companies in Vietnam and identify the factors that affect the implementation of ABC method. An additional objective of this research is to evaluate the impact of the ABC method on the business performance of FDI companies. By linking the implementation of the ABC method to financial performance indicators, this study contributes value to the actual benefits of applying the ABC approach to Vietnamese FDI companies. FDI companies can refer to the results of this study to adjust their strategic goals and strengthen effective cost management measures, thereby increasing the return on investment in the competitive market. Overall, this study helps foreign direct investment companies control their operations, thus contributing not only to their short-term operational efficiency but also to their long-term stability and success in Vietnam.

LITERATURE REVIEWAND HYPOTHESES DEVELOPMENT

The researches of the ABC method are rich and diverse. Researchers aim to understand both how to implement ABC and the factors that make ABC method implementation successful or challenging. Tran and Tran (2019) identified enterprises size, cost structure, product diversity, competitiveness, importance of information, and the degree of automation are the factors that can affect the adoption of ABC method within organizations. Their study makes a significant contribution to understanding the complexities and considerations that maybe faced when deciding to implement ABC method. Nguyen (2023) also found the factors that affect the application ABC method in Vietnam's food and beverage industry. The research identified that larger enterprise size, cost information, effective employee training, high-quality information technology, and strong manager support impact the successful implementation of ABC method. Nguyen (2017) considered six factors: business strategy, financial resources, human resources, characteristics, organization and management, and corporate culture have a significant impact on the adoption ABC method. Many studies have showed companies that use the ABC method significantly improve their business performance on operational efficiency and cost management. In Vietnam, managers are seeking alternatives to their current cost allocation methods and find promise in the ABC method for accuracy in cost management (Nguyen, 2017). Angelopoulos and Pollalis (2017) emphasized that the ABC method is more accurate by focusing on allocating the cost to specific activities.

Company Size

Based on most of the previous studies' consensus, the number of employees and total assets are the most common metric for classified company size. Ahmadzadeh, Etemadi, and Pifeh (2011) measured the size of companies by the annual revenue and assets total. The study showed the negative association between firm size and ABC method implementation. The finding suggested that smaller firms might be more willing to adopt new methods

like ABC to gain competitive advantages. This result highlights the complexity of the relationship between firm size and the implementation of innovative practices like ABC method. Akinyomi (2014) use the number of employees to concern the size of the company and found a positive association between company size and organizational innovativeness, suggesting that larger firms may have greater resources and capacity to implement ABC due to their complex operations that need an accurate costing method. However, Rababah (2013) found no significant relationship between firm size, and the adoption of ABC method. The significant relationship between firm size and adoption of ABC method is still in debate. Given this background, the flowing hypothesis is formulated:

H1: There is significant relationship between company sizes and ABC implementation.

H_{1a}: The relationship between number of employee and ABC implementation is significant.

H_{1b}: The relationship between total assets and ABC implementation is significant.

Product/service Diversity

Several studies have examined the relationship between the ABC method implementation and the level of product diversity within a company. Ahmadzadeh et al. (2011) found out complex relationship involving the diversity of products/services with the implementation of the ABC method. They found a positive correlation between diversity (number of products) and implementation of the ABC method, while a negative relationship when considering the diversity of product volume and implementation of the ABC method. Schoute (2011) examined product/service diversity by the number of products and found a positive correlation between product diversity and the implementation of ABC method. On the other hand, Rababah (2013) found that product diversity did not have a positive influence on the implementation of ABC method in manufacturing companies. Number of products/services is utilized to measure the level of product diversity in this study, the flowing hypothesis is proposed:

H2: There is significant relationship between product/service diversity and ABC implementation

ABC System Training

Huynh and Gong (2014) emphasized that the successful implementation of ABC depends on the capabilities of employees, especially those in accounts who are directly involved in and applying the new system in the companies. Employees who understand the ABC method can help to improve the process, which can be achieved through regular, organized training and coaching programs (Nguyen, 2017). Majid and Ali (2013) indicated that the effectiveness of implementing the ABC method is strongly affected by the level of training. The knowledge and skills gained through targeted training have a direct impact on the organization's ability to effectively apply ABC method within the organization. Dubihlela's (2014) study emphasizes the importance of training and company resources for the successful application and implementation of ABC. Dubihlela (2014) believed that not only the process of training is important, but training resources also play a key role. Effective training ensures that personnel have the knowledge and skills required to correctly apply ABC method. Resources including technical and human capital are essential to support the implementation process. to further investigate the relationship between training employees and activity-based costing method implementation, the flowing hypothesis is proposed:

H3: There is significant relationship between the ABC system training and ABC implementation.

Top Management Support

Administrative support is crucial in providing material resources and other necessary support to effectively implement the ABC method and achieve the goals (Intakhan, 2014). Research indicates that manager involvement can significantly increase the success of ABC implementation. Lack of top management support is a factor in the failure of ABC method (Byrne, 2011). Leaders do not prioritize the application of the ABC method or allocate the necessary resources, which can be one of the reasons that hinders the success of the ABC method. According to Nassar, Morris, Thomas, and Sangster (2009), top management support was considered as a key

factor that facilitates the implementation of the ABC method. The research showed that effective management could greatly facilitate implementation. Top management's active support is essential not just at the beginning, but also for the sustained ABC. Intakhan (2014) found out that top management support has a direct impact on the success of implementing ABC methods.

H4: There is significant relationship between top management support and ABC implementation.

Business Performance

Organizational performance can be evaluated by financial and non-financial indicators. Many academics have established a clear linkage between the ABC method and significant improvements in business outcomes within the manufacturing sector. The research of Pham, et al. (2021) indicated ABC implementation success has a positive effect on firm performance of Vietnam manufacturing companies. The result supported that promoting ABC implementation can help manufacturing companies to constantly improve their position and business performance. Al-Qudah and Al-Hroot (2017) found there is a direct positive correlation between the adoption of ABC and improved financial outcomes. This direct positive correlation was consistent only in certain conditions. Miryazdi and Jusoh (2015) showed ABC positively influenced product quality and timely delivery. The empirical analysis of Vetchagool, Augustyn, and Tayles (2020) demonstrated that extensive implementation of ABC significantly contributes to the enhancement of operation effectiveness and efficiency. Moreover, Mwila et al. (2022) and Vetchagool et al. (2020) found that companies utilizing the ABC method system have observed positive outcomes in terms of cost management and cost reduction. This finding aligns with the view of researchers who suggest that management accounting systems, like ABC method, are designed to enhance the operational effectiveness of firms.

On the other hand, Pokorná (2016) examined how the ABC concept applied to Czech businesses and how it affected those businesses' financial performance. The results showed that no significant effect was found on the financial performance of the firms that adopted the ABC system. These studies suggest that the expected financial benefits of the ABC method may not be realized in practice. Also, contrasting results are presented in the studies by Ezeala, Nzewi, and Ezekwesli (2022) which found that using the ABC method did not lead to better financial results. These findings suggest that the ABC system might not always help improve a company's financial performance and show that its benefits might not be the same for every business. Paradzala, Wadesangob, and Sitsha (2023) found that there was no clear connection between using the ABC method and improvements in cost control and financial performance. Based on the literature review, the relationship between adoption of ABC method and business performance is still in debate. Thus, the following hypothesis is developed in this research:

H5: There is significant relationship between the implementation of ABC and business performance.

H_{5a}: There is significant relationship between the implementation of ABC and financial performance.

H_{5b}: There is significant relationship between the implementation of ABC and non-financial performance.

METHODOLOGY

The main objective of the study is to determine the extent of ABC method implementation within the FDI companies in Vietnam and identify the factors that affect the implementation of ABC method. An additional objective of this research is to evaluate the impact of the ABC method implication on the business performance of FDI companies.

The study focuses on two questions:

1) What is the impact of factors such as company size, product/ service diversity, ABC system training, and management support on the implementation of the ABC method in the FDI companies in Vietnam?

2) What is the relationship between the implementation of the ABC method and business performance of FDI companies in Vietnam?

The survey data was collected from foreign direct investment (FDI) firms in Vietnam. Logistic regression was utilized to test the relationship between various factors and the implementation of Activity-Based Costing (ABC). Furthermore, multiple regression analysis was conducted to identify the impact of these factors on the extent of ABC implementation. Multivariate analysis of variance (MANOVA) was used to investigate the link between ABC implementation and business performance. Financial performance was measured by return on assets (ROA) and net profit (NP) ratio. Non-Financial performance was assessed through indicators such as product/service quality and production process efficiency which are critical for understanding the effect of ABC implementation on overall business operation. Hypothesized model of research framework is shown on the Figure1.

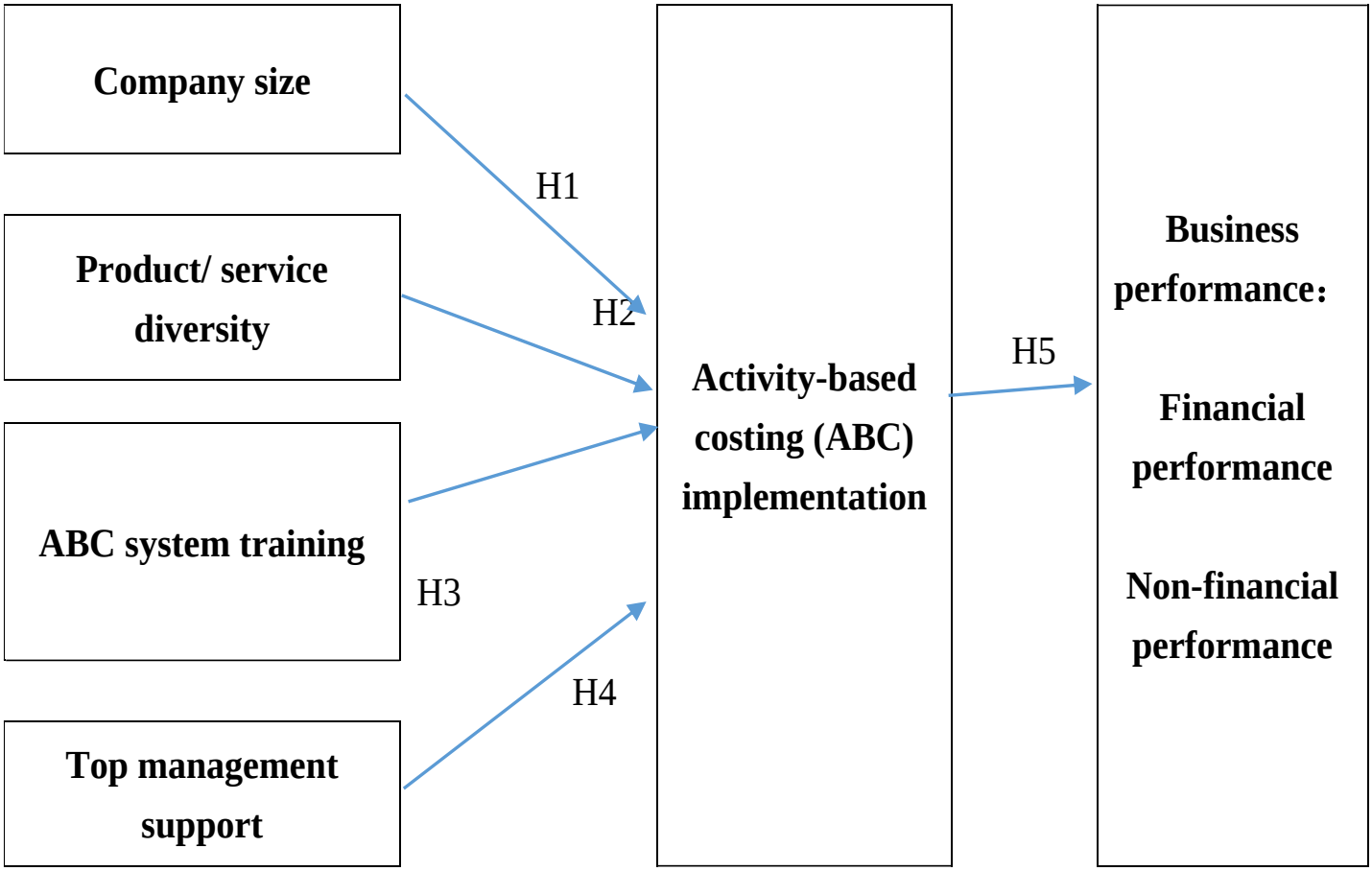

Figure 1: Hypothesized Model of the Framework

Survey Instrument

The study collected primary data by using a questionnaire survey. The questionnaire was adapted from the earlier research by Ahmadzadeh (2011), Intakhan (2014), Al-Qudah and Al-Hroot (2017), and Vetchagool et al. (2020). The final questionnaire mailed to companies selected randomly from the list of Foreign Direct Investment (FDI) companies in Vietnam. The companies are of various sizes and industries. The targeted respondents of the finance or accounting departments within these companies. The survey is divided into two sections to clarify factors affecting the implementation of ABC method in the foreign direct investment company in Vietnam. The first section provides information of the respondent position and the type of company. The second section provides information on the factors that affect ABC method implementation and the relationship of ABC method and business performance.

Data Analysis

To investigate the relationship between the factors (company size, product/service diversity, ABC system training, top management support) and usage of ABC, the hypotheses (H1, H2, H3, H4) tested by the following Logistic Regression model:

$Use\_ABC_i = \alpha_0 + \beta_1 Employee_i + \beta_2 Asset_i + \beta_3 Diversity_i + \beta_4 Training_i + \beta_5 Support_i + \varepsilon_i$

Where:

Use_ABC_i represents a variable indicating whether company i uses ABC (1) or not (0). A dummy variable having a value of one if the i th firm's is using activity-based costing system, otherwise zero.

$Employee_i$ represents company size measured by number of employees

$Asset_i$ represents company size measured by total assets

$Diversity_i$ represents product/service diversity measured by number of products in the company

$Training_i$ represents ABC system training measured by the level of employee understanding about ABC

$Support_i$ represents top management support measured by level of support in the process of ABC implementation

α_0 is a constant; β_1, β_2, β_3, β_4, β_5, are regression coefficients of independent variables. ε_i is an error term.

To investigate the relationship between factors (company size, product/service diversity, ABC system training, top management support), and the level of ABC. Multiple regression model is used to test the relationship:

$Level\_ABC_i = \alpha_0 + \beta_1 Employee_i + \beta_2 Asset_i + \beta_3 Diversity_i + \beta_4 Training_i + \beta_5 Support_i + \varepsilon_i$

Where:

$Level\_ABC_i$ measure by the level of ABC implementation.

To investigate the relationship between the implementation of ABC and business performance, business performance represents by the financial performance and non-financial performance. This study constructed MANOVA to test the hypothesis H5.

$ROA_i, NP_i\ Quality_i, Efficiency_i = \alpha_0 + \beta_i\ Use\_ABC_i + \varepsilon_i$

Where:

ROAi represents the return on assets, a financial performance indicator (profitability), defined as after-tax net income scaled by total assets.

NP_i represents net profit ratio, a financial performance indicator (profitability), defined as after-tax net income scaled by total sales.

$Quality_i$ represents product/service quality, a non-financial indicator.

$Efficiency_i$ represents production/service efficiency, a non-financial indicator.

RESULT AND FINDINGS

Descriptive Statistics

The questionnaire was transferred via email or direct contact with companies in Vietnam. Most of the respondents are working in important positions and understand the company's accounting and financial situation. 89 responses were collected, and 7 respondents were not qualified. Total of 82 respondents could be analyzed in

the research. 100% of the companies in the study are FDI companies. The respondent position is analyzed when the questionnaire is sent to the Finance and Accounting department. Table 1 showed that most of the participants in this research were Chief Accounting officers 57.32%, Treasurer 35.15%, and only 8.54% from Chief Financial officers. Among the study, 41.5% of the companies implement the ABC method while the remaining 58.5% do not use it. This split suggested that while ABC is a popular tool, a significant portion of companies still using other costing methods, potentially due to the differing needs or structures of these organizations. Looking at company size based on the number of employees, there is a wide range. A small number, 7.32% have under 100 employees, and the next largest group at 23.17% has between 100-200 employees, indicating they are likely medium-sized companies. Around 19.51% of the companies have 201-500 employees and 15.81% have 501-100 employees, showing that there are also quite a few mid-sized to large organizations. Around 20.73% of companies employ between 1001-2000 people, while 13.41% have more than 2000 employees. It showed that larger companies or even multinational organizations require a significant workforce to operate. Approximately 29.27% of companies surveyed have total assets valued under 50 billion VND, the largest group 39.02% has total asset between 50-100 billion VND, indicating moderate assets. Approximately 19.51% hold assets valued between 100-200 billion VND and 12.2% have over 200 billion VND. The result showed that there are many large companies out of the 82 companies surveyed in this study.

Evaluating product diversity within a company, categorizing it into ranges like "Only 1," "From 2 to 10," "From 11 to 50," and "More than 50" provides a clear framework for analysis. The category "Only 1" highlights companies with a single product line, often seen in startups or niche-focused businesses, emphasizing simplicity but also carrying high risk due to dependence on only one offering. The range "From 2 to 10" represents diversification, this range showed companies adding more products to meet customer needs while keeping operations manageable. Product range "From 11 to 50," it reflects a medium level of diversity, which enables companies to serve multiple market segments, though it requires more complex management and resources. Finally, the "More than 50" category signifies a highly diversified, typically seen in large-scale or multi-industry corporations, demanding robust systems and higher investments in quality control and innovation. In this survey, 26.83% of firms produce only one product/service, 19.51% of companies produce in the scope from two to ten products or services and, 24.39% of these enterprises produce between 11-50, while 29.27% of companies have over 50 products/services, a strong emphasis on fostering varied and inclusive environments. All companies surveyed are foreign-owned, which may imply a focus on businesses operating in international settings with potentially distinct management and operational strategies. Financial performance, as measured by return on assets (ROA), also varies widely. A significant 26.83% report a ROA under 5%, while nearly half 48.78% achieve between 5%-10% which indicates moderate efficiency, and 24.39% report a ROA exceeding 10% showing that they are effectively generating high returns from their assets. Net profit margins have shown a similar range, with 25.61% reporting a net profit margin below 5%, 57.23% achieving between 5%-10%, and 17.07% exceeding a 10% margin.

Table 1: Descriptive Statistics of the Respondents

Factors		Number	Percentage %
ABC implementation	Use ABC	34	41.5
	Not use	48	58.5
Employee	Under 100	6	7.32
	100-200	19	23.17
	201-500	16	19.51
	501-1000	13	15.85
	1001-2000	17	20.73
	Over 2000	11	13.41
Job title	Chief Financial Officer	7	8.54
	Chief Accounting Officer	47	57.32
	Treasurer	28	34.15
Product/ Service Diversity	Only 1	22	26.83
	From 2 to 10	16	19.51
	from11 to 50	20	24.39

	More than 50	24	29.27
ROA	under 5%	22	26.83
	5%-10%	40	48.78
	Over 10%	20	24.39
Net profit ratio	Under 5%	21	25.61
	5%-10%	47	57.32
	Over 10%	14	17.07
Total asset	Under 50 billion VND	24	29.27
	50-100 billion VND	32	39.02
	100-200 billion VND	16	19.51
	Over 200 billion VND	10	12.2

Source: Compiled from questionnaire

Cronbach's alpha reliability coefficient is used to assess the internal consistency or reliability of the measurement instrument. In this survey, Cronbach's alpha was applied to evaluate the reliability of the implementation of ABC method. The result of Cronbach's alpha scale test is 0.846 which means the internal consistency was good. Table 2 shown 34 companies that implement the ABC method that all of the companies produce more than 10 types of products. While companies that do not use ABC method have about 20.8% provide more than 10 products/services. The result indicated that the companies have larger and more diversified range of products/ services often necessary for implementation. Companies that have more diversified products/services are more likely to use the ABC method. Companies using ABC had a higher proportion of employees in the 1001- 2000 range 41.1% and more than 2000 is 26.5%. Companies not using ABC showed higher proportions in the range 101-200 (35.4%) and 201-500 (31.3%). The larger-organizations tend to implement ABC due to its complexity and the need for more detailed cost allocation systems. The result highlights that ABC is more commonly used in larger, more diverse organizations with higher total assets. This suggests that ABC may provide strategic advantages for more complex, large organizations.

Table 2: Descriptive Statistics of Employee and Diversity - use or not use ABC

	N	**Employee %**						**Product/service Diversity %**			
		Less than 100	101 -200	201 -500	501 -1000	1001 -2000	More than 2000	Only 1	2 to 10	11 to 50	more than 50
Use ABC	34		5.90	2.90	20.60	44.10	26.50			44.10	55.90
No use ABC	48	12.50	35.40	31.30	12.50	4.20	4.20	45.80	33.30	10.40	10.40

Table 3 highlighted the distinctions between companies that use ABC and those that do not use. For companies that use ABC, a significant proportion demonstrated that ROA, net profit ratio value above 5%. 61.76% of these companies showed ROA in the range of 5%-10%, 37.24% company reported ROA higher 10%. Net profit ratio showed the higher percentage 73.53% within the range 5%-10% and 26.74% of the companies had net profit ratio more than 10%. Companies not using ABC exhibited higher proportions in the lower performance range, particularly for values under 10%. 56.3% of these companies reported ROA in the 5%-10% range, and a notable 39.6% ROA profits under 5%, only small fraction 4.17% achieved ROA above 10%. Half of these companies (50%) reported net profit in the range 5%-10%, due to 45.83% showed net profit under 5% and only minimal 4.17% showed net profit more than 5%. This suggests that while companies not using ABC may still achieve moderate performance, a larger share of them experience lower profitability and asset returns compared to those employing ABC. The majority of companies using ABC are concentrated in the larger asset ranges, with 35.29% in the 100-200 billion VND and 29.41% in the over 200 billion VND. Smaller companies (Under 50 billion VND) the smallest group showed only 11.76%, while mid-sized companies (50-100 billion VND) represented 23.53%. The result suggested that larger organizations are more likely to implement ABC, possibly due to the resources and complexity required to implement it. Most companies not using ABC are smaller in size, with 41.7% in the under 50 billion VND and half (50.0%) falling in the 50-100 billion VND range. Only 8.3% are in the 100-200 billion VND. This indicated that smaller companies, likely due to resource limitations or simpler

operations, tend to avoid ABC.

Table 3: Descriptive Statistics of ROA, net profit ratio and total assets- use or not use ABC

	ROA			Net Profit Ratio			Total Asset			
	Under 5%	5%-10%	Over 10%	Under 5%	5%-10%	Over 10%	Under 50 billion VND	50-100 billion VND	100-200 billion VND	Over 200 billion VND
Use		61.76	38.24		73.53	26.47	11.76	23.53	35.29	29.41
Not Use	39.6	56.3	4.17	45.83	50	4.17	41.67	50	8.33	

Table 4 illustrated the mean and standard deviation for each statement related to implementing ABC. The results implied that respondents of the company using the ABC method strongly agreed that the use of ABC was important for the company's non-financial performance, as the mean of quality was 7.53 and efficiency was 8.47 of the respondents' perceptions. ABC users had higher mean total assets (207.61 billion VND) compared to non-users mean total asset (55.09 billion VND), indicating larger organizations implement ABC. The means of education and training, respectively are 7.85, which showed that the company provided good education and adequate training for employees to implement the ABC method. The means of top management provided adequate resources and had a clear commitment to implement ABC method, are 7.88 and 7.89, showing that the company's management has also supported and provided sufficient resources to implement the ABC method effectively.

Table 4: Means Value of Variables related to Implementing the ABC

Variable	**Use (N=34)**		**Not Use (N=48)**		**Total (N=82)**	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
ROA (%)	9.047	1.638	5.879	2.704	7.193	2.793
Net Profit (%)	9.444	1.917	6.037	2.262	7.450	2.705
Total asset (billion VND)	207.57	195.77	55.07	29.81	118.3	147.79
Education from ABC training was useful and can apply to Activity based costing -ABC system	7.85	1.374	2.38	1.024	4.65	2.96
Adequate training was provided for implementing ABC	7.85	1.395	2.48	1.148	4.71	2.94
Company's top managers have provided adequate resources for ABC practice	7.88	1.365	2.65	1.229	4.82	2.89
Top management have a clear commitment to use ABC information	7.79	1.298	2.4	1.567	4.63	3.04
Implementing the ABC method help company to enhance the quality of product/service	7.53	1.419	2.48	1.544	4.57	2.91
Implementing the ABC method helped improve the efficiency of the production process	8.47	1.419	2.23	1.433	4.82	3.4

Source: Compiled by the author

Test of Hypotheses

Hypothesis H_1 is to test the relationship between company size and the implementation of the ABC method. The size of the company was measured by the number of employees and total assets. The results shown on Table 5 indicated that the number of employees and total assets have a significant effect on the implementation of ABC (the p-value for Employee = 0.000 < 0.05, for Total Asset = 0.002 < 0.05). The findings indicated the companies with large assets and employees tend to apply the ABC method. Therefore, the hypotheses H1a and H1b are accepted. Consequently, there is a significant relationship between firm size and the application of the activity-based costing method.

Hypothesis H_2 is to test the relationship between product/service diversity and the implementation of the ABC method. In this study, the diversity was measured by the number of company's product/service. The results shown on Table 5 indicated that diversity has a significant impact on implementing the ABC method (the p-value for diversity = 0.000 < 0.05). The finding the mean of firms with greater diversity tends to implement the ABC method. Therefore, the hypothesis H2 is accepted. Compared to companies that do not use the ABC method, companies that use ABC often produce more kinds of products/services.

Hypothesis H_3 is to test the relationship between the ABC system training and ABC implementation. In this study, ABC system training was measure by the education and adequate training in the company of ABC method. Table 5 showed the result p-value = 0.99> 0.05. The hypothesis H3 is not accepted. Therefore, there is not significant relationship between the ABC system training and ABC implementation.

Hypothesis H_4 is to test the relationship between top management support and ABC implementation. Top management support was measured by the top management commitment and resources. The results shown on Table 5 indicated that p-value = 0.99>0.05. The hypothesis H4 is not accepted. Therefore, there is not significant relationship between the top management support and ABC implementation.

The result of the table 5 provided a clear overview of the acceptance or rejection of hypotheses related to the determinants of ABC implementation, such as firm size, diversity, system training and top management support. Notably, Hypotheses H1 and H2 accepted because the empirical results support a significant positive relationship between factors such as firm size, diversity and ABC implementation. Conversely, Hypotheses H3 and H4 were rejected due to the absence of significant evidence supporting the proposed relationships. The logistic regression model was used to test these hypotheses. The Omnibus Tests of Model Coefficients result was 0.000 < 0.05 (95% confidence intervals), meaning the logistic regression model is statistically significant. As the results shown on Table 4.5, the logistic regression model can be express as the following.

$$Use\_ABC_i = -88.699 + 1.131Employee_i + 0.027Asset_i + 2.102Diversity + 28.267Training + 30.478Suppor$$

Table 5: Logistic Regression Analysis of Factors and Implementation of the ABC Method

Variables in the Equation						
		B	S.E.	Wald	df	Sig.
Step 1[a]	Employee	1.131	0.289	15.303	1	0**
	Total asset	0.027	0.009	9.138	1	0.003**
	Product/service Diversity	2.102	0.439	22.973	1	0**
	ABC system training	28.267	2344.45	0	1	0.99
	Top management support	30.478	2352.61	0	1	0.99
	Constant	-88.7	16006.5	0	1	0.99

** Mean significant at the 1% level

To further investigate the relationship between the factors, such as company size, diversity, ABC system training, top management support, and the level of ABC implementation, this study use multiple regression model to test the relationship. The result of regression analysis as shown on Table 6 can be expressed as the following:

$$Level\_ABC = -0.372 + 0.063Employee + 0.000Asset + 0.386Diversity + 0.634Training_i + 0.290Support$$

The result of regression analysis as shown on Table 6 indicated that the β for employee is -0.063 which is p-value = 0.519>0.05. Total assets shown β = 0.000, with p-value = 0.951. It indicated that company size (employee, total asset) do not significantly influence the implementation the level of ABC. Product/service diversity show β = 0.386 with a p-value = 0.009, which is statistically significant. This result suggested that the variety of products or services offered by a firm have a direct influence on the level of ABC.ABC system training shown β = 0.634, and it is statistically significant at the p-value = 0.000 < 0.05. This finding strongly suggests that training in the ABC system significantly increases the level of ABC implementation. The result supports the importance of providing employees with the necessary skills and knowledge to implement ABC effectively. The coefficient for top management support is 0.290, with a significance p-value = 0.027 (p-value < 0.05), indicated that management support is a significant factor in the implement the level of ABC. Strong leadership and commitment from top management was recognized as essential for successful the level of ABC implementation, as they help ensure that the necessary resources and organizational changes are in place.

Table 6: Coefficients of the Multiple Regression Models of the Factors

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
	(Constant)	-0.372	0.334		-1.115	0.269
	Employee	0.063	0.098	0.032	0.647	0.519
	Total asset	0.000	0.001	0.003	0.061	0.951
	Product/service Diversity	0.386	0.143	0.148	2.699	.009**
	ABC system training	0.634	0.124	0.594	5.123	.000**
	Top management support	0.29	0.129	0.268	2.253	.027*
	R^2 = 0.887, N=82,					

* Mean significant at the 5% level, ** Mean significant at the 1% level

Hypothesis H_5 is to test the relationship between the implementation of ABC and business performance. As the results of Multivariate Tests shown on Table 7, the use ABC effect Wilkis' Lambda = 0. 160, p-value = 0.000 (p < 0.01). These results indicated that use of ABC significantly influence both financial performance and non-financial performance. As shown on Table 4, the companies using the ABC method achieved a higher mean of ROA 9.047%, compared to those that not use 5.879%. Similarly, compared the mean net profit for companies using ABC 9.444% was also greater than companies not use ABC 6.047%. The results suggested that companies using ABC generally outperform those that do not in terms of financial performance. The evidence implied that the profitability of companies using ABC was significantly better than companies that had not implemented ABC. Table 4 also indicated the companies using the ABC method reported a higher average of quality which the mean value was 7.53 compared to 2.48 for companies not using the method. Similarly, the efficiency for companies using ABC showed the mean value 8.47 was also better than 2.23 for companies not using ABC. The results indicated that ABC users' quality and efficiency scores were consistently high. These results suggested that the business performance of companies using ABC generally better than those do not. The results of Multivariate Tests as shown on Table 7 indicated there is a significant relationship between the application of the activity-based costing method and business performance. Therefore, the hypotheses H5 are accepted. The evidenced performance can be attributed to ABC ability to allocate resources more accurately, optimize process. The significant difference in quality and efficiency scores highlighted the potential benefits of ABC implementation for the companies that seeking to enhance competitiveness and achieve operational excellence.

Table 7: Multivariate Tests of Use ABC and Business Performance

	Wilkis' (Λ) = 0. 160	
	use ABC	
Multivariate	100.784	.000**
Univariate	F	P
ROA %	36.980	.000**

Profit %	51.080	.000**
Quality	227.565	.000**
Efficiency	380.636	.000**

Note. ** Mean significant at 1% level Source: Compiled by the author

CONCLUSION

This study was conducted with the major purpose of investigating the relationship between factors such as company size, product diversity, ABC system training, and top management support and the implementation of activity-based costing method in the FDI companies in Vietnam. Especially, this research tried to determine whether the companies using the ABC method have better performance (financial and non-financial performance) than companies those not use. The findings of this study are consistent with previous studies, such as Rababah (2013) revealed company size was a significant factor on the implementation of the ABC method and Ahmadzadeh et al. (2011) found that product/service diversity had a significant impact on the implementation of the ABC method. A larger firm size and a wider range of products/services are more likely to implement the ABC method due to the complexity of their operations and the need for more accurate cost allocation. However, this research found no significant relationship between the ABC system training and top management support and implementation of the ABC method. The result highlighted the complexity of ABC implementation and suggested the need for further research to explore other potential determinants. This research also employed multiple regression to investigate the relationships of factors, such as company size, product/ service diversity, ABC system training, and top management, and the level of ABC implementation. The findings revealed that product/service diversity, ABC system training, and top management support were positively correlated with the successful implementation of the ABC method which enhance business effectiveness. Due to company size (employee, total asset) did not have a significant impact on the level of ABC method. The result suggested that the complexity of product operation and managerial support were more important than company size (employee, total asset) in deciding to extend the implementation of ABC methods. Vetchagool et al. (2020) noted the critical role of managerial support and training in the successful level of ABC. Intakhan (2014) supported that effective training and strong management commitment are crucial for resistance and ensuring that ABC is properly implemented. The results of this study also mentioned implementing the ABC method has a significant impact on both financial performance and financial performance. The implementation of ABC contributed to improving cost efficiency and net profit margins and enhanced operational quality and decision-making capabilities. These findings are consistent with prior studies such as Vetchagool et al. (2020) and Pham, et al. (2021). This study provided valuable insights into how foreign direct investment (FDI) companies in Vietnam implement the Activity-Based Costing (ABC) method and its impact on business performance. The findings are significant not only for companies operating in emerging markets but also for local businesses, and international investors. By showing the efficiency and cost management advantages of ABC, the study can provide a practical guide for organizations seeking to optimize resources and enhance the decision-making process.

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