THE IMPACT OF ACTIVITY-BASED COSTING ON FIRM PERFORMANCE: A COMPREHENSIVE REVIEW

MSc. Nguyen Thi My An*

Abstract: ***This review article provides a critical synthesis of empirical literature from 2010 to 2024 regarding the impact of activity-based costing (ABC) and its evolutionary successor, time-driven activity-based cCosting (TDABC), on firm performance. Moving beyond the initial theoretical promise of ABC, this study evaluates its actual efficacy across financial, operational, and strategic dimensions. The analysis reveals that while ABC consistently enhances operational efficiency - improving cycle times, quality control, and resource utilization - its direct correlation with financial performance metrics like return on assets (ROA) is complex and often mediated by complementary practices such as lean manufacturing and robust IT integration. The review further examines the divergent adoption landscapes between developed and emerging markets, highlighting specific barriers faced by small and medium enterprises (SMEs). Finally, the paper discusses the rising prominence of TDABC in the healthcare and service sectors and outlines future research directions focusing on longitudinal impacts and digital integration.***

• Keywords: *activity-based costing, firm performance, comprehensive review.*

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1. Introduction

In the contemporary business environment, characterized by intense global competition, rapid technological flux, and shrinking profit margins, the efficacy of management accounting systems has escalated from an administrative function to a paramount determinant of organizational survival. Historically, firms relied on traditional cost accounting (TCA) systems, which allocate indirect manufacturing overheads using broad, volume-based drivers such as direct labor hours or machine hours. While sufficient for standardized mass production, TCA has increasingly failed to provide the granular visibility required for strategic decision-making in modern, complex production environments. As overhead costs rise due to automation and support services, volume-based allocation leads to significant cost distortions, obscuring the true profitability of products and services (Gunasekaran et al., 1999; Pham et al., 2021).

To address these structural deficiencies, ABC emerged as a corrective methodology. By tracing overhead costs first to specific activities and then to products based on their actual consumption of those activities, ABC promises to rectify the cross-subsidization inherent in traditional models. Since its inception, the academic discourse surrounding ABC has pivoted from technical implementation guides to a critical evaluation of its consequential impact on firm performance. The central question remains: does the adoption of ABC translate into tangible financial and operational gains? The empirical literature presents a nuanced and often contradictory picture. While proponents argue that ABC enhances decision-making accuracy, leading to improved return on investment (ROI) and profitability (Cagwin & Bouwman, 2002), critics point to prohibitive implementation costs and mixed empirical results, suggesting that the system's complexity may outweigh its benefits in certain contexts (Knápková et al., 2014). Consequently, this review synthesizes recent evidence to determine the specific conditions under which ABC creates value, exploring the critical mediating roles of organizational culture, top management support, and technological infrastructure.

2. The Multidimensional Impact on Firm Performance

The impact of ABC is not monolithic; it manifests distinctively across financial, operational, and strategic dimensions.

* *PhD Student at Academy of Finance; Corresponding author - email: myantg89@tvu.edu.vn*

2.1. Financial Performance: A Contingent Reality

The relationship between ABC adoption and financial performance - measured by metrics such as ROI, ROA, and profit margin - remains a subject of intense academic debate. Early theoretical models posited a direct linear relationship, but recent empirical evidence suggests a more complex, contingent reality.

Studies indicate that ABC does not automatically generate higher profits. Instead, its financial benefits are often lagging, appearing only after the system has been fully institutionalized and integrated with other strategic initiatives (Jänkälä & Silvola, 2012). For instance, in a study of Czech companies, Pokorná (2016) found that while ABC improved cost visibility, the translation to financial performance was dependent on the firm's ability to act on that information. Furthermore, the success of ABC is frequently mediated by world-class manufacturing practices; ABC provides the data, but operational excellence strategies (like JIT or TQM) execute the savings (Banker et al., 2008). Without these complementary practices, ABC may result in information overload without tangible financial return (Yu-Lee et al., 2006).

2.2. Operational Performance: Consistent Gains

In contrast to financial metrics, the impact of ABC on operational performance is robust and consistently positive across the literature. By mapping activities and identifying non-value-added tasks, ABC serves as a potent diagnostic tool for process improvement.

Empirical research demonstrates that ABC adoption is strongly correlated with reductions in manufacturing cycle time, defect rates, and inventory holding costs (Ittner et al., 2002). In manufacturing plants, the granular data provided by ABC allows managers to identify bottlenecks and resource wastage that traditional systems obscure (Maiga, 2017). The integration of ABC with internal information systems further amplifies these operational gains, creating a feedback loop where cost data drives continuous process optimization (French et al., 2013).

2.3. Strategic Decision-Making

Beyond the shop floor, ABC fundamentally alters strategic decision-making. By revealing the true cost of service delivery and product complexity, ABC enables sophisticated customer profitability analysis (CPA) and product mix optimization.

Firms utilizing ABC are better equipped to identify and divest from unprofitable product lines or customer segments that were previously subsidized by high-volume staples (Narayanan & Sarkar, 2002; Wei, 2011). In the context of startups and highly competitive markets, the perceived accuracy of ABC data empowers managers to make aggressive pricing and market entry decisions with greater confidence (Daowadueng, 2024; Goebel et al., 1998).

3. Contextual Moderators of Success

The success of ABC is not intrinsic to the methodology but is heavily moderated by internal and external contextual factors.

3.1. Top Management Support and Organizational Culture

Among the myriad factors influencing the successful adoption and efficacy of ABC, top management support (TMS) consistently emerges in the literature as the single most critical determinant. The implementation of ABC is not merely a change in accounting technique; it is a systemic organizational restructuring that challenges existing power dynamics and resource allocation norms. Consequently, without active, visible championship from the C-suite, ABC initiatives often lack the political capital necessary to overcome internal resistance. Research indicates that when senior leadership views ABC solely as a finance department initiative rather than a strategic imperative, implementations frequently devolve into isolated accounting exercises that are ignored by operational managers (Jebreel et al., 2021).

Parallel to leadership support, organizational culture acts as the fertile soil in which ABC either thrives or withers. ABC demands a high degree of transparency and accountability, as it exposes the true cost of inefficiencies and non-value-added activities. Empirical studies suggest that cultures characterized by an outcome orientation - a focus on results rather than procedures - and a meticulous attention to detail are significantly more likely to derive tangible value from ABC. Furthermore, firms with flexible, innovative cultures that encourage employees to challenge established hierarchies are better positioned to act on the uncomfortable insights ABC often reveals

(Hamid, 2021; Zhang et al., 2015). Conversely, rigid, bureaucratic structures that prioritize stability over agility often reject the transparency ABC imposes, viewing the data as a threat rather than a tool for improvement.

3.2. Technological Infrastructure (IT and ERP)

Historically, the Achilles' heel of ABC was the prohibitive labor intensity required for data collection. Early implementations often relied on manual time sheets and periodic employee surveys to estimate activity drivers, a process that was not only prone to significant human error but also costly to maintain. This burden frequently led to the abandonment of ABC systems as too complex or too expensive. However, modern research highlights that the integration of ABC with robust enterprise resource pPlanning (ERP) systems and advanced information technology (IT) infrastructure has fundamentally altered this equation, becoming a prerequisite for sustainable performance (Maiga, 2017).

The synergy between ABC and IT is transformative. ERP systems centralize vast amounts of operational data - from machine run times and inventory movements to labor hours - creating a digital reservoir that ABC models can tap into automatically. This automated data capture eliminates the need for manual tracking, drastically reducing the cost of maintaining the system. Moreover, it ensures that cost drivers reflect real-time operational realities rather than outdated estimates or guesstimates. This immediacy allows managers to make decisions based on current market conditions. Furthermore, advanced IT infrastructure enables the modeling of complex what-if scenarios, allowing firms to simulate the financial impact of strategic changes before implementation. Consequently, the successful deployment of ABC is no longer just an accounting challenge but a technological one, dependent on the maturity of the firm's digital ecosystem.

4. Sectoral Analysis and the Challenge of SMEs

4.1. Manufacturing vs. Services and Healthcare

Historically, the genesis of ABC lay within the manufacturing sector, developed to address the distortions caused by rising overheads in factory automation. While manufacturing remains a traditional stronghold, the application of ABC has matured significantly, expanding its footprint into the service and healthcare industries. This shift is driven by the realization that service delivery, much like manufacturing, involves complex, resource-consuming activities that traditional costing obscures. In the healthcare sector, specifically, the imperative to control spiraling costs while maintaining or improving patient outcomes has catalyzed the adoption of ABC. Hospitals and clinics are increasingly utilizing ABC to map patient care pathways, tracing the costs of specific medical interventions - from admission and diagnostics to surgery and post-operative care - rather than relying on broad departmental budgets.

Recent empirical work highlights that ABC allows healthcare administrators to identify the true cost of diverse treatments, revealing cross-subsidization between different patient groups (Nabelsi & Plouffe, 2024). For instance, ABC can expose how standard procedures may be subsidizing complex, resource-intensive cases. Similarly, in the broader service sector (e.g., banking, logistics, hospitality), where intangible overheads like customer support and IT infrastructure constitute the majority of costs, ABC is pivotal for CPA. It enables firms to differentiate between profitable clients and those who erode value through excessive service demands. This sectoral evolution underscores ABC's versatility, proving that the logic of activity-based management is applicable wherever resources are consumed to produce an output, whether tangible or intangible.

4.2. The SME Paradox

SMEs present a unique paradox in the context of ABC. On one hand, SMEs operate in highly competitive environments with thin margins, meaning they stand to benefit disproportionately from the precise cost control and strategic insights ABC offers. On the other hand, they face a severe liability of smallness. Unlike large corporations, SMEs often lack the requisite financial capital to invest in sophisticated ERP systems and the specialized human capital to design and maintain complex accounting models. Consequently, the high upfront costs and technical demands of full-scale ABC implementation frequently act as prohibitive barriers (Needy et al., 2003; Rundora

& Selesho, 2014).

This creates a tension where the firms that need ABC the most are often the least equipped to adopt it. Research suggests that for many SMEs, the administrative burden of a comprehensive ABC system can indeed outweigh its benefits, leading to implementation failure or abandonment. However, the narrative is shifting. Recent studies indicate that when simplified or tailored methodologies are applied - such as TDABC or localized pilot programs - SMEs can overcome these resource constraints. By focusing on key activities and avoiding over-engineering, smaller firms can extract the strategic value of ABC - improved pricing accuracy, better product mix decisions, and enhanced competitiveness - without the crushing overhead of a corporate-style system (Jänkälä & Silvola, 2012; Roffia et al., 2024). Thus, the challenge for SMEs is not the validity of ABC, but the adaptation of its scale.

5. The Evolution: TDABC

While traditional ABC represented a significant leap forward in cost accuracy, its practical application was often hampered by the sheer complexity of maintaining the system. The requirement to constantly interview employees to update resource allocation percentages proved to be costly, time-consuming, and prone to subjective bias. To address these structural limitations, TDABC has emerged as a refined, evolutionary successor, gaining particular traction in service-oriented industries where labor is the primary cost driver.

TDABC fundamentally simplifies the allocation process by reversing the traditional logic. Instead of surveying staff on how they spend their time, TDABC estimates resource consumption using elegant time equations. Managers need only estimate two parameters: the unit cost of supplying capacity (e.g., the cost per minute of a nurse or a machine) and the time required to perform a specific transaction (Mortaji et al., 2013). For example, a time equation might calculate the time for a patient consultation as: Time = 10 minutes + (5 minutes x number of complications). This dynamic modeling eliminates the need for exhaustive surveys and allows the system to update automatically as process variables change.

Recent empirical studies have validated the superiority of TDABC, particularly in the complex domain of healthcare. Research focusing on orthopedic and spinal surgeries demonstrates that TDABC provides significantly greater accuracy in calculating total episode-of-care costs compared to both traditional costing and standard ABC (Fang et al., 2021; Keppetipola et al., 2025). Furthermore, a critical operational advantage of TDABC is its ability to make unused capacity visible. By calculating costs based on practical capacity rather than actual utilization, TDABC isolates the cost of idle time, allowing managers to distinguish between process efficiency and resource utilization. This transparency empowers organizations to streamline processes and optimize workforce planning more effectively than was possible with traditional ABC models (Halaška & Šperka, 2021).

6. Adoption in Emerging vs. Developed Markets

A critical analysis of the global landscape reveals a significant divergence in the adoption and maturity of ABC between developed and emerging economies. In developed markets (e.g., North America, Western Europe, Australia), ABC has largely transitioned from a novel innovation to a standard component of mature management control systems. Here, firms operate in high-cost environments with sophisticated IT infrastructure, making the precision of ABC both necessary and feasible. However, the scenario is markedly different in emerging markets such as Vietnam, South Africa, and Sudan.

These regions face a unique constellation of barriers that hinder widespread adoption. Firstly, there is often a chronic shortage of qualified management accountants who possess the technical expertise to design and maintain complex cost models. Secondly, cultural factors play a significant role; in many traditional business environments, there is a deep-seated resistance to the transparency ABC requires, as it can disrupt established hierarchies and expose inefficiencies that management may prefer to ignore (Nguyen & Pham, 2021). Furthermore, the historical economic model of these regions - predicated on low-cost labor - reduced the perceived urgency for precise overhead allocation. When direct labor is cheap, overheads appear less significant, leading firms to rely on simple, traditional costing methods (Rundora, 2013).

Despite these challenges, the tide is turning. As emerging market firms increasingly integrate into global supply chains, they are exposed to fierce international competition that erodes the labor arbitrage advantage. Global partners demand rigorous cost transparency and efficiency, creating external pressure that is driving a new wave of ABC adoption. Consequently, ABC is moving from a theoretical concept to a strategic necessity for emerging market firms aiming to compete on the global stage (Albalak et al., 2019).

7. Conclusion and Future Directions

The cumulative empirical evidence amassed over the last decade offers a definitive yet qualified verdict on the efficacy of ABC. While the methodology acts as a potent mechanism for enhancing firm performance by revealing cost structures that traditional systems obscure, it must not be misconstrued as a universal panacea. The transition from theoretical potential to tangible operational and financial gains is strictly contingent upon a constellation of critical organizational enablers. Foremost among these is unwavering top management support, which is essential for overcoming internal political resistance and securing necessary resources. Equally vital is the integration of robust IT infrastructure, which transforms static data into dynamic insights, and the cultivation of an organizational culture conducive to data-driven transparency. Without these foundational pillars, ABC implementations risk devolving into costly, administrative exercises. Thus, the ultimate value of ABC lies not merely in the accounting mechanics, but in the organizational readiness to integrate granular cost insights into strategic decision-making.

Looking forward, the academic trajectory of ABC must evolve to address significant gaps that remain in the current landscape. First, there is a pressing need for longitudinal research, particularly within the SME context, to move beyond cross-sectional snapshots and track the long-term survival and adaptation of cost systems over time (Sánchez Rebull et al., 2023). Second, future scholarship must rigorously investigate the intersection of ABC and TDABC with Industry 4.0 technologies. Specifically, the application of process mining and artificial intelligence offers a pathway to fully automate cost driver analysis, potentially resolving the historic challenge of data complexity (Halaška & Šperka, 2021). Finally, as global corporate governance shifts toward environmental stewardship, a vital frontier for inquiry is the development of green ABC. Future studies must explore how ABC frameworks can be adapted to trace environmental costs - such as carbon emissions and waste management - aligning financial precision with sustainable development goals (van der Poll, 2022).

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