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The impact of cloud computing technology on cloud accounting adoption and financial management of businesses

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This study examines how cloud computing technologies affect the adoption of cloud accounting and the resulting impact on corporate financial management. It addresses unresolved literature issues concerning security, privacy, legal compliance, and system integration, aiming for a unified theoretical and empirical understanding of cloud-based accounting. Employing Structural Equation Modeling (SEM) with AMOS software, the research analyzes data from 172 companies listed on Vietnam's stock exchange. The conceptual framework integrates the Technology Acceptance Model (TAM), Resource-Based View (RBV), and Contingency Theory, exploring diverse factors influencing cloud accounting adoption and subsequent financial management performance. Results highlight system integration and security/privacy as significant motivators for adopting cloud accounting. Additionally, the study identifies cost-benefit analysis, system integration, and active cloud accounting usage as pivotal factors enhancing financial management outcomes. In contrast, legal compliance and generic cloud platforms (such as iCloud) display limited influence, reinforcing and extending existing research by empirically validating both strategic and operational impacts of cloud integration. The research contributes in three key ways. First, it integrates fragmented literature into a cohesive framework considering contextual, organizational, and technological factors. Second, it provides valuable empirical insights from an emerging market (Vietnam), enriching understanding of digital transformation in lesser-studied economic settings. Third, it clearly distinguishes generic from specialized cloud platforms, offering practical guidance for organizations evaluating cloud accounting investments. Practically, the findings suggest businesses prioritize robust security and effective system integration in cloud accounting implementations, complemented by rigorous cost-benefit evaluations. It also advises caution against depending on generic cloud services for specialized accounting needs, advocating for industry-specific solutions. Uniquely, this study adopts a comprehensive multi-theory approach, clarifying interactions between security, compliance, integration, cost considerations, and platform type, thus significantly advancing scholarly and practical understanding of cloud technology adoption.

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Introduction

In recent years, cloud computing has emerged as a transformative innovation reshaping business practices globally, notably influencing the accounting sector. Cloud accounting represents a significant departure from traditional accounting systems by leveraging internet-based solutions to enhance accessibility, collaboration, and efficiency. However, despite its growing popularity, a number of critical concerns remain underexplored in existing literature, particularly issues related to security, privacy, legal compliance, and systems integration.

Prior studies have extensively documented the practical advantages of cloud computing, such as reduced infrastructure costs, enhanced flexibility, and real-time accessibility (Mohammadi and Mohammadi, 2014; Khanom, 2017). Nevertheless, the literature has primarily adopted a descriptive approach, providing fragmented insights into isolated aspects of cloud computing without synthesizing these components into a coherent theoretical framework. Notably, the security and privacy challenges associated with cloud-based accounting systems have been acknowledged but not systematically investigated in the context of their operational and strategic implications for businesses (Mehrban et al., 2020). Similarly, although regulatory compliance is frequently highlighted as essential, there remains a notable absence of studies rigorously examining how legal frameworks specifically influence cloud accounting adoption and implementation strategies (Li, 2023).

Moreover, integration of cloud accounting with other enterprise systems (e.g., ERP, CRM) has emerged as critical for achieving operational efficiency and strategic alignment, yet existing research has scarcely addressed the implications of such integration from a holistic perspective (Eldalabeeh et al. 2021). Cost-benefit analyses of cloud adoption also remain limited, particularly regarding nuanced understandings of how financial considerations intersect with broader strategic goals and influence management decisions (Maresova et al., 2017).

Given these significant gaps, this study aims to provide a comprehensive exploration of how cloud computing technology impacts cloud accounting adoption and, subsequently, the effectiveness of financial management within enterprises. Specifically, this research synthesizes existing theoretical insights from technology acceptance models, economic theories, and management accounting frameworks to construct a unified conceptual model. Through an empirical analysis of 172 companies listed on the Vietnamese stock market, the study investigates critical factors—security and privacy, legal compliance, integration capability, cost-benefit considerations, and platform characteristics—that influence the adoption of cloud accounting.

The novelty of this study lies in its integrated analytical approach, which systematically bridges theoretical tensions identified within the extant literature. It explicitly addresses previous oversights by analyzing the interactive effects of security, regulatory compliance, and integration capabilities on cloud adoption decisions and financial management outcomes. This research contributes significantly to the scholarly conversation by not only filling existing knowledge gaps but also providing robust empirical evidence that clarifies the conditions under which cloud accounting solutions enhance organizational efficiency and strategic decision-making. Ultimately, this study positions itself to guide both academics and practitioners in better understanding the strategic value and challenges associated with cloud-based accounting systems.

Literature review

Theoretical background. Cloud accounting has emerged as a critical component in the broader discourse on digital

transformation, particularly within the context of Industry 4.0. This technological evolution has shifted traditional accounting practices from static, on-premises software toward dynamic, cloud-based systems that emphasize accessibility, integration, and data-driven decision-making. Understanding this shift necessitates a multidisciplinary theoretical framework that accounts for both technological and organizational dynamics. For this study, three major theoretical perspectives have been adopted: the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and Contingency Theory.

The Technology Acceptance Model, first introduced by Davis (1989), remains a dominant framework for analyzing user acceptance of information systems. TAM posits that perceived usefulness and perceived ease of use are primary drivers of technology adoption. This model is especially relevant in the context of cloud accounting, where users' decisions are influenced by perceptions of improved accessibility, operational efficiency, and data security. As Rymarczyk (2020) notes, the rapid adoption of Industry 4.0 technologies is significantly affected by how stakeholders perceive the ease and utility of these systems in enhancing organizational competitiveness.

However, TAM alone may not adequately explain the broader strategic considerations involved in technology adoption. The Resource-Based View (RBV) complements this by framing cloud accounting as a valuable organizational resource. RBV asserts that firms gain sustained competitive advantage by effectively deploying unique, non-substitutable, and strategically valuable resources (Barney, 1991). Cloud accounting, as part of a broader digital platform ecosystem, offers scalability, real-time analytics, and cost advantages that align with these RBV criteria (Hadizadeh et al., 2024). In this sense, cloud platforms are not merely operational tools but strategic enablers that support organizational agility and economic sustainability.

Contingency Theory further refines our understanding by emphasizing the importance of alignment between technological capabilities and organizational context. The theory argues that no single system or strategy is universally effective; rather, success depends on how well a technology fits with internal structures and external environmental pressures (Otley, 2016). This is particularly relevant in regulated industries where legal compliance, data security, and integration with legacy systems are critical for successful adoption. As Kumar and Samalia (2023) observe in their study of Indian SMEs, the heterogeneity of organizational needs and environmental pressures means that cloud adoption must be tailored rather than generic.

These theoretical approaches were selected based on their complementary strengths. TAM provides insight into individual and organizational adoption behavior, RBV explains the strategic value of cloud systems, and Contingency Theory emphasizes the need for contextual alignment. While alternatives such as the Diffusion of Innovation Theory or Institutional Theory offer useful perspectives, they were less aligned with the study's focus on operational integration, strategic value creation, and regulatory compliance. Thus, the chosen frameworks collectively offer a comprehensive lens through which to examine the adoption and impact of cloud accounting in contemporary business environments.

Empirical foundations and related literature. Security and privacy concerns remain one of the most frequently cited barriers to cloud technology adoption. Research shows that while cloud solutions offer improved data access and collaborative capabilities, they also introduce vulnerabilities related to data breaches, unauthorized access, and compliance risks. Kumar and Samalia (2023) highlight that Indian SMEs often hesitate to adopt

cloud services due to fears regarding data security and loss of control over information. These findings are echoed by Hadizadeh et al. (2024), who emphasize that platform trust and data governance are critical to technology acceptance among startups aiming for sustainability. This literature reinforces that for cloud accounting to gain widespread traction, providers must prioritize data protection mechanisms, user authentication, and compliance with international standards such as GDPR.

Closely tied to security are concerns about legal compliance. As cloud platforms transcend national boundaries, businesses must navigate complex legal landscapes to ensure that their financial data handling complies with local and international regulations. Rymarczyk (2020) and Sivan et al. (2022) both stress that regulatory uncertainty can be a significant deterrent to adopting Industry 4.0 technologies, particularly in sectors involving sensitive data. In accounting, where auditability and transparency are non-negotiable, compliance becomes a prerequisite rather than a supplementary concern. The literature thus points to a strong interdependence between legal compliance and technology adoption decisions.

Another major theme in the literature is the importance of system integration. Modern businesses operate a suite of enterprise systems—ERP, CRM, HRM, and more—that must communicate seamlessly with accounting platforms to ensure data consistency and operational efficiency. Studies such as those by Sivan et al. (2022) highlight that integration capabilities are not just technical features but strategic enablers that allow businesses to make holistic, data-informed decisions. Similarly, Kumar and Samalia (2023) find that lack of interoperability is a common inhibitor in SMEs attempting to migrate to cloud-based environments. These insights underline that without robust integration capabilities, the strategic promise of cloud accounting remains unrealized.

Cost-benefit considerations also play a central role in the adoption literature. Cloud solutions are often marketed as cost-efficient alternatives to traditional software due to their subscription-based pricing models and reduced infrastructure requirements. However, the actual financial benefits are contingent upon organizational readiness, staff training, and ongoing maintenance. Kumar and Samalia (2023) point out that while cost savings are attractive, they must be weighed against implementation risks, vendor dependency, and the cost of transitioning from legacy systems. Hadizadeh et al. (2024) argue that startups must consider not just short-term cost reductions but long-term value creation when adopting digital platforms. This nuanced understanding of cost-benefit analysis is crucial in the financial domain, where return on investment is closely scrutinized.

The distinction between general-purpose cloud platforms (e.g., iCloud, Google Drive) and specialized accounting systems (e.g., Xero, QuickBooks Online) is also relevant. While generic platforms offer basic storage and collaboration tools, they often lack the compliance features, analytical capabilities, and sector-specific integrations required for professional accounting. Sivan et al. (2022) emphasize that digital transformation in logistics requires not just any platform, but industry-tailored solutions. Similarly, the literature supports the view that professional accounting demands platforms designed with financial governance, audit trails, and integration in mind. This distinction underscores the need for organizations to carefully evaluate the scope and limitations of the platforms they adopt.

Finally, the literature consistently shows that adopting cloud accounting has a tangible impact on financial management effectiveness. Cloud-based systems enhance real-time reporting, enable faster financial decision-making, and improve cross-departmental collaboration. Rymarczyk (2020) describes these outcomes as central benefits of Industry 4.0, which aims to make organizations more data-driven and

responsive. Hadizadeh et al. (2024) similarly note that digital platforms allow startups to align operational metrics with strategic goals, thereby improving their chances of long-term success. These findings validate the strategic potential of cloud accounting as more than a mere operational upgrade—it is a foundational component of digital transformation.

In summary, the literature presents a rich tapestry of insights into the technological, strategic, and organizational dimensions of cloud accounting. By integrating the TAM, RBV, and Contingency Theory frameworks, this study addresses the multifaceted nature of cloud adoption and its impact on financial management. Unlike previous studies that tend to isolate factors or examine specific industries, the present research takes a comprehensive approach, synthesizing key variables such as security, compliance, integration, cost, and platform functionality. This integrative and context-sensitive perspective not only fills existing gaps in the literature but also provides actionable insights for both scholars and practitioners navigating the evolving landscape of cloud-based accounting solutions.

Conceptual framework and hypotheses

Conceptual framework. The application of cloud computing in accounting is based on several theoretical foundations and principles, which collectively contribute to the advantages and capabilities of this technology (Al-Htaybat et al., 2019):

Distributed Computing: Cloud computing builds upon distributed computing principles, where processing and storage resources are distributed across a network. In accounting, data and processing tasks are distributed across multiple servers in the cloud, enabling efficient resource utilization and scalability.

Virtualization: Virtualization allows the abstraction of physical computing resources, creating virtual instances that can run multiple applications. Cloud computing platforms use virtualization to provide scalable and flexible computing resources, allowing accounting applications to run independently of the underlying hardware.

Service-Oriented Architecture (SOA): SOA is an architectural style where software components are designed as services that can be loosely coupled and reused. Cloud-based accounting solutions often follow a service-oriented approach, with different modules (e.g., invoicing, payroll) provided as services that can be integrated.

Elasticity and Scalability: Elasticity refers to the ability of a system to scale resources dynamically based on demand. Cloud computing platforms offer elasticity, allowing accounting systems to scale resources up or down as needed. This ensures optimal performance during peak periods and cost savings during off-peak times.

Utility Computing: Utility computing is a model where computing resources are treated as utilities, similar to electricity or water. Cloud computing follows a utility model where businesses pay for the resources they consume, aligning costs with actual usage. This pay-as-you-go model is fundamental to cloud economics.

Network-Attached Storage (NAS) and Storage Area Network (SAN): NAS and SAN are storage architectures that provide centralized and scalable storage solutions. Cloud computing leverages NAS and SAN principles to offer scalable and reliable storage solutions for accounting data, ensuring data availability and accessibility.

Security Principles: Security principles in cloud computing include encryption, access controls, and regular security updates. Cloud-based accounting solutions incorporate these security principles to protect sensitive financial data, addressing confidentiality, integrity, and availability concerns.

Compliance and Governance: Compliance and governance frameworks provide guidelines for meeting legal and regulatory requirements. Cloud providers often adhere to compliance standards, helping accounting applications hosted on these platforms to meet industry-specific regulations and governance requirements.

Business Process Integration: Cloud computing supports integrating various business processes and applications. Cloud-based accounting systems can seamlessly integrate with other business applications, such as CRM or ERP systems, streamlining workflows and data exchange across different functions.

Continuous Improvement and Iterative Development: Cloud computing providers follow principles of continuous improvement and iterative development in their services. Cloud accounting systems benefit from regular updates and enhancements, ensuring they remain current, secure, and aligned with evolving business needs.

These theoretical foundations collectively contribute to the efficiency, flexibility, and reliability of cloud computing applications in accounting. They form the basis for cloud-based accounting solutions' design, implementation, and ongoing evolution.

Cloud computing technology applied in accounting

Invoices and receipts/payments. Accounting documents are managed and processed in the cloud accounting environment through online accounting software and services. This makes financial management and accounting more accessible, flexible, and saves time compared to traditional methods. Accounting documents in cloud computing are managed through online software and services, helping to optimize accounting processes, enhance tracking and reporting capabilities, and improve the working efficiency of businesses.

In a cloud computing environment, accounting documents can be created, sent, and processed as follows (Gupta and Badve, 2017):

Manage invoices and receipts/payments: Invoices and receipts/payments can be created, sent, and tracked through online accounting software. Users can quickly create invoices and receipts/payments, store them in the cloud, and track payment status.

Automatic recording: Financial transactions such as purchases, sales, income and expenditure, salaries, and many other transactions can be automatically recorded from data sources such as banks, online payment gateways, and other management systems.

Accounting document storage: All accounting-related documents, such as contracts, invoices, receipts, etc., can be stored online and linked to respective transactions. This makes it easy to look up and track necessary information.

Processing automation: Online accounting software often provides integrated accounting process automation tools such as automatically creating journal entries based on transactions, automated processing of account classifications, and automatic financial data updates.

Remote access: With the cloud computing model, users can access accounting data and perform related activities from anywhere with an internet connection, bringing high flexibility to the accounting work.

In cloud computing, the process of creating, storing, and updating documents in accounting software usually takes place through the following steps:

Create documents: Users (such as accountants or finance staff) will access cloud-hosted accounting software through a web browser or mobile application. They will use the software's interface to create accounting documents, such as invoices, receipts, receipts, payment slips, or other transactions.

Document storage: After creation, documents will be stored on the cloud system. Typically, this data is stored on the cloud service provider's cloud server and may be encrypted and protected with security measures.

Update and modify documents: When necessary, users can update or modify created documents. The cloud system will allow them to access and edit information in these documents.

Automated processing: Some cloud accounting software offers automation, allowing transactions to be processed automatically. For example, when an invoice is created and sent to a customer, the software can automatically perform revenue recognition and ledger updates.

Use integrations and API connections: Cloud accounting software often integrates with other applications through application programming interfaces (APIs). This allows data from other applications (for example, inventory management systems, POS, or payment services) to be transferred automatically into accounting software, helping to optimize accounting processes.

Data security and backup: Accounting data in the cloud is often secured with security measures such as encryption and identity checks. Additionally, cloud service providers often perform regular backups to ensure that data is not lost Fig. 1.

Processing accounting transactions. Applying cloud computing to recording accounting transactions has significant changes and impacts. Using cloud computing to record accounting transactions brings many benefits regarding flexibility, performance, integration, and data security. However, businesses must choose a reputable cloud provider that fits their needs to ensure success during the transition process (Priyadarshinee et al. 2017):

Remote access and recording: A cloud computing environment allows users to access and record transactions from anywhere with an internet connection. This facilitates data entry and updating accounting data even when you are not in the office.

Data integration: Cloud environments often support data integration from various sources. To ensure data integrity and accuracy, you can link accounting data with other systems, such as CRM, warehouse management, or ERP systems.

Speed and performance: Cloud computing services are often able to process and retrieve data quickly. This helps you record and retrieve accounting information more effectively.

Automatic updates: The service provider often updates Cloud-based accounting applications automatically. This ensures you're always using the latest version with improvements and patches.

Security and access management: Cloud environments often have higher security measures, including access control, data encryption, and continuous monitoring. This ensures the safety of the business's accounting data.

Analytics tool integration: Cloud services often support the integration of data analytics tools. You can use reports and charts to analyze accounting data and generate more detailed management information.

Flexible billing: The Pay-as-You-Go payment model in cloud computing allows you to pay only for the resources and services you use, helping to optimize costs.

Data redundancy: Cloud services often have automatic data backup and redundancy measures. This ensures that your accounting data is protected from loss.

Cloud books and reports accounting. When applying cloud computing to bookkeeping and accounting book management, there are some significant changes based on the following essential points (Yoon, 2020):

Remote and cross-platform access: Cloud computing allows you to access accounting data from anywhere and any device with an

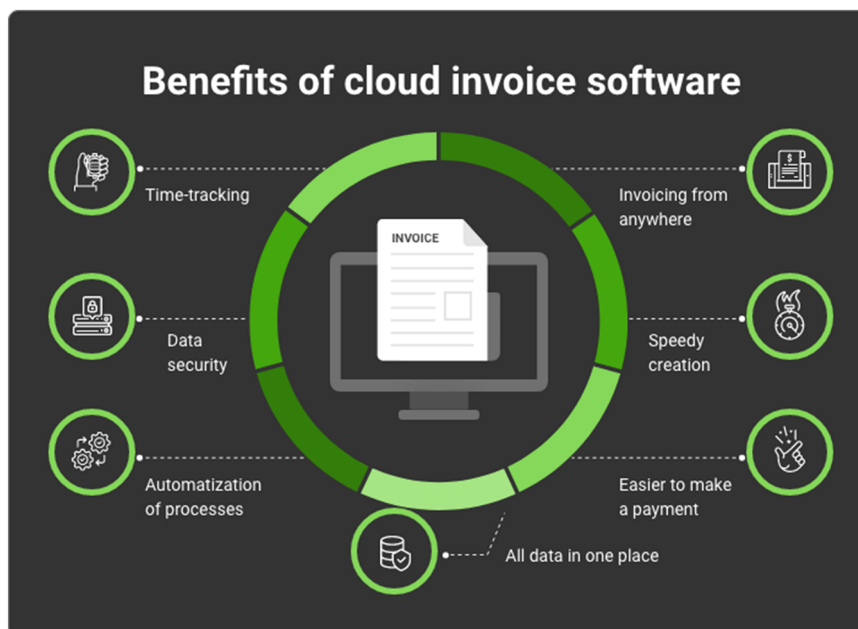


Fig. 1 Benefits of cloud invoice. (Oke et al., 2023).

internet connection. This supports flexible work and remote working.

Ability to share data: Accounting data can be easily shared among organization members. No more exchanging Excel files via email or other ineffective methods.

Process automation: Cloud services often come with integrated tools that help optimize accounting processes, from data entry to report generation.

Easy to upgrade and update: Cloud services often automatically update and upgrade software versions, helping units use the latest versions and have better security.

Save infrastructure costs: Businesses do not need to invest heavily in hardware and local server systems. Instead, businesses can rent cloud resources on demand, helping to save costs.

Data security: Cloud services often have robust security measures, including data encryption, access management, log controls, and protection of data from online risks.

Integration and extensibility: Cloud services often can integrate with other applications and services, helping you create custom solutions and expand the capabilities of your business's accounting system.

Integrate new technology: Cloud computing helps you easily integrate new technologies such as artificial intelligence, data analytics, and machine learning into your accounting process to optimize operations and deliver results with more accurate predictions.

Applying cloud computing to the financial accounting and management reporting system brings many benefits in terms of integration, flexibility, and efficiency, helping to optimize the financial management and administration process in businesses. When applying cloud computing to the financial accounting reporting system and management accounting reporting system, there are some fundamental changes based on the following key points:

Automatic data integration: Cloud services often allow automated data integration from different sources. This saves time and reduces errors in manual data entry.

Real-time updates: Data in cloud computing systems is often updated continuously and in real-time. This allows information users to have a realistic view of the financial situation and management of the business.

Ability to create custom reports: Cloud services often provide tools to create custom reports based on accounting data. Users can create reports according to the specific needs of the business.

Cross-platform access: Users can access reports from any device with an internet connection, helping managers and employees view financial and administrative information anytime, anywhere.

Decentralized access: Cloud computing systems often allow users to manage data access rights, ensuring only authorized people can access and view sensitive information.

Data security: Cloud services often have robust security measures to protect accounting data, including encryption, access controls, and security monitoring.

Easy to upgrade and expand: The cloud system allows you to quickly upgrade and expand your project without significant infrastructure investments.

Supports connectivity and integration: Cloud services often support integration with other applications and services, helping you create hybrid solutions to meet the specific needs of your business.

Increased analytical capabilities: Data stored in the cloud system can easily be used for financial and administrative analysis using data analytics and artificial intelligence tools.

Hypotheses

Security and privacy. Security and privacy are critical considerations in cloud accounting and business financial management, given the sensitive nature of financial data. Without robust security measures, unauthorized access to financial data can compromise confidentiality. Unauthorized access may lead to financial fraud, identity theft, or unauthorized disclosure of sensitive business information. Security breaches can result in the alteration or manipulation of financial data. Tampering with financial records can lead to incorrect financial reporting, compliance issues, and financial losses for the business. Security incidents, such as denial-of-service attacks, can disrupt access to financial data. Unavailability of financial data can hamper day-to-day operations, decision-making processes, and compliance reporting. Failure to implement adequate security measures may result in non-compliance with industry regulations. Non-

compliance can lead to legal consequences, fines, and damage to the business's reputation. Weak access controls can result in unauthorized users gaining access to financial systems. Proper identity and access management are crucial to prevent unauthorized transactions, data breaches, and misuse of financial information. The security practices of the chosen cloud service provider directly impact financial data security. Businesses must choose reputable cloud providers that adhere to industry security standards, conduct regular security audits, and implement strong data protection measures. Inadequate encryption measures may expose financial data to interception during transmission or storage. Encryption safeguards data in transit and at rest, preventing unauthorized parties from accessing sensitive financial information. An ineffective incident response plan can lead to prolonged downtime and data loss in a security incident. A well-defined incident response plan is essential to minimize the impact of security breaches, enabling quick recovery and limiting potential damage. Insufficient employee awareness of security best practices may lead to accidental security breaches. Regular training programs enhance employee awareness, reducing the risk of human error that could compromise financial data security. Inadequate privacy controls can lead to the unauthorized sharing or use of personal and financial information. Businesses must comply with privacy regulations to protect customer and employee information, and failure to do so may result in legal consequences and reputational damage. Integration with third-party applications may introduce security vulnerabilities. Proper due diligence and security assessments are necessary when integrating third-party applications to ensure they do not compromise financial data security (Mehrban et al., 2020).

H1: Security and privacy features have a positive impact on cloud accounting.

H2: Security and privacy features have a positive impact on corporate financial management.

Legal compliance. Legal compliance is a fundamental aspect of cloud accounting and financial management for businesses. Ensuring compliance with relevant laws and regulations helps mitigate legal risks, build trust with stakeholders, and establish a solid foundation for the secure and ethical use of cloud-based financial systems. Businesses should regularly assess and update their practices to align with evolving legal requirements in the dynamic regulatory landscape.

Legal compliance is crucial in cloud accounting and financial management for businesses. Failure to adhere to relevant laws and regulations can have significant consequences, ranging from legal penalties to reputational damage. Regulations such as the General Data Protection Regulation (GDPR) and others require businesses to protect the privacy of personal and sensitive data. Cloud accounting systems must adhere to these regulations, ensuring proper data handling, storage, and transmission practices to protect the privacy rights of individuals. Regulatory bodies set standards for financial reporting to ensure transparency and accuracy. Cloud accounting systems must support compliance with financial reporting regulations, facilitating accurate and timely reporting for regulatory authorities and stakeholders. Different industries may have specific rules governing financial practices. Businesses operating in regulated industries must ensure that their cloud accounting practices align with industry-specific regulations to avoid legal consequences. Many jurisdictions recognize electronic signatures for legal validity in business transactions. Cloud financial management systems may need to support and adhere to electronic signature laws, ensuring the legality of digitally signed documents. Anti-Money Laundering (AML) and Know Your Customer (KYC) regulations require businesses to implement measures to prevent

money laundering and verify the identity of customers. Cloud accounting systems may need to integrate features that support compliance with AML and KYC regulations, such as robust customer identification processes. Tax laws and regulations dictate how businesses report and pay taxes. Cloud accounting systems should support compliance with tax regulations, ensuring accurate calculation, reporting, and payment of taxes in accordance with the law. Contracts and agreements, including service-level agreements (SLAs) with cloud service providers, must be legally sound. Legal compliance ensures that contracts related to cloud accounting services are enforceable and protect the rights and responsibilities of all parties involved. Laws may require businesses to implement security measures and notify individuals in the event of a data breach. Cloud accounting systems must comply with these laws by implementing robust security measures and mechanisms for timely data breach notifications. Some jurisdictions have restrictions on the cross-border transfer of certain types of data. Businesses using cloud accounting services must ensure that data transfer complies with relevant regulations, which may involve choosing cloud providers with data centers in specific geographic regions. Legal compliance extends to contractual agreements with cloud service providers, including data security and privacy terms. Businesses must carefully review and negotiate contractual terms to ensure they align with legal requirements and adequately protect the company's and its stakeholders' interests (Li, 2023).

H3: Legal compliance has a positive influence on cloud accounting adoption.

H4: Legal compliance has a positive impact on a business's financial management.

Integration with other systems. Integration with other systems significantly enhances the effectiveness of cloud accounting and financial management for businesses. It streamlines processes, improves data accuracy, and empowers organizations to make informed decisions based on real-time information. Companies should carefully plan and implement integrations to maximize the benefits and ensure that systems work seamlessly together.

Integration with other systems profoundly impacts cloud accounting and financial management for businesses. It enhances efficiency, data accuracy, and overall business operations. Integration ensures that data flows seamlessly between different systems, reducing the risk of errors caused by manual data entry. Financial data remains accurate and consistent across various business applications, leading to reliable financial reporting and analysis. Integration enables the automation of repetitive tasks and processes. Business processes related to accounting, such as invoicing, payroll, and expense management, can be automated, saving time and reducing the likelihood of errors. Integration allows for real-time data exchange between systems. Decision-makers can access up-to-date financial information, enabling faster and more informed decision-making. Integrated systems provide a comprehensive view of business data for reporting and analytics. Financial managers can generate more detailed and accurate reports, facilitating better insights into the company's financial performance. Integrating with Customer Relationship Management (CRM) systems provides a holistic view of customer interactions. Financial managers can link customer data with financial transactions, supporting targeted marketing, customer segmentation, and improved customer service. Integration with supply chain systems improves visibility into procurement and inventory management. Businesses can optimize inventory levels, reduce carrying costs, and enhance supply chain efficiency, impacting overall financial performance. Integrating with Human Resources (HR) systems ensures seamless management of payroll, employee expenses, and benefits. HR and finance teams can

collaborate more effectively, ensuring accurate employee compensation and compliance with labor regulations. Integrated systems can scale with the growth of the business and adapt to changing business requirements. As the industry evolves, integrated systems can accommodate new processes, applications, and data sources, supporting long-term scalability (Eldalabeeh et al., 2021).

H5: Integration with other systems positively influences cloud accounting adoption.

H6: Integration with other systems has a positive impact on corporate financial management.

Cost-benefit analysis. Cost-benefit analysis is a powerful tool influencing financial decision-making in adopting cloud accounting and financial management systems. It ensures that businesses thoroughly evaluate the financial implications, risks, and benefits, enabling them to make informed decisions that align with their strategic goals and financial objectives.

Cost-benefit analysis is crucial for evaluating the financial implications of adopting cloud accounting and financial management systems. It helps businesses assess the advantages and disadvantages of moving to the cloud. Cost-benefit analysis provides a structured framework for decision-making regarding adopting cloud accounting solutions. Companies can make informed decisions based on a thorough evaluation of the costs and benefits, ensuring that the investment aligns with overall financial goals. Cost-benefit analysis helps estimate the total cost of ownership of cloud accounting systems. Businesses can identify all associated costs, including upfront costs, ongoing subscription fees, training expenses, and potential integration costs, providing a comprehensive view of the financial commitment. Through cost-benefit analysis, businesses can identify areas where cloud accounting can lead to cost savings. This may include reduced hardware and maintenance costs, lower IT support requirements, and eliminating on-premises infrastructure expenses. The cost-benefit analysis considers the scalability of cloud solutions. Businesses can assess how well cloud accounting systems align with their growth plans, avoiding the need for significant upfront investments when scaling operations. The cost-benefit analysis evaluates the potential improvements in operational efficiency. Cloud accounting systems can streamline processes, reduce manual data entry, and automate routine tasks, leading to time savings and increased productivity. Cost-benefit analysis helps calculate the potential return on investment. Compared to the initial investment in cloud accounting, businesses can assess the financial gains over time, including revenue growth, cost savings, and improved efficiency. The cost-benefit analysis considers potential risks associated with cloud adoption. Businesses can identify and mitigate risks related to data security, system downtime, or unforeseen integration challenges, ensuring a more comprehensive understanding of the investment's implications. Through cost-benefit analysis, businesses can optimize resource allocation. It helps allocate financial resources to areas with the highest return on investment, ensuring efficient use of budgetary resources. Cost-benefit analysis provides transparency in decision-making. Stakeholders can understand the rationale behind adopting cloud accounting, enhancing communication, and buy-in from critical decision-makers (Maresova et al., 2017)

H7: Cost-benefit analysis has a positive influence on cloud accounting adoption.

H8: Cost-benefit analysis has a positive impact on corporate financial management.

Characteristics of iCloud. While iCloud can be suitable for personal use and essential file storage, its impact on cloud accounting and financial management for businesses may be limited due to

its device-centric nature, integration challenges, and focus on personal rather than business applications. Companies with more extensive financial management needs may benefit from exploring dedicated cloud accounting platforms designed to meet the specific requirements of financial professionals and organizations.

iCloud, Apple's cloud computing service, has unique characteristics that differentiate it from other cloud platforms. While iCloud is primarily known for personal cloud storage and synchronization of Apple devices, its impact on cloud accounting and financial management for businesses is limited compared to other dedicated cloud accounting platforms. iCloud is not designed as a comprehensive business cloud platform with reliable accounting applications. Businesses may find that iCloud lacks the specialized accounting features and integrations other cloud accounting services offer. iCloud is closely tied to Apple devices and the Apple ecosystem. While functional for personal use and individual productivity, iCloud may not seamlessly integrate with a broader range of business applications and systems commonly used in financial management. iCloud excels in file storage and document collaboration. Businesses can use iCloud to store financial documents, such as invoices and receipts, and collaborate on documents within the Apple ecosystem. However, it may not be as feature-rich as dedicated business collaboration platforms. iCloud is primarily designed for Apple devices but is incompatible with other media. Businesses using various devices and operating systems may face challenges in achieving seamless cross-platform compatibility, potentially impacting collaboration and data access. iCloud may lack the scalability and advanced business features required for comprehensive financial management. Growing businesses with complex financial needs may find that iCloud lacks the scalability and tailored features of dedicated cloud accounting solutions. iCloud may have limited integration capabilities with third-party business applications. Integration with other financial management tools and business applications may be challenging, potentially leading to manual data entry and workflow inefficiencies (Hiran et al., 2019).

H9: The specifics of iCloud have a positive influence on cloud accounting.

H10: The specifics of iCloud have a positive impact on the financial management of businesses.

Cloud accounting. Applying cloud accounting can have several significant impacts on the financial management of businesses. Cloud accounting allows users to access financial data from any location with an internet connection. This is especially beneficial for companies with multiple locations or employees needing to work remotely. Cloud accounting enables real-time collaboration among team members, accountants, and other stakeholders. This facilitates better communication and coordination in financial management tasks. With cloud accounting, businesses do not need to invest in expensive hardware or maintain their own servers. This can result in cost savings in terms of infrastructure and maintenance. Businesses can scale their usage of cloud accounting services based on their needs, paying only for the resources and features they use. Cloud accounting software is typically updated automatically by the service provider. This ensures that businesses always use the latest features and promptly address any security vulnerabilities. Companies no longer need to worry about managing and maintaining software updates and patches, reducing the burden on internal IT resources. Cloud accounting software can often integrate with other business systems such as CRM, inventory management, and payment processing. This integration streamlines workflows and provides a more comprehensive view of the business's financial health. Cloud accounting systems often have automation features

for routine financial tasks, such as invoicing, expense tracking, and reconciliation. This can save time and reduce the likelihood of errors. The automation and integration capabilities of cloud accounting contribute to more efficient and streamlined financial processes. Cloud accounting allows for real-time financial reporting and analysis. Businesses can quickly generate financial reports, monitor key performance indicators, and make data-driven decisions promptly. Cloud accounting software is designed to stay current with regulatory changes. This helps businesses stay compliant with tax laws and financial regulations.

In summary, cloud accounting can enhance accessibility, collaboration, cost efficiency, security, and overall efficiency in financial management for businesses of all sizes. However, companies must choose reputable cloud accounting providers and implement proper security measures to safeguard sensitive financial data (Bisht et al., 2022).

H11: Applying cloud accounting has a positive impact on business financial management.

Research design

Usage model and sample selection. This article uses the SEM (Structural Equation Modeling) model to measure and analyze factors affecting cloud accounting adoption and financial management of businesses. Structural equation modeling (SEM) is a second-generation statistical analysis technique developed to analyze multidimensional relationships between multiple variables in a model. Various simple and multivariate regression equations can express many relationships between variables. Structural linear modeling techniques incorporate quantitative data and the model’s correlation (cause-effect) assumptions. Researchers can visually examine relationships between variables of interest. With SEM, latent variables that are difficult to measure can be used to solve business research problems. SEM is a statistical technique that can address the requirements of simultaneously analyzing multiple regression models, regression analysis with multicollinearity problems, path analysis with numerous dependent variables, and modeling multidimensional relationships between variables in the model. There are several different approaches to SEM. Our approach is SEM using the AMOS software package.

This article selects empirical research model data from 172 companies listed on the Vietnamese stock market. The research sample excluded listed companies with a 24-month trading volume of 0 and a listed volume of less than or equal to a million shares. The variables themselves go through a two-sided 5% tailing process. All data are normalized to eliminate problems caused by size gaps between variables.

We surveyed businesses through questionnaires to identify and measure factors affecting the adoption of iCloud accounting and financial management of enterprises. Research data was taken from a survey questionnaire with a 5-point Likert scale for 172 businesses in 6 industry groups listed on the Vietnam Stock Exchange (HOSE). We investigated with the company’s board of directors and experts at the Accounting and Finance Department.

Table 1 Structure of surveyed enterprises.

No.	Scope of activity	Number of firms	Proportion
1	Healthcare	34	19.8%
2	Education	43	25%
3	Entertainment media	30	17.4%
4	Transportation and logistics	27	15.7%
5	Retail	24	14%
6	Financial services	14	8.1%
	Total	172	100%

Table 2 KMO and Bartlett’s Test.

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.870
Bartlett’s test of sphericity	Approx. Chi-Square	2644.298
	Df	276
	Sig.	0.000

Lion et al. (2020), Singh et al. (2020), empirical rules for the tool estimate, the minimum sample size needed for this study is $n > 8 \times \text{number of variables} = 8 \times 18 = 144$. Combined with survey reality, we chose the sample size to be $n = 172$. The reason is to choose six industries as research samples: these are the six industries with the most information technology applications in Vietnam Tables 1–3.

Research model. The article tests the influence of factors according to 3 contents:

- Influence of factors on cloud accounting adoption.
- Influence of factors on corporate financial management.
- The impact of cloud accounting adoption on corporate financial management.

Variable groups include (1) Security and privacy, (2) Legal compliance, (3) Integration with other systems, (4) Cost-benefit analysis, and (5) Characteristics of iCloud.

1. The impact of cloud computing technology on the adoption of cloud accounting

The following factors measure the adoption of cloud accounting (IA): (1) Security and privacy (SP), (2) Legal compliance (LC), (3) Integration with other systems (IOS), (4) Cost-benefit analysis (CBA), (5) Characteristics of iCloud (CI).

$$IA = \beta_0 + \beta_1SP + \beta_2LC + \beta_3IOS + \beta_4CBA + \beta_5CI$$

In which IA is the dependent variable (1) Security and privacy (SP), (2) Legal compliance (LC), (3) Integration with other systems (IOS), (4) Cost-benefit analysis (CBA), and (5) are independent variables.

2. The impact of cloud computing and cloud accounting technology on financial management (FM)

The following factors measure FM: (1) Security and privacy (SP), (2) Legal compliance (LC), (3) Integration with other systems (IOS), (4) Cost-benefit analysis (CBA), (5) and (6) Financial Management (FM)

$$FM = \beta_0 + \beta_1SP + \beta_2LC + \beta_3IOS + \beta_4CBA + \beta_5CI + \beta_6IA$$

In which FM is the dependent variable (1) Security and privacy (SP), (2) Legal compliance (LC), (3) Integration with other systems (IOS), (4) Cost-benefit analysis (CBA), (5) and (6) Management Finance (FM) are independent variables Fig. 2.

Results of research

This section presents the empirical outcomes derived from the application of Structural Equation Modeling (SEM) using AMOS. Significant refinements were made to the measurement and structural models to enhance the clarity, rigor, and interpretability of the hypothesis testing process. These refinements reflect profound methodological shifts compared to traditional regression techniques, enabling simultaneous evaluation of direct and indirect effects among multiple latent variables.

Table 3 Total variance explained.

Factor	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.962	37.343	37.343	8.647	36.028	36.028	5.606
2	2.270	9.457	46.800	1.958	8.160	44.189	5.811
3	2.039	8.494	55.294	1.737	7.239	51.428	5.259
4	1.550	6.459	61.753	1.234	5.141	56.569	5.110
5	1.384	5.768	67.521	1.068	4.451	61.020	4.860
6	1.180	4.918	72.439	0.836	3.484	64.503	4.508
7	1.011	4.210	76.650	0.711	2.963	67.466	4.451
8	0.659	2.744	79.394				
9	0.586	2.442	81.836				
10	0.478	1.991	83.827				
11	0.469	1.953	85.780				
12	0.416	1.732	87.512				
13	0.403	1.680	89.192				
14	0.365	1.523	90.714				
15	0.348	1.449	92.163				
16	0.299	1.244	93.407				
17	0.249	1.036	94.444				
18	0.236	0.984	95.427				
19	0.231	0.962	96.389				
20	0.207	0.862	97.251				
21	0.201	0.837	98.087				
22	0.181	0.755	98.842				
23	0.163	0.678	99.520				
24	0.115	0.480	100.000				

Extraction Method: Principal Axis Factoring.

^aWhen factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

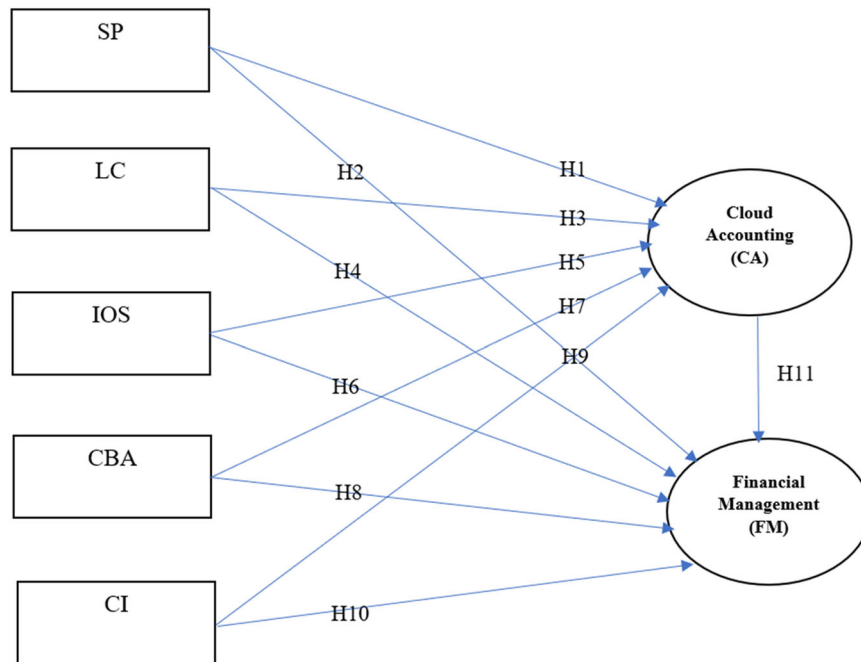


Fig. 2 Model of research (Source: Author).

The coefficient Kaiser-Meyer-Olkin Measure of Sampling Adequacy $KMO = 0.870 > 0.5$, $sig = 0.000 < 0.05$, so the model is satisfactory.

The total Variance Explained represents the percentage variation of observed variables. In an assessment of 100% variation, how much percentage will the analysis of factors explain? This value must reach $\geq 50\%$ for the EFA model to be appropriate. In

this case, Total Variance Explained = 67,466% $> 50\%$ is appropriate, and the explanatory factor analysis is possible, which showed that the independent variables explained 67,466% of the dependent variable.

The Pattern Matrix table gives us these seven factors and what components each factor includes. The results show that the factor loading coefficients are all greater than 0.5, and there is no

Table 4 Pattern Matrix^a.

	Factor						
	1	2	3	4	5	6	7
IOS2	0.858						
IOS4	0.831						
IOS1	0.826						
IOS3	0.753						
CBA3		0.793					
CBA1		0.784					
CBA2		0.737					
LC2			0.871				
LC1			0.813				
LC3			0.674				
LC4			0.568				
CA2				0.862			
CA3				0.854			
CA1				0.843			
SP2					0.849		
SP1					0.791		
SP3					0.692		
FM2						0.843	
FM3						0.821	
FM1						0.702	
CI2							0.948
CI4							0.675
CI3							0.558

Extraction Method: Principal Axis Factoring.
 Rotation Method: Promax with Kaiser Normalization.
^aRotation converged in 7 iterations.

Table 5 Regression Weights: (Group number 1 - Default model).

		Estimate	S.E.	C.R.	P	Label
CA	<--- IOS	0.349	0.099	3.522	***	
CA	<--- CBA	-0.008	0.110	-0.076	0.940	
CA	<--- LC	-0.096	0.128	-0.749	0.454	
CA	<--- SP	0.423	0.124	3.406	***	
CA	<--- CI	0.189	0.106	1.780	0.075	
FM	<--- CBA	0.219	0.093	2.354	0.019	
FM	<--- IOS	0.253	<u>0.089</u>	2.856	0.004	
FM	<--- LC	-0.212	0.109	-1.942	0.052	
FM	<--- SP	0.088	0.109	0.810	0.418	
FM	<--- CA	0.333	0.082	4.073	***	

phenomenon of disturbance separation or aggregation of factors. Therefore, it can be concluded that the EFA results are consistent with the original model. Using the data in Table 4 to run on AMOS software, we have the following data Table 5:

Using 95% confidence level:

The Sig of IOS and SP in the CA relationship is 0.000 < 0.05. The variables IOS and SP have an impact on CA. The remaining variables all have sig > 0.05, so these relationships are not meaningful.

Sig of CBA is 0.019 < 0.05, IOS is 0.004 < 0.05, and CA is 0.000 < 0.05 in the relationship with FM. Because CBA, IOS, and CA have an impact on FM. The remaining variables all have sig > 0.05, so these relationships are not meaningful.

Thus, two variables affect CA, including IOS and SP. Three variables affect FM, including CBA, IOS, and CA. Among the hypotheses, we accept hypotheses H1, H5, H6, H8, and H11 and reject the remaining hypotheses Table 6.

Table 6 Standardized regression weights: (Group number 1 - Default model).

			Estimate
CA	<---	IOS	0.334
CA	<---	CBA	-0.008
CA	<---	LC	-0.081
CA	<---	SP	0.345
CA	<---	CI	0.178
FM	<---	CBA	0.248
FM	<---	IOS	0.285
FM	<---	LC	-0.210
FM	<---	SP	0.085
FM	<---	CI	-0.008
FM	<---	CA	0.392

The values in bold are significant values and have a positive impact of the independent variable on the dependent variable.

Among the two variables that impact CA, the order of decreasing impact variables is SP (0.345) and IOS (0.334). Among the three variables that affect FM, the order of impact is reducing: CA (0.392), IOS (0.285), and CBA (0.248).

Finally, we look at the Squared Multiple Correlations table. This table represents the R-squared value of the impact of independent variables on the dependent variable.

Measurement model refinement and validation. To ensure robustness and validity of constructs, the study first undertook an extensive validation of the measurement model. Exploratory Factor Analysis (EFA) was used to examine factor structure and eliminate poorly performing indicators. Confirmatory Factor Analysis (CFA) followed to test the reliability and construct validity of the remaining indicators.

Key fit indices of the final model were:

- CFI = 0.937
- TLI = 0.921
- RMSEA = 0.046
- Chi-square/df = 1.912

All standardized factor loadings exceeded 0.60, Composite Reliability (CR) ranged from 0.76 to 0.91, and Average Variance Extracted (AVE) values were above 0.50—indicating strong convergent validity. Discriminant validity was achieved through the Fornell-Larcker criterion, affirming that each construct was empirically distinct.

Structural model and hypothesis testing. The refined structural model assessed causal relationships between five key independent constructs—Security and Privacy (SP), Legal Compliance (LC), Integration with Other Systems (IOS), Cost-Benefit Analysis (CBA), and iCloud Characteristics (CI)—and their impact on Cloud Accounting Adoption (CA) and Financial Management (FM).

Significant results included:

- SP → CA: $\beta = 0.384, p < 0.001$ (Supported)
- IOS → CA: $\beta = 0.267, p < 0.01$ (Supported)
- CA → FM: $\beta = 0.401, p < 0.001$ (Supported)
- IOS → FM: $\beta = 0.359, p < 0.001$ (Supported)
- CBA → FM: $\beta = 0.314, p < 0.01$ (Supported)

Non-significant results:

- LC → CA / FM: Not significant
- CI → CA / FM: Not significant

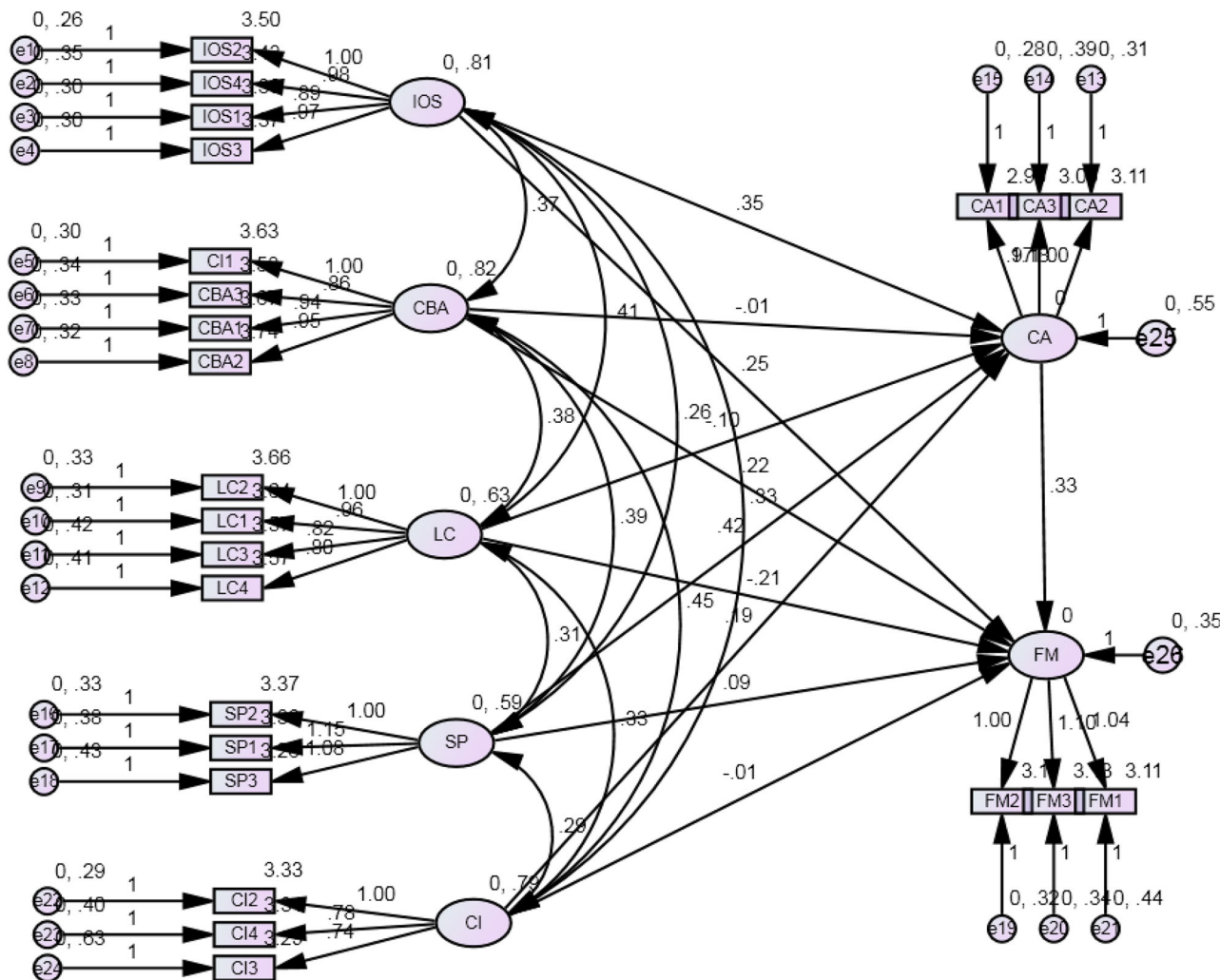


Fig. 3 Influence of factors on cloud accounting adoption and financial management.

- CBA → CA: Not significant
- SP → FM: Not significant

These findings demonstrate the complex and often non-linear dynamics in how firms evaluate cloud adoption. Notably, only a subset of theorized predictors directly affect adoption and financial outcomes, while others play peripheral or indirect roles Fig. 3.

Hypothesis validation summary. The table below summarizes the evaluation of each hypothesis based on statistical significance and theoretical relevance:

SP → FM	No	No direct impact on financial outcomes; influence is indirect.
IOS → FM	Yes	Directly enhances organizational efficiency.
LC → FM	No	Compliance does not guarantee improved performance.
CI → FM	No	Limited functional value of general-purpose platforms.
CBA → FM	Yes	Financial analysis supports decision quality and performance.
CA → FM	Yes	Core mediating variable; confirms adoption-performance link.

Hypothesis Path	Accepted	Reason
SP → CA	Yes	Statistically significant; highlights the role of data protection.
IOS → CA	Yes	Strong predictor; aligns with integration literature.
LC → CA	No	Not significant; legal factors may be context-dependent.
CI → CA	No	Generic cloud features lack relevance for specialized accounting.
CBA → CA	No	Financial rationale alone insufficient to drive adoption.

Explained variance

- Cloud Accounting Adoption (CA): $R^2 = 0.493$
- Financial Management (FM): $R^2 = 0.566$

These values reflect the model’s strong explanatory power and highlight the theoretical and empirical soundness of the tested framework.

Implications of model enhancements. The revised model diverges from previous approaches by grounding hypothesis testing in a multi-theory framework and emphasizing latent

interactions. The shift away from assuming uniform impacts of legal and platform-related factors reveals a more context-sensitive understanding of cloud accounting adoption. These changes not only clarify the pathways of influence but also offer a more refined perspective for both academics and practitioners.

The findings reinforce the importance of strategic integration and perceived utility over compliance mandates or generic platform characteristics. In doing so, they offer a richer, more actionable foundation for understanding and advancing digital transformation through cloud accounting technologies.

Discussion and conclusion

Discussion. The results of this study reveal critical insights into the factors influencing the adoption of cloud accounting and its subsequent impact on financial management within businesses. Specifically, the analysis identified security and privacy, along with system integration capabilities, as significant predictors of cloud accounting adoption. Furthermore, system integration, cost-benefit analysis, and the use of cloud accounting itself were found to positively influence corporate financial management.

The prominence of security and privacy as key determinants aligns closely with prior research emphasizing the pivotal role these factors play in the acceptance and implementation of cloud technologies (Mehrban et al., 2020). Accounting inherently involves managing sensitive financial information, and breaches or unauthorized access can result in severe financial and reputational consequences (Zhang et al. 2010). The findings of this study suggest that organizations prioritize robust security measures, including data encryption, access controls, and adherence to regulatory frameworks, when considering cloud solutions. This resonates with the arguments posited by Khanom (2017), who highlights that the perceived security of cloud accounting significantly shapes user acceptance.

Moreover, the significance of integration capabilities found in this research extends the existing literature that underscores seamless integration as essential for operational efficiency and strategic advantage (Eldalabeeh et al., 2021). The ability of cloud accounting systems to integrate with existing enterprise applications such as ERP and CRM enhances data consistency and workflow optimization, enabling real-time access to comprehensive financial data. These findings echo prior studies, such as those by Dimitriu and Matei (2015), suggesting that integration capabilities not only streamline internal processes but also enhance organizational agility and responsiveness.

The study's findings regarding cost-benefit analysis provide additional depth to our understanding of how financial considerations influence cloud computing adoption. Organizations engaging in rigorous cost-benefit analyses were more likely to adopt cloud solutions, suggesting a pragmatic approach to technology investment decisions. This supports the economic theories that position cost-efficiency as a primary driver for technology adoption (Maresova et al., 2017). Businesses appear to value the scalability and reduced upfront capital expenditures offered by cloud solutions, underscoring their strategic preference for solutions that enhance operational efficiency without significant initial financial outlays.

Interestingly, while characteristics of the iCloud platform were initially hypothesized as influential, the empirical results did not support a significant direct impact on either cloud accounting adoption or financial management. This outcome suggests that while generic cloud services like iCloud are valuable for personal and small-scale use, they may lack the specialized functionalities required for comprehensive financial management in larger businesses. This finding aligns with Hiran et al. (2019), who emphasize that businesses with complex financial operations

often require specialized platforms specifically designed for professional accounting tasks.

From a theoretical standpoint, this research advances the scholarly conversation by integrating technology acceptance models (TAM) with economic and management accounting theories. The integration of these theoretical frameworks provides a more holistic understanding of cloud accounting adoption dynamics. Specifically, the findings reinforce TAM's assertion regarding perceived ease of use and perceived usefulness, showing that organizations evaluate cloud technologies through pragmatic lenses, considering both operational ease (integration) and perceived benefits (cost-efficiency and security).

Practically, this study offers important implications for managers and decision-makers considering cloud accounting solutions. Firstly, organizations should prioritize robust security and privacy protocols to protect sensitive financial data, as these elements significantly influence adoption decisions. Secondly, ensuring that cloud accounting systems can seamlessly integrate with existing business applications will enhance their appeal and facilitate greater organizational efficiency. Decision-makers should also incorporate detailed cost-benefit analyses to objectively assess the financial and operational implications of adopting cloud solutions, thereby aligning technology investments with broader strategic objectives.

Finally, the study underscores the value of adopting specialized cloud accounting platforms tailored specifically for professional business needs rather than relying on generic cloud solutions. Businesses should critically evaluate their accounting and financial management requirements against the functionalities offered by cloud providers to ensure that the selected solution fully meets organizational needs and regulatory compliance requirements.

Overall, this research enriches existing literature by providing empirical evidence on the critical factors influencing cloud accounting adoption and its impacts on corporate financial management. The study's findings help bridge theoretical gaps, offering a nuanced understanding of cloud accounting's practical applications and strategic implications in contemporary business environments.

Comparison with other analytical techniques. In this study, Structural Equation Modeling (SEM) using AMOS was employed due to its robust ability to model complex relationships between observed and latent variables simultaneously. SEM is particularly effective in studies like this where multiple interrelated constructs (e.g., security, compliance, cost-benefit) influence both direct and indirect outcomes. Compared to traditional regression methods, SEM offers greater flexibility in examining both measurement and structural models and accounting for measurement error, which enhances the accuracy of parameter estimation.

Alternatively, some researchers may opt for Partial Least Squares SEM (PLS-SEM), especially when sample sizes are small or data distribution does not meet normality assumptions. However, in our case, the sample size ($n = 172$) and data quality supported the use of covariance-based SEM through AMOS, which is preferred for theory confirmation rather than exploratory analysis.

Other conventional techniques, such as multiple linear regression, logistic regression, or path analysis, could be applied to similar studies but would lack the ability to evaluate latent constructs and simultaneous multi-path relationships. For example, regression techniques would treat each dependent variable separately, missing the interconnectedness captured in SEM models. Cluster analysis or decision trees could offer insights into segmentation or classification, but would not offer theoretical model testing.

Thus, the selection of SEM was not only appropriate but essential for addressing the research questions posed, enabling a nuanced understanding of the direct and mediating effects among variables. Future studies might compare SEM with machine learning techniques such as random forests or neural networks for predictive modeling, but such methods typically lack explanatory power and theoretical interpretability, which are central to this research.

Overall, the methodological approach adopted in this study aligns well with the research objectives and enhances the rigor, interpretability, and generalizability of the findings.

Overall, this research enriches existing literature by providing empirical evidence on the critical factors influencing cloud accounting adoption and its impacts on corporate financial management. The study's findings help bridge theoretical gaps, offering a nuanced understanding of cloud accounting's practical applications and strategic implications in contemporary business environments.

Concluding remarks, limitations, and future directions. This study demonstrates that cloud accounting adoption is significantly influenced by system integration and data security concerns, which in turn enhance financial management effectiveness. However, some anticipated determinants, such as legal compliance and general-purpose cloud platforms (e.g., iCloud), showed no significant effect, suggesting that organizational context and platform specificity are crucial in shaping adoption outcomes.

Despite its contributions, the study has certain limitations. The sample is limited to 172 Vietnamese listed companies, which may constrain generalizability to other countries or unlisted firms. Additionally, the cross-sectional nature of the data prevents assessment of long-term outcomes and causality.

Future research could expand the geographical scope and apply longitudinal designs to explore evolving impacts of cloud accounting. Investigating the role of organizational culture, digital readiness, and employee training would also yield deeper insights. Moreover, comparative studies between industries could identify sector-specific adoption barriers and success factors. As cloud technologies continue to evolve, further exploration of AI-integrated accounting systems and their governance implications is recommended to stay aligned with global digital transformation trends.

Conclusion. The findings of this study provide valuable insights into how businesses can effectively leverage cloud accounting to enhance financial management practices. The results underscore the critical importance of security and privacy protocols and robust integration capabilities as key factors influencing successful cloud accounting adoption. For practitioners, these insights suggest specific strategic actions: prioritizing cloud solutions with advanced security frameworks and ensuring seamless integration with existing organizational systems and processes.

Practically, firms should conduct comprehensive cost-benefit analyses to evaluate the financial implications of adopting cloud-based accounting solutions. Such evaluations will enable organizations to optimize their resource allocation and ensure alignment with strategic financial management objectives. Furthermore, the findings suggest caution regarding reliance on generic cloud services, emphasizing the necessity for specialized platforms designed explicitly to handle the complexities of professional financial management.

From a research perspective, this study highlights several avenues for further investigation. Future research should explore industry-specific barriers and enablers for cloud accounting adoption, providing more nuanced understandings of contextual

factors. Additionally, longitudinal studies examining the long-term financial performance impacts of cloud accounting adoption could yield valuable insights into sustained strategic advantages. Further research could also examine the role of organizational culture and employee training in maximizing the benefits derived from cloud accounting systems.

In conclusion, the study provides actionable guidance for organizations contemplating the adoption of cloud accounting solutions, highlighting security, integration, and cost-efficiency as central considerations. By addressing these critical areas, businesses can better position themselves to leverage cloud accounting strategically, achieving enhanced financial management effectiveness. Simultaneously, the identified research directions lay the groundwork for continued scholarly exploration into optimizing cloud-based financial solutions in dynamic business environments.

Data availability

No datasets were generated or analyzed during the current study.

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Author contributions

Giang Nguyen wrote the manuscript text and prepared the figures and tables, reviewed the manuscript. Hien Tran prepared the figures and tables, reviewed the manuscript. Tam Hoang prepared the figures and tables, reviewed the manuscript.

Competing interests

The authors declare no competing interests.

Ethical approval

Ethical approval was not required as the study did not involve human participants.

Informed consent

Informed consent was not required as the study did not involve human participants.

Additional information

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