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PREGLEDNI NAUČNI RAD / REVIEW SCIENTIFIC PAPER

ACCOUNTING AND AUDITING IN EMBEDDED FINANCE FIELD: CASE OF TÜRKIYE

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Abstract: *The integration of banking services into nonfinancial applications and services is called embedded finance. Former research show that even though not yet saturated, there are satisfactory pioneering applications of embedded finance in Turkish market, and consumers welcome embedded finance applications in Türkiye. However, there is lack of literature focusing on embedded finance in Türkiye, let aside accounting and auditing in embedded finance field. This study aims to fill this gap. Practitioner-scholar approach is applied; where trade publications, industry reports, and expert analyses are used along with academic research. International Standards on Auditing (ISAs), International Financial Reporting Standards (IFRS), International Accounting Standards (IAS) and other relevant legislation are the complementary sources of the research. Findings are that literature is not homogeneous from several aspects, and regulations and guides are not exactly addressing the issues related to the embedded finance. Practical implications are the messages it conveys to the regulatory bodies. The paper is original in that it is one of the pioneering researches handling the topic. Therefore, it adds value to the newly accumulating field.*

Keywords: *accounting, auditing, embedded finance, legislation, fintech*

JEL Codes: *C80, G18, G20, G28, M41, M42*

INTRODUCTION

Embedded finance, as described by the World Bank, refers to the effortless integration of financial services into products or platforms that are not primarily financial in nature. Closely related is the concept of contextualized finance, which the glossary defines as delivering financial services within the flow of another activity or process. Practical illustrations include embedding payment options directly into ride-hailing apps or enabling customers to secure loans while shopping on e-commerce platforms. Examples would be the integration of payments into the ride activity on a ride-hailing

platform, taking out a loan on an e-commerce platform (World Bank Group, 2022). The boundaries between financial and non-financial activities are becoming increasingly indistinct, posing complex challenges for both the private sector and regulatory and supervisory authorities (Institute of International Finance (IIF), Deloitte Global, 2023).

As quoted by Zaytoun and Elhoushy from Richins et al. (2017), the advancement of financial technology highlights the increasing necessity for forward-thinking professional accountants with strong digital literacy, capable of advising organizations on how to respond to the challenges and exploit the opportunities presented by the ongoing evolution of FinTech (2024). Fintech, along with Payments, Banking and accounts, FX and treasury, Marketplaces and platforms, ForEx and online brokerage, Insurtech, and Digital assets, is one of the embedded finance solutions (OpenPayd, 2025). However, it serves as the core concept for embedded finance. It is essential not only accountants, but also the regulatory bodies, standard setters, and oversight bodies be forward-thinking. In line with their findings, Kend and Nguyen apprehend that audit rules are to be embedded in the objects or practices of socio-technical systems of the innovation theory. Additionally, external auditors have to be enthusiastic in engaging with new audit technologies, while regulators and standard setters are challenged to keep up with the pace of change (2022).

Technical details of embedded finance, the evolution of it, and examples of its applications can be found in the predecessor of this article by the author (2026). Therefore, except for some minor necessary quotations, for the sake of avoiding repetition, this research focuses on the remaining aspects of embedded finance and the legislation part. The services embedded finance infrastructures offer are (OpenPayd, 2025): Accept Payments, Send Payments, Banking-as-a-Service, Open Banking, Virtual IBANs, and Foreign Exchange transactions. Digital advertising mentioned by Ristić et al. (2026), Electronic commerce handled by Milovanović et al. (2026), Restaurant operations (Dalton, 2026), Human Resources-employee training (Ostin, 2026), and higher education (Trávníčková, 2026) are some sectors and businesses benefiting from digitization, digital technologies, Artificial Intelligence (AI) and the like. AI, in general, contributes to forming the base for much technological advancement. Embedded finance is one of these. Several sectors and companies of all sizes benefit from embedded finance (Mikro Yazılım, 2024): E-commerce sector—embedded payment & credit options offered to customers, make their shopping experience easier; Retail sector—stores offer instant credit and/or insurance to customers with embedded finance application programming interfaces (APIs); Software service providers—integrate financial services into their accounting & business management software; Healthcare sector—provide patients with financing & payment plans, making it easier to access services; Transportation & travel sectors offer the insurance & payment solutions, and Education, real estate, and energy sectors operate similarly. Embedded finance requires rapid service delivery and improvements. Cloud platforms, advanced software development methodologies, and novel application infrastructures serve as the operational backbone of embedded finance. Advances in cloud technologies have driven the emergence of novel digital platforms, enabling organizations to deliver and scale digital services with greater efficiency. By enabling banks to build and administer micro-services and APIs under rigorous security protocols, these platforms safeguard opera-

tions while providing the seamless digital experiences that financial services clients demand. Cloud platforms assemble the necessary tools and capabilities to support the development of micro-services and APIs, embedding them within continuous integration/continuous delivery (CI/CD) pipelines and development, security, and operations (DevSecOps) practices (Red Hat, 2023).

Key findings of Institute of International Finance (IIF) in its 2021 dated report puts forth that cloud adoption by financial institutions (FIs) is increasing, and in some cases accelerating. Many authorities—Asian central banks, monetary authorities, bank supervisors and securities regulators in region, including both IIF members and non-members—have seen FIs migrate non-core services, and several authorities now oversee cloud-native FIs, while fewer have seen mainly smaller banks migrating core services to the cloud (White, L., & Ferenzy, D., 2021 November). Regulators who took part in this survey then assess cloud adoption as a form of outsourcing, where FI is the responsible entity. Rather than emphasizing the risks of not adopting cloud, they see their role as ensuring that FIs manage the risk of cloud adoption (*ibid.*). Benefits of cloud adoption as perceived by the survey attending regulators are listed as such (*ibid.*): (1) Cost savings, (2) General efficiency gains, (3) Agility/flexibility, (4) Enabling other services/technologies like AI/Machine learning (ML), (5) Enhanced cyber-security, and (6) Operational/cyber resilience. As stated by World Bank, Fintech—listed among embedded finance solutions—is transforming the global financial landscape. While creating new opportunities to advance financial inclusion and development in Emerging Markets and Developing Economies (EMDEs), it also presents risks that require updated supervision policy frameworks (World Bank, 2022). The report puts forth that new entrants operating exclusively in the digital space appear more vulnerable to certain risks such as misconduct and fraud, integrity risks, cyber-attacks, or lack of solvency due to undercapitalization; otherwise, Fintech risks are similar in nature to those of traditional financial activities, but their pace of materialization and impact can differ significantly. Another source of increasing operational risk is the higher reliance on third-party service providers such as cloud-computing firms. The report summarizes that the advice draws a proportionate and targeted regulatory framework that will help keep Fintech risks within tolerable levels while promoting innovation, competition, and development (*ibid.*).

Developing technological and operational capabilities that enable interoperability among organizations from diverse sectors, backgrounds, regulators, and expectations is a significant and crucial challenge requiring substantial collaboration between the public and private sectors (Institute of International Finance (IIF), Deloitte Global, 2023). Among developing technological capabilities Werner et al. highlight process mining as a data-analysis method, which facilitates the automated examination of business processes and can be incorporated into contemporary audits (2021). In their review of 32 ABS-listed articles Abderrahman and Makarem (2026) compile six emerging technologies in external auditing (1) Big Data, (2) Blockchain, (3) ML, (4) Deep Learning, (5) AI, and (6) Robotic Processes Automation—RPA. Stewart and Free (2026) state that AI and ML reshape accounting judgement. Even though it requires tight governance for privacy, accuracy and accountability, Artificial Intelligence—specifically Generative Artificial Intelligence—is beneficial (1) at narrative disclosure analyses, contracts, and ESG reports, (2) can be used for summarizing, ex-

tracting terms, and drafting work papers, and (3) transforms linguistic information into quantifiable signals. ML provides a new method for generating and testing accounting knowledge, expanding what counts as evidence and producing probability-based assessments instead of binary categories. It redirects scrutiny from structural readings to the resilience, consistency, and governance of AI models (*ibid.*). Unstructured and structured accounting data in real time—journal entries, receipts, invoices, emails, spreadsheets, and transaction logs—often exhibit irregular formats, semantic ambiguity, and inconsistent quality (Liu, 2025). According to Liu, new technical challenges in data representation are introduced by this diversity and processing that traditional systems fail to accommodate (p. 193233). Zaytoun and Elhoushy have observed the emergence of novel professional services tailored to the FinTech landscape. Given their expertise, independence, objectivity, and professional experience, auditors are well positioned to deliver assurance services to technology adopters and to assume expanded roles in the future. Examples of such prospective services include the audit of smart contracts, provision of trust assurance within Blockchain ecosystems, functioning as a central administrator, and serving as an arbiter in dispute resolution (2024, p. 205).

The present research owes its presence to the observation that there is a lack of satisfactory literature putting embedded finance in the center, and the scarcity of academic research, which examines accounting and auditing together by relating them to embedded finance. Therefore, the objective of this research is filling this gap by examining the Turkish and international legislation side by side, also by referring to the scattered information and prior research available.

One of the findings of this research is that regulations related to payment services, electronic money, banking, and data protection guide the embedded finance practices in Türkiye. Another finding is from the international arena, where IFRS 15 (Revenue), IFRS 9 (Financial Instruments), IFRS 15/IFRS 17 (Insurance), and IFRS 9/IFRIC 9 (Derivatives) fulfills the legislative part. Our results suggest that some more specific legislative action is needed in the near future. The rest of the paper proceeds as follows. Section 2 reviews the relevant literature. Section 3 explains the research methodology. Section 4 examines and compares the Turkish and international legislation. Section 5 provides the discussion and concluding remarks.

LITERATURE REVIEW

As Werner et al. cited from IFAC (2016), the rise in automated transaction processing, the growing heterogeneity of source systems, the increased complexity of business processes, and the expanding volume and variety of generated data collectively create significant new challenges for public accountants. Furthermore, international and national auditing standards do not offer explicit guidance on how data-analysis techniques should be applied in modern audit engagements (2021). Even ten years after the IFAC's announcement, it appears that a comprehensive guide directly accessible to independent auditors and accountants is still lacking. According to Abderrahman and Makarem (2026), technological developments have been transforming how evidence is engendered, assessed and methodologically recorded, while official guidelines failed to keep pace. Large-scale data analytics and ML, including deep learning, undermine conventional assumptions about sampling and what constitutes sufficient,

appropriate evidence and documentation when risk judgments depend on complex, and at times nontransparent, algorithmic systems. Interactions with Blockchain and crypto-assets bring about questions about the evidentiary status of on-chain versus off-chain records, the adequacy of existing ISA guidance and related IT governance. Regulators and standard setters therefore need to clarify expectations regarding for the deployment of analytics and AI in risk assessment and testing, for the documentation and interpretability of model-driven conclusions, for the treatment of nontraditional evidence sources such as distributed ledgers, and for the governance of self-acting processes and automated software programs designed to perform repetitive tasks or simulate human interaction (Abderrahman, A. S. M., & Makarem, N, 2026, p. 18). The rising demand for models that can accept raw or minimally processed data and autonomously learn useful abstractions paved the way for deeper architectures that enable end-to-end learning without extensive manual preprocessing (Liu, 2025, p. 193234).

A longitudinal study covering 1994–2020 shows that budgetary and accounting data collection by Courts of Accounts has changed the logic of the field of government auditing in Brazil. The authors, de Aquino et al., conclude that the digital infrastructures arising from connecting Courts and the auditees under their jurisdictions have embedded concepts, definitions, and inexplicit expectations within the logic of a remote auditing (2022). Digital transformation proved that it has the power to change the way businesses function. In an almost paperless world, where transactions are immense in numbers and are borderless, it is not hard to comprehend that accounting, auditing, and all related fields become more digitized and AI supported. At this point the problem stemming from the difference of the pace adopted by auditees and auditors in utilizing technology comes forth—agility. Auditors’ lack of agility in coping with new technologies (Tang, J.J. & Karim, K.E., 2017) and the gap of adopted technological levels of the auditors and auditees (Kend, M., & Nguyen, L. A., 2022) could widen further to the detriment of auditors and audit firms if no timely action is taken. This is an opinion independent of the time axis, suggesting that audit clients will almost always be ahead of the audit firms in their use of technology. From accounting perspective, the situation may be slightly different here. In addition to independent accountants working for accounting firms, there are also a significant number of salaried accountants who benefit from their firms’ access to and ability to adapt to new technology. Businesses providing embedded finance products mostly have their own accounting departments and staff. As stated by Dickey et al., over the past decades, the offshoring of audit-related services has expanded substantially. Big Four public accounting firms maintain affiliated offshore—e.g. India—operations where substantial portions of audit, tax, and consulting work is performed at a lower cost (2022). Offshore accounting as an option, which is not exclusive for Big Four, needs to be taken into consideration, as well. The paper of Antony and Jain (2025) supports this. They say that United Arab Emirates serves customers from over 200 countries. Besides, according to their paper, India hosts 12,894 fintech companies, including 25 unicorns and 87 soonicorns, collectively valued at \$125 billion, and ranks fourth globally in fintech funding. It is understood that these two countries collaborate heavily and both benefit from this. A framework proposed by Liu (2025) from which both accounting and auditing world would benefit is quoted below:

- “Domain-Attentive Graph Modeling: introduces a novel graph encoder that

captures temporal evolution, semantic structure, and transaction dependencies across financial records.”

- “Audit-Informed Reinforcement Learning (AIRP): module integrates compliance constraints directly into the policy learning process, enabling interpretable and regulation-aware fiscal decision-making.”
- “Hybrid Symbolic-Neural Integration: model connects symbolic audit rules with deep learning architectures, bridging the gap between transparency and predictive performance.”

Liu’s research points to the limitations of even some recent innovations and emphasizes deep learning in accounting, understanding financial documents, and automated accounting classification (*ibid.* pp.193234-36).

METHODOLOGY

Practitioner-scholar approach is applied in this research; where trade publications, industry reports, and expert analyses are used along with academic research. International Standards on Auditing (ISAs), International Financial Reporting Standards (IFRS), International Accounting Standards (IAS) and other relevant legislation are the complementary sources of the research. Findings are Turkish and international legislation related to embedded finance not as a compilation, but in a scattered manner. Practical implications point to the need for relevant, useful, prompt, and dynamic regulations to guide accounting and auditing circles.

The following section deals with legislation in Türkiye and the international context that highly depends on the data available on the official sites of legislative bodies. Due to this dependence, the legislation is either translated or used as it is. Since there is not sufficient academic literature in number about legislation for embedded finance regarding Türkiye and international context side by side, quoted text had been used as part of the methodology. The sequential examination of Turkish and international legislation aims to fill the gap in this field and contributes to the literature.

LEGISLATION

As expected, trust is at utmost importance for embedded finance applications. Given that many distributors like customer interfaces will fall outside of the typical financial services policy framework, regulators should work to increase their visibility into these activities to manage potentially hidden systemic risks, those similar to shadow banking, and avoid regulatory asymmetry between FIs and non-FIs that may be able to offer the same products or services but under asymmetric rules (Institute of International Finance (IIF), Deloitte Global, 2023).

Legislation in Türkiye

Apparently, there is need for legislation to regulate this dynamic area. In Turkish law, embedded finance practices are not directly regulated under specific legislation but rather lie at the intersection and common ground of regulations related to payment services, electronic money, banking, and data protection. The fundamental regulations shaping the embedded finance sector in Türkiye are as follows (Şentürk, 2026):

1. Law No. 6493 on Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions (No. 6493),

2. Regulation on Payment Services and Electronic Money Issuance and Payment Service Providers,
3. Secondary regulations and communiqués published by the Central Bank of Turkey (especially all payment systems legislation, including open banking and API standards),
4. Banking Regulation and Supervision Agency (BRSA) regulations (within the scope of banking activities and credit products),
5. Banking Law No. 5411,
6. Law No. 6698 on the Protection of Personal Data,
7. Financial Crimes Investigation Board (FCIB/MASAK) legislation (prevention of money laundering and customer identification obligations).

The important points Şentürk (2026) stresses are that the licensing structure needs to be properly defined; businesses must decide whether they can offer financial services directly and must determine whether they will partner with a licensed payment institution, e-money institution, or bank. Yüksel Attorneys at Law also draws attention to the issues that embedded finance activities would intersect with (1) The Banking Law No. 5411 and the Regulation on the Operating Principles of Digital Banks and Service Model Banking, (2) The Law on Payment and Securities Reconciliation Systems, Payment Services and Electronic Money Institutions and secondary regulations, (3) The Financial Leasing, Factoring, Financing and Savings Financing Companies Law and secondary regulations, (4) The Insurance Law and secondary regulations, (5) The Capital Markets Law and secondary regulations (Yüksel Attorneys at Law, 2023).

On March 15, 2020 ‘Regulation on Banks’ Information Systems and Electronic Banking Services’ was published in Türkiye to regulate the minimum procedures and principles to be followed in the management of information systems used by banks in the performance of their activities, in the provision of electronic banking services and the management of related risks, and in the information system controls that need to be established. The Regulation (Mevzuat.gov, 2020), which is executed by the Chairman of the BRSA, deals with (1) Establishing Risk Management and Controls for Information Systems, (2) Electronic Banking Services, (a) Internet Banking, (b) Mobile Banking, (c) Telephone Banking, (d) Open Banking Services, and (e) ATM Banking. Information Systems Internal Control and Internal Audit Activities under Part II—Establishing Risk Management and Controls for Information Systems—mentions external audit for monitoring and assurance of findings. It says (*ibid.*):

“As a result of the work carried out by the Information Systems (IS) internal control and internal audit functions, an assessment is to be made to reveal all significant control deficiencies regarding the bank’s IS controls, independently of the examination of these controls and the work carried out by external audit firms, and in this context, it is essential to provide assurance that:

a) There are no significant control deficiencies in the bank’s IS controls that would hinder effectiveness, adequacy or compliance with the Second Part of the IS-EDES Regulation—Regulation on Banks’ Internal Systems and Internal Capital Adequacy Assessment Process, published in the Official Gazette dated 11/7/2014 and numbered 29057.—titled ‘Internal Control System’ and the procedures and principles specified in this Regulation;

b) There is no situation that would cause material misrepresentation in the finan-

cial statements or that would significantly affect the integrity, consistency, reliability, confidentiality where necessary, and continuity of operations of data that are sensitive to the bank, especially financial data, or that there is no misconduct or fraud involving managers and other officials with critical duties in the internal control system;

c) If there are any findings falling within the scope of clauses (a) and (b), all of them have been reported to the bank's audit committee and the board of directors."

Article 28 of the Fourth Chapter of the 'Regulation on Payment Services and Electronic Money Issuance and Payment Service Providers', which addresses corporate governance, regulates accounting, reporting, and independent auditing matters. According to this regulation, the organization is obliged to account for all its transactions in accordance with their true nature, within the framework of the procedures and principles determined by the Public Oversight, Accounting and Auditing Standards Authority (POA) of Türkiye, and to prepare its financial reports in a format and content that can meet the need for information, that are understandable, reliable and comparable, suitable for auditing, analysis and interpretation, and that are timely and accurate. The external audit of the organization's year-end financial statements is performed by external audit firms included in the list of External Audit Firms authorized by the POA to conduct external audits, including (audits of) organizations of public interest (Official Gazette/Resmi Gazete, 2021). Article 78 of the Sixth Chapter of the Regulation, which addresses the cooperation with the relevant authorities states that, the permission of the Central Bank of the Republic of Türkiye (CBRT) is required to fulfill requests from authorities authorized to conduct audits under the laws of foreign countries and equivalent to the CBRT, regarding the audits and information requests of payment institutions and electronic money institutions operating in their own countries and their subsidiaries in Türkiye, as well as requests regarding information related to the consolidation of the institutions' branches or subsidiaries abroad, taking into account the principle of reciprocity. Additional procedures and principles regarding cooperation with domestic and foreign authorities on audits, information sharing and other matters may be determined by CBRT after obtaining the opinions of the relevant parties (*ibid.*).

Under the Regulation No. 6493, CBRT is authorized to conduct supervisory activities regarding all payment and securities settlement systems in Türkiye. The supervisory activities within this scope encompass all parties whose activities are closely related to the operation of the system, such as the system operator, system participants, clearing house, other related systems, and external service providers (CBRT/TCMB Ödeme Sistemleri ve Finansal Teknolojiler Genel Müdürlüğü, 2021). Audit matters are explained in detail in the Sixth Chapter, Other Provisions article 21 (Official Gazette/Resmi Gazete, 2013).

Open Banking is regulated with the 'Regulation on the Operating Principles of Digital Banks and Service Model Banking.'

"The purpose of the regulation is to determine the procedures and principles regarding the activities of branchless banks that provide services only through electronic banking service distribution channels, and the provision of banking services as a service model to financial technology companies and other businesses."

According to the regulation, the BRSA may request the preparation of an external audit report on the information systems, regarding the adequacy and effectiveness

of the information systems and the controls it has established over these systems (Official Gazette/Resmi Gazete, 2021).

Embedded payment refers to integrated digital payment systems or digital wallets offered by companies that are not financial institutions (Paynet, 2025). The 'Guidance on Relating Business Models Offered in the Payments Sector to Types of Payment Services' states that a digital wallet service can be defined as a payment instrument offered as an electronic device, online service, or application that stores information relating to the payment account or payment method defined by the payment service user, and enables the customer to make payments using the information relating to their defined payment account or payment method. The Guidance continues that, as with electronic money (prepaid instruments), by adopting different business models in digital wallet services it is also possible to enable transactions that fall under the scope of other types of payment services (CBRT Central Bank of Turkish Republic, 2022).

As seen from above, regulations related to payment services, electronic money, banking, and data protection undertake the role of guiding embedded finance practices in Türkiye. Since financial and nonfinancial activities are intertwined and the scope of the auditing standards is broad, things will stay in order until the situation becomes more complex in the future. This is an extremely dynamic field. It is this dynamism that will challenge the lawmakers. Technological advancements are so rapid that even very comprehensive and predictive legislation risks becoming inadequate in a very short period of time. The main reasons for this are the increasing pace of innovation in this field, the growing internet access and use of smartphones and other devices by individuals, people's desire to use their time more efficiently, their adoption of e-commerce, and their desire to conduct almost all their financial transactions from the comfort of their homes with the help of technological advancements instead of physically visiting a bank or similar financial institution. At this stage, AI, ML, and all kinds of innovations will be both determinants and aids of the system. So, it is necessary to maximize the advantage of such innovations.

The POA, as noted earlier, is a governmental, non-profit regulatory institution and the ultimate authority in setting accounting and auditing standards, prescribing ethical rules, and overseeing the authorization and registration of independent auditors and audit firms within a public oversight system, while ensuring compliance through quality assurance monitoring (Kesimli, 2019). As is known, internationally accepted legislation is used by countries after being translated and adapted by the authorized bodies within those countries. In Türkiye POA is the regulatory body carrying out this process.

The International Context

In the international context, International Standards on Auditing (ISAs), International Financial Reporting Standards (IFRS), International Accounting Standards (IAS) and other relevant legislation continuously build up. Gispert and Chatain drive attention to the fact that the global financial community is acutely aware of the potential of digital technology to advance development and inclusion. According to the authors, financial authorities willing to embrace the promise of fintech must do so in a safe and responsible manner. As they state, without financial stability, progress made in innovation, development, and inclusion will be jeopardized (Gispert, T. A., & Chatain, P-L., 2023).

While specific, consolidated, documents dedicated solely to auditing embedded finance are scarce, the audit of these services falls under the application of current international standards, specifically focusing on:

1. Risk Assessment: International Standard on Auditing 315 (ISA 315) (Revised 2019) ‘Identifying and Assessing the Risks of Material Misstatement’ (International Auditing and Assurance Standards Board (IAASB), 2025). “This International Standard on Auditing (ISA) deals with the auditor’s responsibility to identify and assess the risk of material misstatement in the financial statements.”
2. Risk Assessment: International Standard on Auditing 330 (ISA 330) ‘The Auditor’s Responses to Assessed Risk’ (International Auditing and Assurance Standards Board (IAASB), 2025). “This International Standard on Auditing (ISA) deals with the auditor’s responsibility to design and implement responses to the risk of material misstatement identified and assessed by the auditor in accordance with ISA 315 (Revised 2019) in an audit of financial statements.” “The objective of the auditor is to identify and assess the risks of material misstatement, whether due to fraud or error at the financial statement and assertion levels thereby providing a basis for designing and implementing responses to the assessed risks of material misstatement.”
3. Third-Party Risk: Evaluating embedded finance providers (fintechs) that provide banking services to non-banking entities, often requiring a focus on service organization controls. It is stated in the Handbook (International Auditing and Assurance Standards Board (IAASB), 2025, p. 261) that an entity may be using external or internal service providers for aspects of its Information Technology (IT) environment. These kinds of situations involve third-Party risks. ISA 315 (Revised 2019) deals with this issue.
4. Data Reliability: Assessing digital audit trails and technology controls in integrated platforms (Wulandari, 2025).
5. ISA 402 ‘Audit Considerations Relating to an Entity Using a Service Organization.’ (International Auditing and Assurance Standards Board (IAASB), 2025). “This International Standard on Auditing (ISA) deals with the user auditor’s responsibility to obtain sufficient appropriate audit evidence when a user entity uses the services of one or more service organizations. Specifically, it expands on how the user auditor applies ISA 315 and ISA 330 in obtaining an understanding of the user entity, including entity’s system of internal control relevant to the preparation of the financial statements, sufficient to identify and assess the risk of material misstatement and in designing and performing further audit procedures responsive to those risks.”

“The IAASB is setting a course that promotes innovation in audits and other assurance engagements while safeguarding quality and consistency in global practice” (Seidenstein, T., 2026). The IAASB Chair’s words summarize the organization’s approach to technological innovation. The research shows that these words were not just empty promises, but concrete steps that had been taken for at least three years. The Technology Position (2024) of IAASB outlines how the Board will proactively respond to the challenges and opportunities presented by emerging technologies for oversight and assurance. This initiative focuses on fulfilling the commitments outlined

in the Technology Policy, which lists eight guiding actions the IAASB will undertake to facilitate the appropriate use of technology by firms and practitioners. In September (2024) the IAASB has adopted a framework composed of three components to establish and advance its Technology Position. The first component is the ‘Technology Position Statement’, which details how the Board considers the impacts of technology in its standard setting and other related activities. The second component is ‘Operationalizing the Technology Position Statement’, according to which the Board will identify potential standard-setting activities and other related activities, in consultation with key stakeholder. The third commitment is ‘Monitoring Emerging Technologies and Adapting the IAASB’s Technology Position’. In order to ensure that the Technology Position remains relevant and effective in a rapidly evolving technology landscape, the Board intends to take proactive approach to monitoring and adapting to technological trends.

The eight guiding actions—the IAASB will undertake to facilitate the appropriate use of technology by firms and practitioners—are as follows (International Auditing and Assurance Standards Board (IAASB), 2024):

“Embrace technology-driven innovations.” / “Remove barriers in the standards, real or perceived, to practitioners using technology—the Board will have close collaboration with, among others, regulators, audit or assurance oversight authorities, national standard setters, firms, and professional accountancy organizations.” / “Introduce requirements and application material relating to using technology in engagements.” / “Address the impact of technology used by reporting entities—The Board recognizes that reporting entities’ use of increasingly more sophisticated technologies affecting their financial and other external reporting introduces new opportunities and risks.” / “Strike the right balance when referring to opportunities and risks associated with technology—the crucial importance of sound quality management practices by firms and practitioners related to obtaining, developing, implementing, maintaining, and using technological resources, will always be emphasized.” / “Align with principles of ethics and ethical requirements—will consider ethical responsibilities in light of the impacts or changes brought about by technology used by reporting entities, firms and in engagements.” / “Ensure scalability and proportionality—thus, practitioners and firms have the flexibility to determine the necessity and extent of use of technology in engagements and systems of quality management, tailored to their unique needs.” / “Convene stakeholders and foster ongoing engagement—thus standards remain robust, implementable, scalable, and enforceable.”

Accounting for embedded finance under IFRS depends entirely on whether a company is acting as the principal provider or an agent/intermediary. Non-financial digital platforms—such as e-commerce apps offering embedded Buy Now Pay Later (BNPL) or insurance—must decouple these integrated arrangements to ensure compliance across different reporting standards (PwC, 2024); (Institute of International Finance (IIF), Deloitte Global, 2023); (Leith, L., 2024); (Cai, T., 2021);

1. Assess the Revenue Model (IFRS 15): When a platform offers embedded financing or third-party products at checkout, it must use IFRS 15 Revenue from Contracts with Customers to determine how to report incoming cash flows: (a) Principal vs. Agent: If the platform does not control the financial product before it is transferred to the customer, it acts as an agent. It can only record

- the net commission as revenue, not the total transaction value. (b) Performance Obligations: Companies must break down bundles (e.g., selling a smartphone packaged with an embedded insurance policy) into separate performance obligations, allocating a standalone selling price to each component.
2. Recognize and Measure Credit Risk (IFRS 9): If a non-financial platform directly extends credit to consumers (e.g., proprietary BNPL features or merchant cash advances), it triggers IFRS 9 Financial Instruments: (a) Classification: The platform must assess its business model. If the goal is to collect contractual cash flows consisting solely of principal and interest, the financial assets are measured at Amortized Cost. Otherwise, they must be recorded at Fair Value Through Profit or Loss (FVTPL). (b) Expected Credit Losses (ECL): Under the IFRS 9 forward-looking model, platforms must establish a provision for potential credit losses immediately upon originating the loan, rather than waiting for an actual default to occur.
 3. Handle Embedded Derivatives (IFRS 9/IFRIC 9): Some complex embedded finance structures contain features where contractual cash flows shift based on outside variables (e.g., a merchant contract where service fees fluctuate alongside crypto indices or interest rate benchmarks): (a) Hybrid Financial Assets: If the overall “host” contract is a financial asset within the scope of IFRS 9, bifurcation is prohibited. The entire hybrid contract is evaluated and measured as a single unit. (b) Financial Liabilities/Non-Financial Hosts: If the host contract is a liability or a commercial service agreement, the company must bifurcate (separate) the embedded derivative if its economic features are not closely aligned with the host contract. The isolated derivative is then re-measured at fair value through the income statement.
 4. Evaluate Co-Branded Risks (IFRS 17): Platforms that embed insurance coverages at the point of sale must review their exposure under IFRS 17 Insurance Contracts: (a) Passing the Risk: If the platform merely acts as a gateway connecting users to a licensed insurer, it reports under IFRS 15 agent rules. (b) Retaining the Risk: If the platform shares contractual insurance risk or underwrites part of the product through a captive entity, it must use complex IFRS 17 fulfillment cash flow metrics to report the liabilities on its balance sheet.

Table 1. Core Financial Reporting Impact Overview

Embedded Feature	Primary IFRS Standard	Accounting Impact for Non-Financial Platforms
Integrated Checkout Payments	IFRS 15 (Revenue)	Gross vs. net revenue evaluation; requires reporting commissions only.
Proprietary BNPL/ Lending	IFRS 9 (Financial Instruments)	Balance sheet recognition of loan receivables and upfront ECL provision expenses.
Embedded Product Insurance	IFRS 15/IFRS 17 (Insurance)	Typically treated as third-party commission unless the platform retains underwriting risk.
Variable-Fee Commercial Contracts	IFRS 9/IFRIC 9 (Derivatives)	Potential requirement to isolate and mark-to-market an embedded derivative feature.

Source: 1) (PwC Viewpoint, 2025); 2) (IFRS, 2026); 3) (AI Finance Studio, 2026); 4) (BDO Global, 2022); 5) (PwC Viewpoint, 2023)

Table 1 summarizes the above-mentioned standards. While some nations are at the starting levels regarding embedded finance, there are others which have already crossed this threshold and made significant progress. These have advice to share. State-level published white papers, action plans aligned with main frameworks, routine cyber-security audits are some of them (Antony, A., & Jain, S., 2025). When the term cyber-security is mentioned, what naturally come to mind are technology and the increased technological risk that accompanies its use. Cohen et al. (2026) emphasizes this point—as technology risks are relevant across many domains, it is important to explore these risks specifically from an audit perspective.

RESULTS AND CONCLUSIONS

This research demonstrates the dispersion of literature in this area. Studies from different disciplines, with diversified interest exist, but are not sufficient in number and content. International standards do not address the issue fully yet. Turkish regulation needs compilation; there are too many codes to follow. Regulatory bodies need to collaborate with the sector, with several disciplines, be agile and fulfil the needs of the embedded finance applying businesses from accounting and auditing perspective. Therefore, this research by seeking to combine literature and the regulatory parts tries to filling the gap and transmits the message to regulators. The limitation of this research is that it misses the opportunity to compare international standards and regulation against countries other than Türkiye. In this dynamic area, future research may cover several countries and longer periods, with a wider inclusion.

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