

External and bank-specific determinants of Fintech adoption and its impacts: A systematic review

ABSTRACT

24 peer-reviewed papers

The study carries out a systematic review of the literature on Fintech adoption in the banking sector in 2020-2025. By using the PRISMA guidelines, 22 peer-reviewed papers were analyzed. The evidence is synthesized into three dimensions: external determinants, bank-specific determinants, and the impacts of Fintech adoption. The research indicates that competition and regulatory conditions put pressure on banks to adopt Fintech. More importantly, bank-specific determinants such as including resource endowment, dynamic capabilities and governance mechanisms play an important role in shaping adoption. As a result, Fintech adoption has been shown to improve performance and efficiency, although its effects on risk and stability remain mixed. Overall, the study confirms that Fintech adoption is a strategic and organizational issue for banks. It also provides implications for future research and policy, especially in emerging banking systems.

Keywords: *Fintech adoption; commercial banks; bank-specific determinants; governance; systematic review*

1. INTRODUCTION

The fast development of financial technology (Fintech) has significantly transformed the structure and operations of banks all over the world [1], [2]. Fintech adoption, such as mobile banking, big data analytics, and AI chatbots have reshaped traditional banking activities. In response, banks increasingly adopt Fintech solutions to enhance operational efficiency, improve service quality, and maintain competitiveness in a rapidly digitalizing environment.

Prior studies indicate that Fintech adoption in banks is influenced by both external and bank-specific determinants [3], [4], [5]. External determinants typically include regulatory pressure, market competition, and technological infrastructure, while bank-specific determinants relate to internal resources, governance structures, and strategic capabilities. However, most existing literature has focused on using a technological lens or has treated Fintech as an exogenous variable affecting performance, risk, and stability [6], [7].

Many technological frameworks have been employed to explain technology adoption. One of the most famous models is the Technology Acceptance Model (TAM), which primarily focuses on perceived usefulness and ease of use. However, it offers limited explanations at an organizational level, especially in a highly regulated sector such as banking [8], [9]. The next

framework is the Technology Organization Environment (TOE). It incorporates both organizational and environmental factors [10]; Nevertheless, it often fails in explaining why banks with similar regulatory and competitive conditions exhibit remarkably different levels of Fintech adoption [11], [12]. This limitation has led researchers to adopt the Resource-Based View (RBV) and the dynamic capabilities perspective. Both frameworks emphasize the significance of firm-specific resources and the ability to adapt to the changes in the business environment [13], [14].

In the bank sector, RBV suggests that internal resources, including bank size, wealth, and financial performance, shape banks' intentions to invest in Fintech innovation. Empirical studies have shown that banks with stronger financial resources are more likely to adopt Fintech initiatives [15]. The dynamic capabilities framework highlights that successful Fintech adoption requires banks to invest continuously in technological innovation [16]. These perspectives show that Fintech adoption depends not only on technological readiness but also on organizational capabilities and strategic decision-making.

Agency theory further suggests that strategic technology investment decisions are influenced by conflicts of interest between managers and shareholders. It implies that ownership structure, board independence, and governance may affect managerial incentives to pursue Fintech adoption

[17]. In addition, institutional theory highlights the role of coercive, mimetic, and normative pressures arising from regulatory frameworks and industry norms, which are particularly outstanding in the banking sector. [18]. Regulatory reforms and post-crisis supervisory requirements have increasingly encouraged banks to adopt digital technologies to enhance compliance, transparency, and operational resilience [19].

Despite the growing body of research on Fintech in banking, the literature remains fragmented. A substantial proportion of empirical studies examine **the impacts of Fintech adoption**, which focuses on its effects on bank profitability, risk-taking, and financial stability [6], [7]. In contrast, fewer studies explicitly investigate the antecedents of Fintech adoption at the bank level. Moreover, existing determinant-focused studies often combine internal with external factors. Thus, they potentially **obscured** the role of bank-specific determinants. As a result, cumulative knowledge on bank-specific determinants of Fintech adoption remains limited.

Therefore, this study reviews the banking literature to synthesize empirical evidence on the bank-specific determinants of Fintech adoption. By examining internal factors in banks, the paper aims to identify determinants that consistently influence adoption decisions and differentiate them from other external adoption drivers.

This study contributes to the literature in three main ways. **Firstly, it furnishes a structured synthesis that distinguishes between determinants of Fintech adoption and its impacts in the banking sector.** This **distinction helps** reduce overlap in the existing literature, where causes and consequences are often discussed together **without clear separation.**

Second, the review highlights Fintech adoption as a strategic and organizational decision rather than a technological option. By summarizing evidence, the study shows that differences in organizational readiness, resource availability, and strategic capacity are the main reasons why banks operating under similar environments show different adoption levels.

Third, **by integrating evidence from various contexts, the study proposes a conceptual framework linking external drivers, bank-specific determinants, Fintech adoption, and its outcomes.** This framework offers a coherent overview of how internal bank characteristics condition the effects of FinTech adoption. After that, it subsequently affects performance, risk, and

stability. Finally, the study is expected to provide a valid reference for future research and policymakers.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Theoretical Framework

2.1.1. Technology-oriented frameworks

Various research on Fintech adoption **in the early stages** has mainly employed technology-oriented frameworks. The most recognized is the Technology Acceptance Model (TAM) and its **subsequent** extensions [8], [9]. These models emphasize individual perceptions of perceived usefulness and perceived ease of use as primary drivers of technology acceptance. In the financial sector, the frameworks have been applied to explain the adoption of digital payment, mobile banking, and other Fintech services [20].

Technology-oriented frameworks provide useful explanations **for** banks' behavior in Fintech adoption. However, their usefulness in decision-making at the bank level remains **unclear**. Since banks operate in **complex** environments where adoption decisions are shaped **not only by** technological attributes **but also by** strategy, governance, regulatory compliance, and risk management.

2.1.2. TOE framework

The Technology-Organization-Environment (TOE) framework is commonly used to examine technology adoption by looking at technological conditions, organizational characteristics, and external environmental pressures [10]. In Fintech research, it is often applied to group factors related to adoption in the financial sector [3], [4]. However, when applied to banking, its explanatory power appears limited. Empirical evidence shows that even banks operating under similar technological and regulatory settings **may** adopt Fintech at very different levels. This indicates that TOE mainly focuses on organizing determinants rather than explaining how internal capabilities and strategic orientation **shape** Fintech adoption decisions. Accordingly, TOE does not fully clarify how bank-specific characteristics translate into Fintech adoption outcomes.

2.1.3. Resource-based view and dynamic capabilities perspective

To **address** the limitation, the Resource-Based View (RBV) [13] and the dynamic capabilities perspective are employed to analyze Fintech adoption in banking. The RBV suggests that

long-term advantage depends less on technology and more on how firms build and use strategic internal resources that competitors cannot easily simulate. For banks, this typically relates to financial capacity, digital systems, staff, and the quality of management [15].

Besides, the dynamic capabilities viewpoint emphasizes banks' abilities to perceive technological opportunities, grasp them through strategic investment, and transform organizational structures and processes [14]. In the context of rapid digital disruption and growing regulatory **complexity**, dynamic capabilities are especially appropriate to banks. Empirical studies reveal that banks' ability to reconfigure internal resources and redesign operational processes is essential for successful Fintech adoption and sustainable development [16]. In conclusion, the RBV and dynamic capabilities frameworks provide a vigorous theoretical foundation for interpreting Fintech adoption as a strategic, capability-driven process rather than merely a technological decision.

2.1.4. Agency theory and institutional theory

Agency theory explains banks' Fintech adoption decisions **through** the lens of conflicts of interest [17]. The theory stresses conflicts of interest between owners and managers, especially when investments involve uncertainty and risk. Fintech adoption decisions often entail high costs and put banks under substantial operational and compliance pressure. Consequently, managers may hesitate if the decision endangers short-term profitability and their own personal **incentives**. Therefore, governance mechanisms, such as board oversight, ownership concentration, and strong internal control systems, play a vital role in **reducing these** conflicts. Strong governance structures may encourage managers to pursue digital innovation, which sustains long-term value creation. Additionally, empirical research suggests that effective management systems can reduce managerial risk and facilitate innovation decisions [21].

Institutional theory is a commonly accepted theory that emphasizes rational myths, isomorphism, and legitimacy [18]. Banks operate in highly **regulated** environments characterized by strict regulatory and regular oversight. Thus, decisions related to Fintech are not only driven by efficiency or competitiveness, but also by social expectations, laws, and legitimacy. There is evidence that institutional coercion may therefore both enable and constrain Fintech adoption [22].

Even under similar circumstances, banks may react differently to Fintech opportunities. Agency and institutional theories assist in explaining this situation. Empirical studies provide evidence that governance quality and ownership structures significantly moderate the relationship between regulatory coercion and Fintech adoption decisions. [23].

Overall, TAM captures technical drivers, TOE, RBV, and dynamic capabilities, which focus on technology, organizational, and strategic factors. Agency and institutional theories show that bank-specific characteristics also take a critical role in Fintech adoption decisions. Hence, Fintech adoption cannot be explained by a single perspective. It is urgent to design an integrated framework combining external, capability-based governance, and institutional determinants to illustrate Fintech adoption behaviors.

2.2. Determinants of Fintech Adoption

2.2.1. General determinants of Fintech adoption

The existing literature points to a wide range of determinants influencing Fintech adoption, typically categorized into technological, organizational, and **external** aspects. Technological determinants include perceived usefulness, ease of use, system compatibility, and security concerns. Organizational drivers comprise firm size, financial resources, technological readiness, and top management support. Environmental factors relate to regulatory frameworks, competitive pressure, and market demand for digital financial services [4], [3], [5]. **Nonetheless, these general determinants do not fully capture the specific characteristics of the banking sector, particularly the role of bank-specific determinants related to governance, resources, and strategic capabilities.**

2.2.2. Limitations of general determinants in the banking context

Although general determinants provide a useful starting point, they do not fully capture how Fintech adoption works in banking. The sector operates under strict regulation and high risk. Unlike non-financial firms, banks must balance innovation with regulatory compliance, financial stability, and risk management. As a result, the previous framework can not fully explain why banks adopt Fintech at different levels.

Moreover, general determinants often pay less attention to **internal bank** characteristics. In reality, banks in the same regulatory and market environments exhibit different levels of Fintech adoption. This suggests that internal

characteristics matter significantly. This highlights the need for a more focused examination of bank-specific drivers.

2.2.3. Bank-specific determinants of Fintech adoption

From the above perspectives, bank-specific determinants, which are mainly related to organizational characteristics, governance structures, and strategic orientation within banks, are considered as vital role. These factors go beyond general technology adoption drivers and better reflect the institutional realities in which banking institutions operate.

Governance and leadership play an important role in shaping Fintech adoption. Top management commitment, board monitoring, and ownership structure influence strategic priorities and managerial incentives to invest in digital innovation [24]. At the same time, adoption depends on whether banks are ready and possess sufficient internal resources to adopt Fintech. Financial capacity, technological infrastructure, and human capital determine how effectively banks can absorb and implement Fintech solutions [13], [3]. The bank's strategies also significantly affect adoption levels. Strategy related to digital innovation and dynamic capabilities influences how Fintech policies are integrated into core banking activities and aligned with long-term development goals [14], [16].

Further, adoption decisions are closely linked to risk management, regulatory compliance, and internal control systems. Regulatory requirements and stakeholders' expectations directly determine the level of Fintech implementation [19]. Finally, banks' ability to integrate Fintech applications into existing core systems and operational processes affects not only whether adoption occurs but also the effectiveness and sustainability of implementation [2].

Jointly, these bank-specific determinants serve as the basis for the systematic review. By synthesizing empirical evidence from this perspective, the study seeks to clarify how internal organizational and strategic factors influence Fintech adoption in banking and how these differ from general technology adoption drivers.

2.3. Impacts of Fintech adoption

Beyond the determinants of Fintech adoption, another important stream of the literature examines its impacts on banking outcomes. Existing studies generally investigate how

Fintech adoption influences bank performance, risk, and financial stability, and sustainability-related outcomes. As digital technologies increasingly reshape financial intermediation, the adoption of Fintech solutions is widely considered a key driver of transformation in modern banking systems.

First, a large body of research shows the potential performance benefits of Fintech adoption. Digital technologies can improve efficiency by allowing faster information processing and more efficient customer interaction. As a result, Fintech development is often associated with improved productivity and competitive advantage for financial institutions [1] [2].

Second, the literature also discusses the implications of Fintech adoption for bank risk and financial soundness. On the one hand, technological innovations may strengthen risk monitoring, credit assessment, and transparency of information. On the other hand, the growing reliance on digital infrastructure may create new technological and cyber risks. Consequently, the overall effects of Fintech on financial stability continue to be debated in the literature [3].

Third, recent studies have also stressed the role of Fintech in encouraging sustainable finance. Digital technologies aid data availability, improve transparency, and support the development of green financial products, thereby enabling financial institutions to allocate capital more efficiently toward environmentally sustainable investments [4] [5].

In addition, the impacts of Fintech adoption are often conditioned by institutional environments and bank-specific characteristics. Regulatory systems, governance structures, and supervisory regimes shape how digital technologies are implemented and how their benefits and risks materialize in banking systems [6].

Overall, the literature suggests that Fintech adoption generates multidimensional impacts on banking activities. However, the magnitude and direction of these effects vary across institutional contexts, regulatory conditions, and bank-specific capabilities.

3. METHODOLOGY

This study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, rigor, and replicability in the review process. A systematic approach was adopted to identify, screen, and synthesize the existing literature on bank-specific determinants of Fintech adoption in

banking. The review process consisted of four main stages: search strategy, screening, eligibility assessment, and data extraction and synthesis.

3.1. Search strategy

A systematic literature search was conducted using major academic databases, including Scopus and Web of Science, to identify peer-reviewed journal articles related to Fintech adoption in the banking sector. The search strategy employed combinations of keywords associated with *Fintech*, *digital financial technologies*, *banking*, *commercial banks*, *adoption*, *determinants*, and *impacts*.

Only English-language journal articles were considered. To ensure the academic quality and comparability of the reviewed studies, conference papers, book chapters, and non-peer-reviewed publications were excluded. The search covered studies published between 2020 and 2025. The initial database search resulted in 150 records.

3.2. Screening process

After the initial retrieval, duplicate records were identified and removed through a manual and automated deduplication process. As a result, 38 duplicate records were excluded, leaving 107 unique studies for further screening.

Title and abstract screening was then performed to assess the relevance of the remaining studies. At this stage, articles were excluded if they: did not focus on the banking sector, did not examine Fintech adoption or related digital technologies, were non-empirical in nature, focused on industries other than banking.

Following this screening process, 63 records were excluded, leaving 44 articles for full-text assessment.

3.3. Inclusion and exclusion criteria

To ensure consistency and methodological rigor, predefined inclusion and exclusion criteria were applied during the full-text review stage.

Inclusion criteria: published in peer-reviewed academic journals; focused on Fintech adoption in the banking sector, particularly commercial banks or bank-level analysis; examined determinants and/or impacts of Fintech adoption in banking; employed empirical analysis or provided structured and systematic evidence synthesis; were written in English; were published between 2020 and 2025.

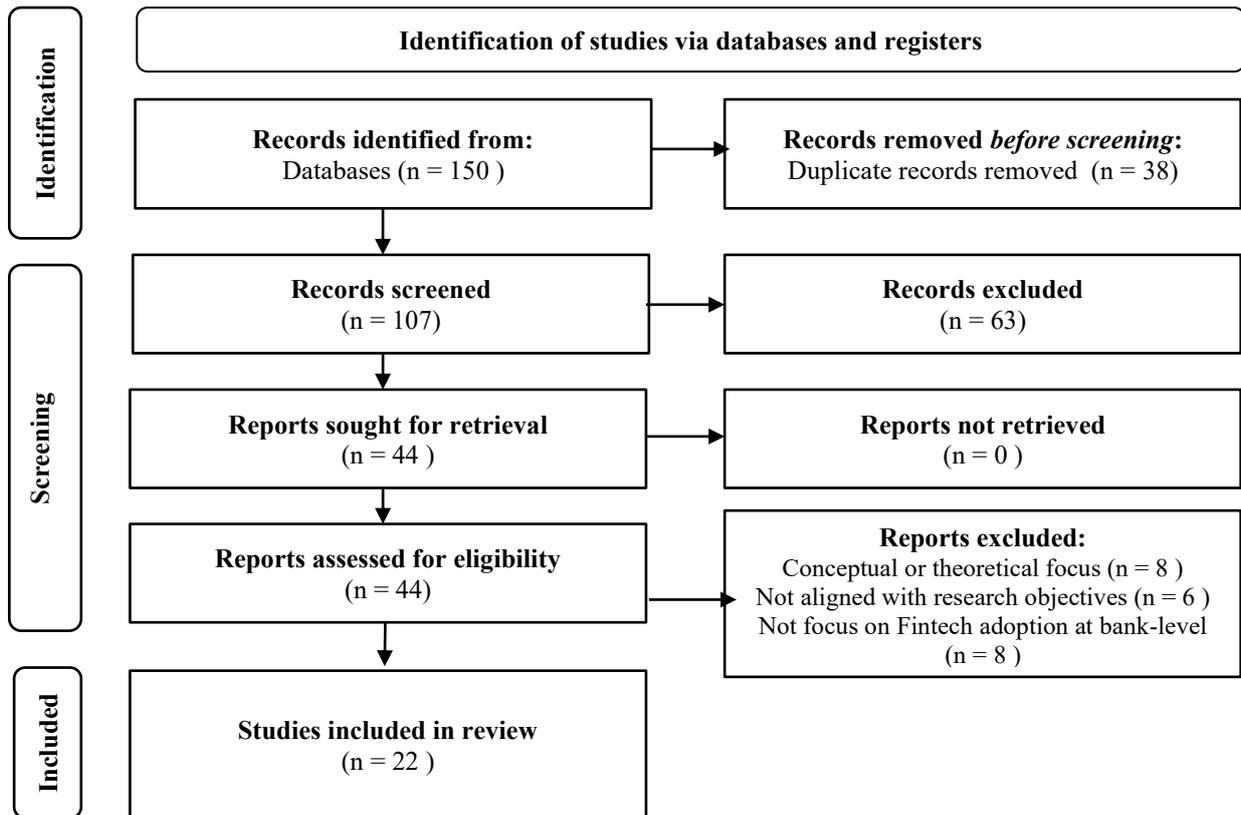
Exclusion criteria: purely conceptual or theoretical papers without a clear focus on Fintech adoption in the banking sector; Systematic reviews or meta-analyses that did not specifically address bank-level Fintech adoption or its determinants and impacts; Studies focusing on Fintech adoption outside the banking context, such as fintech firms, consumers, or non-financial industries; Articles lacking sufficient empirical or analytical evidence relevant to determinants or impacts of Fintech adoption in banking; Non-peer-reviewed publications, including conference papers, book chapters, and reports.

3.4. Screening and eligibility process

The full texts of the remaining 44 articles were assessed against the predefined inclusion and exclusion criteria. During this stage, 22 articles were excluded because they were conceptual in nature, constituted secondary reviews, or did not explicitly analyze bank-level determinants or impacts of Fintech adoption.

Consequently, a final sample of 22 empirical studies was retained for qualitative synthesis. The study selection process is summarized in the PRISMA flow diagram.

Figure 1. PRISMA flow diagram



3.5. Data extraction and synthesis

For each of the 22 included studies, relevant information was systematically extracted and coded to support descriptive and thematic synthesis. **The review focuses on studies published between 2020 and 2025, capturing the period during which Fintech adoption in banking expanded rapidly following the acceleration of digital financial services in the early 2020s.** The extracted variables included authors and year of publication, **research context**, citation count, publication year, and journal quality ranking, as summarized in Table 1.

Journal quality was primarily assessed using SSCI and ESCI quartile classifications, supplemented by Scopus quartile rankings where applicable. In cases where journal quartile information was not available, alternative recognized journal quality classifications were employed. Specifically, for Chhaidar, et al. [25], quartile data could not be identified; therefore, the ABDC journal ranking was used, and the journal was classified as ABDC category C. This approach is consistent with established practices in systematic reviews when standard quartile metrics are unavailable and ensures transparency and comparability in journal quality assessment.

Table 1. Summary of reviewed studies on Fintech adoption in the banking sector

ID	Authors (Year)	Research context	Citation count	Year	Rank
1	Bani Atta [26]	Jordan	26	2025	ESCI/Q1
2	Alzghoul and Al-kasasbeh [27]	Jordan	13	2024	Scopus/Q3
3	Albuainain and Ashby [28]	systematic review	3	2025	ESCI/Q2
4	Bian, et al. [29]	Global	27	2024	SSCI/Q1
5	Al-Sharafi, et al. [30]	systematic review	3	2025	ESCI/Q2
6	Urumsah, et al. [31]	Indonesia	38	2022	DOAJ/SINTA2
7	Firmansyah, et al. [32]	systematic review	174	2022	ESCI/Q2
8	Chhaidar, et al. [25]	Europe	183	2023	Scopus/C
9	Harasim [33]	Global	56	2021	Scopus/Q2
10	Mirza, et al. [34]	Europe	175	2023	SSCI/Q1
11	Khan, et al. [35]	GCC countries	97	2023	SSCI/Q1
12	Yoon, et al. [36]	Global	42	2023	Scopus/Q2

13	Hidayat-ur-Rehman and Hossain [37]	Pakistan	108	2024	ESCI/Q1
14	Alrsheedi and P Iskandar [38]	Saudi Arabia	1	2025	SSCI/Q1
15	Zhao, et al. [39]	China	488	2022	SSCI/Q1
16	Ni, et al. [40]	China	28	2023	SSCI/Q1
17	Zhang, et al. [41]	China	82	2022	SSCI/Q2
18	Guo, et al. [23]	China	31	2024	SSCI/Q3
19	Qin and Jing [42]	China	0	2025	SSCI/Q1
20	He, et al. [43]	China	59	2023	SSCI/Q1
21	Zhang, et al. [44]	China	73	2023	SSCI/Q1
22	Cheng and Qu [45]	China	591	2020	SSCI/Q1

Citation counts were recorded as an indicative measure of scholarly influence and interpreted with caution. Particularly for more recent publications (2024-2025), the numbers naturally exhibit lower citation levels due to shorter publication windows.

Based on the substantive focus of the included studies, the sample was further classified into two main streams: examining bank-specific determinants of Fintech adoption, and impacts of Fintech adoption in banking. This classification provided the basis for a qualitative thematic synthesis aimed at identifying dominant research patterns, methodological trends, and contextual differences across countries and regions. The synthesis process facilitated the development of a structured taxonomy of determinants, which is presented and discussed in Section 4.

4. Result

4.1. Descriptive statistics

The temporal distribution of the included studies highlights a clear upward trend in research on Fintech adoption in the banking sector over the period 2020-2025. As summarized in Table 1, the review includes one study published in 2020, one study in 2021, four studies in 2022, and seven studies in 2023, indicating a rapid acceleration of scholarly interest during this phase. This surge coincides with the post-pandemic period, during which banks increasingly relied on digital technologies to maintain service continuity and enhance operational resilience.

Research output remained strong in subsequent years, with four studies published in 2024 and five studies in 2025, reflecting sustained academic attention to Fintech adoption in banking. The presence of multiple recent studies suggests that Fintech adoption is not a short-lived research topic, but rather an evolving and increasingly mature area of inquiry.

Overall, the publication pattern indicates a transition of Fintech adoption in banking from an emerging topic in the early 2020s to a more established research stream in recent years. This trend highlights the increasing recognition of Fintech adoption as a strategic and organizational issue within the banking literature, rather than a purely technological concern.

Research context and geographical coverage

The reviewed studies exhibit a diverse range of research contexts. China represents the most frequently examined country, accounting for eight studies, reflecting the strong scholarly attention to Fintech adoption within one of the world's largest and most rapidly evolving banking systems. In recent years, China has experienced extensive digital financial innovation driven by large-scale technology platforms, widespread digital payment adoption, and supportive regulatory initiatives [46]. These conditions have made the Chinese banking sector a particularly important empirical setting for examining Fintech adoption.

Beyond China, several studies adopt global or multi-country perspectives, while others focus on specific regions such as Europe and the GCC countries, or individual emerging economies including Jordan, Indonesia, Pakistan, and Saudi Arabia. In addition, three studies are systematic reviews, indicating the increasing consolidation and synthesis of knowledge in this research domain.

Overall, the geographical distribution reveals a strong emphasis on emerging and rapidly digitalizing banking systems, while also highlighting the relative scarcity of empirical evidence from many developing regions. This pattern largely reflects the selection criteria applied in the review. Specifically, the study includes only peer-reviewed journal articles published between 2020 and 2025 that

examine Fintech adoption at the bank level. Consequently, studies that focus on other levels of analysis, such as consumer adoption of digital financial services, or publications appearing in conference proceedings and local journals, do not meet the inclusion criteria and are therefore excluded from the final sample.

Citation distribution

Citation counts among the included studies vary considerably, ranging from zero to over 500 citations. Earlier publications, particularly those published between 2020 and 2022, tend to exhibit substantially higher citation levels.

In contrast, several studies published in 2024 and 2025 show relatively low or zero citation counts. This is expected because these papers have been published recently and have had less time to accumulate citations. Therefore, citation counts are interpreted as an indicative rather than definitive measure of scholarly influence, particularly for the most recent studies.

Journal quality and indexing distribution

Out of the 22 studies included in this systematic review, 12 studies (54.5%) were published in Q1 journals, indicating that more than half of the evidence base comes from top-tier academic outlets. In addition, 6 studies (27.3%) appeared in Q2 journals, while 2 studies (9.1%) were published in Q3 journals. The remaining 2 studies (9.1%) were classified under other ranking categories. Overall, this distribution demonstrates that the literature on Fintech adoption in banking is predominantly grounded in high-ranked journals, reflecting strong scholarly relevance and methodological rigor.

Regarding indexing databases, 12 out of 22 studies (54.5%) were published in SSCI-indexed journals, followed by 5 studies (22.7%) in ESCI-indexed journals. Scopus-indexed journals accounted for 4 studies (18.2%), while only 1 study (4.5%) was published in a DOAJ-indexed journal. This concentration of SSCI and ESCI publications highlights the increasing academic legitimacy of Fintech adoption in banking as a core research topic within the finance and banking literature, while the presence of Scopus and DOAJ outlets enhances the diversity of perspectives and regional coverage.

Taken together, the descriptive statistics indicate that research on Fintech adoption in banking is characterized by recent growth, strong representation of emerging and transition

economies, and high publication quality. The concentration of studies in Q1 and SSCI-indexed journals suggests that bank-level Fintech adoption has become a central topic within mainstream finance and banking research, providing a solid empirical foundation for the subsequent analysis of theoretical frameworks and adoption determinants.

4.2. Theoretical frameworks used

Table 2 summarizes the theoretical frameworks employed in the 22 studies examining Fintech adoption in the banking sector. Among the identified frameworks, the TOE framework is applied in four studies. TOE-based studies emphasize the joint influence of technological readiness, organizational characteristics, and environmental pressures, such as regulation and competition in shaping banks' Fintech adoption decisions. The prominence of TOE highlights its suitability for bank-level analysis, as it allows for the simultaneous consideration of internal organizational factors and external contextual forces in highly regulated financial environments.

Table 2. Theoretical frameworks employed in studies

No.	Theories	Studies	Number of studies
1	TOE	Khan, et al. [35] Hidayat-ur-Rehman and Hossain [37] Bani Atta [26] Alrshedi and P Iskandar [38]	4
2	TAM	Alzghoul and Al-kasasbeh [27]	1
3	RBV and Dynamic capability	Harasim [33] Mirza, et al. [34] Zhao, et al. [39] Zhang, et al. [41] He, et al. [43] Zhang, et al. [44] Cheng and Qu [45] Alzghoul and Al-kasasbeh [27]	8
4	Agency theory	Bian, et al. [29] Guo, et al. [23] Qin and Jing [42]	3
5	Institutional theory	Chhaidar, et al. [25] Yoon, et al. [36] Ni, et al. [40] Zhao, et al. [39]	4
6	Mixed approaches	Urumsah, et al. [31]	1
7	Review-based theoretical synthesis	Firmansyah, et al. [32] Albuainain and Ashby [28] Al-Sharafi, et al. [30]	3

The RBV and dynamic capability perspectives represent the most frequently used theoretical

foundation in the sample, appearing in eight studies. From these perspectives, Fintech adoption is conceptualized as a strategic investment that enables banks to build, deploy, and reconfigure valuable resources and capabilities in response to technological change.

Agency Theory, applied in three studies, highlights the role of ownership structure, managerial incentives, and risk-taking behavior in shaping banks' Fintech adoption decisions and their subsequent impacts. Institutional Theory, used in four studies, underscores the importance of regulatory pressure, supervisory frameworks, and institutional constraints in influencing both Fintech adoption and its outcomes.

In contrast, individual-level technology acceptance models receive limited attention. The TAM appears in only one study, indicating that user-centric explanations play a relatively minor role in explaining Fintech adoption at the organizational level within banks.

One study adopts mixed or integrative theoretical approaches, explicitly combining multiple perspectives to capture the complexity of Fintech adoption. Specifically, two studies integrate organizational, strategic, and environmental lenses to develop comprehensive conceptual frameworks that reflect the multifaceted nature of Fintech adoption in banking.

Finally, three studies are systematic literature reviews that synthesize prior research rather than relying on a single dominant theoretical framework. These reviews consolidate insights from TOE, RBV, agency, and institutional theories to provide an overarching understanding of Fintech adoption determinants and impacts in the banking sector.

Taken together, the evidence presented in Table 2 indicates that research on Fintech adoption is characterized by theoretical diversity but limited integration. While organizational, strategic, and governance-oriented theories dominate, the coexistence of multiple frameworks suggests substantial scope for future research to develop more integrated theoretical models that jointly account for technological, organizational, strategic, and institutional dimensions of Fintech adoption in banks.

4.3. Determinants and impacts of Fintech adoption

Based on the synthesis of the reviewed studies, the empirical findings on Fintech adoption in banking can be organized into three interrelated dimensions: external determinants, bank-specific

determinants, and the impacts of Fintech adoption. This structure reflects the multi-layered nature of Fintech adoption decisions in banks and allows for a clearer distinction between contextual drivers, internal bank characteristics, and observed outcomes.

4.3.1. External determinants of Fintech adoption

A first group of determinants relates to external factors that shape banks' incentives and pressures to adopt Fintech solutions. Across multiple country contexts, studies consistently identify competitive pressure, customer expectations, and industry dynamics as key external drivers of adoption. Evidence from Jordan indicates that increasing competition and rising customer demand for digital financial services significantly accelerate banks' adoption of Fintech products [26]. Similar patterns are observed in Indonesia, where competitive intensity and customer pressure are closely linked to adoption decisions at the bank level [31].

In addition to market-related pressures, institutional and regulatory conditions emerge as important external determinants. Studies conducted in highly regulated banking environments highlight that regulatory frameworks and supervisory expectations can either facilitate or constrain Fintech adoption. Evidence from Saudi Arabia highlights the importance of national regulatory and institutional settings as key environmental factors that may shape banks' Fintech adoption decisions. In particular, regulatory support is conceptualized as part of the external context influencing banks' readiness to adopt Fintech solutions [38]. Broader cross-country evidence suggests that regulatory environments play an important conditioning role in shaping the implications of Fintech adoption within banking systems. In particular, empirical evidence from GCC economies shows that regulatory frameworks moderate the relationship between Fintech adoption and bank stability [35].

Systematic reviews reinforce these findings by synthesizing recurring external drivers and barriers, showing that environmental and institutional pressures are consistently reported across different banking contexts [30], [28], [32]. Overall, the evidence suggests that external determinants create the contextual conditions under which banks perceive Fintech adoption as necessary or strategically desirable.

4.3.2. Bank-specific determinants of Fintech adoption

Beyond external pressures, a substantial body of evidence highlights the role of bank-specific characteristics in shaping Fintech adoption decisions. These determinants explain why banks operating under similar external environments often display different levels of Fintech adoption. In line with the theoretical perspectives discussed earlier, bank-specific determinants can be broadly grouped into three dimensions: resource endowment, dynamic capabilities, and governance mechanisms.

First, resource endowment, derived from the resource-based view (RBV), refers to the internal resources that enable banks to invest in digital technologies. Financial resources, technological infrastructure, and human capital are particularly important in supporting Fintech adoption. Financial strength and resource availability play a crucial enabling role, as Fintech adoption typically requires substantial upfront investment in digital infrastructure, innovation activities, and organizational transformation. Banks with stronger capital positions and larger resource bases therefore face fewer financial constraints when committing to Fintech initiatives. In empirical banking studies, resource endowment is commonly proxied by observable bank-level variables such as bank size, profitability, capital adequacy, and liquidity. Larger and more profitable banks tend to possess greater financial flexibility and investment capacity, allowing them to undertake technology-intensive projects such as Fintech development [9]. Prior research also suggests that the availability of technological investment and financial capacity plays an enabling role in banks' engagement with Fintech development and digital innovation [7].

Second, dynamic capabilities emphasize banks' ability to adapt and respond strategically to technological change. Unlike static resource availability, dynamic capabilities emphasize organizational readiness, technological competence, and the ability to reconfigure internal processes in response to evolving technological environments. Studies highlight that technological infrastructure and digital readiness play an important role in enabling banks to leverage Fintech initiatives effectively. For instance, the presence of advanced information technology infrastructure has been found to strengthen banks' capacity to adopt and utilize Fintech innovations in improving organizational competitiveness [2]. Similarly, conceptual frameworks on Fintech adoption in banking emphasize that organizational readiness and technological capability represent key

internal conditions facilitating the successful implementation of Fintech solutions [14].

Third, governance mechanisms play a crucial role in shaping Fintech-related strategic decisions. Governance structures, managerial incentives, and leadership commitment shape banks' willingness to engage in digital transformation and allocate resources to Fintech initiatives. Empirical evidence from Jordanian commercial banks indicates that top management support significantly promotes the adoption of FinTech products, highlighting the importance of leadership and strategic commitment in driving technological innovation within financial institutions [1]. Effective governance structures therefore play an important role in coordinating organizational change and mobilizing internal resources required for Fintech implementation.

To sum up, the literature indicates that Fintech adoption decisions are embedded within broader organizational, strategic, and governance environments rather than being purely technological choices. Bank-specific determinants therefore play a crucial role in shaping how banks interpret external pressures and translate them into concrete Fintech adoption strategies.

4.3.3. Empirical Evidence of Fintech Adoption Outcomes

A third stream of the literature examines the impacts of Fintech adoption on banking outcomes. Most studies focus on bank performance, risk, and sustainability-related outcomes, although the reported effects vary across contexts.

Several studies provide evidence of positive performance effects associated with Fintech adoption [29]. European evidence similarly suggests that Fintech investment contributes to higher profitability [25]. Studies in China further indicate that Fintech development is associated with improvements in operational efficiency and risk-adjusted outcomes, particularly when supported by strong internal control mechanisms [43], [44]. Beyond financial performance, some studies extend the analysis to sustainability-related outcomes, showing that Fintech adoption supports green finance and environmentally oriented lending activities [34]. In contrast, the effects of Fintech adoption on bank risk and stability are more mixed. Several studies report risk-mitigating effects, particularly with respect to credit risk and operational risk management [45], [42], [44].

Other evidence, however, indicates that Fintech adoption may increase risk-taking under certain conditions, suggesting potential trade-offs between innovation and financial stability [23]. Regulatory environments further condition these effects, leading to heterogeneous outcomes across countries and banking systems [35].

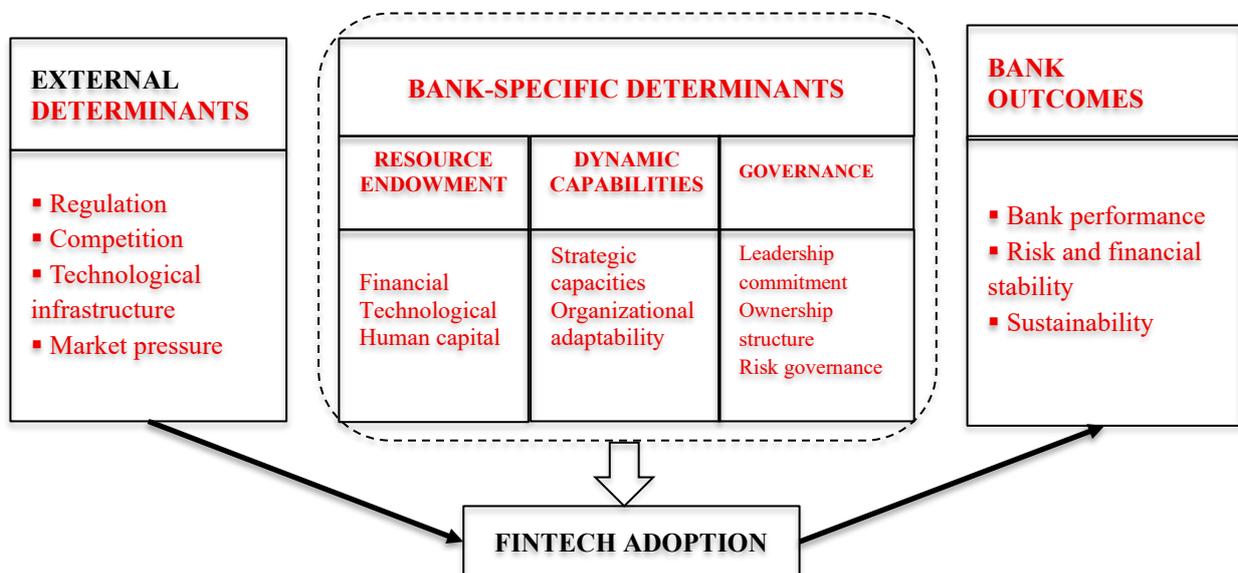
Overall, the impact-focused evidence indicates that while Fintech adoption is frequently associated with improved performance and efficiency, its implications for risk and stability are context-dependent and influenced by both external conditions and bank-specific characteristics.

Figure 2 outlines the study’s conceptual framework. It demonstrates that Fintech adoption in banks is shaped by external and bank-specific factors. External determinants, including regulatory requirements, market competition, technological infrastructure, and market pressure, create favorable conditions that motivate FinTech adoption.

Bank-specific determinants are structured into three theoretical dimensions. First, resource endowment, derived from the resource-based view, refers to the availability of financial resources, technological resources, and human capital that support digital innovation. Second, dynamic capabilities capture banks’ ability to develop strategic capacity and organizational adaptability in response to technological change. Third, governance mechanisms, including board structure, ownership structure, and risk control, influence strategic decision-making related to Fintech adoption.

In this framework, Fintech adoption represents a strategic response to the combined influence of external pressures and internal capabilities. Once implemented, Fintech initiatives affect a range of bank performance, risk and financial stability, and sustainability-related outcomes, as well as sustainability-related activities, including green finance

Figure 2. Conceptual framework of determinants and impacts of Fintech adoption in banki



5. CONCLUSIONS

This study provides a systematic synthesis of recent empirical research on Fintech adoption in the banking sector, with a focus on bank-level determinants and post-adoption impacts. Based on a review of 22 peer-reviewed studies published between 2020 and 2025, the paper clarifies how external determinants and internal bank characteristics jointly shape Fintech adoption and its consequences.

First, external determinants create the institutional and competitive environment that encourages banks to adopt Fintech solutions.

Regulatory frameworks, competitive pressure, technological infrastructure, and market dynamics jointly form the incentives for banks to engage in digital transformation. These environmental forces often act as motivators, pushing traditional banks to innovate to remain competitiveness.

Second, the literature consistently highlights the importance of bank-specific determinants in explaining variation in Fintech adoption across institutions. Internal resources, organizational capabilities, and governance arrangements influence how banks interpret external pressures and translate them into concrete innovation

strategies. In particular, resource endowment enables banks to mobilize financial, technological, and human resources necessary for digital transformation. Dynamic capabilities allow banks to integrate new technologies into their operational and strategic processes. Governance mechanisms further shape managerial incentives and risk evaluation related to technological innovation. Together, these internal factors determine the extent to which banks are able to effectively adopt and implement Fintech.

Third, the literature examining the outcomes of Fintech adoption indicates that digital innovation may generate a range of banking impacts, including improvements in operational efficiency, profitability, and sustainability-related activities. However, the evidence regarding risk and financial stability remains

mixed, suggesting that the consequences of Fintech adoption depend on regulatory environments, institutional contexts, and banks' internal capabilities.

Overall, the review highlights the importance of examining Fintech adoption through an integrated framework that connects external determinants, bank-specific factors, and banking outcomes. Such a perspective helps explain the heterogeneous patterns of Fintech adoption observed across banking systems and provides a useful foundation for future empirical research. As the number of empirical studies on bank-level Fintech adoption continues to grow, future research may extend the geographical coverage of existing evidence. Quantitative synthesis approaches, such as meta-analysis, could also be applied to evaluate the strength and consistency of the reported relationships.

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Các nhân tố quyết định bên ngoài và đặc thù của ngân hàng đối với việc áp dụng Fintech và các tác động: Nghiên cứu tổng quan hệ thống

TÓM TẮT

Nghiên cứu này thực hiện tổng quan có hệ thống các công trình nghiên cứu về việc áp dụng công nghệ tài chính (Fintech) trong lĩnh vực ngân hàng giai đoạn 2020-2025. Tuân thủ theo hướng dẫn PRISMA, 22 bài báo khoa học được **lựa chọn và phân tích**. Các bằng chứng được tổng hợp theo ba nhóm nội dung chính: các nhân tố bên ngoài, các nhân tố đặc thù ở cấp độ ngân hàng và các tác động của việc áp dụng Fintech. Kết quả nghiên cứu cho thấy áp lực cạnh tranh **và khuôn khổ pháp lý tạo áp lực thúc đẩy việc áp dụng Fintech. Quan trọng hơn**, các nhân tố đặc thù của ngân hàng, bao gồm nguồn lực nội tại, năng lực động và cơ chế quản trị, đóng vai trò quan trọng trong việc định hình mức độ áp dụng Fintech. **Kết quả cũng cho thấy việc áp dụng Fintech có thể cải thiện hiệu quả hoạt động và hiệu suất của ngân hàng, mặc dù tác động của nó đối với rủi ro và sự ổn định tài chính vẫn còn chưa thống nhất.** Nhìn chung, nghiên cứu nhấn mạnh rằng việc áp dụng FinTech là một vấn đề mang tính chiến lược và tổ chức trong ngân hàng. **Đồng thời, bài báo** cung cấp các hàm ý cho nghiên cứu và hoạch định chính sách trong tương lai, đặc biệt đối với các hệ thống ngân hàng ở các nền kinh tế mới nổi.

Từ khóa: Công nghệ tài chính; ngân hàng thương mại; nhân tố đặc thù ngân hàng; quản trị; tổng quan hệ thống