



A double-blind, peer-reviewed, open-access, and an HEC-recognized Y-category Journal

Research Journal of Human and Social Aspects

Web link: <https://rjhsa.com/index.php/rjhsa>

P-ISSN: [3006-9696](https://doi.org/10.71085/rjhsa.04.03.122), E-ISSN: [3006-970X](https://doi.org/10.71085/rjhsa.04.03.122)

Volume 4 Issue 3, 2026, Page Rang: 425-459



The Complementary Role of Corporate Governance, Business Government relationship, Gender Equality, Firm Size and Commercial Legal Disputes, in the effect of Management Practices on Digital Financial Inclusion, through Innovation in Small and Medium Enterprises in Pakistan

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Article information

Article History:

Received: 2026-06-23

Received in revised form: 2026-07-27

Accepted: 2026-08-09

Published Online: 2026-08-22

Keywords:

Digital Financial Inclusion; Management Practices; Innovation; SMEs; Pakistan; Institutional Theory; UTAUT; Structural Equation Modeling.

ABSTRACT

This study investigates the relationship between management practices and digital financial inclusion (DFI) of small and medium enterprises (SMEs) in Pakistan, with the mediation of innovation and moderation of business-government relationship, corporate governance, gender equality, commercial legal disputes, and firm size. Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and Institutional Theory, it posits that digital financial inclusion is a manifestation of internal organizational factors as well as external institutional factors. The analysis uses secondary firm-level data from the World Bank Enterprise Survey (Pakistan) 2022, a stratified random sample of 1,300 formal firms, restricted to a SME analytic sample of 990 small and medium firms. Constructs are operationalized as composite indices from theoretically aligned survey items: management practices from the management module, innovation from product, process, and research-and-development items, and digital financial inclusion from the use of mobile money, electronic payments, formal accounts, and credit. The model is estimated using survey-weighted path analysis, with the indirect effect assessed through bootstrapping and moderation tested through interaction terms. Management practices are positively and significantly associated with digital financial inclusion. Innovation does not mediate this relationship; as formal innovation is rare among the firms sampled. Among the moderators, only firm size is significant, and negatively, indicating a stronger management-inclusion link in smaller SMEs; the remaining four moderators are not significant. Because the data are cross-sectional, the findings represent explanatory associations rather than causal effects.



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1.0 Introduction

1.1 Background of the Study

Digital financial inclusion has become an important mechanism for expanding access to formal financial services through digital platforms such as mobile banking, digital payments, fintech applications, online lending, and electronic financial services. In developing economies, digital financial services can reduce transaction costs, improve financial accessibility, and support more efficient business transactions, particularly for firms that remain underserved by traditional banking systems (Carè et al., 2025; Mashoene et al., 2025).

Small and medium enterprises (SMEs) are especially relevant in this regard as they are the type of business which usually Formal financing options are hampered by lack of collateral, poor credit records of the people, information asymmetry, and high transaction costs. The Digital Financial Services can be important to SMEs Increase payment efficiency, cash-flow management, access to credit and interaction with financial institutions. Recent global evidence shows that digital payments and account usage have become central to financial inclusion, especially after the expansion of digital finance in the post-COVID period (Klapper et al., 2025; Setiawan et al., 2024).

In Pakistan, SMEs play an important role in employment generation, business activity, and economic development, yet many continue to face constraints related to financial access, digital readiness, institutional support, and technological adoption (Nizam & Rashidi, 2024; Hidayat-ur-Rehman et al., 2025). Although digital financial services offer opportunities for SMEs, adoption is not determined by technology availability alone (Shaikh & Amin, 2024). It also depends on internal organizational capabilities, such as management practices and innovation, and external institutional conditions, such as

government support, corporate governance, gender inclusion, legal certainty, and firm size.

Management practices may improve SMEs' ability to plan, coordinate, monitor, and implement digital financial tools. Innovation may further help firms convert managerial capability into actual adoption of digital finance by encouraging technological experimentation and process improvement. Meanwhile, institutional and organizational environments can have either a positive or negative effect on. weaken this relationship. Thus, the objective of this study is to focus on the management practices are relationship and what factors influence the relationship between the two.

The factors affecting the relationship between digital financial inclusion and innovation in Pakistani SMEs and the mediation role of innovation. relationship, and the moderating effect of selected moderators on the nature of this relationship. Management practices do not form or function in isolation; growth and effectiveness all depend on the organizational and institutional context of the firm (Bloom & Van Reenen, 2007). New cross-country evidence confirms that companies with more formalized human resource policies are more likely to have high-quality processes and services. management practices – target setting, monitoring and incentives – tend to be larger, more productive and more profitable, and managerial ability is interwoven with firm traits and surroundings (Scur et al., 2024). Institutional Theory holds that behavior of the firm is influenced by governance arrangements, regulations, norms, and the legal corporate governance, the business environment and the market (North, 1990; Scott, 2014) are all considered part of the environment. Each has a different kind of impact on the government relationship.

All have different types of impact on the government relationship, gender equality, firm size, and commercial legal disputes. Map and influence the way management practices are built and how they are converted into results like digital financial outcomes. inclusion. Corporate governance influences the discipline, accountability and oversight that provide for good management and that underlie the integrity of sound management. management practices. A systematic review of governance in SMEs reveals that governance mechanisms Issues pertaining to the board and ownership structure, the chief executive and auditing are related to significant firm results, such as innovation and internationalization and risk of failure, even in smaller companies, governance may be informal and owner based (Teixeira & Carvalho, 2024).

This indicates that governance quality affects the level of rigor that SMEs plan, monitor and analyses their working. The business-government nexus impacts on the resources and regulatory clarity that enable It will take management practices to get established. A review of corporate political connections from a multidisciplinary perspective as seen in the figure, it is an advantage to a firm to have links to government, because it can give them valuable resources – easier access to There is, of course, a strong argument for the potential benefits of linkages in terms of credit, subsidies, and regulatory benefits but also a strong argument for the potential downside risks of linkages. strategy that has context-dependent and non-uniform benefits (Wei et al., 2023).

For SMEs in in particular, the role of government connections in managing to become digital. Financial adoption can therefore not be guaranteed. Gender equality supports management practices with increased participation and diversity in decision-making. Evidence suggests women's representation in leadership is associated with fairly robust governance and

performance standards but significant gender gaps in ownership. The crisis in the credit markets and the management of senior officials continue on a global scale, and particularly in developing economies (World Bank, 2024). Changes in board gender diversity have also been associated with reforms that increase gender diversity on boards. Corporate innovation, implying that gender makeup of leadership can affect firms' in this regard, the strategic and managerial behavior has been examined (Wang, Cui, Zhu, & Sun, 2024).

Size of firm is related to formalization and sophistication of management practices. Larger firms Generally have more resources, human capital and formal systems, and the international Findings reveal that more organized management practices are being linked systematically with Scur et al 2024) found a relationship between larger firm scale. Within SMEs, there are likely differences in size. in order to influence not only the uptake of structured practices, but also their implementation in digital financial inclusion. Last, commercial legal conflicts and the legal landscape in which they operate affect firms' eagerness to go “legitimate” and deal with the system. Cross-country Even evidence from emerging markets indicates that a better legal environment of the market (property rights) a strong rule of law, which facilitates the enforcement of contracts, helps reduce the burden on transparency has a positive impact on financial development, suggesting that weak legal systems and lack of legal clarity increase the costs of financial development. transaction costs and undermine trust, which is the basis of formal and digital financial engagement. (Anser, Khan, Khan, Huizhen, & Haider, 2024).

1.2 Statement of the Problem

Although digital financial inclusion is critical, SMEs in developing economies are still financially limited and not fully connected to digital financial services. While financial

inclusion, fintech adoption, digital payments, and SME financing have been studied, there has been a lack of empirical research on the relationship between financial inclusion and internal management practices, particularly in the context of digital financial technology and innovation in the SME sector (Liu et al., 2025; Ling & Ling, 2025; Saka-Helmhout et al., 2025).

Furthermore, digital financial services are not adopted in a vacuum. SMEs are embedded in a set of institutional contexts that are influenced by government intervention, government performance, gender norms, law and order, and firm-specific assets. These factors can be a determinant of whether or not management practices can become digital financial inclusion. However, the moderating effect of business-government relationship, corporate governance, gender equality, commercial legal dispute and firm size are still less explored with respect to digital financial inclusion of SMEs in Pakistan (Azmeah, 2025; Morán-Muñoz et al., 2025; Grau-Grau et al., 2025).

This leaves a research gap. The literature is still sparse regarding the multifaceted relationship between management practices, innovation and institutional moderators to digital financial inclusion of SMEs in Pakistan. To fill this gap, the current study utilized secondary firm level data from the World Bank Enterprise Survey (Pakistan) 2022 and employed structural equation (path) analysis to test direct, mediating and moderating relationships as per Hidayat-ur-Rehman et al., (2025).

1.3 Objectives of the Study

This study aims to investigate the determinants of digital financial inclusion of SMEs in Pakistan considering management practices, innovation and selected moderating variables. The specific objectives are:

- To examine the association between management practices and digital financial inclusion among SMEs in Pakistan.
- To investigate the mediating role of innovation in the relationship between management practices and digital financial inclusion.
- To evaluate the moderating effects of business-government relationship, corporate governance, gender equality, commercial legal disputes, and firm size on the relationship between management practices and digital financial inclusion.

1.4 Research Questions

- Is management practice associated with digital financial inclusion among SMEs in Pakistan?
- Does innovation mediate the relationship between management practices and digital financial inclusion?
- What moderating effects do business-government relationship, corporate governance, gender equality, commercial legal disputes, and firm size have on the relationship between management practices and digital financial inclusion?

1.5 Scope of the Study

The scope of this study is limited to SMEs operating in Pakistan. The study uses secondary firm-level data obtained from the World Bank Enterprise Survey (Pakistan) 2022, which provides standardized information on firm characteristics, business environment conditions, innovation, financial access, management practices, and digital and electronic financial usage.

The analysis focuses on management practices as the independent variable, innovation as the mediating variable, digital financial inclusion as the dependent variable, and business-government relationship, corporate governance, gender equality, commercial legal disputes, and firm size as moderating variables. The study adopts a

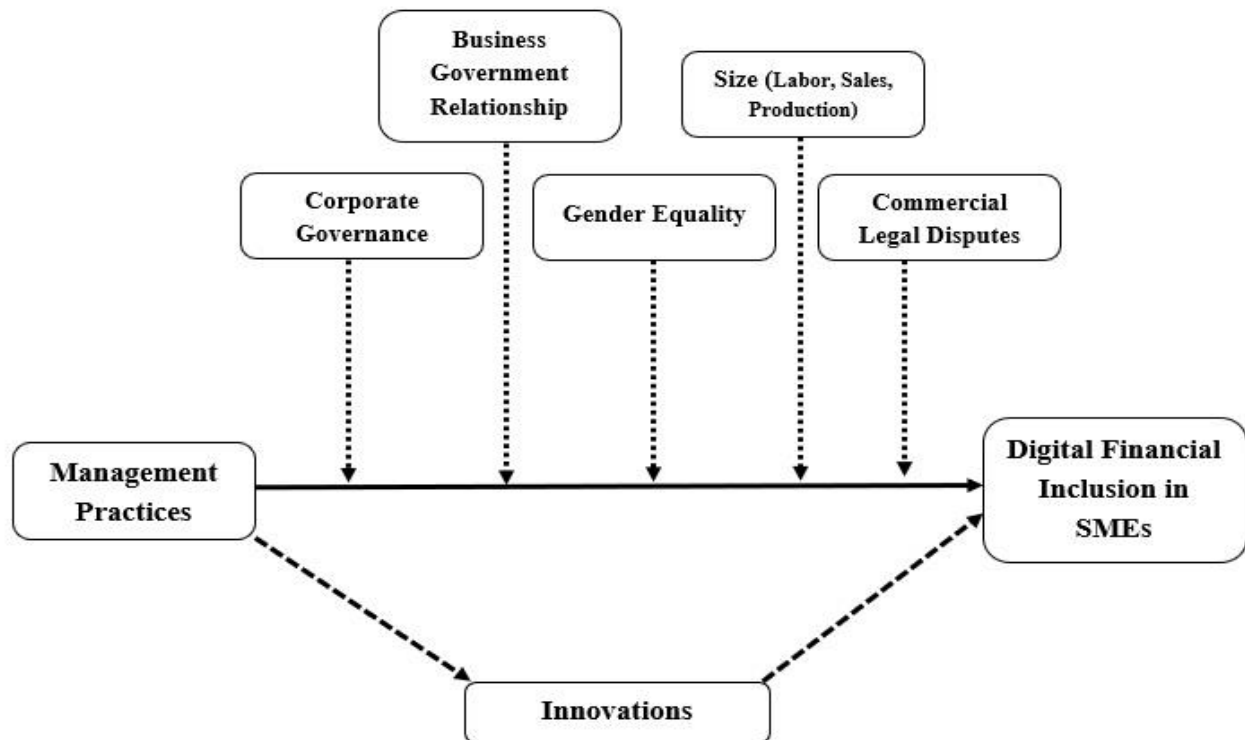
quantitative research design and applies structural equation (path) analysis to test the proposed direct, indirect, and moderating relationships among the selected constructs.

Since the study uses secondary cross-sectional data, the findings should be interpreted as explanatory associations

within the context of the selected dataset, variables, and measurement structure, rather than as causal effects. Despite this limitation, the study provides useful empirical evidence on the organizational and institutional correlates of digital financial inclusion among SMEs in Pakistan.

1.6 Conceptual Framework

Figure 1: *Conceptual framework*



2.0 Literature Review

2.1 Theoretical Framework

This study is grounded in two complementary theories: The Unified Theory of Acceptance and Use of Technology (UTAUT) and Institutional Theory. These theories are appropriate because digital financial inclusion among SMEs involves both technology adoption and institutional conditions. UTAUT explains how firms adopt digital financial technologies, while Institutional Theory explains how external governance, regulatory, legal, and social conditions shape the adoption process.

2.1.1 Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology, developed by Venkatesh et al. (2003), explains technology adoption through factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions. Although UTAUT was originally developed to explain individual-level technology acceptance, it is also useful for understanding organizational adoption when applied at the firm level.

In this study, digital financial inclusion represents a form of technology-enabled financial adoption. SMEs adopt digital financial services when they perceive these tools as useful, manageable, and supported by internal and external facilitating conditions. Management practices represent an internal facilitating condition because effective management improves planning, resource allocation, coordination, and readiness for digital adoption. Innovation further supports adoption by enabling firms to experiment with and implement digital financial technologies. Therefore, UTAUT provides the theoretical basis for explaining how management practices and innovation contribute to digital financial inclusion. This application is consistent with a growing body of research that has used UTAUT to explain the adoption of digital financial and FinTech services, including at the firm and SME level. Campanella et al. (2025) apply UTAUT to FinTech adoption among innovative SMEs and find that facilitating conditions and firms' digital experience shape adoption; Amnas et al. (2023) use an extended UTAUT to identify the determinants of FinTech adoption; and Shaikh and Amin (2024) apply UTAUT to financial-technology acceptance in Pakistan. These studies support the use of UTAUT as an appropriate lens for examining digital financial inclusion and the role of internal facilitating conditions such as management practices and innovation.

2.1.2 Institutional Theory

According to Institutional Theory, the external environment of rules, norms, regulations and social structures influences the behavior of institutions (Scott, 2014; North, 1990). In developing economies, institutions and markets play a critical role given that firms' access to finance, technology, trust and legitimacy may be dependent on the quality of government support, legal institutions and markets.

In this study, the moderating roles of business–government relationship, corporate governance, gender equality, commercial legal disputes, and firm size are explained using Institutional Theory. Good business–government relations can help create better access to e-financial services and regulatory transparency. One can think about better corporate governance that can enhance accountability and credibility. Inclusive institutional and organizational norms are manifested by gender equality. Commercial legal conflicts are an institutional weakness because of legal uncertainty may affect confidence in digital financial systems. Firms' size may be indicative of their resource capabilities and institutional visibility that can affect their responses to digital finance opportunities. This represents a use of the Institutional Theory that has been accompanied by recent studies that refer to the institutional conditions to explain the digital financial inclusion and FinTech adoption in developing and emerging economies. The significance of the relationship between FinTech adoption and financial inclusion has been found to be significant and is moderated by institutional quality in terms of regulatory adaptability, contract enforcement, and corruption control (Mbarek, 2025); government action, regulation, and public policy can shape the development and uptake of financial innovation (Senyo et al., 2024); and institutional quality and legal protections moderate the effect of digital financial inclusion (Meniago, 2025). All of these studies make it justifiable to regard government support, governance, legal certainty, and other related institutional conditions as moderating conditions to be considered in the current model.

2.1.3 Integrated Theoretical Perspective

The combination of UTAUT and Institutional Theory comprehensively explains the concept of digital financial inclusion of SMEs. UTAUT sheds light on the internal processes

of technology adoption, especially as they relate to the readiness of firms to adopt DFI. Institutional Theory is used to account for external and contextual forces to be either strengthening or weakening in this adoption process. In this integrated manner, management practices are considered as the primary endogenous driver that will inspire digital financial inclusion, whilst innovation is treated as the intervening mechanism that will transform the managerial ability to digital financial adoption. Moderating variables are institutional and organizational factors that affect the management practices – digital financial inclusion relationship. This framework is especially relevant for SMEs in Pakistan as digital financial adoption is not only influenced by firm level readiness but is also influenced by government support, governance quality, legal certainty, social inclusion and firm resources.

2.2 Digital Financial Inclusion

Digital financial inclusion involves the application of digital technologies, platforms, and financial innovations to promote access to formal financial services, such as payments, saving, credit, insurance, and business finance. Unlike the traditional financial inclusion, which is largely dependent on physical banking infrastructure, digital financial inclusion is based on mobile banking, fintech etc., which is reducing the costs of transactions and making them easier to access (Sahay et al., 2020; Khera et al., 2021).

Digital financial inclusion is especially relevant to the SMEs, as they face several challenges, including a lack of collateral, poor credit history, high transaction costs, information asymmetry, and restricted engagement with formal financial institutions. Digital financial services can support SMEs in better managing cash-flow, efficient payment and receipts, alternative credit, and improve their relationship with financial service providers. Recent global

evidence also reveals that digital payments and account use have become core pillars to financial inclusion, particularly since the surge of digital financial services has occurred during and following the COVID-19 period (Demirgüç-Kunt et al., 2022).

Digital financial inclusion in developing economies like Pakistan is particularly relevant as many SMEs in the country continue to be underbanked, contributing to employment, production and economic activity. Adoption and use of digital financial services is not equal, however. Firm-level evidence in recent years suggests that SMEs are often deficient in their digital adoption and performance outcomes, and that limited resources and digital capabilities do not necessarily result in the effective use of digital tools (Klein & Todesco, 2025). Firms might therefore be unable to leverage tools effectively due to managerial capacity, innovation readiness, digital literacy, lack of trust, legal uncertainty, and weak institutional support. In this study, digital financial inclusion is viewed as a multidimensional outcome that is influenced by both internal organizational ability and external institutional conditions and is measured based on the firm's use of mobile money, electronic payments, formal accounts and credit.

2.3 Management Practices

Management practices are the systematic management activities that allow companies to coordinate, evaluate, plan, monitor, and enhance their management. Target setting, monitoring performance, planning operations, allocating resources, coordinating employees, and making strategic decisions are among these practices. The measure of management practices is based on the work of Bloom and Van Reenen (2007), and even though several years have passed, current studies continue to demonstrate that management quality is a key factor contributing to the productivity, innovation,

and technology adoption of firms, especially in developing economies (Cusolito et al., 2020; Cirera et al., 2022).

Management practices have particular significance in SMEs, where the constraints on funding are likely to be more limited, there are likely to be informal structures, and there is likely to be greater exposure to market risk. Good management helps SMEs see the technology opportunity, invest in digital tools, control the operational risks and efficiently introduce new systems. Management practices can enhance firms' capability to implement mobile banking, mobile payments, fintech-based services, and online financial platforms for digital financial inclusion.

Studies on firm digitalization also highlight the role of managerial capability and organizational readiness as an important driver of the digital transformation (OECD, 2021). However, the evidence is not consistent. Empirical studies have shown that organizational and managerial factors are not always the determinants of adoption, such as, in a study on SMEs in a developing economy, compatibility, perceived trialability, and organizational readiness were not significant factors for the use of ICTs (Shahadat et al., 2023). This indicates that in situations where resource, infrastructure or environmental constraints prevail, managerial capability alone might not be enough. Management practices, on the whole, are likely to be a crucial internal competence that enables SMEs to adopt and use DFMs.

2.4 Innovation

Innovation is the introduction or application of new or much improved products, processes, technologies, organizational methods or business models. In the field of SME research, innovation is often seen as a way to enhance competitiveness, adjust to changes in the market and overcome the limited resources of the SME (OECD, 2018; Cirera & Muzi, 2020). Innovation in the

digital economy is strongly related to the uptake and use of new digital technologies, including digital financial services.

The digital transformation gives companies the opportunity to rethink processes, enhance customer engagement, cut down on operational expenses, and unlock financial opportunities. Nambisan et al. (2019) state that digital technologies have reshaped innovation, facilitating firms to reconfigure value creation and the processes of business activity. Likewise, the availability of alternative financial services like digital lending, online payments, and credit through platforms has increased with digital finance and fintech innovations (Cornelli et al., 2020).

In this study, the role of innovation is considered as a mediator between management practices and digital financial inclusion. Good management can facilitate the internal environment to experiment, learn, improve processes and adopt technology. Finally, innovation assists companies to turn managerial ability into the adoption of digital financial services. But this mediation effect cannot be automatically assumed to be complete. Recent research suggests that the link between digital transformation and SME performance is only partially mediated by business model innovation, as a direct impact of digital transformation remains. (Merín-Rodríguez et al., 2024). Other studies state that IT competencies, digital innovation management and digital innovation knowledge are not necessarily significantly related to digital innovation integration attitudes of firms (Egala et al., 2024). Therefore, innovation can be seen as a partial mechanism to connect management practices with digital financial inclusion.

2.5 Moderating Variables

Institutional and contextual factors affect digital financial inclusion in addition to the internal capabilities of the firms. The five moderating variables in this study are

business-government relationship, corporate governance, gender equality, commercial legal disputes and firm size. These variables are taken into consideration as they could enhance or hinder SMEs to transform management practices into digital financial inclusion.

2.5.1 Business-Government Relationship

Degree of support, cooperation, and interaction between firms and government institutions. Government and firms can co-operate to enhance the availability of regulatory information, public-sector financial programs, digital infrastructure, and institutional support. In emerging economies, government support plays a crucial role as public institutions can influence fintech regulation, digital payment infrastructure, financial access, and trust in formal systems (Sahay et al., 2020; Khera et al., 2021). A positive business-government dynamic can reinforce the link between business practices and financial digital inclusion for SMEs. The evidence, though, is mixed. Empirical research has recently shown that government financial subsidies to a large extent positively impact the digital transformation of large enterprises but not significantly for SMEs (Sun et al., 2024), suggesting that public support does not necessarily lead to higher digital transformation rates for smaller companies.

2.5.2 Corporate Governance

Corporate governance is the way in which companies are managed, monitored and held accountable. It includes transparency, accountability, internal control, ownership structure, and strategic oversight (OECD, 2023). By the standards of digital financial inclusion, governance can be beneficial for boosting firms' credibility with banks, fintech providers and regulators, and may also help to reduce information asymmetry. This effect can have a positive or negative outcome, however, it is not always positive. Recent evidence based on the firm-level indicates

that boards that act as strategic resource providers facilitate digital transformation, and monitoring- and control-oriented boards can constrain or slow down firms' digital transformation (Nahum et al., 2025). There is an expectation that corporate governance, in general, will reinforce the relationship; however, it is noted that an over-control type of corporate governance can have the opposite effect.

2.5.3 Gender Equality

Gender equality means equal employment, ownership, leadership and decision making by men and women. It is relevant to digital financial inclusion as women have more difficulties accessing financial services, digital technologies, and formal economic opportunities (Demirgüç-Kunt et al., 2022). Gender equality can help to enhance the openness of an organisation, diversity of opinion, innovation and participatory decision making (Sorgner et al., 2022). But it is not a simple affair. Recent evidence indicates that disparities in digital financial inclusion for women and men remain and that these disparities are mostly structural in nature and linked to employment, education, and income (Özşuca, 2025). Overall, it is expected that gender equality will help reinforce SMEs' capacity to bridge management practices to digital financial inclusion.

2.5.4 Commercial Legal Disputes

Commercial legal issues involve business related legal conflicts, contract enforcement issues and dispute resolution issues that have an impact on businesses. Legal uncertainty adds to transaction costs, diminishes trust, and deters firms from using formal financial systems. Particularly, in a digital finance context, it is also important that firms have legal certainty, since they need to rely on online platforms, digital contracts, formal dispute-resolution mechanisms, and electronic transactions. There is recent evidence to back this direction: institutional

quality and legal protection positively moderate financial inclusion in the digital era, and strong legal protection is identified as critical in promoting trust in digital finance (Meniago, 2025). This means that poor legal environments and outstanding conflicts have a negative impact on trust in digital finance. Hence, it can be anticipated that commercial legal conflicts will dampen the effects of management practices on digital financial inclusion.

2.5.5 Firm Size

Firm size reflects the resource base, operational scale, technological capacity, and institutional visibility of a firm. Larger SMEs generally have more financial resources, better infrastructure, stronger human capital, and greater interaction with banks and fintech providers (OECD, 2021; Cirera et al., 2022). Firm size may therefore strengthen the relationship between management practices and digital financial inclusion. However, the size advantage is contested. Some recent studies find that smaller firms hold a distinct advantage in adopting digital technologies because of their agility and flexibility (Cimino et al., 2025). On balance, firm size is expected to strengthen the relationship, while recognizing that smaller, more agile SMEs may convert managerial capability into digital adoption equally well.

2.6 Hypotheses Development

2.6.1 Management Practices and Digital Financial Inclusion

Management practices improve firms' ability to plan, coordinate, monitor, and implement strategic decisions. In the context of digital financial inclusion, well-managed SMEs are better able to evaluate digital financial tools, allocate resources for digital systems, manage adoption risks, and integrate digital payments or online banking into business operations. Recent firm-level research emphasizes that organizational capabilities such as top management support, human resources, and digital culture are central to

digital technology adoption in SMEs (Faiz et al., 2024). This expectation is reinforced by recent firm-level evidence linking managerial capability directly to digital adoption and transformation. Heubeck (2023) shows that dynamic managerial capabilities act as antecedents to digital business model transformation and firm performance; Gyamerah et al. (2025) find that digital transformational leadership in SMEs strengthens digital IT and employee capabilities, digital strategy, and ultimately digital transformation; and Held et al. (2025) demonstrate that dynamic capabilities enable the digital leadership and digital culture that drive SMEs' digital transformation. Together, these studies support the expectation that stronger management practices improve SMEs' capacity to adopt and use digital financial tools.

Theoretically, this hypothesis is derived from the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003). Management practices are an internal facilitating condition within UTAUT: having structured plans, monitoring and allocating resources enables the adoption of digital financial tools. In fact, good management contributes to increased performance expectations since well-managed companies are more likely to sense and seize the efficiency opportunities provided by digital finance. UTAUT posits that the more favourable facilitating conditions and performance expectancy are, the higher the likelihood of using a technology which in this study translates into enhanced digital financial inclusion.

H1: *Management practices positively influence digital financial inclusion in SMEs.*

2.6.2 Mediating Role of Innovation

There is an indirect link between management practices and digital financial inclusion, namely via innovation. There are good management arrangements which enable learning, experimentation, process

improvement and use of technology. SMEs can then use innovation to enable them to access new financial technologies such as digital payments, online credit, fintech platforms and electronic banking services. In recent years, evidence has emerged indicating that digital transformation can lead to business model innovation and that this in part explains the relationship between digitalization and SME performance (Merín-Rodríguez et al., 2024).

UTAUT Venkatesh et al. (2003) is also theoretically underpinning this mediating role. The facilitating conditions dimension is modeled as a facilitator of the actual use of a technology, while the translation from organizational readiness to adoption often happens through a firm's ability to experiment with and to implement new technology. The enabling capability is innovation – management practices set up a context for innovation, and innovation translates those practices into actual uptake of digital financial services. Thus, innovation is placed as a way to achieve the behavioral use of UTAUT's facilitating conditions.

H2: *Innovation mediates the relationship between management practices and digital financial inclusion in SMEs.*

2.6.3 Moderating Role of Business-Government Relationship

A facilitative business-government dynamic can augment the impact of management practice on digital financial inclusion by enhancing access to regulatory information, public support programme, digital infrastructure and institutional trust. For emerging economies, digital financial inclusion can be closely tied to government initiatives for digitalization and the development of a supportive fintech ecosystem (Senyo et al., 2024). But, the impact of this moderating effect is unclear: when only a small proportion of SMEs receive direct government support, this may have a limited effect on the management

practices–inclusion relationship, and previous studies have shown that public support does not necessarily lead to greater digital adoption in smaller companies (Sun et al., 2024). The hypothesis thus is declared in a non-directional form, and it is tested as an open question. This moderation is based in theory on the regulative pillar of formal rules, regulations and government action in the Institutional Theory (North 1990, Scott 2014).

This suggests that institutional factors such as government support and a stable regulatory environment can help to reduce the costs and risks of digital finance adoption and, therefore, firms in environments with a higher level of such support should be able to translate internal management capability into greater digital financial inclusion. Recent empirical studies reinforce the pertinence of the business government relationship on digital financial inclusion. Amnas et al. (2024) discover that perceived regulatory support has a significant moderating effect on the relationship between FinTech use and financial inclusion; Mbarek (2025) finds that institutional quality, defined as regulatory adaptability and contract enforcement, moderates the relationship between fintech and financial inclusion across emerging economies; Abu et al. (2025) show that there is a synergistic relationship between government support and FinTech to improve SMEs' access to finance; and Mei et al. (2024) develop a model for the government to improve SMEs' access to finance. The findings of these studies show that the digital financial inclusion of SMEs is a phenomenon influenced by conditions such as government support and the regulatory environment.

H3: *The business-government relationship moderates the relationship between management practices and digital financial inclusion in SMEs.*

2.6.4 Moderating Role of Corporate Governance

Effective Corporate Governance can facilitate and enhance the linkages between good management practices and digital financial inclusion by increasing transparency, accountability, risk management, and strategic control. Recent evidence suggests that boards that perform a strategic resource-provision role facilitate a firm's digital transformation, while monitoring-oriented boards can impede digital transformation (Nahum et al., 2025). We therefore cannot conclude the direction and strength of this moderation. Moreover, the conditioning effect of corporate governance is potentially weak or even undetectable in owner-managed SMEs in which the formal governance mechanisms (such as external audit and independent boards) are not commonplace.

An open question is used instead of a directional hypothesis. In theory, this moderation is related to the normative pillar of Institutional Theory (Scott, 2014) which relates to norms and standards of appropriate action. Corporate governance represents accountability, transparency, and oversight that provide credibility and legitimacy to the firm, in the eyes of banks, regulators and fintech providers. Firms might be abler to transform their management capacity into access to formal or electronic financial systems where these governance norms are more pronounced.

The relevance of corporate governance for firms' digital and financial outcomes is supported by recent empirical work. Bibi et al. (2024) find that governance quality significantly moderates the effect of ICT infrastructure and social inclusion on financial inclusion; Liu et al. (2024) show that corporate governance mechanisms internal-control quality and information disclosure transmit the effects of enterprise digital transformation; Teixeira and Carvalho

(2024), in a systematic review of SMEs, document that board, ownership, and audit mechanisms shape firm outcomes including innovation; and Zhang et al. (2024) establish a significant relationship between corporate governance and firm performance across emerging Asian economies, including Pakistan. These studies support treating corporate governance as a condition that can shape how SMEs convert management capability into digital financial inclusion.

H4: *Corporate governance moderates the relationship between management practices and digital financial inclusion in SMEs.*

2.6.5 Moderating Role of Gender Equality

Gender equality may strengthen the relationship between management practices and digital financial inclusion by promoting inclusive decision-making, diversity, and broader participation in financial and technological activities. Since recent evidence shows that gender gaps persist in digital financial inclusion and in fintech usage across developing economies, gender-inclusive practices may help SMEs participate more effectively in digital finance (Özşuca, 2025; Chen et al., 2023). At the same time, these gaps appear to be driven largely by structural factors such as education, employment, and income rather than by gender inclusion at the firm level, and where female ownership and leadership are rare among SMEs the moderating capacity of gender equality may be constrained. The relationship is therefore tested as an open question.

Theoretically, this moderation draws on the normative and cultural-cognitive pillars of Institutional Theory (Scott, 2014), which concern shared social norms and taken-for-granted beliefs about participation. Gender equality reflects inclusive organizational and social norms; where such norms support broader participation in decision-making and economic activity, firms may translate

management capability into digital financial inclusion more effectively.

The relationship between gender and digital financial inclusion is well established in recent empirical work. Gupta and Kiran (2024) show that a gender digital divide shapes digital financial inclusion among Indian users; Rojas-Vargas (2025) finds that digital financial services help narrow the gender gap in account ownership and digital payments across low- and middle-income economies; and Sharaf (2026) documents persistent gender gaps in digital financial inclusion driven by structural factors such as education, income, and employment. At the firm level, Wang et al. (2024) show that greater board gender diversity influences corporate innovation. Together, these studies establish gender inclusion as a condition linked to both firm innovation and digital financial inclusion.

H5: *Gender equality moderates the relationship between management practices and digital financial inclusion in SMEs.*

2.6.6 Moderating Role of Commercial Legal Disputes

Commercial legal disputes may weaken the relationship between management practices and digital financial inclusion by increasing uncertainty, reducing trust, and raising transaction costs. Recent evidence shows that institutional quality and legal protections positively shape the effect of digital financial inclusion, implying that weak legal environments and unresolved disputes can undermine trust and limit digital financial usage (Meniago, 2025). Nonetheless, where commercial disputes and formal recourse to courts are infrequent among SMEs, there may be too little variation in dispute exposure to condition the management practices–inclusion relationship, so the moderating effect may be limited or difficult to detect in this context.

Theoretically, this moderation rests on the regulative pillar of Institutional Theory (North, 1990; Scott, 2014), which emphasizes laws, contract enforcement, and the predictability of the legal environment. Commercial legal disputes signal institutional weakness: where legal certainty is low, the trust and enforceability on which formal and digital financial transactions depend are undermined, weakening the relationship between management practices and digital financial inclusion.

The relevance of the legal environment for firms' financial engagement is established in recent empirical work. Anser et al. (2024) find that a stronger legal structure protecting property rights and easing contract enforcement significantly supports financial development in emerging markets; Vo (2025) shows that institutional quality, including the rule of law, has long-term positive effects on financial inclusion in the Asia–Pacific region; Jungo et al. (2024) find that the rule of law and financial inclusion jointly shape banking stability in developing countries; and Gonenc et al. (2024) show that legal-rights reforms and stronger contract enforcement increase firms' access to bank credit, particularly in emerging economies. These studies establish legal certainty and contract enforcement as conditions that shape firms' engagement with the formal and digital financial system.

H6: *Commercial legal disputes moderate the relationship between management practices and digital financial inclusion in SMEs.*

2.6.7 Moderating Role of Firm Size

The effect of firm size on the relation between the management practices and digital financial inclusion is likely to be positive as larger SMEs tend to have more financial, technological and human resources. Recent SME digitalization research revealed the meaningful size heterogeneity among SMEs, and that firm size has a positive

influence on digital adoption (Clemente-Almendros et al., 2024).

Institutional Theory (North, 1990; Scott, 2014) suggests that the moderation effect may be explained by institutional visibility and legitimacy, as larger firms might be subject to more intensive pressure and scrutiny from regulators, financial institutions and other stakeholders to reinforce the use of formal and digital financial practices. While this is a more traditional, resource-based reading that supplements the other moderators, which are more direct, the size effect is explored.

Recent empirical research backs up the relevance of firm size in the adoption of digital and digital financial inclusion. Hernández et al. (2024) identify that the adoption and impact of digital, data-driven technologies differ systematically across micro, small and medium enterprises, Ardito et al. (2025) show that European SMEs can be increased in terms of growth through digital technologies such as AI, IoT and big data, leng et al (2025) demonstrate the impact of digital finance adoption on financial inclusion of micro businesses differs systematically by firm size, and verma and shome (2025) establish a positive relationship between digital financing adoption and financial inclusion of micro businesses. These studies can therefore be interpreted as supporting the idea that firm size is a condition which influences SMEs being able to adopt digital financial services and the benefits they can gain from them.

H7: *The size of SMEs moderates the relationship between management practices and digital financial inclusion in SMEs.*

3.0 Research Methodology

3.1 Research Design

This study adopts a quantitative research design to examine the relationships between management practices, innovation, the

moderating variables, and digital financial inclusion among SMEs in Pakistan. A quantitative approach is suitable as it allows the Researcher to examine relationships and patterns between several variables and test hypothesized relationships. Applying the statistical techniques (Creswell & Creswell, 2018). The study is deductive in nature. An approach that tests the hypotheses formulated based on theory and existing literature with observed data. Saunders, Lewis, & Thornhill, (2019) showed that the data was related.

This study is cross-sectional and data were collected at one point in time using the World Bank Enterprise Survey (Pakistan) 2022 (Bell, Bryman & Harley, 2019). Explanatory in The goal of this study was to examine direct, mediating and moderating relationships outlined in the model. conceptual model. Since the design is a cross-section and second hand observing, there is a risk of bias. causal relationships between the constructs. An analysis of these data infers explanatory relationships between the constructs. directional language of the hypotheses is not necessarily a reflection of the directionality of causality; claim of causal identification.

3.2 Data Source and Data Type

In this study, secondary data is used which is collected from World Bank Enterprise survey (Pakistan). 2022, carried out by the World Bank Group. The Enterprise Survey is a standardised, a research firm-level dataset widely used in research on SMEs, innovation, the World Bank (2022) reported financial access, business environment, and business environment. The Pakistan 2022 round It was collected with face-to-face interviews, contains 1300 formal firms and 434 variables. with business owners and top managers using the standard manufacturing and services questionnaires.

A stratified random sampling design (stratified random sampling with) is used for

the survey. This provides sampling weights (stratified by firm size, sector and region) and replacement). To generate population representative estimates. When calculating descriptive statistics, reliability, and the parameters, the analysis thus uses the sampling weights and stratification for the survey. structural model. Data are quantitative (binary, categorical, count, continuous). Depending on the chosen indicators, the measurement approach (Section 3.4) is selected.

3.3 Population and Sample

This study's population is small and medium enterprises of Pakistan. The targeting of SMEs is due to the fact that they are key in employment generation, business activity, available to them for social and economic development, but still have constraints in terms of access to finance and technology. the adoption of new technologies and institutional support (Ayyagari, Beck, & Demirgüç-Kunt, 2007).

The sample is Based on the World Bank Enterprise Survey (Pakistan) 2022 and features companies across Both manufacturing and services activities. In this study the analysis sample is drawn from the World Bank Enterprise Survey by imposing the following restrictions: A Stratified Random Sample was drawn from the SME subpopulation (small firms - 5-19 employees) in (Pakistan) 2022. consistent with the SME focus of the survey are more likely to report having a small team of employees. Small team of employees (three to five) is more likely to be reported by employees of small (fewer than 20) and medium (20-99) firms. study.

This is a criterion-based selection of a subpopulation from the survey's existing probability sample rather than a separate sampling procedure; the survey's stratified design and sampling weights are retained in estimation. Of the 1,300 firms in the full survey, this restriction excludes the 310 large

firms (100 or more employees), yielding an SME subsample of 990 firms (522 small and 468 medium). Observations with missing values on the key model variables are then handled through listwise deletion during estimation, so the realized analytical sample falls slightly below 990; the exact estimated sample size is reported with the descriptive statistics in Section 4. Because restricting the sample to small and medium firms limits the range of the firm-size moderator, a robustness check that retains larger firms and treats size as a continuous index is also recommended (see Section 3.6).

3.4 Variables and Measurement

Indicators are used to operationalize the constructs and they are adapted from the World Bank Enterprise Survey (Pakistan) 2022. The survey gives objective binary, each construct is measured with a multiple item reflective Likert scale, rather than categorical and continuous items. The overall score was created by combining the scores from the individual items. The items are first recoded such that higher values Then standardize (for scales that vary) and denote a higher level of the underlying construct (for scales that do not vary). These were all combined into a construct score. This operationalization, based on an index, is suitable for secondary the survey indicators and reflective measurement assumptions are not imposed on heterogeneous Objective items (Diamantopoulos & Winklhofer, 2001; Kline, 2016).

Management practices are measured from the survey's management-practices module, which includes: problem-solving, performance monitoring, number of indicators monitored, production/service goals, goal communication, incentive payments, promotion practices and the management of poor performing staff. The Innovation is measured from the product lines, new to the firm's market, new or improved processes, and research-and-

development activity and spending. Digital financial inclusion is: The proportion of payments received and made by the firm, based on the firm's mobile money usage. electronic means, having a checking or savings account, or access to a line of credit or loan. from a bank or other financial institution. The operationalization reflects the use of and access to digital and more than just Internet connectivity, formal financial services.

The moderators are operationalized as standardized composite indices: business-government relationships, between the

government and the companies supported and the regulatory environment; corporate Three elements of governance from external audit, quality certification, and ownership structure; gender equality Commercial legal conflicts from the and female ownership and female top management. dispute incidence, court use, and court quality; and firm size, (log) employment and (log) sales. Control variables are firm age, sector and region. The detailed item-level Table presents mapping of all constructs to the World Bank Enterprise Survey variables. 3.1.

Table 3.1: Operationalization of Constructs Using World Bank Enterprise Survey (Pakistan) 2022 Variables

Construct	Role / type	WBES variables	Measurement / direction
Management practices (MP)	Independent; composite	r2 monitor KPIs; r3 no. of KPIs; r4 targets; r8 performance bonus; r5–r7, r9–r11 (after recoding)	Recode each item so higher = stronger practice; standardize and average
Innovation (INN)	Mediator; composite	h1 new product; h2 new-to-market; h5 new process; h8 R&D (yes/no); h9 R&D spend	Binary items recoded 1/0; R&D spend logged; standardized and averaged
Digital financial inclusion (DFI)	Dependent; composite	PK27 mobile money; k33 % e-payments received; k38 % e-payments made; k6 account; k82 loan/line of credit	Use and access to digital/formal financial services; standardized and averaged
Business-government relationship (BGR)	Moderator; index	PK11a–e government support; PK31a predictability of officials; j2 mgmt time on regulations (reverse)	Standardized index; higher = more supportive relationship
Corporate governance (CG)	Moderator; index	k21 external audit; b8 quality certification; b3a owner ≠ manager; b3 ownership concentration (reverse)	Standardized index; higher = stronger governance
Gender equality (GE)	Moderator; index	b4 any female owners; b4a % female-owned; b7a female top manager	Standardized index; higher = greater gender inclusion
Commercial legal disputes (CLD)	Moderator; index	o1 had a dispute; o2 used courts/arbitration; j31 court impartiality (reverse)	Standardized index; higher = greater dispute exposure / weaker legal certainty
Firm size (SIZE)	Moderator; index	a6a size band; l1 employment; d2 sales	Standardized index of log employment and log sales
Controls	Control	b5 (firm age); a4a (sector); a2/a3a (region)	Age in years; sector and region as categorical controls

Source: variable codes drawn from the World Bank Enterprise Survey (Pakistan) 2022 data dictionary (World Bank, 2022). Exact value codings and the names of the sampling-weight,

stratum, and employment variables should be confirmed against the downloaded dataset codebook before estimation.

3.5 Model Specification

The study estimates the relationships among management practices (MP), innovation (INN), digital financial inclusion (DFI), and the five moderators using path analysis on the standardized composite scores. The model comprises a mediator equation and an outcome equation with interaction terms.

(1) Mediator equation: $INN = \alpha_0 + \alpha_1(MP) + e_1$

(2) Outcome equation: $DFI = \beta_0 + \beta_1(MP) + \beta_2(INN) + e_2$

(3) Moderation: $DFI = \beta_0 + \beta_1(MP) + \beta_2(INN) + \beta_3(BGR) + \beta_4(CG) + \beta_5(GE) + \beta_6(CLD) + \beta_7(SIZE) + \beta_8(MP \times BGR) + \beta_9(MP \times CG) + \beta_{10}(MP \times GE) + \beta_{11}(MP \times CLD) + \beta_{12}(MP \times SIZE) + \text{controls} + e$

In this specification, β_1 represents the direct association between management practices and digital financial inclusion (H1); the indirect path $MP \rightarrow INN \rightarrow DFI$ represents the mediating role of innovation (H2); and the interaction coefficients β_8 – β_{12} represent the moderating effects of the business-government relationship, corporate governance, gender equality, commercial legal disputes, and firm size, respectively (H3–H7). All predictors are standardized before the interaction terms are computed, which improves interpretability and reduces non-essential multicollinearity between the main effects and the product terms (Aiken & West, 1991; Dawson, 2014).

3.6 Data Analysis Technique

The analysis is conducted in STATA 17 and proceeds in several stages. First, the dataset is screened for missing values, inconsistent codes, and outliers, and the survey design (sampling weights and strata) is declared so that all estimates are population-representative. Second, the construct items are recoded to a consistent direction,

standardized, and combined into composite scores as described in Section 3.4. Third, descriptive statistics and inter-construct correlations are produced for all variables.

Fourth, the internal consistency of the multi-item constructs (management practices, innovation, and digital financial inclusion) is assessed using Cronbach's alpha, noting that for binary indicators this is interpreted as the Kuder–Richardson reliability analogue. A confirmatory measurement model is then estimated to obtain standardized factor loadings for the core constructs; because several indicators are binary, a generalized SEM with a logit link for binary items is used, with a linear SEM on the standardized items reported as a robustness check to obtain conventional fit indices (Hu & Bentler, 1999; Kline, 2016).

Fifth, the structural model is estimated. The mediating role of innovation is tested through the indirect path from management practices to digital financial inclusion via innovation, with the significance of the indirect effect assessed using bootstrapping (Hair et al., 2021). The moderating effects are tested by adding the interaction terms between management practices and each moderator to the survey-weighted outcome model; a statistically significant interaction coefficient indicates a moderating effect, and its sign indicates whether the moderator strengthens or weakens the management practices–digital financial inclusion relationship. Explained variance (R^2) is reported for the innovation and digital-financial-inclusion equations. As a robustness check, the model is re-estimated retaining large firms with firm size entered as a continuous index, to ensure that the SME-only restriction does not unduly limit the test of the firm-size moderator.

4.0 Results and Analysis

The model was estimated on the SME subsample of the World Bank Enterprise Survey (Pakistan) 2022 (small and medium firms; $n = 990$, with 982–989 firms retained across the estimated models after listwise deletion on the modelled variables). All estimates are survey-weighted using the survey's median-eligibility sampling weights,

and standard errors are heteroskedasticity-robust. The estimates were produced from the firm-level microdata and can be reproduced with the accompanying do-file; researchers re-estimating the models in Stata under the full survey design (weights and strata) may obtain marginally different standard errors, but the substantive pattern of results is robust.

Table 4.1: *Descriptive Statistics (survey-weighted)*

Variable	Obs	Mean	Std. dev.	Min	Max
MP (0–1 index)	990	0.290	0.217	0.000	0.908
INN (0–1 index)	990	0.019	0.091	0.000	1.000
DFI (std-item index)	990	0.026	0.507	-1.882	2.766
BGR (index)	989	-0.025	0.530	-7.236	2.046
CG (index)	990	-0.041	0.558	-0.779	1.841
GE (index)	990	0.038	0.881	-0.173	6.205
CLD (index)	990	0.015	0.737	-0.733	3.535
SIZE (index)	990	-0.169	0.823	-2.176	4.145

MP and INN are 0–1 indices; DFI and the moderators are composites of standardized items and are therefore centered near zero. The innovation means of 0.019 indicates that only about 2% of SMEs report introducing new

products, processes, or research and development — a notable feature of the sample that bears directly on the mediation result below.

Table 4.2: *Reliability (internal consistency)*

Construct	No. of items	Cronbach's alpha
Management practices (MP)	10	0.734
Innovation (INN)	3	0.423
Digital financial inclusion (DFI)	5	0.548

Management practices show acceptable internal consistency ($\alpha = 0.734$). Innovation ($\alpha = 0.423$) and digital financial inclusion ($\alpha = 0.548$) fall below the conventional 0.70 threshold; this reflects that innovation is rare and that the DFI items capture distinct facets

(mobile money, electronic payments, accounts, credit) rather than a single tightly correlated dimension. Results involving these two constructs are interpreted with corresponding caution.

Table 4.3: Standardized Item Loadings (first principal component)

Construct	Item (loading)	
MP	r2 monitoring (.839); r4 targets (.839); r3 no. of KPIs (.829); r7 target awareness (.674); r5 target horizon (.643); r1 problem-solving (.393); r8 bonus (.386); r9 bonus basis (.381); r10 promotion (.236); r11 corrective action (.056)	—
INN	process (.826); product (.679); R&D (.524)	—
DFI	e-payments received (.944); e-payments made (.938); credit (.096); account (.058); mobile money (−.053)	—

For digital financial inclusion the two electronic-payment items load strongly (≈ 0.94) while account ownership and credit load weakly, because almost all SMEs already hold an account and very few hold formal credit; the DFI composite is therefore driven mainly by electronic-payment intensity. For management practices, performance monitoring, targets, and the number of monitored indicators load most strongly, while the corrective-action item (r11) is weak.

Table 4.4: Correlations among Core Constructs

	MP	INN	DFI
MP	1.000		
INN	0.146	1.000	
DFI	0.177	0.118	1.000

Table 4.5: Structural and Moderation Results (DV: digital financial inclusion)

Path / term	Coefficient	Std. err.	p-value
Structural paths			
MP → INN (a-path)	0.077	0.049	0.118
MP → DFI, direct (c')	0.104	0.042	0.014
INN → DFI (b-path)	0.042	0.058	0.466
MP → DFI, total (c)	0.107	0.042	0.011
Moderation model (main effects)			
MP	0.050	0.049	0.305
INN	0.020	0.051	0.702
BGR	-0.073	0.055	0.184

CG	0.030	0.059	0.610
GE	0.153	0.044	0.001
CLD	0.012	0.047	0.797
SIZE	0.109	0.055	0.045
Interaction terms			
MP × BGR (H3)	-0.042	0.057	0.464
MP × CG (H4)	-0.037	0.045	0.414
MP × GE (H5)	-0.000	0.042	0.997
MP × CLD (H6)	0.008	0.043	0.858
MP × SIZE (H7)	-0.130	0.046	0.005
<i>Survey-weighted estimates with robust standard errors. Full moderation model $R^2 = 0.138$ ($n = 982$). The direct path c' and total effect c are taken from the structural (mediation) model controlling for firm age and sector.</i>			

Table 4.6: Mediation — Indirect Effect of MP on DFI via INN

Path	Indirect effect (a×b)	Bootstrap 95% CI (2,000 reps)
MP → INN → DFI	0.003	[-0.003, 0.024]
<i>The bootstrap confidence interval includes zero; the indirect effect is not statistically significant, so innovation does not mediate the management practices–digital financial inclusion relationship in this sample.</i>		

Table 4.7: Model Summary (explained variance)

Equation	R^2
Innovation (INN) equation	0.029
Digital financial inclusion — structural (mediation) model	0.072
Digital financial inclusion — full moderation model	0.138
<i>Explained variance is reported for the composite path models. Latent-variable fit indices (CFI, TLI, RMSEA, SRMR) can be obtained from the generalized SEM measurement model in the accompanying do-file.</i>	

Table 4.8: Hypothesis Testing Summary

Hypothesis	Relationship	Decision
H1	Management practices → digital financial inclusion	Supported (b = 0.107, p = 0.011)
H2	Innovation mediates MP → DFI	Not supported (indirect 0.003; 95% CI includes 0)
H3	Business-government relationship moderates MP → DFI	Not supported (p = 0.464)
H4	Corporate governance moderates MP → DFI	Not supported (p = 0.414)
H5	Gender equality moderates MP → DFI	Not supported (p = 0.997)
H6	Commercial legal disputes moderate MP → DFI	Not supported (p = 0.858)
H7	Firm size moderates MP → DFI	Supported (b = -0.130, p = 0.005)

In summary, management practices are positively and significantly associated with digital financial inclusion (H1). Innovation does not mediate this relationship (H2): neither the path from management practices to innovation ($a = 0.077$, $p = 0.118$) nor the path from innovation to digital financial inclusion ($b = 0.042$, $p = 0.466$) is significant, and the bootstrapped indirect effect is effectively zero. There are only five moderators, with only firm size showing a significant interaction (H7: $b = -0.130$, $p = 0.005$), suggesting that the positive link between management practices and digital financial inclusion is more pronounced among smaller SMEs and less among larger SMEs. H3 (Business government relation), H4 (Corporate governance), H5 (Gender equality) and H6 (Commercial legal dispute) are all non-significant. Interestingly, gender equality ($b = 0.153$, $p = 0.001$) and firm size ($b = 0.109$, $p = 0.045$) are positively and directly linked to digital financial inclusion, but fail to be moderators of the focal relationship.

4.9 Discussion

Based on the results of this analysis, it can be concluded that there is a positive relationship

between management practices with the variable of financial inclusion in the digital era and included in the significant relationship, namely that financial inclusion in the digital era is influenced by the management variable. This finding fits with a growing stream of firm-level evidence, as managerial capability acts as an antecedent to digital business-model transformation (Heubeck 2023), and managerial and leadership capability in SMEs shapes the digital capabilities and strategy that leads to digital transformation (Gyamerah et al. 2025), here extended to the specific outcome of digital financial inclusion. In the Pakistani context, where the digital financial inclusion composite is primarily determined by the intensity of electronic payments and not by account ownership, which is already at a very high level in the formal sector sample, this association is intuitive: electronic payments can be integrated more easily into the activities of better-managed firms that plan, monitor and allocate resources systematically, consistent with evidence that fintech adoption in Pakistan is more conditioned on perceived usefulness and organizational readiness than on availability (Shaikh & Amin, 2024) and that the adoption

of digital finance in Pakistan's under-served segments is driven by capability and trust (Hidayat-ur-Rehman et al., 2025). Theoretically, the finding validates the logic of UTAUT (Venkatesh et al., 2003), which suggests that management practices are an internal facilitating condition and increase performance expectancy, both of which UTAUT is associated with higher technology use, in this case, increased digital financial inclusion, consistent with Campanella et al., (2025) who report that facilitating conditions and firms' digital readiness are positively associated with FinTech adoption among SMEs.

The analysis does not support H2: innovation does not mediate the relationship between management practices and digital financial inclusion (indirect effect = 0.003; bootstrap 95% CI [-0.003, 0.024]), and neither the management-practices-to-innovation path ($a = 0.077$, $p = 0.118$) nor the innovation-to-inclusion path ($b = 0.042$, $p = 0.466$) is significant. This diverges from a stream of firm-level studies that treat innovation as an active channel: Jing et al. (2023) find that business-model innovation mediates the effect of digital ambidextrous capabilities on SME transformation performance, and Shao et al. (2025) identify innovation-related capabilities among the pathways driving digital transformation in SMEs; the present null result therefore stands in contrast to this literature. It is most plausibly explained by the ground realities of Pakistan's SME sector, where formal innovation is scarce only about 2% of firms in the sample report new products, processes, or R&D echoing evidence that innovation and R&D activity are limited and concentrated among a minority of Pakistani manufacturers (Wadho & Chaudhry, 2024) and that firms face pervasive structural and resource barriers to innovation (Ullah et al., 2021). With so little innovation occurring, there is insufficient variation for it to transmit the effect of management practices onward to digital

financial inclusion. Theoretically, this qualifies the UTAUT-based expectation (Venkatesh et al., 2003) that facilitating conditions reach behavioural use through an enabling innovation capability: where firms act largely as passive adopters of low-complexity digital tools such as electronic payments, absorptive-capacity logic implies the innovation-mediated pathway does not operate, and adoption proceeds directly through facilitating conditions rather than through firm-level innovation (Stettler et al., 2025). The direct effect of management practices on digital financial inclusion, rather than an innovation-mediated one, is thus the theoretically coherent reading for this context.

The analysis does not support H3: the business-government relationship does not significantly moderate the management-practices-digital-financial-inclusion relationship ($MP \times BGR = -0.042$, $p = 0.464$), and its direct effect is also non-significant ($b = -0.073$, $p = 0.184$). Prior evidence on this question is mixed, and the present null aligns with the more sceptical strand: whereas Zhao et al. (2025) find that government subsidies positively moderate the effect of digital inclusive finance on firms' R&D investment, Piacentino et al. (2025) find that government financial aid does not moderate the effect of digital-tool adoption on firm survival — the latter matching the result reported here. This pattern reflects the ground realities of Pakistan's SME sector, where formal government support reaches only a narrow slice of firms and institutional assistance is widely regarded as limited, uneven, and weakly aligned with firm needs (Durrani et al., 2024), and where access to finance for SMEs remains constrained and shaped more by firm-level characteristics and managerial knowledge than by public support (Khan et al., 2024). Where government support touches so few SMEs and is experienced unevenly, it offers little firm-level variation through which it could systematically

strengthen or weaken the management-practices–inclusion link. Based on this, the regulatory pillar reading of Institutional Theory (Scott, 2014) can be said to condition the slope between management capabilities and digital financial inclusion, whereby government support seems to be a rare and irreplaceable institutional resource that directly acts on the firms that receive it (Indrijawati et al., 2025). The regulative pillar is direct, rather than moderating, in a situation of thin and uneven state support, as it has a direct impact on outcomes for a minority of firms.

The analysis fails to show support for H4 that there is no significant moderation effect of corporate governance on the relationship between management-practices and digital financial-inclusion ($MP \times CG = -0.037$, $p = 0.414$) and that corporate governance does not directly predict inclusion ($b = 0.030$, $p = 0.610$). This is consistent with evidence that the governance – digital nexus is not uniform, but rather contingent – as shown by Nahum et al. (2025), boards can be either a partner or a monitor for digital transformation, resulting in a mixed governance moderation effect, and by Quttainah et al. (2025), who document that governance mechanisms operate in configurations with mixed effects.

The null is especially intelligible given the ground realities of Pakistani firms, where governance is dominated by concentrated, family, and insider ownership and where several formal mechanisms such as CEO duality and board independence show weak or inconsistent effects even among listed companies (Farooq et al., 2022; Shakri et al., 2024); among SMEs, formal structures such as external audit and independent boards are largely absent, leaving little governance variation to condition the focal relationship. Theoretically, this qualifies the normative-pillar reading of Institutional Theory (Scott, 2014): governance norms of accountability and oversight confer legitimacy chiefly where ownership and control are separated, but in

owner-managed SMEs the two coincide, muting the agency conflicts that formal governance is designed to address and hence its capacity to strengthen the management-practices–inclusion link (Brunninge et al., 2007). Where the owner is the manager, governance is effectively internalised, and formal corporate-governance mechanisms add little incremental moderation.

The analysis does not support H5: gender equality does not moderate the management-practices–digital-financial-inclusion relationship ($MP \times GE = -0.000$, $p = 0.997$). Notably, however, gender equality exerts a strong, positive *direct* effect on digital financial inclusion ($b = 0.153$, $p = 0.001$) the largest direct effect among the moderators. This pattern — a direct rather than a conditioning role aligns with a literature that treats gender as a structural determinant of digital financial inclusion rather than a firm-level contingency: Gupta and Kiran (2024) show that the gender digital divide shapes digital financial inclusion directly, and Shahen (2026) finds that the association between digital finance and gender inequality depends on broad structural conditions such as education, labour-market integration, and digital infrastructure rather than on firm-level inclusion. The result maps onto the ground realities of Pakistan, where the gender gap in financial inclusion is large and driven by socio-economic endowments: Alnafissa et al. (2024) report that only about 13% of Pakistani women hold financial accounts against 34% of men, with education, income, and employment shaping inclusion and exerting a weaker effect for women, while Rehman and Qamar (2024) document the cultural and societal constraints that limit Pakistani women's economic participation. Because so few Pakistani SMEs are women-owned or women-led, gender inclusion carries little within-firm variation through which it could condition the management-practices–inclusion slope. Theoretically, this fits the normative and cultural-cognitive

pillars of Institutional Theory (Scott, 2014): gender norms operate at the societal level, shaping who can access and use digital finance directly, rather than moderating how a firm's management capability converts into digital financial inclusion. Consistent with this, gender-related gaps in inclusion are repeatedly traced to structural and societal endowments rather than to firm-level governance of gender (Sharaf, 2026). Gender equality thus emerges here as a direct enabler of digital financial inclusion, not as a moderator of the focal relationship.

The analysis does not support H6: commercial legal disputes do not significantly moderate the management-practices–digital-financial-inclusion relationship ($MP \times CLD = 0.008, p = 0.858$), nor do they directly predict inclusion ($b = 0.012, p = 0.797$). The broader literature does establish that the legal environment matters for finance Yousaf et al. (2024) review how legal institutions and contract enforcement underpin financial development, and Anser et al. (2024) show that a stronger legal structure significantly supports financial development in emerging markets but this evidence is drawn overwhelmingly from cross-country or long-panel designs in which legal quality varies across units and over time. The present study observes a single Pakistani cross-section, and the ground realities of that setting help explain the null: contract enforcement and the courts are systemically weak and slow across the board, and empirical work on Pakistan indicates that institutional quality operates as a complementary, moderating force only where it varies across time or across firms of differing exposure while the environment itself remains uniformly weak (Ali, Zhang, et al., 2024; Ali, Zhongxin, et al., 2022). Since virtually all SMEs in Pakistan exhibit this poor legal environment and very few SMEs ever engage in commercial litigation, the degree of exposure to disputes is nearly identical for all firms and, therefore, there is little variation in that exposure that

could lead to a difference in the management-practices–inclusion slope. According to Institutional Theory (Scott, 2014), legal certainty is a systemic, country level institution, and thus, can impact the digital financial inclusion in a long-term macro effect instead of moderating firm level relationships, which is the theoretical claim of the regulative-pillar reading of Institutional Theory (Vo, 2025). In other words, rather than a contingency of the firm, commercial legal conflicts are better regarded as part of the ongoing institutional context.

Firm size emerges as a significant moderator between the management-practices–digital-financial-inclusion relationship ($MP \times SIZE = -0.130, p = 0.005$) and also has a positive direct effect on inclusion ($b = 0.109, p = 0.045$), supporting H7. Informative interaction: the positive link between management practices and digital financial inclusion is stronger in smaller SMEs and weaker in larger SMEs. This is consistent with the evidence that smaller firms, which are lean, flat and flexible also because of their low resistance to change translate managerial ability into digital adoption more directly than larger enterprises, where digital adoption is buffered by their scale and slack resources: Faiz et al. (2024) find that SMEs' reduced bureaucracy and low resistance to change give them advantages in digitalization adoption over large enterprises, while Czakon et al. (2025) report that smaller firms mobilize the digitalization to overcome the resource constraints associated with the liability of smallness. In actual ground realities of Pakistan, management quality is the binding enabler for the smallest SMEs (those with least slack resources depend most on the sophistication in management to adopt digital finance) while larger SMEs are endowed with resources and reach to adopt digital finance irrespective of sophistication of management. Theoretically, the supported but negative interaction is a refinement of the

institutional-visibility version of Institutional Theory (Scott, 2014) because larger firms have a greater institutional context and institutional pressure and slack, which reduces the importance of management practices, while smaller firms have less institutional visibility and slack, and thus depend on management capability to achieve potential to digital financial inclusion (Clemente-Almendros et al., 2024). Firm size is thus a true boundary condition; in the smallest firms, management practices have the strongest effects on inclusion, while the size of the firm in itself positively predicts inclusion.

5.1 Theoretical Implications

The study makes several contributions to the theories underpinning it. First, it supports the core UTAUT expectation that internal facilitating conditions here, management practices promote technology-enabled financial adoption: well-managed SMEs achieve higher digital financial inclusion (H1). Importantly, this evidence comes from a representative, survey-weighted SME sample rather than a sample of self-selected innovative firms, strengthening the external validity of the UTAUT logic in a developing-economy setting.

Second, the absence of a mediating role for innovation (H2) refines rather than contradicts UTAUT. It cautions against assuming an innovation channel in representative SME populations, where formal innovation is rare, as opposed to samples of innovative firms in which such mediation is routinely observed (Venkatesh et al., 2003; Merín-Rodríguez et al., 2024). The theoretical implication is that facilitating conditions can reach behavioral use directly particularly for low-complexity tools such as electronic payments without operating through an intervening innovation capability.

Third, and most consequential for Institutional Theory, the four non-significant institutional moderators (business-

government relationship, corporate governance, gender equality, and commercial legal disputes as moderators) suggest that the institutional forces emphasized by North (1990) and Scott (2014) may exert limited *moderating* influence in thin-institution settings where supportive conditions are scarce, weak, or uniformly experienced across firms. The results indicate that in a single-country cross-section with little firm-level institutional variation, these pillars tend to shape digital financial inclusion *directly and systemically* rather than by conditioning the returns to firm capability — evident in the significant direct effects of gender equality and firm size even where their interactions are null. This is a meaningful qualification: applying Institutional Theory to firm-level moderation requires institutional variation that thin-institution, single-context samples may not provide.

Finally, the supported but negative firm-size interaction (H7) refines the institutional-visibility reading of Institutional Theory and integrates it with a resource-based logic: because larger firms adopt formal and digital financial practices somewhat independently of managerial quality, the marginal value of management practices is greatest among the smallest firms. Firm size therefore functions as a genuine theoretical boundary condition on the management-inclusion relationship. Taken together, the findings advance an integrated UTAUT-Institutional Theory account in which internal capability is the dominant driver while external institutional conditions act largely as direct, systemic influences in resource-scarce environments.

5.2 Practical Implications

The results carry direct guidance for managers, policymakers, and financial-service providers. For SME managers, the clearest implication is that digital financial inclusion can be advanced most reliably by strengthening core management practices performance monitoring, target-setting, and

structured incentives rather than by waiting on formal innovation or research and development, which few SMEs undertake and which did not translate into inclusion in this sample. Investing in basic managerial capability is a more dependable lever than pursuing innovation for its own sake.

Because the management–inclusion link is strongest among smaller firms, capacity-building and support programmes that target well-managed small SMEs are likely to yield the greatest returns. Management-training, mentoring, and advisory interventions aimed at the smallest firms — those with the least slack and lowest institutional visibility — should be prioritised over blanket schemes, since these firms depend most on how well they are run to adopt digital finance.

For policymakers, banks, and fintech providers, the descriptive pattern is instructive: most SMEs already hold an account, but relatively few actively use electronic payments or hold formal credit, and the inclusion measure is driven mainly by electronic-payment intensity. The practical priority is therefore to expand the *range and usage* of digital financial services affordable electronic payments and accessible SME credit in particular rather than basic account access, which is largely saturated (Carè et al., 2025; Klapper et al., 2025). Product design, pricing, and onboarding that convert dormant account holders into active users of digital payments and credit would address the binding constraint this study identifies.

Finally, the significant direct effect of gender equality implies that measures which broaden women's participation in the financial system women-focused digital financial products, targeted digital-literacy initiatives, and efforts to close the structural gender gap can raise digital financial inclusion directly, independent of firm-level management (Alnafissa et al., 2024). Conversely, because government support,

corporate governance, and legal certainty did not condition the management–inclusion relationship in this setting, interventions on these institutional fronts are better justified on their own broad merits than as instruments for amplifying the returns to firm-level management capability.

5.3 Recommendations

First, SME owners and managers should invest in strengthening management practices, which are the most reliable correlate of digital financial inclusion in this study, with particular attention to performance monitoring, targets, and incentives. Second, because smaller well-managed SMEs convert managerial capability into digital finance most effectively, public and private support should not assume that larger firms benefit more; programmes can be designed to reach small firms directly. Third, given that account ownership is already widespread but electronic-payment usage and formal credit are not, financial institutions and fintech providers should prioritize affordable, easy-to-use digital payment and credit products for SMEs. Fourth, although government support, governance, gender inclusion, and legal certainty did not significantly moderate the relationship in this sample, strengthening these institutional conditions remains important for long-term SME development and may become more influential as they become more prevalent.

5.4 Limitations

A few cautions for interpreting the results should be noted. The study is based on secondary, cross-sectional data collected from one round of survey, indicating that the findings reflect associations at a specific point in time, and thus do not provide causal evidence and cannot exclude reverse causation between management practices and digital financial inclusion.

Second, in this sample, several constructs are not very variable. The level of innovation is

low (only approximately 2% of the firm's report having new products/processes or R&D) and female ownership and leadership, formal governance systems (external audit and independent boards) and direct government support are also relatively uncommon among SMEs in Pakistan. The limited variation is one reason why several hypotheses failed to be supported, and should be viewed as a characteristic of the sampled population and not as a lack of mediation and moderation in all settings.

Thirdly, there are limitations in measurement. The composite for innovation ($\alpha = 0.423$) and digital financial inclusion ($\alpha = 0.548$) are not at the conventional level of reliability; and the two electronic-payment items largely determine the score for inclusion, while accounts are close to universal and formal credit is uncommon. Consequently, results obtained with these constructs must be interpreted in a similar fashion.

Fourth, the model has a low R^2 (full model $R^2 = 0.138$), suggesting that factors that are likely to influence digital financial inclusion are not captured in the current model, such as digital and financial literacy, trust in fintech, infrastructure, etc., which are not captured by World Bank Enterprise Survey.

Fifth, the estimates use the survey's sampling weights with heteroskedasticity-robust standard errors. It is recommended that the models be re-estimated in Stata using the full survey design (weights and strata), to verify the standard errors, although the substantive pattern of results is likely to remain the same, there may be some slight adjustments to the design-based standard errors.

Lastly, the results are valid for formal SMEs of Pakistan in 2022 and for a single institutional setting. They cannot be extrapolated to informal firms, other time periods, or to other countries with different institutional settings.

5.5 Future Research Directions

These limitations point to several productive avenues for future work. First, longitudinal or panel data would allow researchers to examine how management practices and digital financial inclusion co-evolve over time and to move closer to causal inference, for example by exploiting policy changes or staggered adoption as sources of identification.

Second, primary survey data could support richer, purpose-built measures of the constructs that secondary data cannot capture including digital financial literacy, trust in fintech, cybersecurity concerns, and more granular indicators of digital financial usage improving construct reliability and widening the set of testable mechanisms.

Third, because the mediating role of innovation could not operate where innovation is almost absent, future studies could test the innovation channel in samples of innovative or technology-oriented SMEs, where sufficient variation exists to give the mechanism a fair test, and compare these results with representative samples such as the present one.

Fourth, the four non-significant institutional moderators invite re-examination in settings with greater institutional variation. Cross-country or multi-context designs pooling economies that differ in government support, governance quality, gender inclusion, and legal certainty would provide the between-unit variation needed to detect moderation that a single thin-institution cross-section cannot, and would clarify whether these factors act as moderators, direct drivers, or both.

Fifth, the negative firm-size interaction warrants closer study of the boundary conditions of the management-inclusion relationship, including why managerial capability matters more for the smallest firms and whether this pattern holds across sectors and countries.

Finally, mixed-methods and qualitative work could complement the quantitative findings by exploring how Pakistani SME owner-managers actually decide to adopt digital financial services, illuminating the behavioural and contextual factors that

survey composites leave unmeasured. Extending the analysis to the informal sector, which constitutes a large share of economic activity in Pakistan, would further broaden the relevance of this line of research.

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Declaration of Conflicting Interest

The author declared no potential conflicts of interest with respect to research.

Funding Statement

No funding is received for this project.