# THE ADOPTION OF AGENT BANKING: THROUGH THE LENS OF COMMERCIAL BANK CLIENTS

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## ABSTRACT

Agent banking has played a crucial role in promoting financial inclusion in Bangladesh, particularly during the COVID-19 pandemic when accessing banking services in rural areas became challenging. This study aims to explore the factors and dimensions that influence agents' intention towards agent banking services post-pandemic, drawing from the Technology Acceptance Model, SERVQUAL model, and perceived risk theory. A survey was conducted using a structured questionnaire, gathering data from 300 current agents recruited by commercial banks during the fiscal year 2021-2022 and residing in major divisions of Bangladesh. The study findings indicate the significant roles of perceived risk dimensions, service quality factors, and technological dimensions in agent banking services in Bangladesh. Specifically, dimensions of perceived risk were identified as having a significant negative influence on agents' intention towards agent banking adoption. These findings highlight the risk factors that hinder people's intention to adopt agent banking services and emphasize the importance of service quality factors in promoting adoption behavior. Policymakers, such as the central bank of Bangladesh and operating banks, can leverage these study findings to develop effective strategies for maximizing the adoption behavior of agent banking services.

## KEYWORDS

Agent Banking, Bangladesh, Intention, Technology Acceptance Model, SERVQUAL model, Perceived Risk Theory

## ACKNOWLEDGMENT

This work was supported by "NSU CTRG-20/SBE/25"

## DECLARATION OF INTEREST STATEMENT

The authors declare no conflict of interest

## INTRODUCTION

Agent banking has acted as a catalyst for financial inclusion in Bangladesh. The aim of agent banking has been to ensure a secure alternative delivery channel of banking services to the unbanked people in rural areas that are beyond the reach of the traditional banking network (Khurshed, 2020; Rahman, 2020). Agent banking has gained popularity as a cost-effective and convenient banking channel that enabled financial institutions to expand their businesses in rural areas (Rahman, 2020). However, the agent banking model got the greatest momentum as the COVID-19 pandemic posed challenges for people to access banking services in rural areas. With the emergence of the COVID-19 pandemic, restrictions on public movement in lockdown meant that clients could not travel far to visit bank branches in rural areas and this largely limited their access to banking services (Hasan, 2020). Besides, the government also limited commercial banking services all over the country (Uddin & Nazrul, 2020) as part of the containment measures. Such measures complicated the provision of banking services by commercial banks and challenged the acceleration of financial inclusion in rural areas. Interestingly, the agent banking model proved to be the perfect remedy amidst these restrictions of the pandemic.

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Globally, agent bankers are being increasingly utilized as important distribution channels for financial inclusion across a number of developed and developing countries (Bangladesh Bank, 2017). Banks provide agent banking services through non-bank agents, such as grocery stores, retail outlets, post offices, pharmacies, or lottery outlets (AFI, 2012). Agent banking initially entered the banking industry as the World Bank Group was promoting financial inclusion across the world in order to achieve Universal Financial Access by 2020 (UFA2020) (Chowdhury, 2017). One focus of the World Bank Group has been Bangladesh, as their agent banking initiative specifically targets the country's unbanked population in rural areas intending to contribute to this global financial inclusion and the vision of UFA2020 (Alo, 2017). Agent banking accounts in Bangladesh totaled 1.22 billion at the end of FY21, showcasing a 65 per cent increase compared to 73.57 million at the end of FY20 (Rahman, 2020). The agent banking model comprises the owner of an outlet who conducts banking transactions on behalf of a bank under a valid agency agreement (Hasan, 2020). Drawing from the Principal Agent Theory (Roach, 2016), it can be argued that commercial banks act as a principal who proposes the agency agreement and recruits' agents (also known as contingent/contract employees) to execute the provision of banking services in rural areas. Although the agents function as contingent/contract employees of the commercial banks, the fact that they are third parties exempts them from the restrictions of limited banking operations during the pandemic (Uddin & Nazrul, 2020). This autonomy enabled agents to offer banking services in rural areas and turn, clients got access to banking services at the agency outlets amidst the pandemic. The number of agent banking accounts increased by 115% in the pandemic, with a 47.75% increase in the number of agents providing the services and a 44.91% increase in the number of agency outlets in the rural areas of Bangladesh (Rahman, 2020).

Typically, agents use a mobile application to electronically provide banking services to clients in rural areas. As a result, agent banking services can be categorized as electronic services. Scholars like Rashwan et al. (2019) and Baabdullah et al. (2019) document that the success of electronic banking services largely depends on the importance that people place on convenience and usefulness. While Rotchanakitumnuai (2008) argues that the intention towards electronic services can increase with higher service quality. In fact, Mustapha and Obid (2015), and Rahman et al. (2018) combine the technological dimensions of electronic services with service quality factors to examine the influence on behavioral intention towards the use of electronic services. This indicates that technological dimensions of electronic services and service quality factors associated with such services can have a bearing on the agents' behavioral intention towards agent banking services. In contrast, the risks associated with electronic services cannot be negated despite the surprising growth of agent banking services during the pandemic. Previous studies like Barati et al. (2014), and Bhuasiri et al. (2016) specifically argue that perceived risks influence the behavioral intention towards the use of electronic services. This implies that agents, who provide banking services, are susceptible to such risks as service provision includes interacting with the technology by agents themselves. However, the literature only measures the effect of overall risk on behavioral intention and does not address the facets of perceived risk (Azmi & Kamarulzaman, 2010). Moreover, Azmi and Kamarulzaman (2010) combine technological dimensions with perceived risk factors but the model lacks empirical examination in the electronic service context. Specifically, the emergence of health risks that gained traction due to the pandemic has not been considered in the context of electronic services.

We argue that agents may be worried about contracting the virus in the process of service provision to clients and this may impede their intention towards the use of electronic services. To this end, we identify three gaps: First, the significant roles of technological dimensions, perceived risk and service quality factors for agent banking services have not been addressed in the literature. Second, the literature lacks empirical work that addresses a conceptual model comprising technological dimensions, service quality and perceived risk facets. As the intention to use any technological service is contingent on these three aspects (Azmi & Kamarulzaman, 2010; Rotchanakitumnuai, 2008), investigating the simultaneous impact of these factors can contribute to the risk, technology and banking service literature. Third, health risks emerging from the pandemic have not been examined for significance in the agent banking service context. Addressing this gap can contribute to the emerging pandemic literature with valuable insights into risks associated with agent banking services.

Drawing from Technology Acceptance Model (TAM) (Davis, 1989), the SERVQUAL model (Parasuraman et al., 1988), and perceived risk theory (Featherman & Pavlou, 2003), the objective of this study is to identify factors and dimensions that can influence the agents' intention towards agent banking services. This research will be of particular significance to the commercial banking sector, in reviewing and upgrading their service provisions related to agent banking. The outcomes of the study will also be important for the banking sector in determining the

prospects of agent banking services amidst the pandemic. In practice, this study will be of importance to the banks because they will get to know about the risk and service quality factors that drive the adoption of agent banking services in Bangladesh, especially during crisis periods. The study will make significant theoretical contributions by exploring perceived risk facets and service quality factors, along with technological aspects associated with agent banking services during the pandemic.

## LITERATURE REVIEW & HYPOTHESES

### *Agent Banking*

In recent years financial inclusion has become a common objective for the central banks of many developing nations like Bangladesh. This has been driven by the fact that financial services are still unavailable in various regions of such countries and are used only by a segment of the population (Nisha and Rifat, 2017). These deprived regions usually encompass rural, poor regions and also those living in harsh climatic environments where it is difficult to provide the usual financial services (Atandi, 2013). Besides, the high cost associated with financial services' long distance to banking channels is another reason behind the financial exclusion in developing countries (Ndung'u et al., 2015). Hence it has become imperative to develop new financial service delivery models which can change the economics of banking for the poor drastically. Therefore, to fill the gap, the concept of agent banking has quickly become popular as a practical solution for extending formal financial services, especially to the poor and in rural areas of Bangladesh.

According to the Central Bank of Bangladesh, agent banking is the means of providing limited-scale banking and financial services to the underserved population of the country through engaged agents under a valid agency agreement (The Daily Star, 2017b). The main aim of Bangladesh Bank behind this initiation is to reach the poor segment of society as well as existing bank customers with a range of financial services, particularly in geographically dispersed locations (The Daily Star, 2017a). In December 2013 Bangladesh Bank allotted licenses to four banks to start the operation of agent banking services, especially in remote areas where formal bank services were not accessible to a large extent (The Daily Star, 2017d). However, out of those four only two banks introduced agent banking services first - Bank Asia and Dutch Bangla Bank Limited (DBBL) in the country. They started to appoint agents from the core levels in January 2015 (The Daily Star, 2017c). Bank Asia initially appointed 49 agents in 32 Upazilas under 17 districts while Dutch-Bangla recruited six agents. Following this, banks started to buy fast into this concept. Subsequently, other banks like South Bangla Agriculture and Commerce Bank, and NRB Commercial Bank also initiated to launch of the service (The Daily Star, 2014a). Over time agent banking has garnered so much popularity in the banking sector that about 3.3 lacs agent banking accounts were opened in the first half of 2017 leading to an increase of 60.18 per cent in the use of this new form of banking service across the country (The Daily Star, 2017a). Even during the peak Covid period that ended on May 30, when the government limited commercial banking operations to control the spread of the virus, agents were not bound by any restrictions to support the economically vulnerable people (The Daily Star, 2021). Around 80 per cent of agents decided to continue work despite the pandemic situation. A local newspaper reported that the disbursements of foreign remittances witnessed a record surge in agent outlets during the Covid period (The Financial Express, 2021).

Therefore, banks are giving higher priority to developing their agent banking infrastructure instead of building their mobile banking platform in Bangladesh. Statistics by Bangladesh Bank in 2020 reveal that around 28 banks have signed up for agent banking licenses. Of the 28 banks, 24 are already running their own agent banking operations. The banks with a notable presence in the sector of agent banking include Bank Asia, Islami Bank Bangladesh Ltd, Dutch-Bangla Bank Ltd, Brac Bank, City Bank, Mutual Trust Bank, Al-Arafah Islami Bank, Agrani Bank, NRB Commercial Bank, and Modhumoti Bank (The Daily Star, 2021). Due to this proliferation of agent banking models, it has become imperative to explore and identify the factors that can affect the adoption of agent banking services by agents in Bangladesh.

### *Technological Dimensions*

The technology acceptance model (TAM), which was proposed by Davis (1989) and Davis et al. (1989) is an extensively used framework that explains the reasons behind the adoption of a particular innovation. The model was formerly adopted from another broadly used theory called the theory of reasoned action (TRA) which explains an

individual's behavior through his intentions (Fishbein and Ajzen, 1975). According to TAM, behavioral intention is influenced by individual behavior toward technology that consists of perceived usefulness (PU) and perceived ease of use (PEOU) through the mediation of attitude. This model assumes that a prospective user of a technology always weighs the possible benefits against the challenges before adopting or rejecting it (Davis et al., 1989). The model has been revised in many studies to fit a particular context of technology being investigated. Moreover, with the emergence of new technologies, additional variables were introduced to the TAM to produce an extended TAM for predicting consumers' intention to use. These variables include product involvement (Koufaris, 2002), cost (Shih, 2004), perceived risk (Pavlou, 2003), service quality (DeLone & McLean,2003), etc. To explain the adoption intention of agent banking services from the perspective of a commercial bank, we have assimilated factors from Perceived Risk Theory and SERVQUAL Model with TAM in this study. The proposed research model used to address the influencing factors for agent banking is presented in **Figure 1**. In addition, all the variables hypothesized in this study and their likely relationships towards commercial bank employees' acceptance of agent banking services in Bangladesh have been discussed next.

***Perceived Risks***

Perceived risk is defined as the potential for loss in the pursuit of a desired outcome of using an electronic service (Featherman & Pavlou, 2003). Risk is a feeling of insecurity that shakes people's confidence in their decisions. It is users' perceptions regarding risk and their own tolerance of risk-taking that influence their technology adoption decisions (Chan & Lu, 2004). Hence, we conceptualize the perceived risk of agent banking services as the feelings like anxiety, concern, discomfort, uncertainty, and cognitive dissonance that an employee of a commercial bank may associate with the use of agent banking technology. So far, perceived risk has been found to have inconsistent results empirically regarding its influence in the context of e-service acceptance. Perceived risk has been shown to reduce users' intention significantly to engage in e-transactions in various prior studies Lai and Zainal (2015); Chittoor and Dhotah (2016); Siyal et al. (2019); Rifat et al. (2019); Chauhan et al. (2019); and Penney et al. (2021). On the other hand, Fu et al. (2006), Mcleod et al. (2009), Stafford and Turan (2011); Unnikrishnan and Jagannathan (2018); Chakiso (2019) and Widyanto et al. (2021) indicate that perceived risk exhibits negligible influence for the adoption of electronic services.

Seven facets of risk that may affect an e-service adoption were initially proposed by Featherman and Pavlou (2003) in perceived risk theory. These facets include performance risk (possibility of malfunctioning), financial risk (potential monetary outlay), time risk (loss of time), psychological risk (potential loss of self-esteem), social risk (potential loss of status), privacy risk (potential loss of control over private information), and overall risk (a measure of overall perceived risk). Later, researchers like Luo et al. (2010), Alalwan et al. (2016), and Shareef et al. (2018) considered similar facets of risk in their conceptual paper for the adoption of innovative electronic banking services. In congruence with the prior research, in this paper five different dimensions of risk have been identified that may cloud the judgement of commercial bank employees regarding the adoption of agent banking technology- namely performance risk, individual risk, financial risk, time risk and cyber risk. Whereas performance risk, financial risk, time risk and cyber (privacy) risk are adopted straight from the perceived risk theory of Featherman and Pavlou (2003) and Azmi and Kamarulzaman (2010), individual risk has been adapted based on the studies of Luo et al. (2010), Choudrie et al. (2017); Nisha et al. (2018) and Rifat et al. (2019). Furthermore, this study adopted the overall risk dimension proposed by Featherman and Pavlou (2003) and Azmi and Kamarulzaman (2010) as well as the composite variable of perceived risk.

Performance risk has been defined as the losses incurred by deficiencies or malfunctions of agent banking software. It relates to situations in which agents may perceive that the agent banking system won't perform effectively and efficiently due to various reasons like slow wireless internet or server shutdown for unknown reasons, which consequently will result in some unforeseen losses (Van et al. 2020). Lee (2009), Brown et al. (2011), and Van et al. (2020) prove that performance risks have a significant but negative influence on the usage intention of an e-service. While Featherman and Pavlou (2003), Azmi and Kamarulzaman (2010) Hubert et al. (2017), Roy et al. (2017) and Hubert et al. (2019) propose that performance risk is positively related to overall perceived risk, which in turn negatively influences the behavioral intention for an e-service. This signifies that the higher the performance risk, the higher will be the perceived risk and the lower will be the adoption intention of any e-service. Hence, there is a chance that performance risk can be a prominent risk factor that influences the adoption of agent banking technology by prospective agents. The second type of risk which has been proposed in this study is individual risk. Individual risk can be referred to as the risks that arise due to human errors like careless data disposition and erroneous

submissions by the user (Nisha et al., 2018; Rifat et al., 2019). Previous studies like Nastase and Nastase (2007), Luo et al. (2010) and Iqbal et al. (2018) acknowledged and investigated the influence of individual risk on the adoption of e-services and discovered an adverse relationship with usage intention. In this paper, we additionally suggest that individual risk may have a positive relationship with overall perceived risk, which in turn negatively influences the behavioral intention for an e-service. This indicates that the higher the individual risk, the higher will be the perceived risk and the lower will be the adoption intention of any e-service. The logic behind this proposition is that individual risk to a certain level relates to the psychological risk of potential loss of self-esteem that happens due to the inability of achieving one's goals (Featherman & Pavlou, 2003; Rifat et al.,2019). Thus, any human error or erroneous submissions by the user may challenge their self-image which in turn results in an intersection of individual and psychological risk facets. So, individual risk is included as a major dimension of perceived risk in the proposed model.

Financial risk is the next dimension of risk that has been proposed in this study. Financial risk relates to concerns regarding the probability of financial losses that may arise due to fraud or monetary outlay and from errors or incorrect information in the process of conducting agent banking transactions (Luo et al., 2010; Van et al., 2020). According to Almousa (2014); Biucky and Harandi (2017) and Van et al. (2020) there is a significant negative relationship between financial risk and usage intention. While Featherman and Pavlou (2003), Azmi and Kamarulzaman (2010), Hubert et al. 2017 and Rifat et al. (2019) propose that financial risk positively affects overall perceived risk, which then negatively influences the behavioral intention to adopt an e-service. This indicates that the higher the financial risk, the higher will be the perceived risk and the lesser will be the intention to adopt any e-service. Financial risk thus has been suggested as a prominent risk facet that can influence the adoption of agent banking technology by the agents in this study.

Time risk is the fourth dimension of risk that has been investigated in this study. Through this research, we have tried to explore whether the agents are very time-conscious and apprehensive regarding the probability of "wasting time" in training, implementing, and troubleshooting agent banking technology (Azmi & Kamarulzaman, 2010; Hubert et al., 2019; Van et al., 2020). These time-conscious people tend to lessen the possible loss of time and are less likely to adopt those e-services that are assumed to have higher switching, setup and maintenance time and costs (Azmi et al., 2012; Nisha et al. 2018; Rifat et al., 2019). Martins et al. (2014), Rifat et al. (2019) and Sharma et al. (2021) argue that time risk positively affects perceived risk and thus influences the usage intention of a technology-based service. Hence, it can be deduced that the higher the time risk, the higher will be the perceived risk and the lesser will be the adoption intention of the e-service. This relationship has also been proved by Featherman and Pavlou (2003) and Azmi and Kamarulzaman (2010) and recently by Rifat et al. (2019) and Van et al. (2021). As such, time risk has been considered a significant dimension of perceived risk in the proposed model of this study.

Finally, cyber risk has been proposed as the fifth dimension of perceived risk in the current study. It relates to a situation in which harmful and unauthorized access to data may occur, or information regarding banking transactions may get stolen, illegally modified, or misused. More precisely, it can be defined as an individual's averseness to use technology due to the probability of being a victim of cybercrimes like hacking, identity, or password theft (Nisha et al., 2018; Rifat et al., 2019). The reason behind our proposition of keeping cyber risk as an important dimension of perceived risk is its negative impact which can refrain a prospective agent from adopting agent banking technology (Iqbal et al., 2018; Rifat et al., 2019). Chen and Sharma (2015), Hsieh (2015), Riek et al. (2016), Rifat et al. (2019) and Van et al. (2021) indicate that users' apprehension of the theft of private information, or simply its misuse is crucial for the adoption of an e-service. Based on the conceptualizations offered by Featherman and Pavlou (2003) and Azmi and Kamarulzaman (2010), a connection can be seen between cyber risk and privacy risk in all aspects. This risk is then positively related to overall perceived risk, which in turn negatively influences the behavioral intention for an e-service (Featherman & Pavlou, 2003; Rifat et al, 2019; Van et al., 2021). Thus, the higher the cyber risk, the higher will be the perceived risk and the lesser will be the adoption intention of any e-service. Therefore, cyber risk has been assumed to be a prominent risk facet in this study that can impact the adoption intention of agent banking technology by the potential agents. Based on the above arguments, the following hypotheses are proposed:

**H1a:** Performance Risk has a significant influence on Perceived Risk.
**H1b:** Individual Risk has a significant influence on Perceived Risk.
**H1c:** Financial Risk has a significant influence on Perceived Risk.
**H1d:** Time Risk has a significant influence on Perceived Risk.
**H1e:** Cyber Risk has a significant influence on Perceived Risk.

***Service Quality***

Service quality has been drawn from the SERVQUAL model, which was primarily developed by Parasuraman et al. (1988). Despite its initial emphasis on the extent to which a service can constantly meet customers' expectations, with time the focus has shifted towards a more performance-based perspective (Cronin & Taylor, 1992). Service quality can be defined as a form of attitude that signifies a long-term complete evaluation of service (Cronin & Taylor, 1992). From the perspective of agent banking technology, service quality can be referred to as the excellence and quality of banking services agents are offering to their clients (Ahmad et al., 2019; Raza et al., 2020). Balasubramanian et al. (2003) stated that, in the adoption of any e-service, the dimensions of service quality play a prominent role. Specifically, for any kind of financial service like banking, service quality can play an important role (Raza et. Al., 2020). The significance of various service qualities for individual satisfaction and subsequent adoption of technology has already been proven in several studies (e.g., Rahman et al., 2018; Rifat et al., 2019; Hizam & Ahmed, 2020; Yusfiarto, 2021). Consequently, two vital and relevant dimensions of service quality are deemed appropriate for agent banking technology – namely, interaction quality and system quality.

Interaction quality is referred to as individual perceptions of the interfaces that take place during service delivery (Iqbal et al., 2017). If performance exceeds the anticipated rate, interaction quality will be above the satisfactory level, which can stimulate technology adoption. Easy interaction between an agent and user in agent banking can create an attractive environment from the perspective of both parties involved (Li et al., 2021). Prior studies like Nikou and Economides (2017) and Li and Shang (2020) explored and demonstrated the significance of interaction quality in the virtual marketplace as it incites active participation and assists in knowledge acquisition. While Iqbal et al. (2017) and Li and Shang (2020) provide evidence of a significant influence of interaction quality over e-service usage intention, the findings of Yeh and Li (2009) & Rifat et al. (2019) state otherwise. As the objective of agent banking is to provide limited-scale banking and financial services to underserved people by using convenient and user-friendly agent banking software through agents, interaction quality is justified to be a salient quality dimension in this context (Li & Shang, 2020; Li et al., 2021).

Another crucial aspect of service quality that can play a significant role in e-service adoption is system quality. System quality can be defined as the charm that user interface design presents to individual users (Kim & Lee, 2005). In the case of agent banking services, system quality can be linked to a user-friendly arrangement of the physical attributes of agent banking technology, such as usability, software design, navigability, and operation modules (Li & Shang, 2020). The overall operations of the agent banking system must display professionalism and user-friendliness to attract and retain both agents and clients (Tsao et al., 2016). In the context of this study, system quality represents the quality of the service provided by a partner bank to the agents in terms of software design, responsiveness, and assistance. Several prior pieces of research provided evidence in favor of a significant positive correlation between user adoption intentions of e-services and system quality (Chandra & Ibrahim, 2015; Rahi et al., 2017; Rahi & Ghani, 2019; Kavandi & Jaana, 2020; Li & Shang, 2020). Whereas, Lee and Lin (2005) and Rifat et al., (2019) found system quality insignificant as a predictor of technology adoption.

The above-mentioned dimensions of service quality are associated with the perceived performance of e-services by researchers like Aghdaie and Faghani (2012) and Islam (2012). Besides, Rahi et al. (2017), Rahi and Ghani (2019) and Li and Shang (2020) found that dimensions of service quality have a significant effect on the behavioral intentions of individuals through their level of satisfaction regarding service performance. On this note, this study suggests that interaction quality and system quality can have an impact on the adoption of agent banking services but the relationship will be mediated by the service performance. The construct of service performance will be represented here by the perceived usefulness of the Technology Acceptance Model (TAM), as suggested by Featherman and Pavlou (2003) and Azmi and Kamarulzaman (2010). On this basis, the following hypotheses are proposed:

**H2a:** Interaction Quality has a significant influence on Perceived Usefulness.
**H2b:** Website Quality has a significant influence on Perceived Usefulness.

***Pandemic Risk: An Additional Facet***

With the emergence of the COVID-19 pandemic, we argue that the capacity to affect the behavioral intention of agents to get involved in providing physical banking services to clients can be related to the risks of the pandemic. Pandemics are large-scale outbreaks of infectious diseases that can increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption (Madhav et al., 2018). To control the rapid spread of COVID-19, the government of Bangladesh limited commercial banking operations in mid-2020. However, being third-party entities, agents were not under any kind of restrictions. They were given the independence to decide whether to carry out operations or abandon them during the pandemic. Keeping the autonomy of the agents regarding the adoption decision in mind, two facets of pandemic risks have been suggested in this study that may have a negative impact on the behavioral intention of adopting agent banking services, i.e., infection risk and emotional health risk.

Infection risk is defined as the prospect that the process of providing services will negatively affect the agents' health or the agent can get infected while at work which can lead to serious complications (Hwang & Choe, 2020; Suhartanto et al., 2021 and An et al., 2021). During the pandemic, agents' concerns were not only about providing services or getting more clients but also about the chances of getting infected during physical contact. In fact, the risk of COVID-19 is not only limited to the agents who might get infected while providing services but also will be extended to the family members who will get exposed to the virus because of them. Given that social distancing is important for reducing infection risk during the COVID-19 pandemic, high expected interactions with clients are likely to lessen the behavioral intention of agents to adopt or continue to provide agent banking services (Ha et al., 2020).

On the other hand, the ongoing COVID-19 pandemic not only poses a large threat to physical health but also has detrimental consequences for mental health or emotional health (Suhartanto et al., 2021). Hence, this study attempted to investigate the relationship between emotional health risk and behavioral intention of adopting agent banking services by the agents. Emotional health risk can be defined as the increased level of anxiety caused by fears of contamination, stress, grief, and depression triggered by probable exposure to the COVID-19 virus and the following isolation (Gostin & Wiley, 2020; Polizzi et al., 2020; An et al., 2021). The stream of disheartening COVID-19 news provides fodder for increased worry and distress, which can create anxiety disorders among the agents which in turn can influence them to abandon the banking services they provide through agency agreements or can demotivate potential agents from entering the force. Based on the above discussion, the following hypotheses are proposed:

**H3a:** Infection Risk has a significant influence on Behavioral Intention.

**H3b:** Emotional Health Risk has a significant influence on Behavioral Intention.

Along with the five facets of risk and two dimensions of service quality and pandemic risk respectively, three composite variables of perceived risk, perceived usefulness and perceived ease of use are also considered in this study. Perceived risk is defined as the overall measure of risk when all the facets or dimensions of risk are evaluated together (Featherman & Pavlou, 2003). In the context of this study, the evaluation of performance risk, individual risk, financial risk, time risk and cyber risk can lead to this measure of perceived risk. Few studies like Featherman and Pavlou (2003), Fu et al. (2006), Azmi and Kamarulzaman (2010), Chauhan et al. (2019), Van et al. (2020) and Noreen et al. (2021) found a negative but significant relationship of users' perceived risk about e-service adoption. This indicates that the higher will be the perceived risk, the lower will be the adoption intention of any e-service. According to Featherman and Pavlou (2003), perceived risk is a negative utility that should be used as moderating positive utility or for usefulness evaluations of e-services. Several studies like Moore & Benbasat (1991), Dowling and Staelin (1994), and Azmi and Kamarulzaman (2010) indicate that perceived risk may influence technology adoption and evaluation or perceived usefulness. Perceived risk is mostly found to exert a strong inhibiting influence on TAM's criterion variables of perceived usefulness (Featherman & Pavlou, 2003). In line with previous studies like Featherman and Pavlou (2003), Azmi and Kamarulzaman (2010) and Rifat et al. (2019), this study proposes the influence of perceived risk on agent banking technology first through a higher-level construct of perceived usefulness and then to behavioral intention towards agent banking services.

On the other hand, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are two factors drawn from the basic TAM model, which are used in this study to explicate the behavioral intention of adopting agent banking services by the potential agents of the commercial bank. An impressive body of academic research like Morgan-

Thomas and Veloutsou (2013), Park and Kim (2014), Dahlberg et al. (2015), Muthu et al. (2016), and Huang (2017) often used PU and PEOU as constructs to check the effect of users' perception regarding the usefulness of technology on the intention to use it. These two factors have been confirmed to have both direct and indirect associations with the behavioral intention of accepting a technology (Acheampong et al., 2017). Davis (1989) defined PU as "the degree to which a person believes that using a particular system would enhance his or her job performance". It is the subjective possibility that adopting a technological innovation will advance the way an individual finish a task. In the context of agent banking service adoption by potential agents of commercial banks, a noteworthy reason behind the usage intention is a judgement that it will be advantageous to them. Alternatively, Davis et al. (1989) defined PEOU as the extent to which an individual assumes that using a particular innovation would be free of effort. It is a function of an individual's overall perception of how simple a new technology will be. In the context of this study, PEOU can be defined as the degree to which it is easier to adopt and provide agent banking services to potential agents. Findings of the studies conducted by Mortimer et al. (2015), Muthu et al. (2016), Sharma et al. (2016) and Dong et al. (2017) report both PU and PEOU to be major determinants of technology acceptance against the backdrop of innovative services. In their study, Alharbi and Drew (2014) and Rauniar et al. (2014) claim that PEOU significantly influences the PU of technology, while together they influence an individual's attitude towards its usage intention.

The following hypotheses are thus proposed:

**H4a:** Perceived Ease of Use has a significant influence on Perceived Usefulness.

**H4b:** Perceived Ease of Use has a significant influence on Behavioral Intention.

**H5a:** Perceived Risk has a significant influence on Perceived Usefulness.

**H5b:** Perceived Risk has a significant influence on Behavioral Intention.

**H6:** Perceived Usefulness has a significant influence on Behavioral Intention.

The conceptual model based on the above arguments is presented in **Figure 1**.

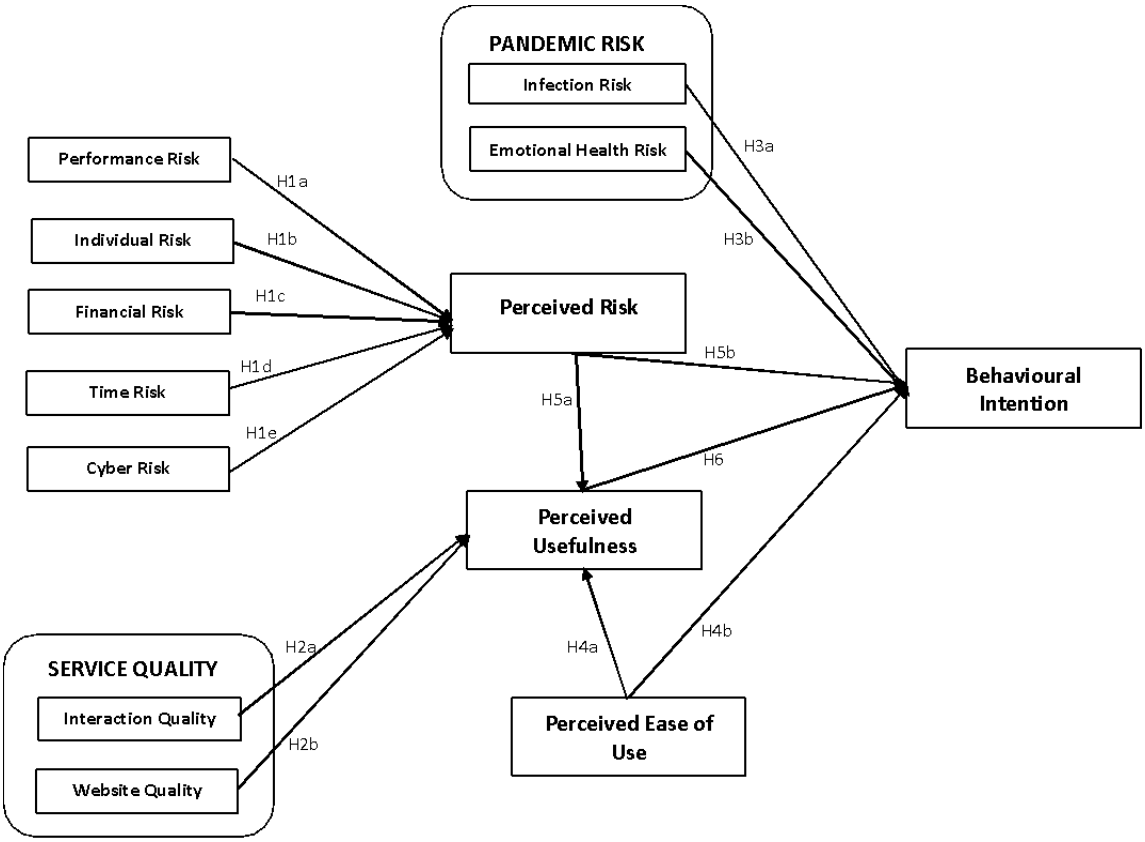


**Figure 1: Conceptual Research Model**

## METHODOLOGY

The research study is a quantitative survey-based study aimed at investigating the factors influencing agent banking services in Bangladesh. The methodology involved primary data collection using a structured questionnaire administered to a sample of 300 agents recruited by commercial banks during the fiscal year 2021-2022. A representative convenience sampling method was employed to select respondents from major divisions in Bangladesh, ensuring diversity and minimizing biases. Preceding the main survey, a pilot study was conducted to ensure the clarity and feasibility of the questionnaire.

### *Collection of Data*

To investigate the proposed research model, the methods and techniques employed for data collection consisted of primary research. The primary research involved gathering data by conducting a survey using a structured questionnaire on a sample of 300 respondents. These respondents are the current agents who are recruited by the commercial banks for the fiscal year 2021-2022 residing in the major divisions of Bangladesh – Dhaka, Chittagong, Khulna, Rajshahi, Barisal and Sylhet. The selection of respondents has been made based on representative convenience sampling methods. The use of this particular sampling method allowed us to avoid biases in data and provided equal opportunity for all agents who are currently responsible for executing agent banking services in the banking sector of Bangladesh. Agents, in this case, represented the major locations around Bangladesh fulfilling agent banking services through grocery stores, retail outlets, food shops, post offices and pharmacies.

The survey questionnaires were translated into the Bengali language to increase the proper understanding of the questions. Before distribution, a pilot study across 40 respondents was carried out. This was mainly done to check the phrasing, relevance, language clarity and understanding of the questions with experts drawn from academia, bank employees and practitioners. Results from the pilot study ensured the feasibility of the developed questionnaire to be used for the larger-scale study. However, one source of common method variance was identified by the researchers from the pilot study. Since data for both independent and dependent variables were being collected from the same respondents at one point in time, potential common method variance might be present in the data collected from the larger scale study. Acknowledging the presence of possible common source bias, some procedural remedies were undertaken during the main survey.

For the main study, survey questionnaires were disseminated in the form of only hard copies. Six research assistants were hired and trained to administer the distribution and filling out of the questionnaire. Also, the respondents received rewards/incentives such as gift cards, food vouchers etc. upon completion of the survey. This approach was taken to increase the response rate of the respondents. While conducting the face-to-face survey, the measurement of predictor and criterion variables were proximally or methodologically separated following Podsakoff et al. (2003). In other words, research assistants asked the respondents and completed the predictor variable measurements first then the measurement of the criterion variable was completed. The research assistants were hired individually to conduct the surveys in each division (Podsakoff et al., 2003) to avoid and eliminate any common retrieval cues of the respondents through the reduction of short-term memory.

A total of 300 hardcopy of the questionnaire were distributed, among which 246 surveys were usable, the remaining others had some missing values and flat-linings. As a result, the sample size stood at 246 respondents out of 300 agents approached for the data. **Table 1** represents the demographic profile of the 246 respondents surveyed in this study.

**Table 1: Profile of Respondents**

| Demographics | Frequency | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 184 | 74.80 |
| Female | 62 | 25.20 |
| **Age** | | |
| 21-30 | 56 | 22.77 |
| 31-40 | 88 | 35.78 |

| Demographics | Frequency | Percentage (%) |
|---|---|---|
| 41-50 | 67 | 27.23 |
| Above 50 | 35 | 14.22 |
| **Location** | | |
| Dhaka | 41 | 16.67 |
| Chittagong | 65 | 26.42 |
| Khulna | 37 | 15.04 |
| Rajshahi | 33 | 13.41 |
| Barisal | 49 | 19.92 |
| Sylhet | 21 | 8.54 |
| **Outlet Types** | | |
| Grocery Store | 102 | 41.46 |
| Retail Outlet | 48 | 19.51 |
| Pharmacy | 54 | 21.95 |
| Post Office | 18 | 7.32 |
| Food Shop | 24 | 9.76 |

***Development of Instruments***

Survey instruments were developed to examine the proposed hypotheses of this study. The items of the survey were adapted from existing literature to ensure the content validity of the scales used in a questionnaire (Luarn & Lin, 2005). **Table 2** shows a display of the sources from where the constructs were adapted for the questionnaire that has been used in this study. A total of 13 constructs can be found in the questionnaire - following previous behavioral research. This includes the composite variable of perceived risk, five facets of risk along with two constructs adapted from the Pandemic Risk Perception Scale, two factors from TAM, two from SERVQUAL factors, and adoption intention as the outcome variable. The survey questions or items were modified to fit the context of agent banking. A minimum of 3 items for each variable were maintained – resulting in 51 questions in the survey questionnaire. The questionnaire consisted of close-ended questions, as shown in **Table 3**, that gauged the agents' opinions about agent banking using a five-point Likert scale, where "1" denoted strongly disagree and "5" as strongly agree.

**Table 2: Overview of the Constructs**

| Constructs | Adoption Sources |
|---|---|
| Performance Risk | Featherman & Pavlou (2003), Azmi & Kamarulzaman (2010), Hubert et al. (2019), Rifat et al. (2019) |
| Individual Risk | Nastase & Nastase (2007), Luo et al. (2010), Iqbal et al. (2018), Rifat et al. (2019), |
| Financial Risk | Featherman & Pavlou (2003), Azmi & Kamarulzaman (2010), Hubert et al. (2017), Rifat et al. (2019) |
| Time Risk | Featherman & Pavlou (2003), Azmi & Kamarulzaman (2010), Rifat et al. (2019), Van et al. (2021) |
| Cyber Risk | Featherman & Pavlou (2003), Rifat et al. (2019), Van et al. (2021) |
| Infection Risk | Vieira et al. (2021) |
| Emotional Health Risk | Vieira et al. (2021) |
| Perceived Risk | Featherman & Pavlou (2003), Rifat et al. (2019), Chauhan et al. (2019), Penney et al. (2021) |
| Interaction Quality | Aghdaie & Faghani (2012), Iqbal et al. (2017), Rifat et al. (2019), Li & Shang (2020) |
| Website Quality | Chandra & Ibrahim (2015), Rahi et al. (2017), Rifat et al. (2019), Kavandi & Jaana (2020) |
| Perceived Ease of Use | Alharbi and Drew (2014), Rauniar et al. (2014), Acheampong et al. (2017), Rifat et al. (2019) |
| Perceived Usefulness | Acheampong et al. (2017), Rifat et al. (2019) |
| Behavioral Intention | Rifat et al. (2016), Rifat et al. (2019) |

**Table 3: Constructs and Corresponding Items**

| Constructs | Corresponding Items |
|---|---|
| Performance Risk | [PfR1] The agent banking services may not perform well due to software failures.<br>[PfR2] The agent banking services may compromise my security through virus and malware attacks. |

| Constructs | Corresponding Items |
|---|---|
| | [PfR3] The agent banking services may create problems through malfunctioning and data corruption.<br>[PfR4] The agent banking services may fail in delivering the desired level of performance. |
| Individual Risk | [IR1] I feel apprehensive about using agent banking services to do banking transactions.<br>[IR2] I am scared of consumers' information loss due to my careless mistakes in using agent banking services.<br>[IR3] I hesitate to use agent banking services for fear of mistakes I cannot correct.<br>[IR4] I feel agent banking services are somewhat intimidating to me. |
| Financial Risk | [FR1] The chances of losing money while using agent banking services are high.<br>[FR2] Using agent banking services may lead to a financial loss for me.<br>[FR3] Using agent banking services subjects' consumers to financial risk.<br>[FR4] Using agent banking services subjects me to financial risk. |
| Time Risk | [TR1] There can be possible time loss from connection disruptions while using agent banking services.<br>[TR2] Possible time loss from using agent banking services can make me miss the tax filing deadline.<br>[TR3] Possible time loss from using agent banking services is high.<br>[TR4] Possible time loss from using agent banking services can make consumers switch to a physical bank |
| Cyber Risk | [CR1] Chances of losing privacy control of the consumer's information in using agent banking services are high.<br>[CR2] Using agent banking services subjects me to potential cybercrimes.<br>[CR3] The agent banking services may not be safe for transmitting personal sensitive information.<br>[CR4] Using agent banking services subjects the consumers to their information being used without their knowledge. |
| Infection Risk | [InR1] I can catch Covid-19 during while providing agent banking services<br>[InR2] I can die due to Covid-19<br>[InR3] My spouse can catch Covid-19<br>[InR4] My children can catch Covid-19<br>[InR5] My parents can catch Covid-19<br>[InR6] My general health condition worsens due to the Covid-19 pandemic |
| Emotional Health Risk | [EHR1] I feel depressed due to the Covid-19 pandemic<br>[EHR2] I feel stressed due to the Covid-19 pandemic<br>[EHR3] I feel distressed due to the Covid-19 pandemic |
| Perceived Risk | [PR1] Using agent banking services is dangerous for consumers.<br>[PR2] Using agent banking services may add great uncertainty to the consumers' life.<br>[PR3] Using agent banking services may expose consumers to an overall risk. |
| Interaction Quality | [IQ1] It is easy for consumers to communicate with banking authorities through agent banking services.<br>[IQ2] Agent banking services help consumers to form transparent relationships with banking authorities.<br>[IQ3] Agent banking services allow consumers to recommend ideas to banking authorities. |
| Website Quality | [WQ1] The design of agent banking service websites/applications is attractive.<br>[WQ2] The agent banking service websites/applications looks professionally designed<br>[WQ3] The agent banking service websites/applications are visually pleasing<br>[WQ4] The overall look and feel of agent banking service websites/applications is visually appealing |
| Perceived Ease of Use | [PEU1] I think that learning to use agent banking is easy.<br>[PEU2] I think that interaction with agent banking does not require much mental effort.<br>[PEU3] I think it is easy to use agent banking to accomplish the tasks.<br>[PEU4] My interaction with agent banking is clear and understandable. |
| Perceived Usefulness | [PU1] I find agent banking services attractive as it makes consumers more efficient in banking transactions.<br>[PU2] I find agent banking services attractive as it makes consumers' life more convenient for banking transactions.<br>[PU3] I find agent banking services attractive as it saves consumers' time in banking transactions.<br>[PU4] Overall, I find agent banking services attractive since it is useful in the consumers' life. |
| Behavioral Intention | [BI1] I prefer to use agent banking services for consumers.<br>[BI2] I intend to use agent banking services for consumers.<br>[BI3] I believe it is worthwhile for me to use agent banking services for consumers.<br>[BI4] I am determined to use agent banking services. |

## DATA ANALYSIS

The data analysis of this study employed Structural Equation Modelling (SEM) through AMOS software version 26. This study is most suitable for conducting covariance-based SEM as the constructs originated from established scales reflecting correlated items (Hair et al., 2017). Based on Anderson & Gerbing (1988), a two-step approach was followed by assessing the measurement model (CFA) and structural model relationships to test the hypotheses. Before assessing the measurement model, Kaiser-Meyer-Olkin (KMO), reliability analysis and Harman's one-factor test was performed to ensure the minimum standard of the dataset through SPSS software version 26. In this study, the KMO value stood at 0.785, and Cronbach's alpha value for each construct was more than 0.8, which is statistically significant and above the threshold limit suggested by Hair et al. (2017). These results indicate sampling adequacy and high data reliability of this final dataset. Also, the result of Harman's one-factor score attained way less than 50 percent of the extracted variance indicating no issue of common method bias (Podsakoff et al., 2003).

### *Assessment of the Measurement Model*

After running the CFA, the minimum cut-off level for the values of item loadings has been considered as 0.70 to only keep the items that effectively imitate their respective constructs (Hair et al., 2018). To maintain this cut-off level, one item of performance risk (PfR2), one item of financial risk (FR3), and two items of infection risk (InR2, InR6) had to be discarded. This is because all the other items had an item loading value of 0.70 and above, with the exceptions of the above-listed items. Before assessing both convergent validity and discriminant validity, the measurement model was tested for model fit adequacy. The CFA results indicated that $\chi 2/df$ ratio is 1.877, CFI is 0.965, TLI is 0.955, and AGFI 0.931, which are higher than the threshold value of 0.90 (Hair et al., 2018; Byrne, 2001). Also, RMSEA is 0.06 and SRMR is 0.04, which is below the recommended value of 0.08 (Hair et al., 2018; Byrne, 2001). Therefore, the measurement model indicated model fit adequacy based on the latent variables constructed.

Convergent validity measures whether the items effectively reflect their respective constructs, whereas discriminant validity shows whether the constructs are statistically different from each other. The convergent validity has been checked through the average variance extracted (AVE) and composite reliability (CR) of the items and constructs. For AVE, 0.50 has been considered the minimum cut-off level (Fornell & Larcker, 1981). Results indicate that all AVE values of the constructs of this study are well above 0.50. Next, 0.70 has been considered the minimum cut-off value for composite reliability (Nunnally & Bernstein, 1994). Since all of the CR of the constructs in this study is above 0.80, it suggests internal consistency for the proposed model. The values for the measurement model are given below in **Table 4**. The discriminant validity has been checked through the square root of the AVE of each construct being greater than its highest latent variable correlation (Fornell & Larcker, 1981). **Table 5** shows that the constructs used in this study satisfy this criterion, as represented by the square root of AVE of each construct of latent variables and all latent variable correlations. This further suggests that the result of the Fornell-Larcker criterion is acceptable and the model poses good discriminant validity.

**Table 4: Standardized Item Loadings, Composite Reliability and AVEs**

| Constructs | Items | Factor Loadings | Composite Reliability (CR) | AVE |
|---|---|---|---|---|
| Performance Risk | [PfR1] | 0.845 | 0.831 | 0.622 |
| | [PfR3] | 0.784 | | |
| | [PfR4] | 0.734 | | |
| Individual Risk | [IR1] | 0.839 | 0.855 | 0.610 |
| | [IR2] | 0.829 | | |
| | [IR3] | 0.804 | | |
| | [IR4] | 0.720 | | |
| Financial Risk | [FR1] | 0.872 | 0.799 | 0.600 |
| | [FR2] | 0.756 | | |
| | [FR4] | 0.713 | | |
| Time Risk | [TR1] | 0.875 | 0.835 | 0.610 |
| | [TR2] | 0.867 | | |
| | [TR3] | 0.839 | | |
| | [TR4] | 0.801 | | |

| Constructs | Items | Factor Loadings | Composite Reliability (CR) | AVE |
|---|---|---|---|---|
| Cyber Risk | [CR1] | 0.874 | 0.883 | 0.655 |
| | [CR2] | 0.873 | | |
| | [CR3] | 0.758 | | |
| | [CR4] | 0.720 | | |
| Infection Risk | [InR1] | 0.834 | 0.818 | 0.605 |
| | [InR3] | 0.890 | | |
| | [InR4] | 0.832 | | |
| | [InR5] | 0.790 | | |
| Emotional Health Risk | [EHR1] | 0.765 | 0.830 | 0.620 |
| | [EHR2] | 0.849 | | |
| | [EHR3] | 0.744 | | |
| Perceived Risk | [PR1] | 0.781 | 0.888 | 0.727 |
| | [PR2] | 0.879 | | |
| | [PR3] | 0.894 | | |
| Interaction Quality | [IQ1] | 0.785 | 0.857 | 0.629 |
| | [IQ2] | 0.854 | | |
| | [IQ3] | 0.833 | | |
| Website Quality | [WQ1] | 0.771 | 0.810 | 0.518 |
| | [WQ2] | 0.776 | | |
| | [WQ3] | 0.705 | | |
| | [WQ4] | 0.700 | | |
| Perceived Ease of Use | [PEU1] | 0.792 | 0.817 | 0.527 |
| | [PEU2] | 0.739 | | |
| | [PEU3] | 0.718 | | |
| | [PEU4] | 0.745 | | |
| Perceived Usefulness | [PU1] | 0.858 | 0.907 | 0.709 |
| | [PU2] | 0.852 | | |
| | [PU3] | 0.827 | | |
| | [PU4] | 0.832 | | |
| Behavioral Intention | [BI1] | 0.825 | 0.913 | 0.723 |
| | [BI2] | 0.860 | | |
| | [BI3] | 0.872 | | |
| | [BI4] | 0.844 | | |

**Table 5: Measurement Model Estimations**

| | BI | CR | FR | IQ | IR | InR | EHR | PEU | PfR | PR | PU | TR | WQ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BI** | **0.857** | | | | | | | | | | | | |
| **CR** | 0.530 | **0.836** | | | | | | | | | | | |
| **FR** | 0.183 | 0.540 | **0.948** | | | | | | | | | | |
| **IQ** | 0.125 | 0.276 | 0.167 | **0.911** | | | | | | | | | |
| **IR** | 0.208 | 0.588 | 0.575 | 0.009 | **0.865** | | | | | | | | |
| **InR** | -0.415 | -0.184 | 0.004 | -0.002 | 0.356 | **0.832** | | | | | | | |
| **EHR** | -0.266 | -0.166 | 0.112 | -0.007 | 0.265 | 0.441 | **0.837** | | | | | | |
| **PEU** | 0.371 | 0.126 | 0.128 | 0.545 | 0.344 | 0.033 | 0.133 | **0.865** | | | | | |
| **PfR** | 0.575 | 0.433 | 0.130 | 0.266 | 0.236 | 0.334 | 0.268 | 0.417 | **0.832** | | | | |
| **PR** | 0.545 | 0.427 | 0.723 | 0.153 | 0.426 | 0.411 | 0.423 | 0.111 | 0.387 | **0.803** | | | |
| **PU** | 0.366 | 0.430 | 0.176 | 0.283 | 0.202 | 0.009 | 0.133 | 0.390 | 0.471 | 0.335 | **0.921** | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TR** | 0.474 | 0.061 | 0.204 | 0.174 | 0.321 | 0.102 | 0.008 | 0.121 | 0.450 | 0.117 | 0.133 | **0.877** | |
| **WQ** | 0.135 | 0.117 | 0.038 | -0.322 | 0.002 | 0.006 | -0.024 | 0.214 | 0.154 | 0.129 | 0.288 | 0.321 | **0.836** |

***Notes:*** *1. BI (Behavioral Intention); CR (Cyber Risk); FR (Financial Risk); IQ (Interaction Quality); IR (Individual Risk); InR (Infection Risk); EHR (Emotional Health Risk); PEU (Perceived Ease of Use); PfR (Performance Risk); PR (Perceived Risk); PU (Perceived Usefulness); TR (Time Risk); Website Quality (WQ).*

*2. D*iagonal elements represent the AVEs, while off-diagonal elements represent the square correlations.

### *Assessment of the Structural Model*

The structural model estimated all thirteen constructs which were validated using CFA in the previous section. The structural model was confirmed using the maximum likelihood estimation technique in AMOS. The model fit index indicated a $\chi 2$/df ratio of 2.06, CFI 0.975, TLI 0.965 and AGFI 0.941, whereas, RMSEA is 0.06 and SRMR is 0.05. All these indexes meet the recommended threshold criteria (Hair et al., 2018; Byrne, 2001). Therefore, the final data illustrates an excellent fit of the theorized model. The outcome of the theorized model is presented in **Figure 2**. Moreover, the $R^2$ (coefficient of determination) value of the endogenous latent variable explains the nomological validity of the proposed model (Rifat et al., 2019). Behavioral intention is the endogenous latent variable for this study and it is important to have a substantial $R^2$ value as it depends on twelve other exogenous latent variables (Henseler et al., 2009). The $R^2$ value for behavioral intention is 0.586, which means that the conceptual model of this study explains 58.6% of the variance of the behavioral intention among agents to adopt agent banking services and this result is quite significant.

To evaluate the theorized hypotheses, standardized path coefficients were investigated as shown in **Table 6**. Results reveal that the constructs of performance risk (0.284, $p<0.05$), individual risk (0.162, $p<0.05$), and financial risk (0.294, $p<0.05$) show significant and positive paths to the perceived risk of using the agent banking services, in their order of influencing strength. However, the constructs of time risk (0.167, $p>0.05$) and cyber risk (0.175, $p>0.05$) report an insignificant path towards the perceived risk of the agent banking services. This implies that performance, individual and financial risk are the most important facets of perceived risk for agent banking services from the agent's perspective. Time and cyber risk, however, do not hold much significance as the facets of perceived risk in this context.

The factors of interaction quality (0.149, $p<0.05$), website quality (0.115, $p<0.05$) and perceived ease of use (0.233, $p<0.05$) reveal a significant and positive relationship towards the perceived usefulness of the agent banking services. Findings thus imply that service quality factors and ease of use of the technology are relevant to the agents in their evaluation of the usefulness of agent banking. Furthermore, perceived usefulness (0.197, $p<0.05$) also reveals a significant and positive path to agents' behavioral intention for adopting agent banking services. However, perceived ease of use (0.138, $p>0.05$) does not reveal any significance towards the behavioral intention of using the agent banking services. This means ease of use of the technology seems not to be relevant to the agents concerning the adoption intention of the agent banking services.

Additionally, the construct of perceived risk depicts a significant and negative path to perceived usefulness (-0.265, $p<0.05$) and behavioral intention (-0.296, $p<0.05$) in terms of agent banking services. This implies that perceived risk as a composite variable is relevant to users in their evaluation of the usefulness and behavioral intention of the agent banking services. Therefore, the perceived risk and usefulness of the agent banking services do play a crucial role in the adoption intention of the agents. Moreover, the factors of infection risk (0.154, $p>0.05$) and emotional health risk (0.254, $p>0.05$) depict a non-significant but positive path to behavioral intention in terms of the agent banking services from the agent's perspective. This means that the pandemic risk factors seem to play a non-significant but positive role in the agent's intention to adopt agent banking which contradicts the original proposition of this study.

**Table 6: Standardized Coefficient (β), Critical Ratio and Hypotheses Results**

| Hypothesis | Standardized Coefficient (β) | Critical Ratio | Significance | Results |
|---|---|---|---|---|
| **H1a:** Performance Risk to Perceived Risk. | 0.284 | 3.667 | 0.001* | Supported |

| Hypothesis | Standardized Coefficient (β) | Critical Ratio | Significance | Results |
|---|---|---|---|---|
| **H1b:** Individual Risk to Perceived Risk. | 0.162 | 2.207 | 0.027* | Supported |
| **H1c:** Financial Risk to Perceived Risk. | 0.294 | 4.103 | 0.001* | Supported |
| **H1d:** Time Risk to Perceived Risk. | 0.167 | 2.331 | 0.071 | Not Supported |
| **H1e:** Cyber Risk to Perceived Risk. | 0.175 | 2.672 | 0.062 | Not Supported |
| **H2a:** Interaction Quality to Perceived Usefulness. | 0.149 | 2.334 | 0.022* | Supported |
| **H2b:** Website Quality to Perceived Usefulness. | 0.115 | 1.853 | 0.039* | Supported |
| **H3a:** Infection Risk to Behavioural Intention. | 0.154 | 1.748 | 0.098 | Not Supported |
| **H3b:** Emotional Health Risk to Behavioural Intention. | 0.254 | 2.968 | 0.079 | Not Supported |
| **H4a:** Perceived Ease of Use to Perceived Usefulness. | 0.233 | 3.633 | 0.001* | Supported |
| **H4b:** Perceived Ease of Use to Behavioural Intention. | 0.138 | 1.62 | 0.081 | Not Supported |
| **H5a:** Perceived Risk to Perceived Usefulness. | -0.265 | 3.855 | 0.025* | Supported |
| **H5b:** Perceived Risk to Behavioural Intention. | -0.296 | 4.201 | 0.001* | Supported |
| **H6:** Perceived Usefulness to Behavioural Intention. | 0.197 | 2.075 | 0.039* | Supported |

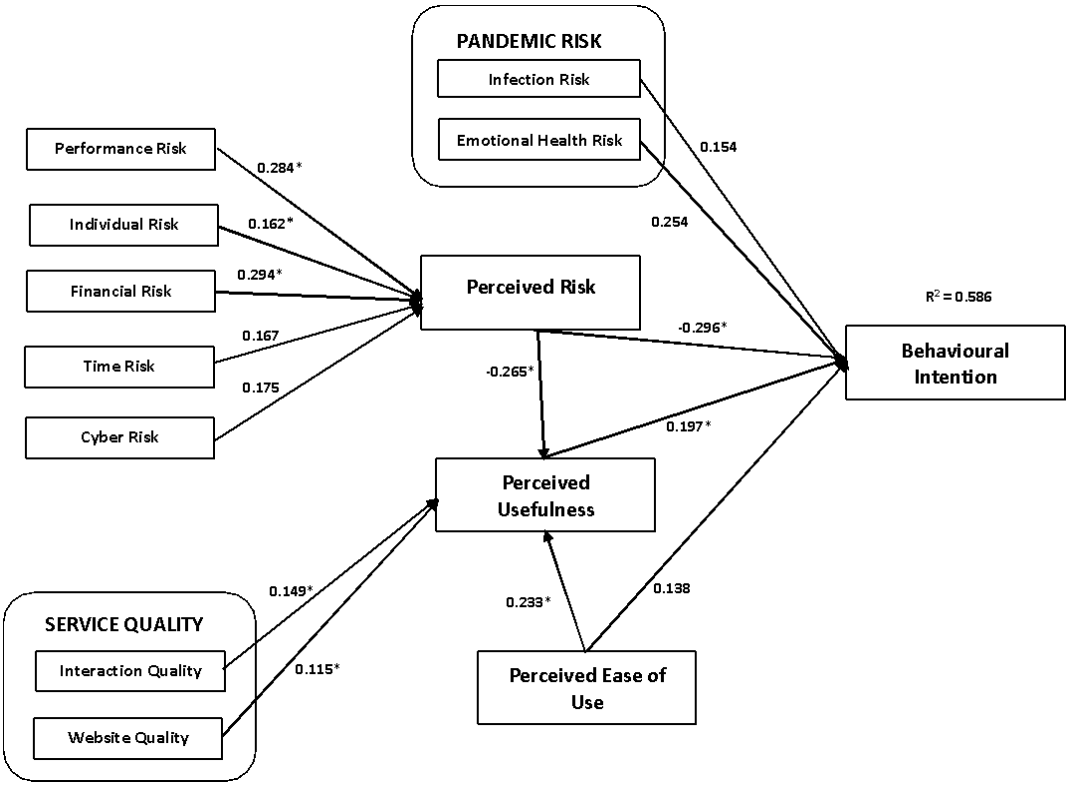


**Figure 2: Results of Structural Equation Modeling**

## DISCUSSION

This study investigates the significant roles of perceived risk dimensions, service quality factors and technological dimensions for agent banking services in Bangladesh. To begin, three dimensions of perceived risk, namely performance, individual and financial risks are identified in this study to be significant with negative influence on

agent's intention towards agent banking adoption. This particular finding has been supported by Chauhan et al. (2019), Van et al. (2021) and Noreen et al. (2021). However, the other two dimensions of risk - time risk and cyber risk – did not reveal any significance towards perceived risk for agent banking services. This finding is consistent with previous studies like Nisha et al. (2018), Iqbal et al. (2018) and Rifat et al. (2019). Therefore, it can be concluded that only performance, individual and financial risks exert a strong negative influence on the adoption behavior of agent banking services. On the other hand, both the dimensions of service quality - interaction quality and website quality – are found to be significant by the results of this study. This finding indicates that the quality of the website and interaction are important dimensions to influence agent's intention towards agent banking services in Bangladesh. Even though this result is supported by Iqbal et al. (2017) and Li and Shang (2020), it contradicts the findings of Yeh and Li (2009) & Rifat et al. (2019).

Additionally, perceived risk is found to share a significant and inverse relationship to the perceived usefulness of the agent banking services. There is a significant connection between service quality dimensions and perceived usefulness and their significant influence on the agent's intention towards agent banking services in this study. This result is subsequently supported by the findings of Featherman and Pavlou (2003), Azmi and Kamarulzaman (2010) and Rifat et al. (2019). Although perceived ease of use indicated a positive significant influence on perceived usefulness, it was found to be non-significant towards behavioral intention by the results of this study. This contradicts the findings of Alharbi and Drew (2014) and Rauniar et al. (2014). These findings suggest that easy, accessible technology enhances the usefulness of agent banking services among the agents but it doesn't necessarily increase the intention to adopt agent banking services. This study examined the simultaneous impact of perceived risk facets, service quality and technological dimensions on the behavioral intention of agent banking services in Bangladesh. Hence, the findings of this study are well supported by the relationships between perceived risk, perceived ease of use, perceived usefulness and behavioral intention.

This study also explored the pandemic health risk and its impact on the adoption of agent banking services from the agent's perspective. The findings suggested that infection risk and emotional health risks play an insignificant but positive role in adopting agent banking services in Bangladesh. This result contradicts the findings of Ha et al. (2020), where evidence suggested that the ongoing COVID-19 pandemic is expected to lessen the behavioral intention of agents to adopt agent banking services. However, the number of agents providing agent banking services increased by 47.75% during the pandemic in Bangladesh (Rahman, 2020). Due to the exemption from the limited banking operation during the lockdown, the agents preferred to serve their clients and continue their livelihood. Therefore, infection risk and emotional health risk did not significantly affect the agent's intention to adopt agent baking services in Bangladesh.

## CONTRIBUTIONS AND IMPLICATIONS

### *Theoretical Contributions*

This study contributes to the scant literature on agent banking services with empirical evidence that provides insights into the significant roles of perceived risk and service quality as technological dimensions. To the best of the authors' knowledge, there has been no significant study that conducts an in-depth investigation on the impacts of technological dimensions for agent banking services, with commercial banks being the setting, and in the context of developing countries. This study also converges the service quality and perceived risk facets and provides a more robust framework to examine agents' behavioral intentions towards agent banking services. In doing so, this study complements Azmi and Kamarulzaman's (2010) study with an empirical examination in a developing country context. Furthermore, this study invokes a new theoretical basis that comprises health risks arising from the pandemic as an additional risk facet for electronic services. Through empirical investigations, this study provides insights into the impacts of health risks on agent bankers' behavioral intention towards the use of agent banking services in an emerging pandemic. On the whole, this study improves the general understanding of this emerging social-related phenomenon of agent banking and evokes academic investigations on the underlying mechanisms of agent bankers' intentions to use agent banking services across industry, country and environmental contexts.

### *Practical Implications*

The pandemic presents an ultimate challenge for agent bankers as they are living in uncertainty about their health and safety and that of significant others. Agent bankers also face a dilemma where they are striving to maintain their livelihood through extended lockdowns. Service provision thus became a means to suppress financial predicament by agent bankers – a reason why, infection risk and emotional health risk stemming from the pandemic did not impact their intention towards agent banking services. To mitigate the predicament, commercial banks need to provide agent bankers with additional financial incentives to sustain their motivation to continue operations during the pandemic. For example, commercial banks can provide minimum-income benefits regardless of how many consumers agent bankers provide services to in this crisis. Besides, cash transfer schemes that ensure small disaster payments to support families of agent bankers during this pandemic can go a long way to motivate agent bankers and induce their loyalty to commercial banks.

Within the banking industry, threats of cyber heists persist in Bangladesh (United Nations, 2018) and the lack of low coping capacity to such threats poses additional challenges to agent bankers. As a result, it is not surprising that agent bankers fear losing money across electronic channels to professional hackers, criminal or terrorist organizations who may misuse sensitive information for financial gains (Park & Tussyadiah, 2016). Moreover, Bangladesh is still not well-equipped with stable facilitating conditions for operationalizing hi-tech electronic services (Nisha et al., 2016), especially in rural areas. Thus, agent bankers face significant challenges like weak internet, unstable server connectivity, and poor mobile networks – which, in turn, impact the performance of the technology (e.g., poor backup systems) that they use to provide agent banking services. Besides, agents often suffer from a lack of experience in offering agent banking services (Chiteli, 2013). This lack of experience can result in agent bankers facilitating data leaks, making erroneous banking transactions and subsequently, leading to monetary loss for the clients. On the whole, these combined impacts of financial, performance and individual risks of agent banking services on overall perceived risk negates the usefulness of the technology in the service provision. While interaction quality and website quality of the service technology may accentuate the technology's usefulness, it is necessary to mitigate these risk facets to positively influence the agent bankers' intention towards agent banking services.

Thus, commercial banks can offer extensive training services to agent bankers to familiarize them with the technology, the ease of technology use and banking support available to them in cases of emergencies. Brochures and short video clips can be used as a means to familiarize agent bankers with the technology and highlight the interaction quality and website quality of the technology and the ease of using the technology. Seminars can also be arranged across different social networking sites, considering the pandemic, to create awareness and knowledge about agent banking technology. However, the ease of use of the technology may not be sufficient to influence the agent bankers' intention towards agent banking services. Training programs and workshops can therefore be run by the commercial banks to make agent bankers aware of common mistakes that can occur in the process of service provision and the actions that need to be taken in such scenarios. On the other hand, government organizations like the Ministry of Finance need to work with the banking industry to identify and implement precautionary measures against cyber heists and banking fraud. The joint efforts by government and commercial banks can ensure the safety of agent bankers and pave the way to positively influence their intention to adopt and participate in the provision of such services.

Agent banking is a newly inaugurated banking service dispersal model in Bangladesh, and hence, robust strategies need to be devised to ensure that agent bankers showcase a positive intention towards the provision of agent banking services. Only then, the enhancement of the financial sector deepening through commercial banks can occur across developing countries like Bangladesh.

## CONCLUSION

In conclusion, this study sheds light on the multifaceted factors influencing agent banking services adoption in Bangladesh, with a particular focus on the post-pandemic context. The research highlights the pivotal roles of

perceived risk dimensions, service quality factors, and technological attributes in shaping agents' intentions towards adopting these services. Specifically, performance, individual, and financial risks were found to negatively impact adoption behavior, while interaction and website quality emerged as crucial service quality dimensions promoting positive adoption intentions. The study also addresses significant gaps in the existing literature by empirically validating a comprehensive conceptual model that integrates perceived risk, service quality, and technological factors in the context of agent banking. This contribution is particularly valuable for the banking sector in formulating strategies to enhance service adoption, especially during periods of crisis. Contrary to previous studies, pandemic-related health risks were found to have an insignificant impact on agents' behavioral intentions, suggesting that economic and livelihood considerations may outweigh health concerns in influencing service adoption decisions during crises. Overall, this research provides valuable insights for policymakers, commercial banks, and other stakeholders to develop targeted strategies that mitigate perceived risks and enhance service quality, thereby fostering greater adoption of agent banking services in Bangladesh. Future research could further explore the evolving dynamics of agent banking in other emerging economies, considering different contextual factors and post-pandemic realities.

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# IMPACT OF TECHNOLOGICAL AND SERVICE INNOVATIONS IN BANKS: A META ANALYSIS

*Shahin Akther*[1], *Javed Tariq*[2]

**ABSTRACT**

With market rivalry on the rise, many banks are striving to obtain a competitive advantage through various types of innovation. Existing research, however, has not reached consistent results on the relationship between innovation and bank performance. As a result, the goal of this work is to give a quantitative analysis of the innovation-performance link based on existing research findings. A total of 24 peer-reviewed publications were reviewed and analyzed using a random effects model, a statistical technique well-suited for meta-analytic analysis, to examine the relationship between innovation and bank performance. The analysis also explored the impacts of different subgroups, focusing on both technological and service innovations. The result found that there is a significant positive association between overall innovation and different kinds of bank performance, such as profitability, income, Return on Asset (ROA), and customer satisfaction. Notably, technological innovation emerges as a key driver of bank performance, demonstrating a considerable positive impact across these performance metrics. Furthermore, specific technological innovations such as mobile banking and agent banking also show considerable positive effects on performance. Moreover, some other innovation such as product, service, has a considerable positive impact on bank performance. On the contrary, telephone banking, internet banking, Electronic Fund Transfer (EFT), etc., didn't have a significant effect on bank performance. Overall, the findings underscore the critical importance of technological innovation, particularly data or AI-driven analytics, in enhancing the customer satisfaction of banks, suggesting that banks should prioritize these advancements to achieve a greater competitive advantage.

**Keywords:** Meta-analysis, service innovation, artificial intelligence, bank performance, financial performance.

## 1. INTRODUCTION

Nowadays, business industries are very dynamic, with quick changes brought about by creativity, innovation, technical advancements, enhanced customer awareness, and customer expectations. Business industries, especially the banking industry, have seen technological advancements in connectivity and globalization, which have resulted in an increase in the number of transactions made in the banks, which has resulted in an increase in competition among these banks. Increased globalization and deregulation have resulted in a fast transition. The banking sector has become more competitive as a result of this transition. This circumstance has the potential to alter how banks arrange their business strategy, client interactions, and all specialized activities. Interest in the banking industry was both a responsibility and a requirement in terms of the quality and variety of the services supplied. The acquisition and administration of information have emerged as a critical function in banking. The most recent technological breakthroughs in the last decade of the twentieth century have compelled banks to embrace various innovations as a strategy for continued growth in an increasingly competitive market. Modern banking sectors are attempting to enhance their financial performance through innovating in areas such as products, structure, and operations, among other things, which creates significant impacts on their performance.

### *1.1 Innovations*

The act of developing and promoting new financial products, technologies, institutions, and markets that simplify access to information, trade, and payment methods is referred to as innovation. According to (Ziemnowicz, 1942), innovation can be defined as the introduction of new technologies, the creation of new manufacturing processes, the discovery of new sources of supply, uncovering of new markets, and the development of new organizational

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structures. It is basically the quest for creative and sophisticated solutions to consumer requirements and desires that offer value. It encourages an organization to develop, thrive, and alter in response to alterations to its surroundings, both internal and external. The impact of process re-engineering and technological advancements is anticipated to be greater in banking than in other sectors. That is why banks have boosted their usage of different innovations such as ATMs, mobile banking, online banking, debit cards, credit cards, agent banking, and smart cards, customer service to remain competitive and increase profitability or, in general, the bank performance. The banking business seems to have a long tradition of innovation, stretching back to ancient civilizations' initial forms of banking. Some of them are discussed here, which create an impact on banks performance.

Information and Communications Technology is the automation and digitalization of organizational procedures, controls, and information generation through the integration of computers, telecommunications, software, and other electronic devices. This innovation enables the smooth and efficient operation of business operations. The implementation of ICT not only increased convenience for customers but also streamlined processes within bank branches, leading to reduced waiting times. This direct correlation between ICT adoption and improved customer satisfaction underscores the transformative impact of this technological advancement on the financial services industry (Murari and Tater, 2014).

Information and Communications Technology is the automation and digitalization of organizational procedures, controls, and information generation through the integration of computers, telecommunications, software, and other electronic devices. This innovation enables the smooth and efficient operation of business operations. The implementation of ICT not only increased convenience for customers but also streamlined processes within bank branches, leading to reduced waiting times. This direct correlation between ICT adoption and improved customer satisfaction(Murari & Tater, 2014) ( underscores the transformative impact of this technological advancement on the financial services industry.

Another significant financial technological innovation is the introduction of *online banking*, also known as Internet banking, which emerged in the 1980s and 1990s. This innovation enabled customers to conveniently access their bank accounts and perform a range of financial transactions from any location with internet access. The implementation of online banking services, including balance inquiries, fund transfers, bill payments, account statement reviews, and loan or credit card applications, has streamlined banking operations and enhanced customer convenience. This has directly contributed to improved customer satisfaction and operational efficiency within bank branches.

Similarly, the widespread adoption of credit and debit cards has transformed the financial services industry. Credit cards, first introduced in the United States in the 1950s, allow users to borrow money to make purchases, while debit cards, dating back to the mid-1960s, are directly connected to the cardholder's bank account, facilitating instant payment deductions. The integration of these innovative payment technologies has optimized transaction processing, reduced administrative burdens, and enhanced the overall customer experience, ultimately contributing to enhanced bank performance (Berger, 2003).

Mobile banking, introduced in the late 1990s and early 2000s as mobile phones gained rudimentary internet access, allows customers to access their accounts and conduct transactions using smartphones and tablets. Telephone banking also enables clients to make transactions over the telephone, without needing to visit a physical bank location. These innovations in mobile and telephone banking have contributed to enhanced bank performance by optimizing transaction processing, reducing administrative burdens, and improving the overall customer experience thus improve customer loyalty and improve bank performance(Jun & Molina, 2016).

Agent banking significantly enhances bank performance through improved customer accessibility and satisfaction (Dalbah, 2020). By extending banking services to underserved areas, offering convenience and flexibility, fostering strong customer relationships, reducing transaction costs, promoting financial inclusion, and enabling real-time feedback, banks can drive growth and strengthen their market position. As the banking landscape continues to evolve, agent banking will remain a crucial strategy for financial institutions seeking to enhance their performance and meet the diverse needs of their customer *POS (Point of Sale)* systems are largely used in the banking industry to facilitate card-based payments, such as credit and debit cards at merchant sites. This innovation is changing day to day and continues to adapt and innovate with emerging technologies, including biometric authentication and

blockchain-based payments, promising to alter how we make payments and transactions. Artificial Intelligence (AI) is having a big influence on the banking sector, allowing banks to improve risk management, create better client experiences, and streamline internal processes. As artificial intelligence evolves and improves, we are expecting more and more innovations ahead in the banking sector.

Notably, advancements in Artificial Intelligence (AI) or AI driven analytics are revolutionizing the banking sector, enabling enhanced risk management, improved customer experiences, and streamlined internal processes. As AI technology continues to evolve, it promises to introduce further innovations that will shape the future of banking.

### *1.2 Bank performance*

In this study, we have considered varieties of bank performance which are affected by various innovations. Bank performance is an important part of the financial sector since it represents a bank's capacity to make profits while maintaining operational stability. A bank's performance is often assessed using a number of measures, such as return on assets (ROA), return on equity (ROE), profitability, customer satisfaction, income etc. A well-performing bank is able to produce a healthy profit, maintain a solid capital basis, efficiently manage risks, and deliver high-quality services to its clients. A badly performing bank, on the other hand, may struggle to earn profits, incur liquidity issues, attract regulatory scrutiny, and lose client confidence. If we are going to discuss some performance indicators, the first indicator will be financial performance. Financial performance assesses how successfully a company generates value for its shareholders. It may be quantified using several financial metrics. It is defined as the extent to which financial goals are being or have been met. It is the procedure for determining the monetary value of the outcomes of a company's policies and activities. It is used to assess a company's overall financial health over the period and may also be used to compare similar enterprises in the same industry or to compare industries or sectors in aggregate (Al-Hussain and Johnson, 2009). One of the key components of financial performance is ROA, which assesses how effectively a bank's assets are used to create profits. It is computed by dividing the bank's net income by its total assets on average. A greater ROA shows that a bank is profitable in comparison to its size. Profitability, gross income, growth, stakeholder satisfaction, market share, and competitive position are some additional popular financial performance indicators (Bagorogoza and de Waal, 2010).

Customer satisfaction is a critical component of a bank's performance since it indicates the quality of services delivered to customers as well as their user satisfaction with the bank. A bank with excellent client satisfaction is much more likely to retain clients, recruit new ones, and create favorable word-of-mouth recommendations. Banks may assess customer satisfaction through a variety of methods, such as surveys, feedback forms, and customer reviews. These technologies enable banks to obtain consumer feedback on their satisfaction with the bank's offerings, services, and entire client service. Customers who are satisfied seem to be more inclined to utilize a bank's services more often and to refer others, which may lead to higher revenue and profits.

A bank's overall performance is a dynamic combination of its financial health, risk management, customers satisfaction, and market competitiveness. Banks that operate successfully often have a solid financial position, create healthy earnings, efficiently manage risks, deliver high-quality customer support, and stay market competitive. As a result, banks must constantly review and enhance their performance in order to stay on top of market competition and achieve long-term success. Understanding how different innovations impact bank performance is vital for identifying strategies that enhance financial outcomes. This meta-analysis aims to address existing inconsistencies in the literature regarding the relationship between innovation and bank performance. Despite various studies highlighting the significance of technological innovations, there is a lack of consensus on their specific effects across different banking contexts. By systematically reviewing the literature, this study seeks to clarify these relationships and provide actionable insights for banking institutions.

### *1.3 Objectives*

With the rising usage of technology in today's society, the banking industry is also attempting to adapt to this new era. As a result, determining the impact of innovations on bank performance is critical. The overall goal of this research is to determine the influence of innovation on bank performance. The following are specific goals:

i) To analyze the overall impact of technological innovations compared to service innovations on bank performance.

ii) To find out the impact of innovations on bank's overall financial performance
iii) To find out the impact of innovations on the bank's performance (profit)
iv) To find out the impact of innovations on bank's financial performance (ROA)
v) To find out the impact of innovations on bank's financial performance (income)
vi) To find out the impact of innovations on the bank's performance (customer satisfaction).

### *1.4 Literature review*

The relationship between innovation and bank performance has been a focal point of research over the past few decades, particularly as banks adapt to rapid technological advancements. Numerous studies have investigated this relationship, revealing a complex interplay between various types of innovations and performance metrics.

#### *1.4.1 Technological Innovations*

Several studies highlight the significant impact of technological innovations on bank performance. For instance, Zu et al. (2019) explored the effects of financial innovations on bank profitability in Africa. They found that while mobile banking and Internet banking have not shown as strong a correlation with profitability, traditional innovations like ATMs and bank cards positively influenced financial success. However, the study's limitation lies in its regional focus, which may not be generalizable across different contexts.

Chipeta and Muthinja (2018) conducted a similar investigation involving 42 Kenyan commercial banks and concluded that financial innovations significantly impact financial performance. Nonetheless, the study did not delve into the specific types of innovations or their comparative effectiveness, leaving a gap for further exploration into which innovations yield the most substantial benefits.

Kiplangat and Tibbs (2018) examined the influence of ICT and financial innovation in Nigeria from 2001 to 2013. They reported improvements in profitability, yet the lack of a detailed discussion on the methodological approaches raises questions about the robustness of these findings. GÜNDOĞDU and TAŞKIN (2017) focused on mobile banking and credit cards in Turkey, concluding that only credit card use positively influenced ROA. This raises a critical debate on the varied effectiveness of different technological innovations.

In contrast, Malhotra and Singh (2010) found that experience with financial innovations, particularly online banking, had minimal effects on bank performance in India. This finding underscores the importance of contextual factors and suggests that the benefits of technological innovations may not be uniformly experienced across different markets.

#### *1.4.2. Service Innovations*

Service innovations also play a pivotal role in shaping bank performance. Dehghan and Shamsi (2015) evaluated the impact of various banking services on profitability in Iran. Their findings indicated a strong relationship between Internet banking, ATM usage, and profitability, while telephone banking and electronic money showed no significant impact. This differentiation among service innovations calls for deeper investigation into which aspects of service innovations contribute to performance enhancements.

Olanrewaju (2016) emphasized that technological innovations influence not only profitability but also employee performance and customer satisfaction, suggesting a more holistic approach to evaluating innovation impacts. Similarly, Salleh et al. (2017) identified a positive correlation between technology-based strategies and financial performance, indicating that the integration of technology in service delivery can yield beneficial outcomes.

## 3. EMERGING PATTERNS AND CONTRADICTIONS

A recurring theme across these studies is the varying effects of different types of innovations. For example, Siddik et al. (2016) noted that electronic banking positively contributes to banks' ROE in Bangladesh, aligning with findings from studies like Kagan et al. (2005) that suggest electronic banking enhances asset quality and operational profitability. However, contrasting results emerged in studies such as Sadr (2013) and Gutu (2014), which reported

negative impacts of electronic banking on profitability in certain contexts. This contradiction highlights the need for further investigation into the contextual variables that may mediate these relationships.

Moreover, Khrawish and Al-Sa'di (2011) found no substantial influence of e-banking services on profitability in Jordan, suggesting that the benefits of electronic banking may not be universally applicable. This inconsistency prompts critical questions about the assumptions underlying the relationship between innovation and performance across different banking environments. While the literature on innovation and bank performance is extensive, there remains a need for more nuanced analysis. Future research should focus on synthesizing insights from these studies, exploring the differential impacts of technological versus service innovations, and addressing unresolved questions regarding contextual influences. This approach will enhance our understanding of how banks can leverage innovations to optimize their performance effectively.

## 2. METHODS

In this study, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist 2020 (Page et al., 2021) was followed in this systematic review and meta-analysis. The PRISMA framework improves the transparency and reproducibility of this study's systematic review process by requiring comprehensive reporting and evaluation of the literature, reducing bias and increasing the reliability of our results.

### *2.1 Search Strategies*

To ensure a systematic search strategy, first identified a preliminary set of keywords based on the core concepts of "technological innovation," "service innovation," and "banks." These keywords from 2014 to 2023 were then refined through trial searches in relevant databases, following Wang and Chugh's (2014) recommendations, this study outlined search criteria based on keywords. Selected databases included peer-reviewed publications from sources like Science Direct, JSTOR, Emerald, and Scopus. The review has covered books, articles, and academic publications. "Publish or Perish 8" (PoP8) by Harzing (2007) is used, along with backward and forward searches. The literature was retrieved from several databases and publications, including Google Scholar, EMBASE, EBSCO, and JSTOR. The keywords for our searching strategy were "Bank", "Artificial Intelligence", "System innovation", "service innovation", "innovation in service", "service innovativeness", "performance", "revenue", "benefit", "outcome", "profit", "sales", "growth", "market share". Furthermore, we searched for articles in various journals using related keywords, such as financial innovation, Journal of banking & finance, Australian journal of business and management research, Research Journal of Finance and Accounting, International Journal of Economics and Finance, International Journal of Education and Research, International Journal of Bank Marketing, International Journal of Finance and Accounting, and so on. There was no language, geographical, publication, or study year barriers throughout the article search. In addition, we looked for relevant publications in the selected papers' reference lists.

### *2.2 Study Selection*

In this study, we utilized Rayyan, an intelligent systematic review tool created by Ouzzani et al. (2016) for literature screening. This systematic review tool is used to complete the entire procedure. During the first round of screening, the title and abstract were extensively evaluated, and the entire piece was checked during the second round of screening.

### *2.3 Inclusion Criteria*

Our analysis includes all studies that assess the influence of innovation on bank performance. This must include empirical documentation. A clear sample size and correlation coefficient between innovation and bank performance are required. Furthermore, there must be a clear definition of the types of innovation and performance. Financial innovation, technological innovation, service innovation, process innovation, product innovation, artificial intelligence, overall bank innovation, and so on are all examples of innovation. Bank performance, on the other hand, consists of financial performance (ROA), financial performance (income), financial performance (profit), overall bank performance, overall financial performance, and customer satisfaction.

### *2.4 Exclusion Criteria*

Our investigation excludes studies with insufficient information or a clear conclusion on the association and sample size. Furthermore, studies reporting cases described in any other original articles by the same author, as well as the entire overlap of reporting, are removed. We also omitted any preprint papers since these paper are not peer reviewed, verified or result status was preliminary level. Also, these article does not clarify the information regarding the type of performance, and category of innovation is likewise omitted from our analysis. Furthermore, conference papers, letters, and editorials were not included in our analysis. Furthermore, articles written in any language other than English are omitted from this study.

### *2.5 Data Extraction*

The acquired data was saved using a predefined excel sheet. The following information is extracted: author information, publication year, geographic location, data type, male/female ratio (if available), innovation kind, performance type, correlation, and sample size. Any unavailable data from a given study was double-checked.

### *2.6 Statistical Analysis*

We utilized the inverse variance approach to get the pooled correlation and the 95% confidence interval for the result of interest. The Z statistic is used to evaluate the hypothesis (level of significance $p<0.05$). Between study, heterogeneity is estimated by Cochran's Q and $I^2$ indices. Chi-square test is used as test statistic to test the statistical heterogeneity ($I^2$). $I^2$ identifies the percentage of variability due to heterogeneity rather than sampling error. Values of $I^2$ indices 25%, 50%, and 75% indicate low, medium, and high heterogeneity, respectively (Higgins et al., 2003). Random-effects model meta-analysis is performed under the appearance of statistical heterogeneity. Between study variance ($\tau^2$) in the random effects model was estimated using the Sidik-Jonkman estimator. Fisher's z transformation of correlations. Different subgroup analyses are also carried out based on the type of innovation and the type of performance. The meta-analysis findings are shown in forest plots. The statistical study was carried out using the programming language R (Allaire, 2012).

### *2.7 Publication Bias and Sensitivity Analysis*

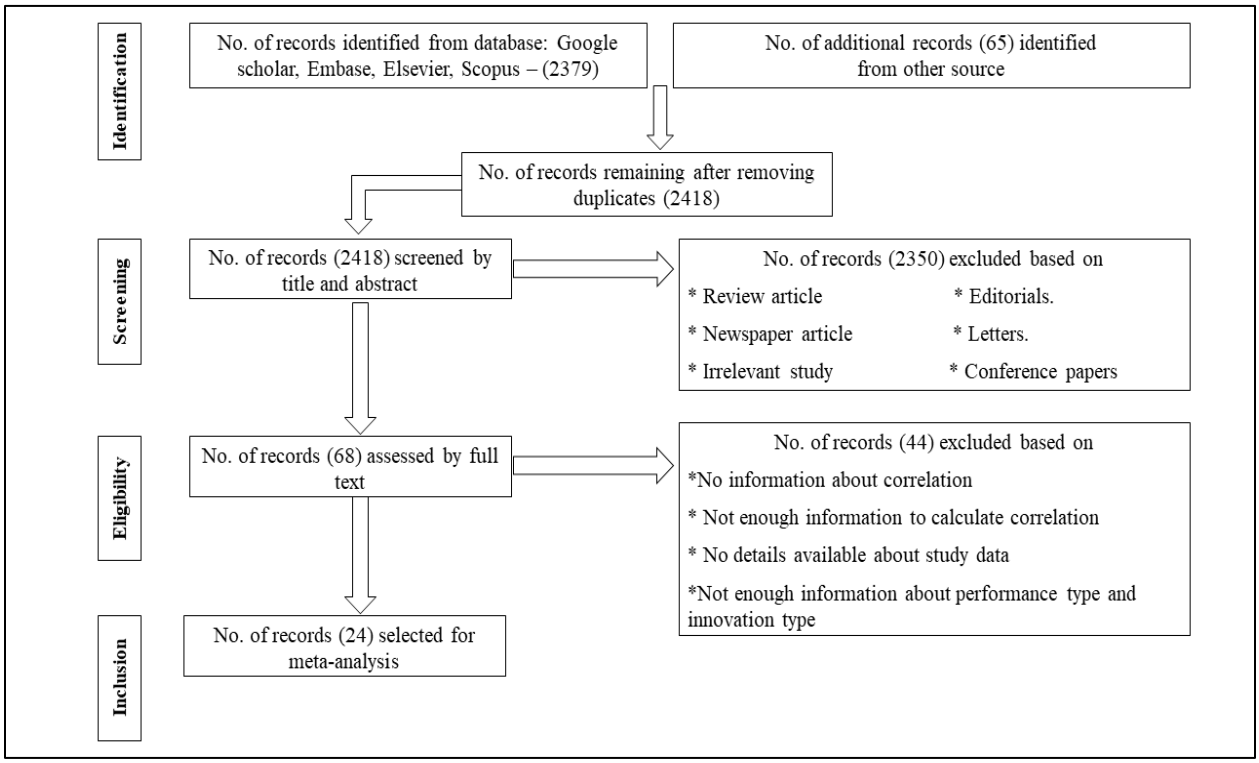
The chosen studies' publication bias is investigated using both qualitative and quantitative methodologies. The funnel plot is used as a qualitative tool to check for publication bias through visual examination. It contains two axes, with the y-axis reflecting each study's standard error and the x-axis denoting the effect magnitude. There is no publishing bias based on assumptions if that research lies symmetrically inside our polling effect size inside the shape of a funnel. To assess publication bias, we used Egger's test, another quantitative method (Figure 7). Egger's test of the intercept is used to assess and statistically test the funnel plot test's asymmetry (Egger et al., 1997). The funnel plot and Egger's test were both used to assess the effect of small studies.

## 3. RESULTS

### *3.1 Study Selection*

Our initial search yielded 2418 results, including 2379 from Google Scholar, EMBASE, Elsevier, and Scopus and 65 from other sources. There were 2418 articles remaining after removing duplicates. After carefully evaluating and reading the title and abstract of the remaining 2418 research articles, we rejected about 2350 publications based on our exclusion criteria. The remaining 68 papers were then read in full. Finally, 44 items were removed since they did not meet our inclusion requirements. Following the final round of screening, 24 publications were chosen for our systematic review and meta-analysis based on our inclusion criteria. Figure 1 displays more details of our selection procedure.

**Figure 1**: **PRISMA flow Diagram of Literature Review**




### *3.2 Study Characteristics*

As previously indicated, 24 publications were ultimately chosen for our systematic review and meta-analysis. Among these 24 studies are six from Kenya, three from Lebanon, three from Nigeria, two from different developed and developing countries, one from Bahrain, one from Cameroon, one from Europe, one from Iraq, one from Malaysia, one from the Middle East, one from Nepal, one from Sudan, one from Tanzania, and one from Zambia. From 2007 through 2023, selected papers were published. Overall bank performance, overall financial performance, bank performance (profit), financial performance (income), financial performance (ROA), and customer satisfaction are examples of performance types. Agent banking, artificial intelligence, ATM, credit card and debit card, electronic fund transfer (EFT), financial innovation, financial technology, internet banking, mobile banking, Point of Sale (POS), process innovation, product innovation, service innovation, and so on are examples of innovation types. Twelve research utilized secondary data, ten used survey data, and two used combined survey and secondary data. Table 1 shows further features of chosen research.

### *3.3 Statistical Heterogeneity*

The results of the meta-analysis indicate a high level of variation ($I^2 = 99.4\%$ for overall innovation and $I^2 = 99.0\%$ for individual innovations) in the correlation between innovation and bank performance. This suggests that differences in how studies were conducted, as well as regional factors, are affecting the results. For example, studies from developed markets with better technological infrastructure might show stronger positive effects of innovation compared to regions where adopting innovation is more challenging. In short, the maturity of the market and regional differences can significantly influence the impact of innovation on bank performance.

Result also found that in the first phase of this analysis, where innovation and performance were considered in general, the high heterogeneity ($I^2 = 99.4\%$) implies that pooling all types of innovation together might difficult to understand important patterns, that means 'mixing effects biasness' makes it difficult to identify how each type

specifically impacts bank performance. For instance, studies might be mixing technological innovations with process innovations, each having different impacts on bank performance. To address this, we conducted a subgroup analysis based on different bank performance measures, such as ROA, income, and customer satisfaction.

In the second phase, when individual innovations (e.g., technological innovation, service innovation) were analyzed in relation to bank performance, heterogeneity ($I^2 = 99.0\%$) was high. This could be due to the complexity of innovation typologies, which affect bank performance in a variety of ways. For example, product innovations may primarily drive customer satisfaction, whereas process innovations may improve operational efficiency. Furthermore, technological innovation, such as AI-driven analytics, can have a positive impact on bank performance by improving decision-making and operational processes, which can increase stakeholder trust. These distinct impacts highlight the difficulty of understanding the relationship between innovation typologies and bank performance. The results of the meta-analysis reveal that the random effects model effectively captures the variations across different studies, which often differ by region, type of innovation, or performance measures. Rather than assuming a uniform effect of innovation on bank performance, this model highlights the differences observed in the data. For example, it shows that technological innovations, such as AI-driven analytics, may yield strong results in certain regions while having weaker impacts in others. These findings provide banks with a clearer understanding of which innovations are most effective in specific contexts. As a result, banks can tailor their strategies to focus on the innovations that are most likely to enhance their performance based on their unique environments.

**Table 1: Summary of Studies Examining the Relationship Between Innovation Types and Performance Outcomes**

| Study | Survey Region | Data Type | Study Period | Participants | Sample size | Innovation Type | Performance Type | Correlation |
|---|---|---|---|---|---|---|---|---|
| Agbolade et al. 2011 | Nigeria | Survey Data | | 3 banks | 90 | ICT Innovation | Bank Performance (Profit) | 0.70 |
| Akhisar et al. 2015 | 23developed and developing country | Secondary data | 2005-2013 | | 184 | Credit and Debit card | Financial Performance (ROA) | 0.00 |
| | | | | | | POS (Point of Sale) | Financial Performance (ROA) | 0.09 |
| | | | | | | ATM (Automated Teller Machine) | Financial Performance (ROA) | -0.03 |
| | | | | | | Internet Banking | Financial Performance (ROA) | -0.48 |
| Al-Baag et al. 2021 | Iraq | Survey data | 2016-2019 | 19 banks | 339 | Technology Innovation | Overall Financial Performance | 0.98 |
| Alzaidi et al. 2018 | Middle east | Survey data | | Bank employee | 200 | Artificial Intelligence | Overall Bank Performance | 0.98 |
| | | | | | | | Customer Satisfaction | 0.19 |
| Ashiru et al. 2023 | Nigeria | Secondary data | 2012-2021 | 24 banks | 216 | ATM (Automated Teller Machine) | Financial Performance (ROA) | 0.42 |
| | | | | | | POS (Point of Sale) | Financial Performance (ROA) | 0.24 |
| | | | | | | Internet Banking | Financial Performance (ROA) | 0.25 |
| Beccalli et al. 2007 | Europe | Secondary data | 1993-2000 | 737 banks | 4414 | Technology Innovation | Financial Performance (ROA) | 0.20 |
| Chai et al. 2016 | Malaysia | Secondary data | | Bank employee | 319 | Service Quality | Overall Bank Performance | 0.96 |
| | | | | | | Technology Innovation | Overall Bank Performance | 0.97 |
| | | | | | | Innovation | Overall Bank Performance | 0.96 |
| Haabazoka et al. | Zambia | Secondary data | 2011- | 19 banks | 48 | Technology Innovation | Financial Performance (ROA) | 0.98 |

| Study | Survey Region | Data Type | Study Period | Participants | Sample size | Innovation Type | Performance Type | Correlation |
|---|---|---|---|---|---|---|---|---|
| 2019 | | | 2014 | | | Internet Banking | Financial Performance (ROA) | 0.25 |
| | | | | | | Mobile Banking | Financial Performance (ROA) | 0.96 |
| | | | | | | ATM (Automated Teller Machine) | Financial Performance (ROA) | 0.75 |
| Hannoon et al. 2021 | Bahrain | Secondary data | 2019 | 12 banks | 12 | Financial Technology | Overall Financial Performance | 0.92 |
| Joseph et al. 2014; | Nigeria | Survey data | 2008-2013 | Customer | 1634 | Technology Innovation | Customer Satisfaction | 0.79 |
| Mahboub et al. 2018 | Lebanon | Secondary data | 2009-2016 | 50 banks | 400 | Technology Innovation | Overall Financial Performance | 0.38 |
| | | | | | | ATM (Automated Teller Machine) | Overall Financial Performance | -0.09 |
| | | | | | | Mobile Banking | Overall Financial Performance | 0.29 |
| | | | | | | Internet Banking | Overall Financial Performance | 0.16 |
| | | | | | | Telephone Banking | Overall Financial Performance | 0.06 |
| | | | | | | Credit and Debit card | Overall Financial Performance | 0.09 |
| | | | | | | POS (Point of Sale) | Overall Financial Performance | 0.09 |
| Makur et al. 2014 | Sudan | Secondary data | 2009-2013 | 16 banks | 16 | Overall Financial Innovation | Financial Performance (ROA) | 0.69 |
| | | | | | | ATM (Automated Teller Machine) | Financial Performance (ROA) | 0.58 |
| | | | | | | Mobile Banking | Financial Performance (ROA) | 0.01 |
| Mugane et al. 2016 ) | Kenya | Survey data | December, 2014 | 43 banks | 43 | Financial Innovation | Financial Performance (ROA) | 0.58 |
| | | | | | | Product Innovation | Financial Performance (ROA) | -0.20 |
| | | | | | | Service Innovation | Financial Performance (ROA) | 0.34 |

| Study | Survey Region | Data Type | Study Period | Participants | Sample size | Innovation Type | Performance Type | Correlation |
|---|---|---|---|---|---|---|---|---|
| Ngari et al. 2014 | Kenya | Secondary data | 2008-2012 | 16 banks | 43 | Financial Innovation | Overall Financial Performance | 0.786 |
| | | | | | | Credit and Debit card | Overall Financial Performance | 0.45 |
| | | | | | | Internet Banking | Overall Financial Performance | 0.06 |
| | | | | | | Mobile Banking | Overall Financial Performance | 0.24 |
| | | | | | | Agent Banking | Overall Financial Performance | 0.28 |
| Mwawasaa et al. 2020 | Kenya | Survey data | 2017 | 42 banks | 71 | Financial Innovation | Overall Financial Performance | 0.71 |
| | | | | | | Financial Institution | Overall Financial Performance | 0.02 |
| | | | | | | Product Innovation | Overall Financial Performance | 0.66 |
| | | | | | | Process Innovation | Overall Financial Performance | 0.41 |
| Ndunga et al. 2016 | Kenya | Survey data | | 20 banks | 60 | Technology Innovation | Overall Bank Performance | 0.70 |
| Ngando et al. 2017 | Tanzania | Survey data | 2015 | 56 banks | 384 | Technology Innovation | Overall Bank Performance | 0.61 |
| | | | | | | Mobile Banking | Overall Bank Performance | 0.03 |
| | | | | | | Internet Banking | Overall Bank Performance | -0.59 |
| Ngumi et al. 2014 | Kenya | Survey data and secondary data | 2012 | 20 banks | 325 | Technology Innovation | Financial Performance (Income) | 0.70 |
| | | | | | | ATM (Automated Teller Machine) | Financial Performance (Income) | 0.08 |
| | | | | | | Credit and Debit card | Financial Performance (Income) | -0.14 |
| | | | | | | POS (Point of Sale) | Financial Performance (Income) | 0.19 |
| | | | | | | Mobile Banking | Financial Performance (Income) | 0.02 |
| | | | | | | Internet Banking | Financial Performance (Income) | 0.24 |

| Study | Survey Region | Data Type | Study Period | Participants | Sample size | Innovation Type | Performance Type | Correlation |
|---|---|---|---|---|---|---|---|---|
| Ngumi et al. 2014 | | | | | | Electronic Fund Transfer (EFT) | Financial Performance (Income) | -0.01 |
| | | | | | | Technology Innovation | Financial Performance (ROA) | 0.97 |
| | | | | | | ATM (Automated Teller Machine) | Financial Performance (ROA) | -0.07 |
| | | | | | | Credit and Debit card | Financial Performance (ROA) | 0.22 |
| | | | | | | POS (Point of Sale) | Financial Performance (ROA) | -0.08 |
| | | | | | | Mobile Banking | Financial Performance (ROA) | -0.09 |
| | | | | | | Internet Banking | Financial Performance (ROA) | -0.04 |
| | | | | | | Electronic Fund Transfer (EFT) | Financial Performance (ROA) | -0.10 |
| | | | | | | Technology Innovation | Bank Performance (Profit) | 0.69 |
| | | | | | | ATM (Automated Teller Machine) | Bank Performance (Profit) | -0.08 |
| | | | | | | Credit and Debit card | Bank Performance (Profit) | 0.00 |
| | | | | | | POS (Point of Sale) | Bank Performance (Profit) | -0.12 |
| | | | | | | Mobile Banking | Bank Performance (Profit) | 0.08 |
| | | | | | | Internet Banking | Bank Performance (Profit) | 0.09 |
| | | | | | | Electronic Fund Transfer (EFT) | Bank Performance (Profit) | 0.22 |
| Ngwa et al. 2020 | Cameroon | Secondary data | 2006-2018 | 4 banks | 28 | Service Innovation | Financial Performance (ROA) | 0.98 |

| Study | Survey Region | Data Type | Study Period | Participants | Sample size | Innovation Type | Performance Type | Correlation |
|---|---|---|---|---|---|---|---|---|
| Setiawan et al. 2021 | Lebanon | primary and secondary data | | | 191 | Artificial Intelligence | Financial Performance (ROA) | 0.40 |
| Shrestha et al. 2022 | Nepal | Survey data | 2020 | 27 banks | 355 | Service Concept | Customer Satisfaction | 0.70 |
| | | | | | | Service Process | Customer Satisfaction | 0.68 |
| | | | | | | Technology Innovation | Customer Satisfaction | 0.69 |
| Sujud et al. 2017 | Lebanon | Survey data | | | 200 | Overall Bank Innovations | Bank Performance (Profit) | 0.77 |
| | | | | | | ATM (Automated Teller Machine) | Bank Performance (Profit) | -0.07 |
| | | | | | | Credit and Debit card | Bank Performance (Profit) | 0.00 |
| | | | | | | POS (Point of Sale) | Bank Performance (Profit) | -0.12 |
| | | | | | | Mobile Banking | Bank Performance (Profit) | 0.08 |
| | | | | | | Internet Banking | Bank Performance (Profit) | 0.09 |
| | | | | | | Electronic Fund Transfer (EFT) | Bank Performance (Profit) | 0.23 |
| | | | | | | Overall Bank innovations | Financial Performance (ROA) | 0.99 |
| | | | | | | ATM (Automated Teller Machine) | Financial Performance (ROA) | -0.07 |
| | | | | | | Credit and Debit card | Financial Performance (ROA) | 0.23 |
| | | | | | | POS (Point of Sale) | Financial Performance (ROA) | -0.08 |

| Study | Survey Region | Data Type | Study Period | Participants | Sample size | Innovation Type | Performance Type | Correlation |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Mobile Banking | Financial Performance (ROA) | -0.09 |
| | | | | | | Internet Banking | Financial Performance (ROA) | -0.03 |
| | | | | | | Electronic Fund Transfer (EFT) | Financial Performance (ROA) | -0.11 |
| Suleymanov et al. 2019 | 23 developed and developing country | Secondary data | 2008-2018 | | 184 | Credit and Debit card | Financial Performance (ROA) | 0.00 |
| | | | | | | POS (Point of Sale) | Financial Performance (ROA) | 0.09 |
| | | | | | | ATM | Financial Performance (ROA) | 0.03 |
| | | | | | | Internet Banking | Financial Performance (ROA) | 0.48 |

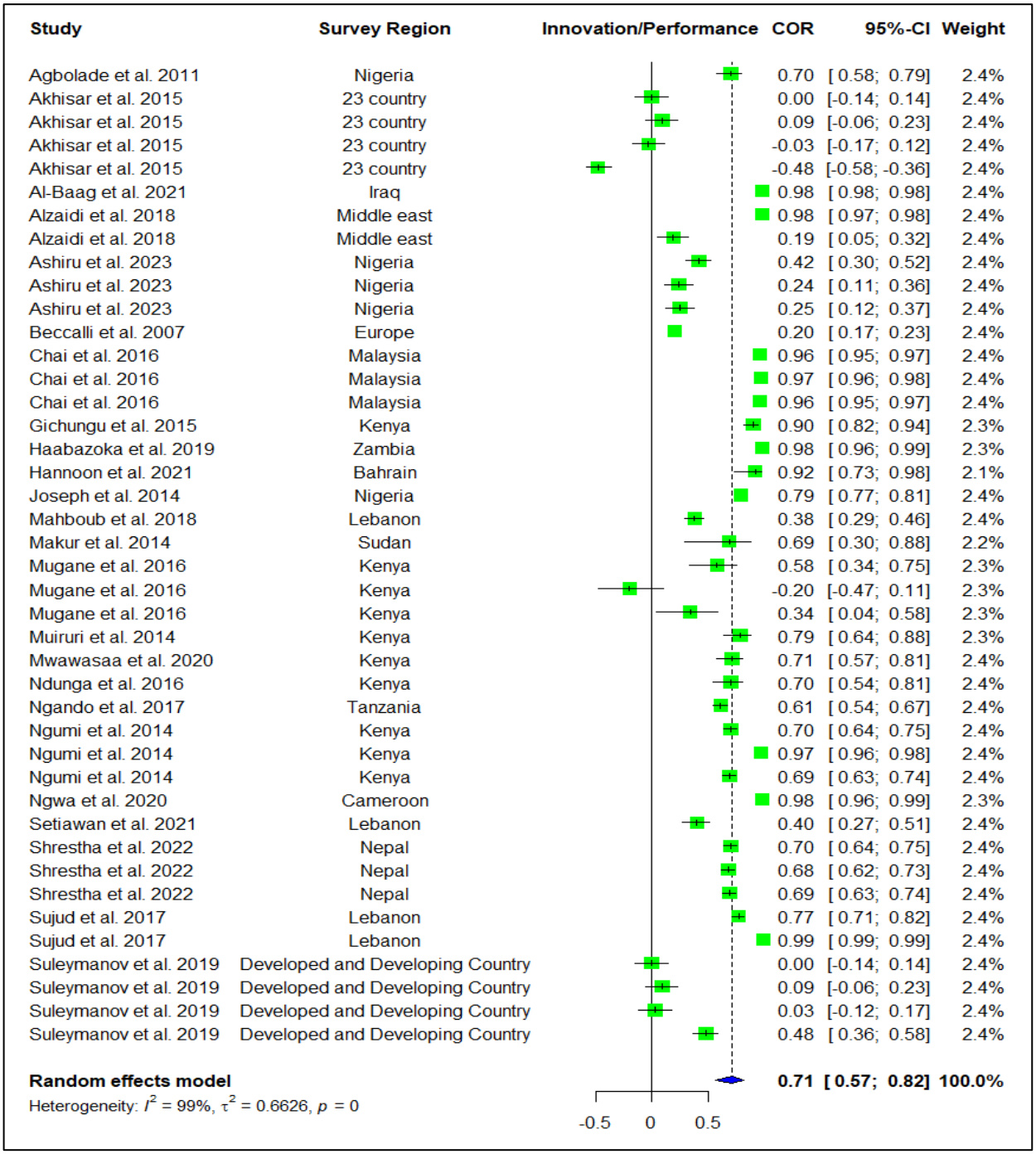
Source : Author's Own Compilation

### *3.4 Impact of innovations on bank performances*

In the case of the first part, is the impact of the overall innovation (ignore the subsection or individual innovations) and overall performance, summary effect size [COR: 0.71; 95%CI: 0.57-0.82, Zval: 7.06, P < 0.0001] which is provided in figure 2. In case of subgroup analysis based on bank performance effect size for bank performance (profit) [COR: 0.72; 95%CI: 0.66-0.77], financial performance (ROA) [COR: 0.57; 95%CI: 0.26-0.77], overall financial performance [COR: 0.84; 95%CI: 0.53-0.95], overall bank performance [COR: 0.93; 95%CI: 0.80-0.98], customer satisfaction [COR: 0.64; 95%CI: 0.44-0.78], financial performance (income) [COR: 0.70; 95%CI: 0.64-0.75]. All these results are presented in figure 3.

In the second part, we have considered the impact of all individual innovations on bank performance and it gives us a summary effect size [COR: 0.36; 95%CI: 0.23-0.47, Zval: 5.10, P < 0.0001] which is presented in figure 4. In addition, subgroup analysis based on bank performance, the effect size for bank performance (profit) [COR: 0.09; 95% CI: -0.04 - 0.22], financial performance (ROA) [COR: 0.26; 95%CI: 0.08-0.43], financial performance [COR: 0.41; 95% CI: 0.11-0.65], bank performance [COR: 0.84; 95%CI: 0.34-0.97], customer satisfaction [COR: 0.64; 95% CI: 0.44-0.78], financial performance (income) [COR: 0.06; 95%CI: -0.05 - 0.17]. All these results are presented in figure 5.

In figure 6, the subgroup analysis based on different types of innovation estimated the effect sizes as follows: For technological innovation, the correlation coefficient (COR) was 0.79 with a 95% confidence interval (CI) of 0.52 to 0.92, indicating a strong positive effect on bank performance. Innovation in credit and debit cards showed a weaker correlation with a COR of 0.08 and a 95% CI of -0.03 to 0.19, suggesting a minimal impact. Point-of-Sale (POS) innovations had a COR of 0.03 (95% CI: -0.06 to 0.12), and ATMs had a COR of 0.13 (95% CI: -0.07 to 0.32), both showing low positive associations. Internet banking demonstrated a COR of 0.03 (95% CI: -0.16 to 0.21), also indicating a negligible effect.On the other hand, innovations involving artificial intelligence (AI) showed a more substantial, though variable, impact with a COR of 0.74 (95% CI: -0.32 to 0.98). Mobile banking had a moderate effect with a COR of 0.24 (95% CI: -0.12 to 0.55), while product innovation showed a COR of 0.29 (95% CI: -0.58 to 0.85). Service innovation, with a COR of 0.86 (95% CI: -0.51 to 0.99), and process innovation, with a COR of 0.57 (95% CI: 0.27 to 0.77), indicated stronger positive effects on bank performance. Other innovation types like Electronic Fund Transfer (EFT) had a weak correlation (COR: 0.05, 95% CI: -0.1 to 0.19), while innovations in service quality (COR: 0.96, 95% CI: 0.95 to 0.97) and overall innovation (COR: 0.96, 95% CI: 0.95 to 0.97) showed very strong positive effects. Financial technology innovations had a COR of 0.92 (95% CI: 0.73 to 0.98), also indicating a significant impact. Conversely, telephone banking (COR: 0.06, 95% CI: -0.04 to 0.16) and agent banking (COR: 0.28, 95% CI: -0.02 to 0.54) had less noticeable impacts. Lastly, innovations in the service concept had a positive correlation with a COR of 0.7 (95% CI: 0.64 to 0.75). These results are visually represented in a forest plot (Figure 6). However, when comparing it to other innovation types, "service quality" and "overall innovation" show even higher correlations, both having a COR of 0.96 (95% CI: 0.95 to 0.97). This implies that while service innovation is impactful, "overall innovation" and "service quality" have an even greater influence on bank performance.


Study
Survey Region
Innovation/Performance
COR
95%-CI
Weight
Agbolade et al. 2011 Nigeria 0.70 [ 0.58; 0.79] 2.4%
Akhisar et al. 2015 23 country 0.00 [-0.14; 0.14] 2.4%
Akhisar et al. 2015 23 country 0.09 [-0.06; 0.23] 2.4%
Akhisar et al. 2015 23 country -0.03 [-0.17; 0.12] 2.4%
Akhisar et al. 2015 23 country -0.48 [-0.58; -0.36] 2.4%
Al-Baag et al. 2021 Iraq 0.98 [ 0.98; 0.98] 2.4%
Alzaidi et al. 2018 Middle east 0.98 [ 0.97; 0.98] 2.4%
Alzaidi et al. 2018 Middle east 0.19 [ 0.05; 0.32] 2.4%
Ashiru et al. 2023 Nigeria 0.42 [ 0.30; 0.52] 2.4%
Ashiru et al. 2023 Nigeria 0.24 [ 0.11; 0.36] 2.4%
Ashiru et al. 2023 Nigeria 0.25 [ 0.12; 0.37] 2.4%
Beccalli et al. 2007 Europe 0.20 [ 0.17; 0.23] 2.4%
Chai et al. 2016 Malaysia 0.96 [ 0.95; 0.97] 2.4%
Chai et al. 2016 Malaysia 0.97 [ 0.96; 0.98] 2.4%
Chai et al. 2016 Malaysia 0.96 [ 0.95; 0.97] 2.4%
Gichungu et al. 2015 Kenya 0.90 [ 0.82; 0.94] 2.3%
Haabazoka et al. 2019 Zambia 0.98 [ 0.96; 0.99] 2.3%
Hannoon et al. 2021 Bahrain 0.92 [ 0.73; 0.98] 2.1%
Joseph et al. 2014 Nigeria 0.79 [ 0.77; 0.81] 2.4%
Mahboub et al. 2018 Lebanon 0.38 [ 0.29; 0.46] 2.4%
Makur et al. 2014 Sudan 0.69 [ 0.30; 0.88] 2.2%
Mugane et al. 2016 Kenya 0.58 [ 0.34; 0.75] 2.3%
Mugane et al. 2016 Kenya -0.20 [-0.47; 0.11] 2.3%
Mugane et al. 2016 Kenya 0.34 [ 0.04; 0.58] 2.3%
Muiruri et al. 2014 Kenya 0.79 [ 0.64; 0.88] 2.3%
Mwawasaa et al. 2020 Kenya 0.71 [ 0.57; 0.81] 2.4%
Ndunga et al. 2016 Kenya 0.70 [ 0.54; 0.81] 2.4%
Ngando et al. 2017 Tanzania 0.61 [ 0.54; 0.67] 2.4%
Ngumi et al. 2014 Kenya 0.70 [ 0.64; 0.75] 2.4%
Ngumi et al. 2014 Kenya 0.97 [ 0.96; 0.98] 2.4%
Ngumi et al. 2014 Kenya 0.69 [ 0.63; 0.74] 2.4%
Ngwa et al. 2020 Cameroon 0.98 [ 0.96; 0.99] 2.3%
Setiawan et al. 2021 Lebanon 0.40 [ 0.27; 0.51] 2.4%
Shrestha et al. 2022 Nepal 0.70 [ 0.64; 0.75] 2.4%
Shrestha et al. 2022 Nepal 0.68 [ 0.62; 0.73] 2.4%
Shrestha et al. 2022 Nepal 0.69 [ 0.63; 0.74] 2.4%
Sujud et al. 2017 Lebanon 0.77 [ 0.71; 0.82] 2.4%
Sujud et al. 2017 Lebanon 0.99 [ 0.99; 0.99] 2.4%
Suleymanov et al. 2019 Developed and Developing Country 0.00 [-0.14; 0.14] 2.4%
Suleymanov et al. 2019 Developed and Developing Country 0.09 [-0.06; 0.23] 2.4%
Suleymanov et al. 2019 Developed and Developing Country 0.03 [-0.12; 0.17] 2.4%
Suleymanov et al. 2019 Developed and Developing Country 0.48 [ 0.36; 0.58] 2.4%
Random effects model 0.71 [ 0.57; 0.82] 100.0%
Heterogeneity: $I^2$ = 99%, $\tau^2$ = 0.6626, $p$ = 0
-0.5
0
0.5

DOI: 10.47126/J.NSBR. 1991-4938 ISSN 1991-4938

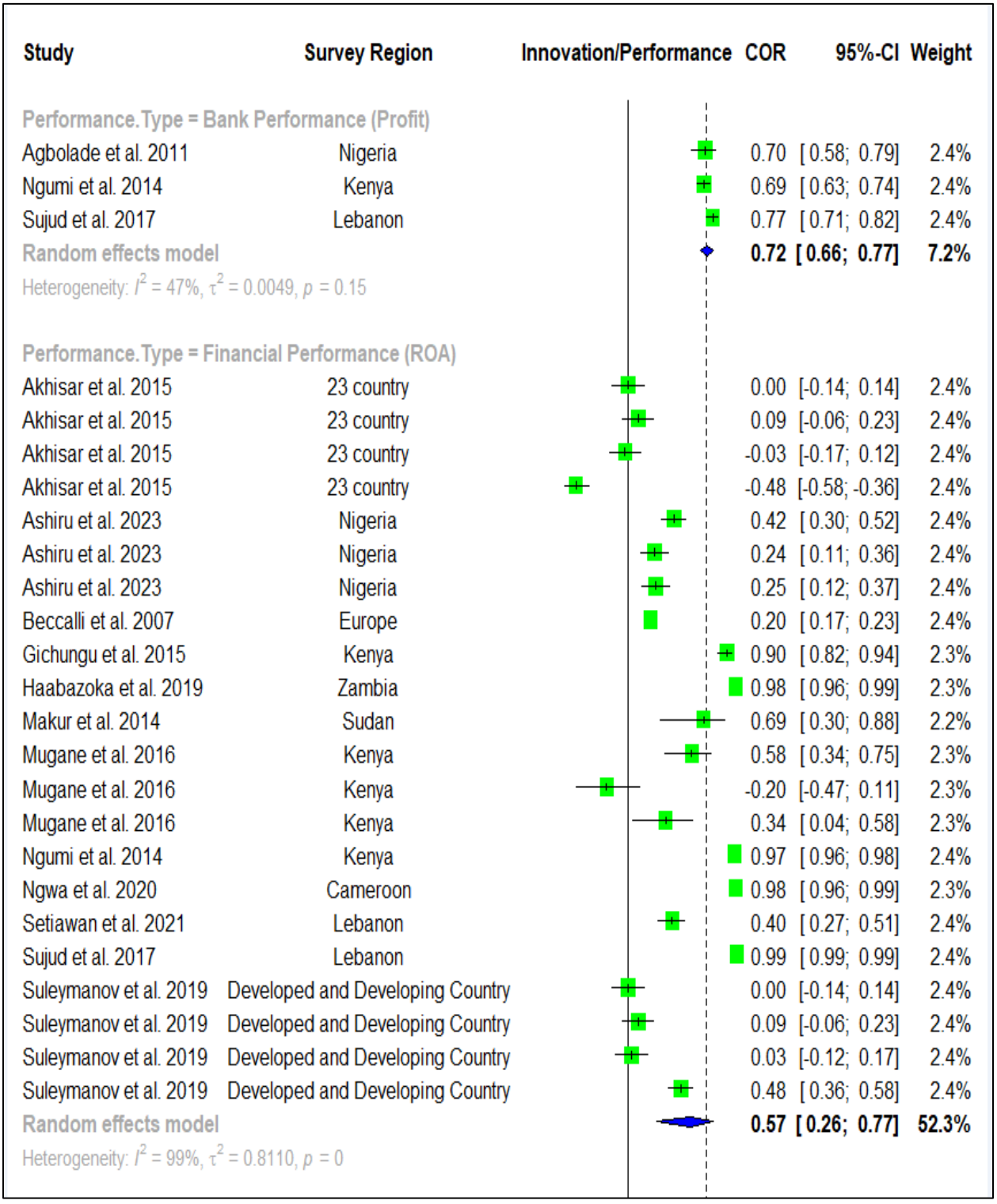



**Figure 2:** Impact of overall innovation on banks performance

**Figure 3:** Impact of overall innovation on banks performance (Subgroup analysis based on performance type) (Cont…)

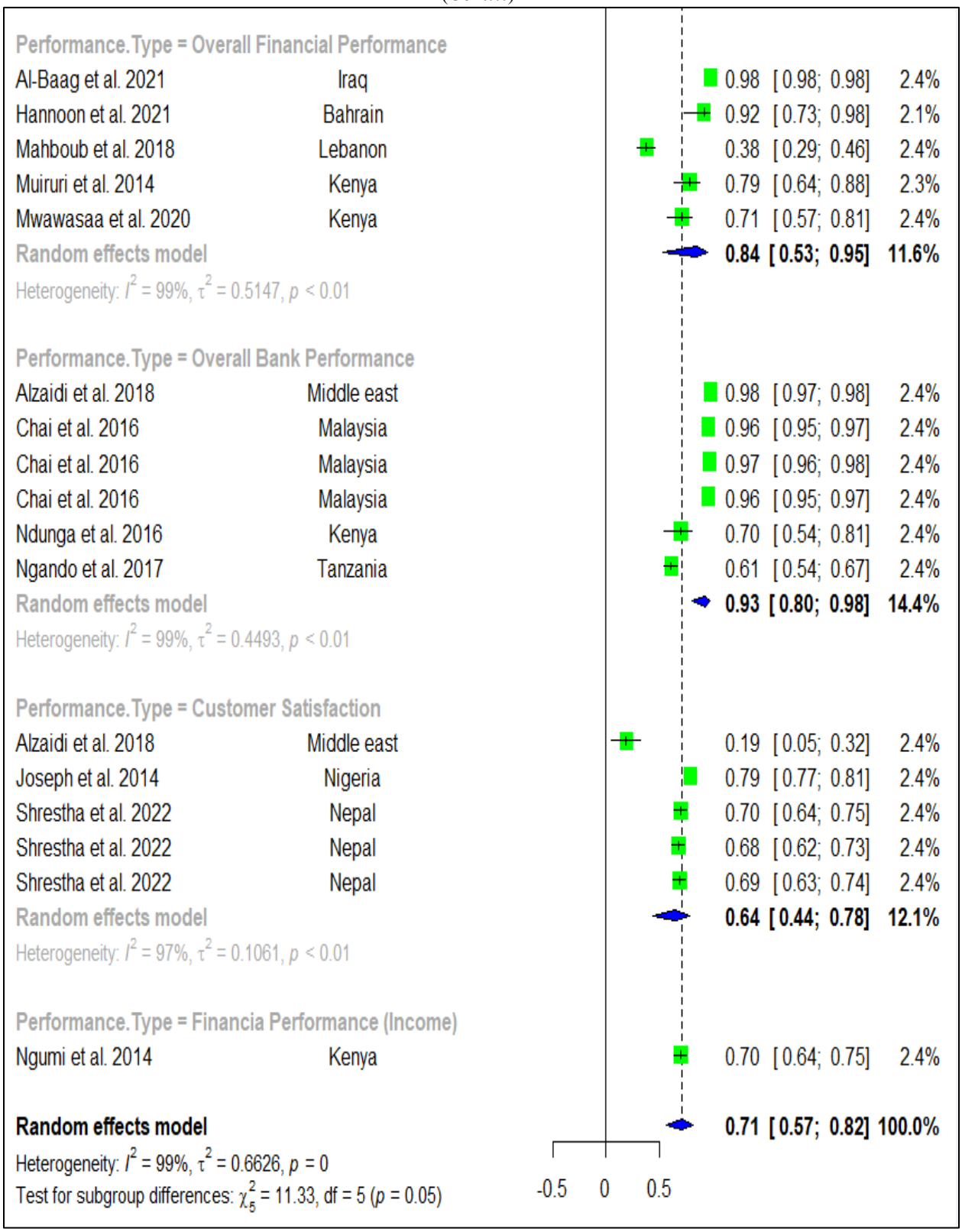



**Figure 3:** Impact of overall innovation on banks performance (Subgroup analysis based on performance type)

DOI: 10.47126/J.NSBR. 1991-4938 ISSN 1991-4938

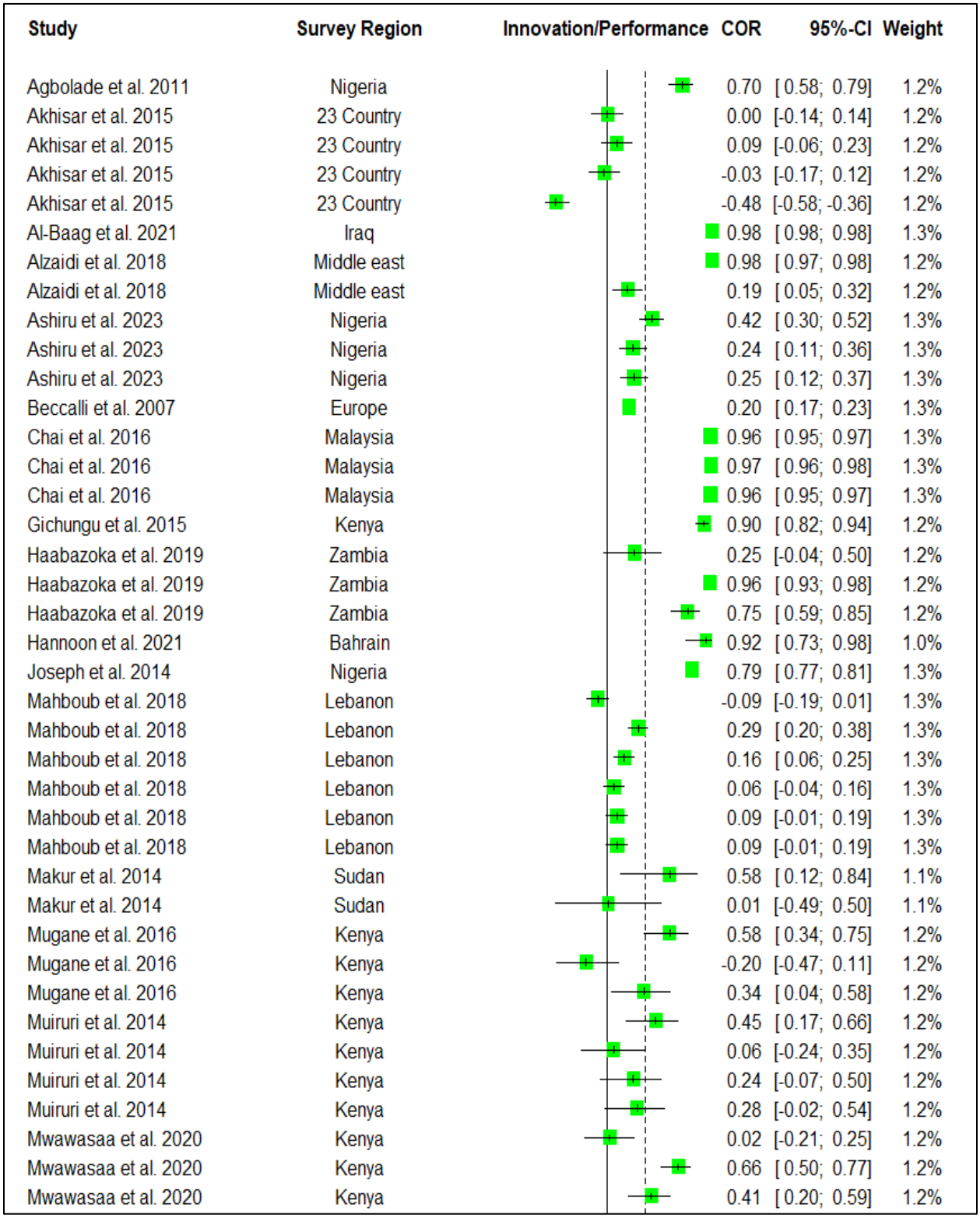



**Figure 4**: Impact of individual innovations on bank performance (Cont…)

DOI: 10.47126/J.NSBR. 1991-4938 ISSN 1991-4938

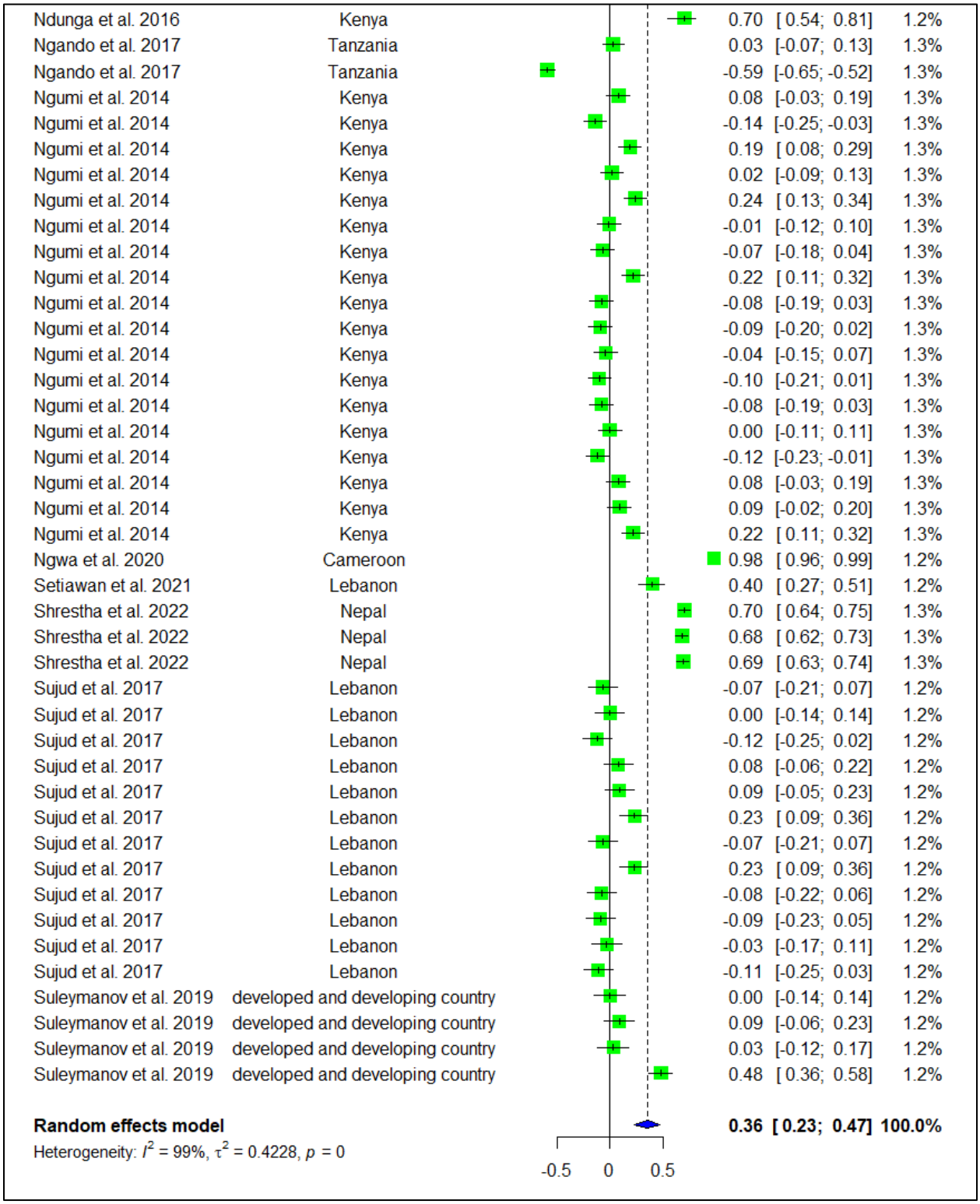



**Figure 4**: Impact of individual innovations on bank performance

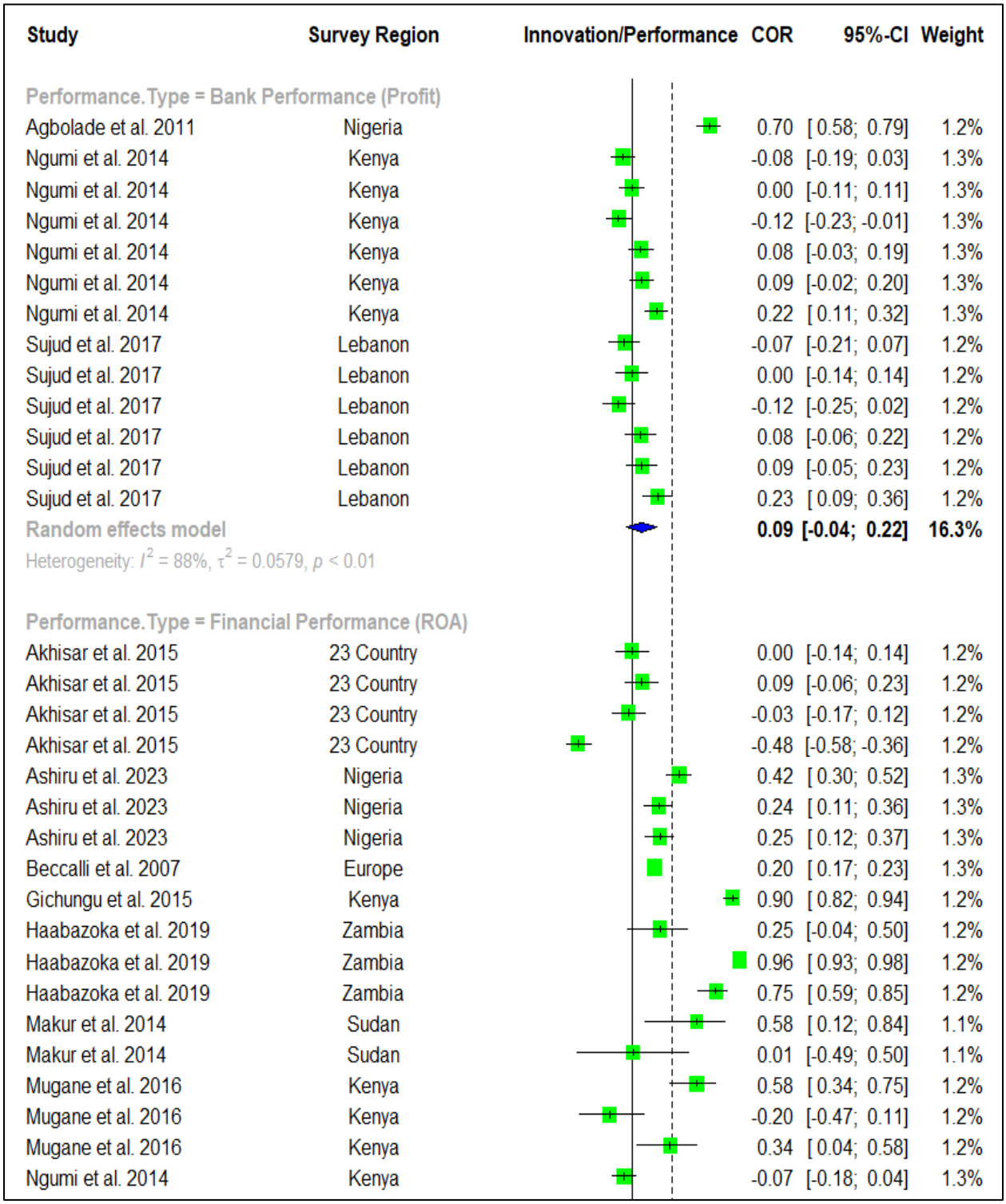



**Figure 5:** Impact of individual innovations on banks performance (Subgroup analysis based on performance type) (Cont…))

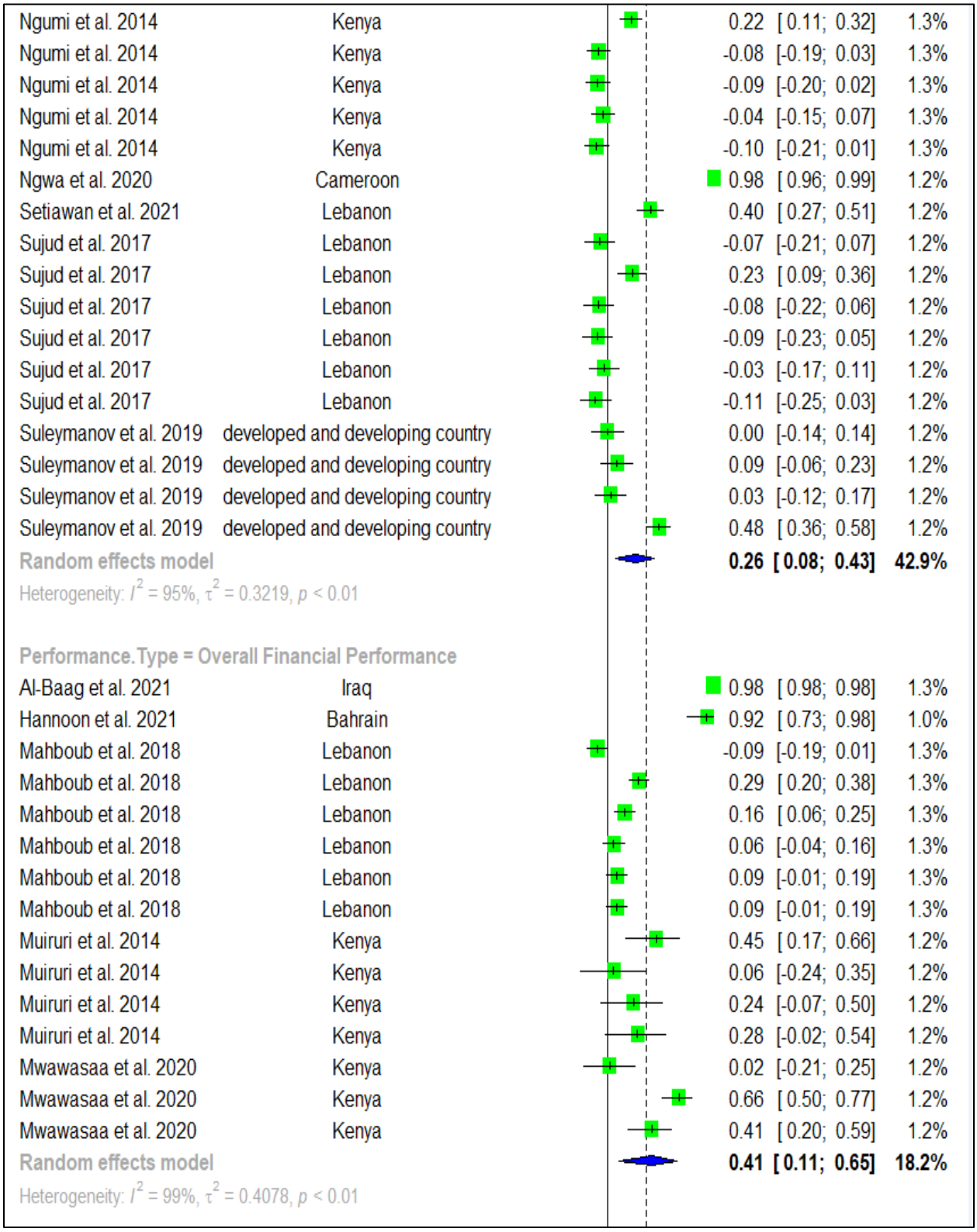



**Figure 5:** Impact of individual innovations on banks performance
Subgroup analysis based on performance type (Cont…)

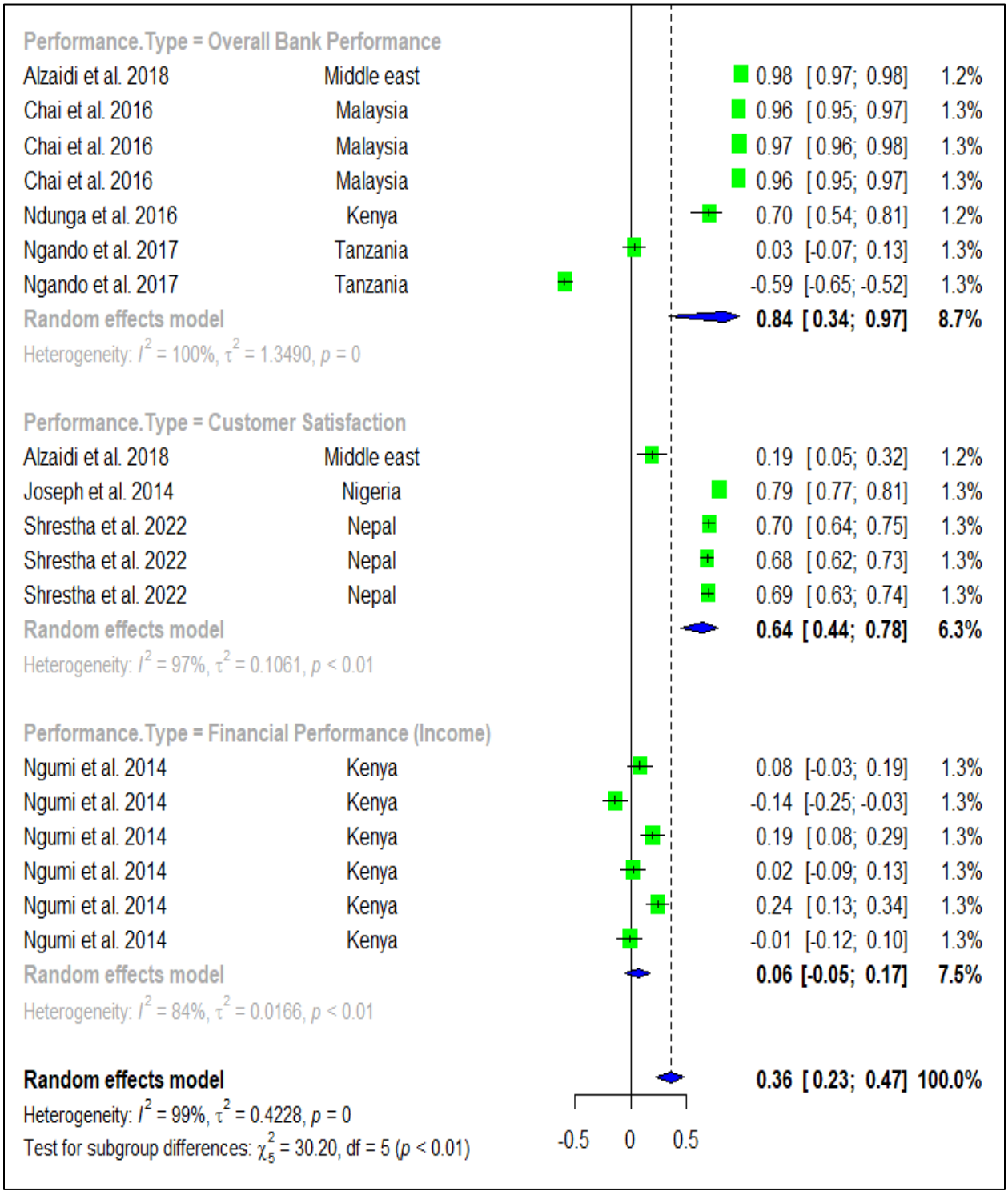



**Figure 5:** Impact of individual innovations on banks performance
(Subgroup analysis based on performance type)

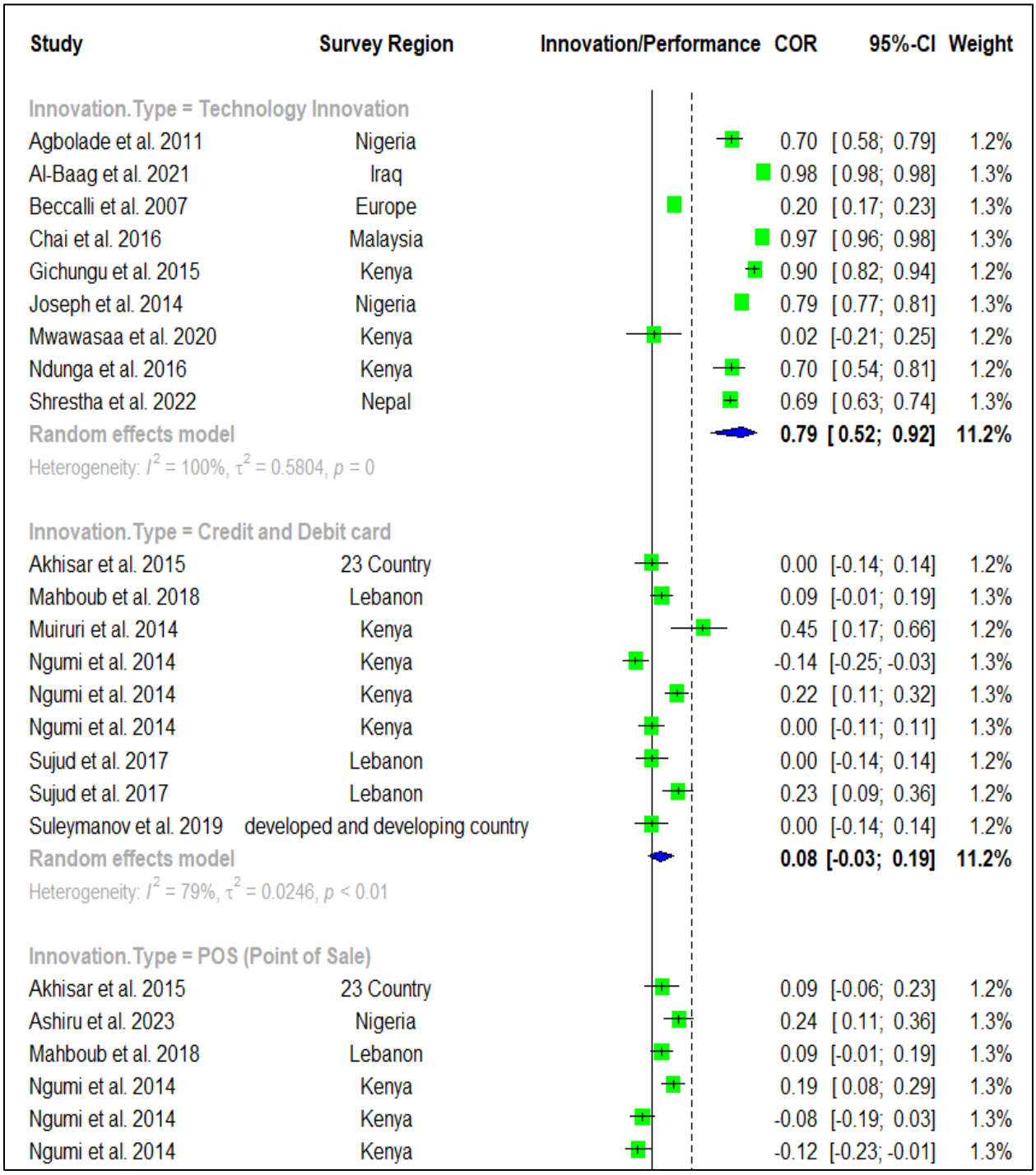



**Figure 6:** Impact of individual innovations on banks performance
Subgroup analysis based on innovation type (Cont…)

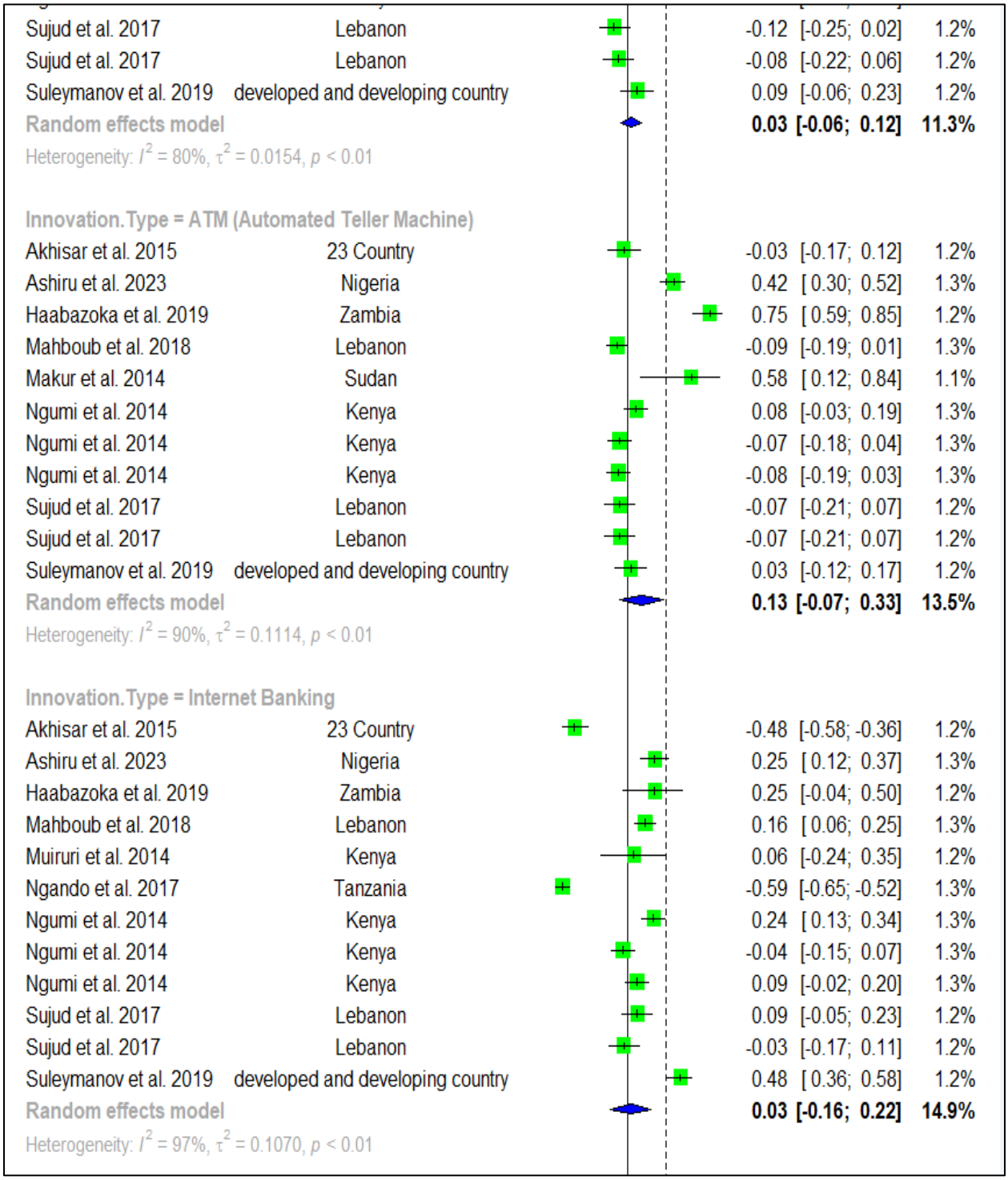



**Figure 6:** Impact of individual innovations on banks performance
Subgroup analysis based on innovation type (Cont…)

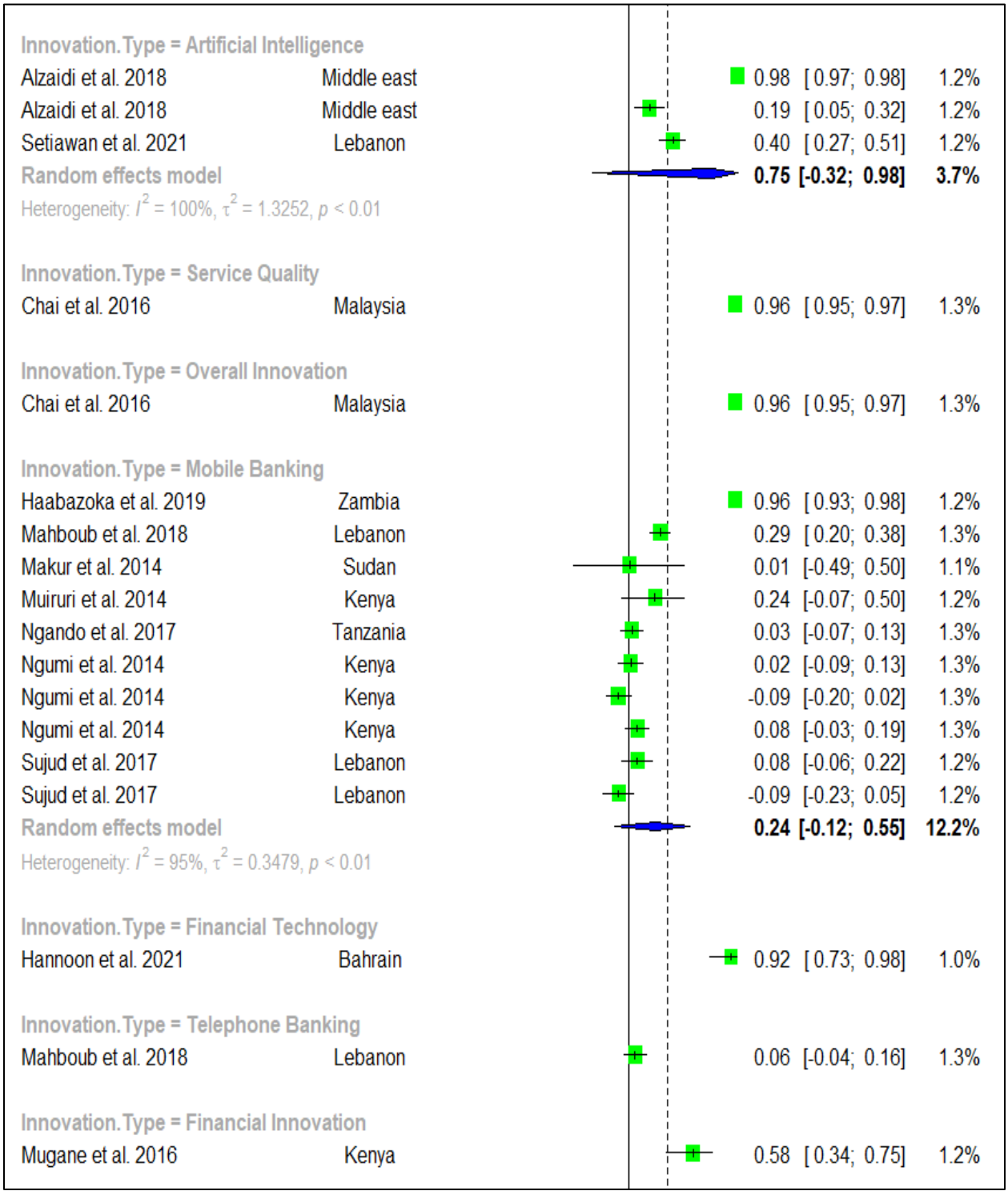



**Figure 6:** Impact of individual innovations on banks performance
Subgroup analysis based on innovation type (Cont…)

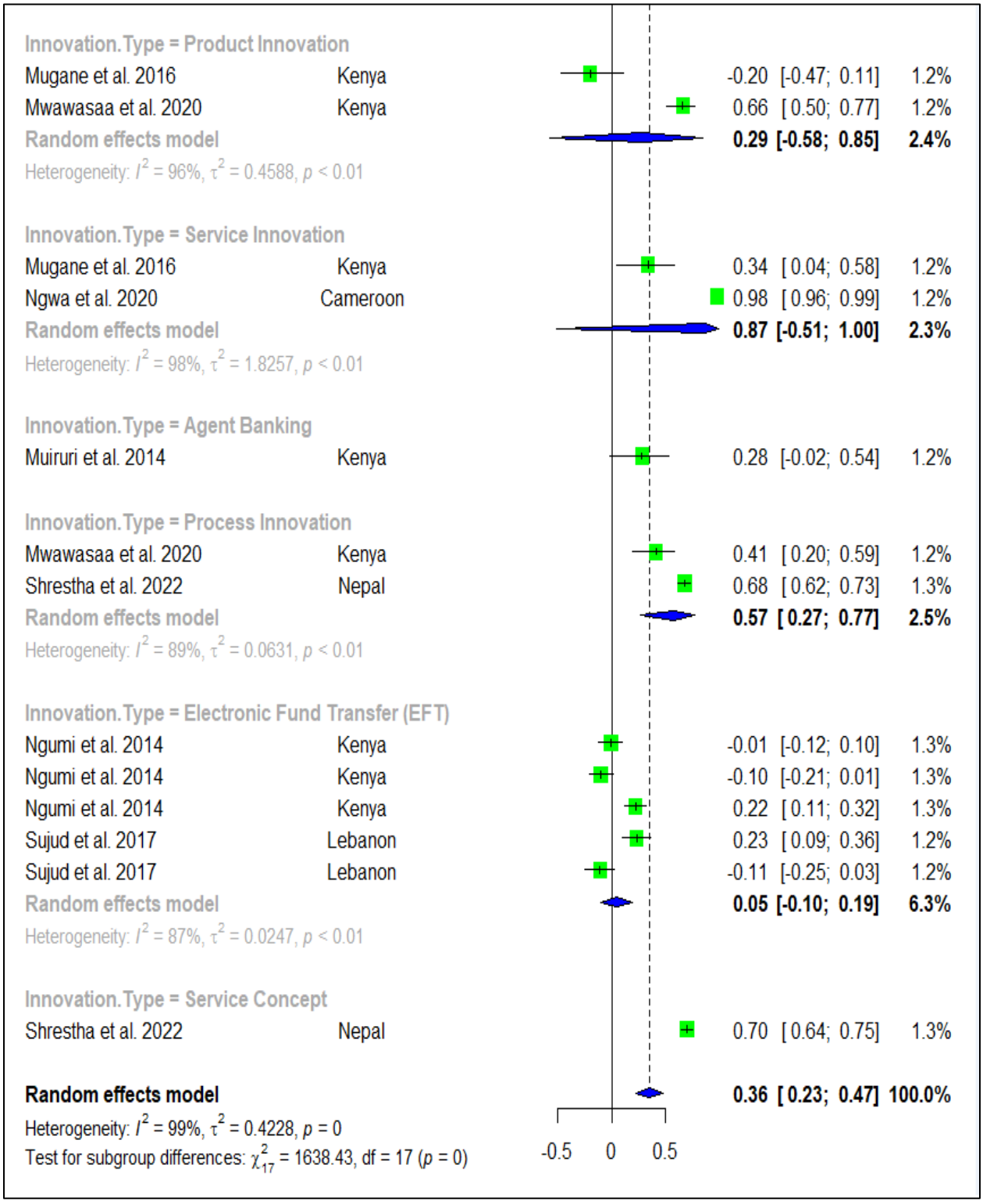



**Figure 6:** Impact of individual innovations on banks performance
(Subgroup analysis based on innovation type)

### *3.5 Publication Bias*

Results of publication bias using funnel plot shown in figure 7 for the selected studies. Funnel plot does not show an evidence of publication bias. The plot is symmetrical. To quantify the result of funnel plot Egger's test is also conducted which is shown in table 3.

**Figure 7:** Funnel plot

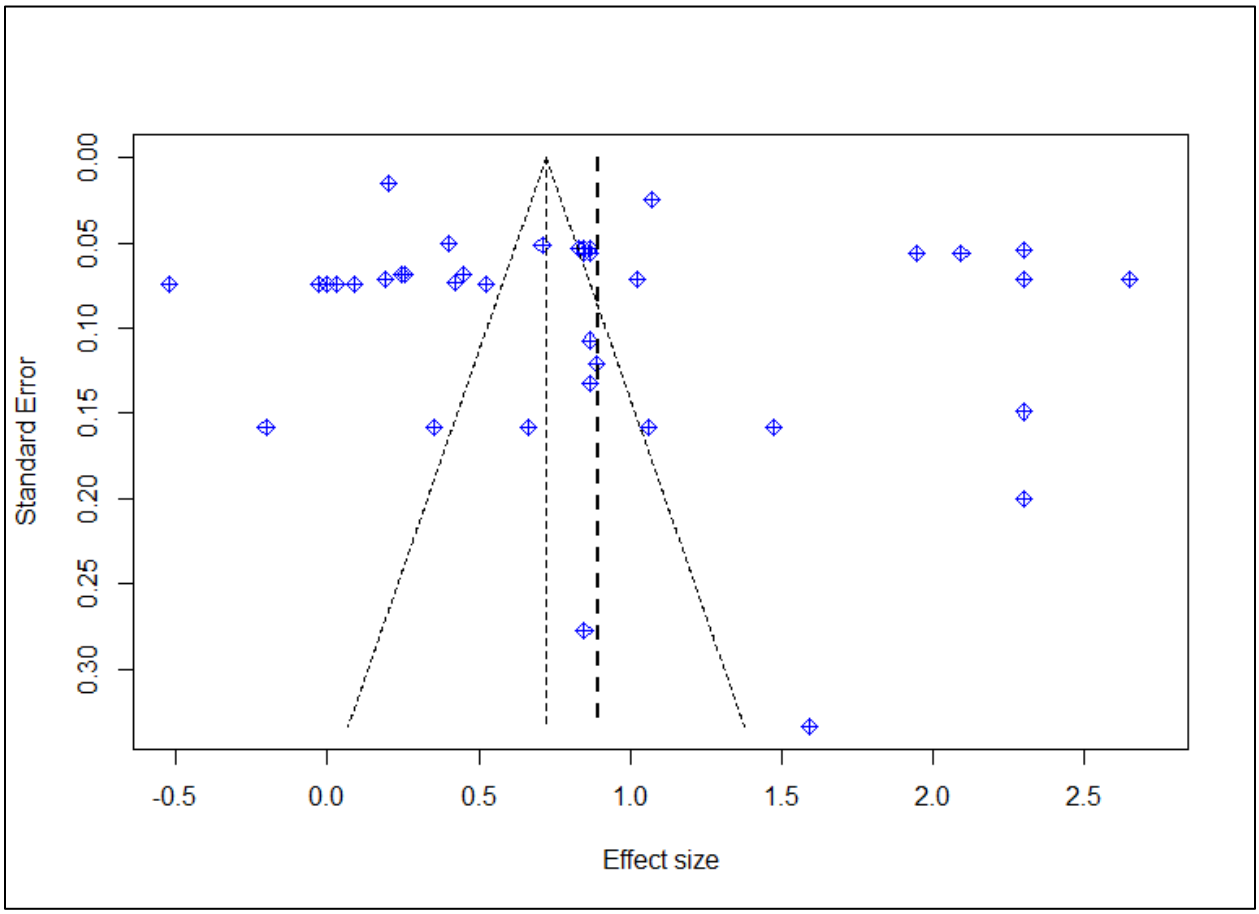



**Table 3:** Egger's test result

| Intercept | 95% confidence Interval | | P value |
|---|---|---|---|
| 5.808 | -0.96 | 12.58 | 0.1006 (>0.05) |

It is also evident from the Egger's test result that there is no substantial asymmetry in the funnel plot (P- value > 0.05).

## 4. DISCUSSION

In recent years, there has been a great deal of attention and study into the influence of innovations on bank performance. The purpose of this meta-analysis was to conduct a systematic evaluation of the current literature and integrate the findings in order to gain a greater insight into the overall impact of innovations on bank performance. Our review comprised a wide range of study findings that looked at different kinds of innovations, such as technological innovations, process innovations, product/service innovations, and organizational innovations, and the

effects they have on various aspects of bank performance, such as financial performance, operational performance, and customer performance.

As a whole, our meta-analysis indicated a positive link between innovations and bank performance (correlation (r): 0.71). When we consider subgroup analysis based on bank performance, the result also provided us with the same conclusion. Innovation impact on bank performance: profit (correlation (r): 0.72), innovation impact on financial performance: ROA (correlation (r): 0.57), innovation impact on overall financial performance (correlation (r): 0.84), innovation impact on the overall bank performance (correlation (r): 0.93), innovation impact on bank performance: customer satisfaction (correlation (r): 0.64), innovation impact on financial performance: income (correlation (r): 0.70). The included studies' findings consistently showed that innovations had a significant and beneficial influence on bank performance, with an average effect size indicating a medium to large benefit. These results are consistent with the findings of Mahmoud et al. (2018), Aayale (2017), Ngigi (2012), Patrick (2011), This shows that innovations are important drivers of success in the banking sector and play a critical role in enhancing bank performance.

This meta-analysis revealed an important finding - technical advancements such as digitalization, automation, and data analytics have emerged as especially powerful predictors of bank success (correlation (r): 0.79). The findings obtained by Johne (1999), SALEEM and Mathew (2022) is in line with our findings. Rapid technological improvement has resulted in substantial changes in the banking industry, resulting in the development of new products, services, and delivery methods. Banks that invest in and implement technology advances have a greater opportunity to improve financial performance, operational efficiency, and consumer experiences. This highlights the significance of technology-driven innovations in defining bank performance in the digital era. it enables banks to analyze vast amounts of data quickly, allowing for more informed decision-making. For example, predictive analytics can identify trends and customer behaviors, helping banks modify their services to meet specific needs, thus improves bank performance (customer satisfaction). Second, AI automates routine tasks, such as processing transactions and managing customer inquiries, which streamlines operations and reduces costs. Additionally, this paper identifies several types of innovations such as product innovations, service innovations, and technological innovation that have a positive correlation with bank performance. For instance, product innovations (correlation, r = 0.29) and service innovations (correlation, r = 0.86) show significant positive effects, aligning with findings from Maina and Ndwiga (2018). Furthermore, innovations in financial technologies, such as mobile banking (correlation, r = 0.24) and agent banking (correlation, r = 0.28), also demonstrate a beneficial impact on performance. These results are consistent with previous studies by Mutua (2013), Kithaka (2014), and Kathuo et al. (2015), although they contradict the findings of Vekya (2017) and Jenevive and Anyanwaokoro (2017).

These innovations not only attract new customers but also enhance customer retention and create additional revenue streams to improved bank performance. By relating these innovations back to technological advancements, we see that both technological innovations and these specific categories of innovation play a crucial role in shaping the future of banking. Together, they provide banks with the tools needed to adapt to changing market demands and improve operational efficiency, reinforcing the overall findings of this meta-analysis on the importance of innovation in driving success in the banking sector.

Furthermore, credit and debit card (correlation, r = 0.08, POS (correlation, r = 0.03, ATM (0.13), internet banking (correlation, r = 0.03), EFT (correlation, r = 0.05), telephone banking (correlation, r = 0.06) did not enhance banking performance significantly. Our findings about the impact of internet banking are consistent with the findings of (Sadr, 2013; Sathye, 2005; Khrawish and Al-Sa'di, 2011) but conflict with the findings from (Monyoncho, 2015, Mateka et al., 2016; Barasa et al., 2017). The result of telephone banking is in line with the results obtained from (Al-Hawari, 2006, Al□Hawari and Ward, 2006) but contradicts with Kihara (2015), who found a significant relationship between telephone banking and bank performance. Similarly, the correlation result of POS and bank performance is consistent with the result obtained by Dehghan and Shamsi (2015), Alber (2011), Abebe (2016). Opposite results found by Meihami et al. (2013) and Vekya (2017). The inclusion of these product or service innovations under the broader category of banking technologies highlights their role in modern banking; however, their limited effect suggests that merely implementing these technologies may not be enough to enhance performance.

In general, when this paper analyzes the entire impact of innovation on bank performance, found a strongly favorable relationship. However, if the innovations are considered separately, the results are mixed. This conclusion

is explained by the fact that numerous different types of innovation either service or technological influence the use of total innovation. As a result, it is feasible that one invention is so potent that it can offset the negative impact of another. Individual innovation performance, on the other hand, is affected by various factors that vary by region such as innovations in developed country (North America) might yield significantly higher returns due to advanced technological infrastructure and consumer readiness compared to developing country regions like Sub-Saharan Africa, where such technologies may face challenges like lower digital penetration and infrastructure deficits. This, we believe, is why the finding we obtained from individual innovation effect is consistent with certain research while contradicting many others.

### *4.1 Limitation and Future Research Direction*

Our meta-analysis, however, has certain limitations. Our meta-analysis was limited to published papers, which may have been influenced by publication bias and may not have included all relevant studies on the issue. Furthermore, it only takes into account research written in English that provide direct correlation or information that may be utilized to determine correlation. Aside from that, many research is dismissed. There is a possibility of data loss. This coverage issue might be the cause for the disparity between our results and those of previous research in the case of individual innovation. Bank performance is impacted by a variety of contextual factors, including the regulatory environment, economic conditions, and cultural variations, which may vary between studies included in the meta-analysis. These contextual considerations may complicate the link between innovation and bank performance, limiting the generalizability of findings across diverse contexts. We can achieve a more robust outcome and a clearer judgment if we can acquire and examine all of this information. While these limitations affect the findings, analytics and artificial intelligence as forms of innovation hold significant potential for improving performance across various sectors, particularly in driving sustainability efforts. Future research should explore how AI-driven analytics can enhance not only banking performance but also address sustainability challenges in industries like manufacturing and telecommunications, offering a broader impact on business practices and environmental goals.

## 5. CONCLUSION

The meta-analysis provides substantial proof that innovations improve bank performance. Technological, process, product/service, and organizational innovations are all significant factors of bank performance. Banks that develop and implement new technologies are more likely to increase their financial performance, client satisfaction, profitability, and so on. This meta-analysis also concludes that further study is required to fully comprehend the complicated link between innovation and bank success. The meta-analysis' shortcomings, such as variability in innovation metrics and potential publication bias, may need more rigorous study designs and methodology in future investigations. Furthermore, the need for additional studies in various locations and situations might be highlighted in order to improve the external validity and generalizability of findings. To summarize, while a meta-analysis of the impact of innovation on bank performance may give helpful insights into the current research, it is critical to acknowledge the limitations and contextual variables that may influence the findings. More study is likely to be required to better understand the link between innovation and bank performance, as well as to discover the processes and boundary conditions that drive this relationship.

*[This research was partially funded by Robi Axiata (BD) Limited, under a grant dated 12.02.2023. The author sincerely acknowledges their financial support, which contributed to the completion of this work as part of the requirements for the PhD degree]*.

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DOI: 10.47126/J.NSBR. 1991-4938 ISSN 1991-4938

# POST-PANDEMIC RECOVERY STRATEGIES: A SYSTEMATIC REVIEW ON TOURISM AND HOSPITALITY INDUSTRY

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## ABSTRACT

The tourism and hospitality industry has been profoundly impacted by the COVID-19 pandemic, necessitating a systematic review to comprehend the strategic recovery approaches suggested and employed across the industry. The review will examine existing literature to identify key challenges, trends, threats, and opportunities following the pandemic. The comprehensive analysis revealed that the recovery strategies require substantial shifts in customer satisfaction levels, adoption of sustainable practices, technological advancements, and heightened health-related considerations.

## 1. INTRODUCTION

The tourism and hospitality industry encompasses various fields within the service sector, covering lodging, food and beverage service, event planning, theme parks, and travel. It includes establishments such as hotels, travel agencies, restaurants, and bars. Although the hospitality industry does not have a universally accepted start date, its history spans thousands of years and regions. For instance, in ancient Greece, "xenia" - also known as the sacred rule of hospitality - emphasized the generosity and courtesy shown to those far from home or host guests (Cvent, 2020). While the modern interpretation of hospitality may differ from that of thousands of years ago, the central theme remains: providing quality service to guests.

The tourism and hospitality industry, a vital part of the global economy, has undergone significant changes due to the challenges posed by the COVID-19 pandemic. Before the pandemic, the sector experienced notable technological advancements, financial performance, and customer experiences (Chen and Wu, 2022). However, with the onset of the pandemic in early 2020, travel came to a sudden halt, resulting in a sharp decline in the restaurant and hotel subsectors due to health and safety concerns. This led to widespread disruption and uncertainty. The systematic literature review aims to examine the post-COVID-19 landscape of the tourism and hospitality industry. It will delve into strategic changes, consumer attitudes, financial impact, travel trends, and overall industry dynamics during the crisis. The authors will analyze various scholarly articles to underscore the industry's resilience, sustainability, customer satisfaction, technological advancements, and strategies for reinvigorating normal operations, recuperating losses, and ensuring sustainable growth in the post-pandemic era. Understanding the evolving landscape and seizing new opportunities in the tourism and hospitality industry is crucial for stakeholders. This study will offer a roadmap for future strategies for all industry stakeholders.

The structure of the paper is as follows: The first section outlines the methodology used for the methodological review and the analysis of the paper selection process (methodology section). The subsequent section presents the findings of the review, emphasizing the main issues and providing a descriptive analysis of papers related to the tourism and hospitality industry (findings section). The third section discusses the integration of aspects identified in the study and offers suggestions for potential implementations, limitations, possible criticisms, and recommendations for future research (conclusion section).

## 2. METHODOLOGY

A systematic literature review was conducted in accordance with other authors' work (Moher et al., 2009). A comprehensive systematic study was reviewed and developed using credible secondary sources, including recent work in the field, such as articles, book chapters, and conference proceedings.

The well-known PRISMA Checklist was followed, and the most essential guidelines adhered to produce a seven-step analysis (Zahana & Bonadonna, 2020; Moher et al., 2009). Noteworthy authors and their significant

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contributions to the field in the past five years, such as Chi et al. (2020) and Gössling et al. (2021), whose findings have significantly impacted the field, have been incorporated to add relevance to the overall project.

First, the research paper's topic was defined by examining existing literature in the field. A systematic search procedure was developed using credible databases and publications, primarily from Scopus, Web of Science, Google Scholar, prestigious universities, and trade presses. The databases were explicitly chosen for their comprehensive indexing of tourism and hospitality-related journals and scholarly recovery and crisis management studies. The search process involved using keywords such as "tourism recovery," "hospitality industry recovery," "COVID-19 impact," and "pandemic economic resilience" in search engines and applying filters to consider citation indexes and publication dates, ensuring that the literature reviewed was up-to-date. The search produced numerous results, then narrowed to 110 articles. After a thorough review, irrelevant and duplicate articles were discarded, resulting in 70 of the most relevant articles.

Once the papers were selected, the authors undertook an in-depth review process. This involved closely analyzing the papers to gather essential data and insights from various secondary sources. The study mainly focused on integrating and synthesizing the material through analysis. Subsequently, the authors drafted and wrote various parts of the project. Table 1 delineates the various steps in the process.

**Table 1: Synthesis of the seven-step review**

| Steps | Activities |
|---|---|
| One | Begin by defining the research topic and assessing the existing relevant literature in the area |
| Two | Select relevant secondary material by identifying and using selective online resources such as databases |
| Three | Devising a strategy to conduct filtered searches to narrow down secondary source materials |
| Four | Formulating a strict selection criterion to analyze selected papers |
| Five | Analysis of the collected data and integrating it with the various sources |
| Six | Synthesis of the systematic review and drafting |
| Seven | Integrating the various parts of the study and producing the final write-up |

## 3. RESULTS AND DISCUSSION

### *3.1. Descriptive analysis of the selected papers*

The systematic review has yielded critical findings on the subject of hotel business, hotel management, hospitality management, tourism, and hotels. A total of 70 relevant articles were identified based on the established parameters. Each chosen article is accompanied by essential information such as the author's names, titles, year of publication, the language used, and a unique identifying number (code). This data is a reference point for further analysis and correlation with subsequent findings. Further details have been provided in Appendix- 1.

The hospitality and tourism industry has garnered increased attention in recent years due to the impacts of COVID-19. Out of 70 articles, 51 were published between 2020 and 2024, focusing on the industry's crisis and recovery from the pandemic.

The geographic breakdown (Table 2) of the studies provides valuable insights. 40 out of 70 research articles were conducted in Asia, with the highest 10 in China, primarily focusing on strategic approaches, the effects of COVID-19 on the hospitality industry, and the post-pandemic recovery strategies. Additionally, 17 out of 70 studies were carried out in Europe, while 7 out of 70 articles shed light on the USA.

**Table 2: Geographic area of the study of articles**

| Continent | Nation | | Code No | No. of Articles |
|---|---|---|---|---|
| Asia | Bangladesh | | (11) | 7 |
| | | Pabna | (1) | |
| | | Dhaka | (13) | |
| | | Rajshahi | (14) | |
| | | Chittagong | (16) | |
| | | Cox's Bazar | (57) | |
| | | Rajshahi | (24) | |
| | China | | (31) (46) (63) | 10 |
| | | Taiwan | (17) | |
| | | Hong Kong | (18) (29) | |
| | | Xinjiang | (60) | |
| | | Heilongjiang | (65) | |
| | | Dengfeng and Kaifeng | (66) | |
| | | Kowloon | (43) | |
| | Myanmar | | | 1 |
| | | Inle Lake | (8) | |
| | Pakistan | | | 2 |
| | | Islamabad | (42) (49) | |
| | India | | (62) (68) | 5 |
| | | Mumbai | (45) | |
| | | Kerala | (56) | |
| | | Ludhiana | (6) | |
| | Indonesia | | (26) | 5 |
| | | Yogyakarta | (10) (54) | |
| | | Bali | (64) | |
| | | South Jakarta | (32) | |
| | Iraq | | (12) | 1 |
| | Iran | | (61) | 1 |
| | Israel | | | 1 |
| | | Zemach | (28) | |
| | Philippines | | (37) | 1 |
| | Saudi Arabia | | (41) | 2 |
| | | Jeddah | (34) | |
| | Thailand | | (20) | 1 |
| | Uzbekistan | | | 1 |
| | | Bukhara | (23) | |
| | Vietnam | | (35) (59) | 2 |
| North America | USA | | (67) | 7 |
| | | New York | (15) (22) | |
| | | Texas | (25) | |
| | | Florida | (44) | |
| | | Hawaiian | (51) | |
| | | California | (47) | |
| Australia and Oceania | Australia | | | 1 |

| Continent | Nation | | Code No | No. of Articles |
|---|---|---|---|---|
| | | Victoria | (3) | |
| New Zealand | | | (58) | 1 |
| Europe | UK | | (48) | 4 |
| | | Guildford | (19) | |
| | | Manchester | (36) | |
| | | Cheltenham | (50) | |
| | Greece | | (4) (38) | 2 |
| | Italy | | (40) | 1 |
| | Poland | | (30) | 1 |
| | Spain | | (33) | 3 |
| | | Valencia | (2) | |
| | | Madrid | (5) | |
| | Sweden | | (39) | 1 |
| | Croatia | | (52) | 1 |
| | Switzerland | | (7) | 2 |
| | | Geneva | (9) | |
| | Ukraine | | (27) | 1 |
| North Asia and Eastern Europe | Russia | | | 1 |
| | | Ekaterinburg | (21) | |
| Other | | | (53) (55) (69) (70) | 4 |

All 70 articles have shown several focus areas. Different aspects have been studied in the articles taken from several journals. The categories of involved journals are, “Strategic Management,” Crisis Management,” “Social Science,” Environmental Science” and “Modern Science.” The sources and categories pertaining to the articles have been furnished in Appendix- 2.

181 writers in all contributed to the chosen articles. The average number of authors per manuscript ranges from 4 to 5. In 24 papers, there is one author, which is the most common number. Results are shown in Table 3.

**Table 3: Number of authors per article**

| No. of Authors | Code no. |
|---|---|
| 10 | *(12)* |
| 8 | *(46)* |
| 6 | *(27)* |
| 5 | *(5) (42) (54) (55) (66)* |
| 4 | *(2) (4) (14) (17) (18) (21) (24) (25) (49) (61)* |
| 3 | *(7) (15) (19) (29) (33) (35) (38) (39) (44) (47) (48) (70)* |
| 2 | *(3) (8) (10) (11) (13) (20) (31) (37) (41) (43) (45) (50) (51) (52) (59) (68)* |
| 1 | *(1) (6) (9) (16) (22) (23) (26) (28) (30) (32) (34) (36) (40) (53) (56) (57) (58) (60) (62) (63) (64) (65) (67) (69)* |

Two authors out of a total of 181 have participated in two research articles. The University of Gloucestershire is the only European institution where two articles have been studied by two authors from the same university. The Table provides additional information.

### *3.2 Assessment of contents of the reviewed articles and related classification*

Articles were described according to their significant details, such as published year, location of the study, publications, study categories, number of authors per article, and classification process. The literature review was organized into five research areas based on this methodology: Hospitality Industry, Covid-19 Pandemic Crisis, Impacts, and Recovery; Hospitality Industry, Strategies, Structures, management, and Globalization; Hospitality Industry and Sustainability Factors; Hospitality Industry and Customer Satisfaction Variables; And Hospitality Industry and Information Technology (Table 4).

**Table 4: Literature classification based on content assessment**

| Topics | Code no. | No. of Articles |
|---|---|---|
| Hospitality Industry, Covid-19 Pandemic Crisis, Impacts and Recovery | (1) (4) (5) (10) (13) (21) (31) (33) (35) (38) (39) (41) (43) (49) (50) (53) (54) (57) (59) (61) (62) (64) (67) (70) | 24 |
| Hospitality Industry, Strategies, Structures, management and Globalization | (2) (6) (9) (10) (14) (15) (16) (18) (20) (23) (25) (26) (27) (28) (29) (30) (32) (34) (36) (45) (65) (66) | 22 |
| Hospitality Industry and Sustainability Factors | (2) (8) (17) (18) (21) (22) (25) (37) (40) (48) (50) (51) (55) (56) (60) (68) (69) | 17 |
| Hospitality Industry and Customer Satisfaction Variables | (3) (7) (11) (12) (28) (42) (43) (44) (52) (58) | 10 |
| Hospitality Industry and Information Technology | (19) (24) (27) (3) (45) (46) (47) (63) | 8 |

The following discussion will thoroughly analyze a specific set of research articles, shedding light on the classifications of the studies and delving into their respective findings. This in-depth exploration will comprehensively understand each characteristic addressed in the research articles. Through this comprehensive analysis, a succinct conclusion can be drawn from the collective findings of the studies.

### *3.3 The impact of the Covid-19 Pandemic on the Tourism and Hospitality Industry*

The COVID-19 pandemic had a catastrophic impact on the tourism industry, especially in countries like Bangladesh, India, Maldives, Thailand, and Sri Lanka, whose economies heavily rely on tourism and the hospitality sector (Bagchi, 2022; Sufi, 2008; Darojat & Abdurahim**;** Parveen, 2013). The pandemic has significantly led to economic downturns. For instance, companies in the industry have faced sudden cash shortages and decreased revenue, particularly in sectors such as airlines and retail (Sraboni et al., 2022)**.** The impact of the pandemic varies for different segments, with areas with a lower business-to-leisure traveler ratio expected to experience long-lasting adverse effects (Maiti, 2022)**.** A study conducted by Xia in 2023 revealed that The World Travel and Tourism Council (WTTC) forecasted an overwhelming loss of USD 2.1 trillion in global tourism revenue (Xia, 2023).

The pandemic also negatively affected employment opportunities (Bagchi, 2021**;** Hidlago et al., 2021), making expenditures skyrocketing and people losing jobs (Mia & Hasan, 2021)**.** The Xia (2023) study supported the findings as mentioned earlier. The study revealed that the WTTC projected the endangerment of 75 million jobs due to the pandemic (Xia, 2023). Sadly, COVID-19 has also had a psychological effect on the employee's mental health

and higher turnover intention during the current pandemic (Khawaja et al., 2022). Despite some negative issues, COVID-19 impacted positively as the pollution decreased during the lockdowns (Bagchi, 2021).

### *3.4 Post-Pandemic Recovery of the Tourism and Hospitality Industry*

After the pandemic, organizations have made it a priority to focus on implementing effective recovery management strategies in order to help the hotel industry respond to this unprecedented crisis. These strategies include managing customers' customer satisfaction and health security, executing sustainable practices, and adopting advanced tourism management technologies. It is also essential to recognize the new needs of tourists in the post-pandemic world, develop an information system to meet the requirements of new everyday situations and raise awareness among tourism stakeholders.

### *3.5 Sustainability and Recovery*

The tourism and hospitality industry is considered one of the fundamental pillars of economic development (Baum, 2013; Parveen, 2013; Talawanich, S., & Wattanacharoensil, 2020**).** Experts have highlighted the importance of sustainability as an integral part of the recovery strategy (Wu et al., 2023; Widjaja et al., 2023*;* Molina et al., 2022). Past Studies (Molina et al., 2022; Madera et al., 2017; Jones et al., 2016) demonstrate that the sustainability of the hospitality industry can be facilitated more intensely by political, social, environmental, economic, and natural calamities-related issues around the world. The hospitality industry is unpredictable and may decrease in several situations, such as the COVID-19 crisis. The appropriate strategic approaches to overcome corporate, social, and disaster-related challenges are the ways to make this business sustainable for the future (Ovchinnikova et al., 2021; Tsai et al., 2017; Jones & Comfort, 2020). Studies conducted by Eva in 2024 and Singh in 2023 emphasized the importance of integrating social and environmental considerations into business practices to promote sustainable tourism (Eva, 2024; Singh, 2023). In the same vein, another study conducted in Croatia stressed sustainable developments and green projects as part of the tourism sector recovery strategy, integrating the national resilience plan into sustainability **(**Gržinić and Šergo, 2023**).** This alignment is underpinned by another study (Rimbano, 2023), which advocates a sustainable framework as part of the recovery strategy in the tourism sector. Sustainability has also been highlighted as the foundational element of resilience in the tourism sector in Indonesia in a study conducted by Nasution et al. in 2023. The study also advocated a multi-stakeholder participatory system for the recovery of rural tourism (Nasution et al., 2023). Sustainable food management is pivotal for recovery. A proposal has been put forward for a comprehensive framework to guide decision-making on sustainable food management in hotels, considering various aspects of the food supply chain (Molina et al., 2022; Sufi, 2008). Furthermore, studies have demonstrated that potential recovery lies in sustainable, environmentally friendly designs and technological developments, which will propel hospitality management programs toward more terrific refinement in the future (Buijtendijk & Tschunkert, 2016; Aladaget al. 2020; Grasparil & Bastida, 2022**;** Carlo, 2021).

### *3.6 Customer Satisfaction and Recovery*

Effective customer service is crucial for rebuilding consumer confidence in the tourism and hospitality industry following the pandemic. The literature emphasizes the need for tourism and hospitality businesses to adapt customer service strategies in response to changing post-pandemic consumer expectations. Crisis management strategies, such as offering additional accommodation options, can significantly influence tourism success in the recovery phase (Rahman, et al., 2023). Noor (2023) highlights factors contributing to customer satisfaction in the hotel industry, such as financial stability and lifestyle preferences (Noor, 2023). On the other hand, Tormysheva's (2023) review emphasizes the importance of identifying factors influencing customer activity and the need for effective management practices to attract tourists back to the industry.

Recent studies have focused on the impact of customer service on travel intentions and behaviors. These studies emphasize the importance of understanding the factors that influence travel intentions for the recovery of the tourism sector. Improved customer service can significantly influence travelers' decision-making processes in the post-pandemic context **(**My and Tùng, 2023**).** Additionally, research indicates that assessing satisfaction with tourism public services can drive improvements and innovations in service delivery, leading to sustainable growth in the industry (Wu, 2024).

The expansion of the tourism industry is driven by the ability to introduce new products and experiences **(**Nasution & Mavondo, 2008**).** Each vacation destination across the globe offers multiple accommodation options. However, customers usually opt for a single place for their vacations. Unhappy customers tend to seek a different hotel for their next vacation in order to have a different experience, while satisfied customers will come back, leading to customer loyalty **(**Mazumder & Hasan, 2014; Ali et al., 2021; Pizamet, et al., 2016). A Study conducted by (Nasution & Mavondo, 2008) shows that customers increasingly demand superior customer value at ever-decreasing prices due to high competition among hoteliers and the availability of alternatives. Customers strive to fulfill a set of needs and desires, partly related to the primary service and partly to additional attributes (Mazumder & Hasan, 2014; Pizamet et al., 2016). For instance, the primary purpose might be a hotel stay, while the additional attributes may include accessibility, convenience, timing flexibility, and interaction with service providers and other customers. When customers are presented with the actual offering of these various variables, they form impressions, which are immediately compared to their expectations, and their level of satisfaction is determined by their perceived service quality **(**Nasution & Mavondo, 2008**;** Gelbman, 2021).

### *3.7 Technology and Recovery*

Integrating technology and digitalization is paramount for the recovery of the tourism sector and is extensively discussed in the literature. Over the past decade, information technology has significantly impacted the global hospitality and tourism industries (Xu et al., 2020). Technology has played a pivotal role in reducing costs (Xu et al., 2020; Norman et al., 2014; Dyshkantiuk et al., 2020), enhancing operational efficiency (Xu et al., 2020; Bharwani and Mathews, 2021; Norman et al., 2014; Dyshkantiuk et al., 2020), and improving services and customer satisfaction (Sardar et al., 2021; Hao and Chon, 2022; Bharwani and Mathews, 2021; Lin et al., 2020). Implementing advanced reservation systems, guest services, and communication technologies mutually benefits customers and companies (Sardar et al., 2021; Hao and Chon, 2022). The industry embraces modernization by deploying service robots, contactless services, and leveraging social media **(**Bharwani and Mathews, 2021; Dyshkantiuk*et al*., 2020**).** While the recent COVID-19 pandemic has disrupted the industry, modern technology can aid management in better preparing for future challenges. Research indicates that technology and the hospitality industry are now interdependent so that the industry can operate as a modern entity (Xu et al., 2020). Studies also demonstrate the importance of leveraging big data and artificial intelligence in the recovery strategy. For instance, very recent studies by Liu in 2024 and Zhang et al. in 2023 highlighted that organizations should adopt innovative tourism practices that can process big data and employ artificial intelligence to improve customers' experience and suppress the environmental impact **(**Widjaja et al., 2023; Zhang et al., 2023**).** In addition, examining the tourism market structure in small cities reveals that using technology-driven data analytics can effectively optimize the supply of tourism products and adapt to evolving consumer demands in the post-pandemic era (Wu et al., 2023). Technological advancements will improve sustainability levels and contribute to environmental stability by reducing waste. Furthermore, it will enhance recovery prospects through marketing and operational strategies. A study conducted in Bali, Indonesia, by Adnyani (2024) underscores the importance of technology transfer in cultural tourism, suggesting that digital platforms can be used to promote tourism-related items and improve operational efficiency (Adnyani, 2024). The transition from traditional to digital marketing is highlighted in the studies by Yang (2024) and Adekuajo (2023), emphasizing the significance of aligning digital platforms to leverage local tourism features for recovery. These studies illustrate how digital tools can enhance companies' visibility and consumer engagement (Yang, 2024; Adekuajo, 2023).

## 4. CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

The review delves into the hospitality industry's journey through the Covid-19 pandemic and its subsequent recovery. It examines the industry's sustainability factors, customer satisfaction, and information technologies as part of the recovery strategies.

Understanding customers is crucial as they heavily influence business profitability, and the industry should be prepared for unforeseen threats. Exceptional HRM is necessary to modernize operations and fully satisfy customers. The industry's growing emphasis is on developing and implementing sustainable practices that encourage resilience and stability. It has become increasingly imperative for organizations to strategically embed sustainability into their recovery plans. This involves not only addressing environmental factors but also fostering responsible tourism

practices. By doing so, organizations can contribute to the long-term health of the industry and the environment while meeting the changing demands and expectations of consumers.

In the context of the tourism sector's recovery, embracing technological advancement and digital transformation has become a vital strategic goal. The demand for digital platforms for activities such as booking, virtual experiences, and contactless transactions is steadily increasing. This shift towards digitalization fundamentally reshapes how businesses operate and interact with their customers, underscoring the importance of providing services even in the face of physical limitations.

The authors of this systematic review encountered several limitations. The collected data had constraints, as some key searches were limited to papers with specific titles. Furthermore, there were gaps of several years between certain papers, potentially resulting in the inclusion of different strategies and ideas. The studies under review varied in quality due to differences in research structure, data robustness, and methodology, impacting the generalizability of the findings related to recovery strategies. Another limitation highlighted is geographical variability. For instance, the effectiveness of recovery strategies may not be consistent across different regions due to variations in healthcare systems, legislation, and overall market conditions. Additionally, some of the recovery methods examined in this study may be more applicable to specific sub-sectors within the industry (e.g., urban vs. rural destinations, luxury vs. budget travel, etc.) rather than the industry as a whole, thereby limiting the broader applicability of the study.

This systematic review found that most papers focused on sustainable practices, customer satisfaction, and technological development as part of the recovery strategies. The future studies may examine other factors as well, i.e., health and safety protocol, flexible and inclusive policies, psychological and social impact, government collaboration, etc.

## 5. ACKNOWLEDGEMENT

A group of students, such as M. Jahan, A.M. Shahria, N.S. Ibrahim, Z.I. Pranta, and MD Ashikuzzaman, are acknowledged for their contributions in developing this study in different phases.

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***Appendix 1: Selected articles with code and primary information***

| Code | Authors | Year | Title | Language |
|---|---|---|---|---|
| 1 | Bagchi | 2021 | Exploring the Impact of Covid-19 on Tourism Industry of Bangladesh: An Empirical Study | English |
| 2 | Molina et al. | 2022 | Addressing Sustainable Food Management in Hotels: Proposing A Framework and Examining Hotel Groups | English |
| 3 | Nasution & Mavondo | 2008 | Customer Value in The Hotel Industry: What Managers Believe They Deliver and What Customer Experience | English |
| 4 | Belias et al. | 2020 | Strategic Management in The Hotel Industry: Proposed Strategic Practices to Recover from COVID-19 Global Crisis | English |
| 5 | Hidalgo et al. | 2021 | Does Hotel Management Matter to Overcoming The COVID-19 Crisis? The Spanish Case | English |
| 6 | Sufi | 2008 | Hospitality Industry: An Overview of Strategy, Structure, and Globalization | English |
| 7 | Nicod et al. | 2007 | Self-Catering Accommodation in Switzerland | English |
| 8 | Buijtendijk & Tschunkert | 2016 | Hotel Industry Expansion and Sustainable Development: A Case Study of Inle Lake, Myanmar. | English |

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| 9 | Baum | 2013 | International Perspectives on Women and Work in Hotels, Catering And Tourism | English |
| 10 | Darojat & Abdurahim | 2022 | Sharia Hotel Management Strategy in Facing Covid-19 Pandemic (A Case Study of Namira Sharia Hotel Yogyakarta) | English |
| 11 | Mazumder & Hasan | 2014 | Measuring Service Quality and Customer Satisfaction of the Hotels in Bangladesh: A Study on National and International Hotel Guest | English |
| 12 | Ali et al. | 2021 | Hotel Service Quality: The Impact of Service Quality on Customer Satisfaction in Hospitality | English |
| 13 | Mia and Hassan | 2021 | Post-COVID Challenges to The Tourism and Hospitality Industry: A Study on Bangladesh | English |
| 14 | Akter et al. | 2019 | The Need Assessment of English Language in Tourism and Hotel Management in Bangladesh: A Statistical Approach | English |
| 15 | Rutes et al. | 2001 | Challenges in Hotel Design: Planning the Guest-Room Floor | English |
| 16 | Parveen | 2013 | Current Status of Tourism Industry in Bangladesh: An Empirical Evaluation | English |
| 17 | Tsai et al. | 2020 | Disaster Prevention Management in The Hotel Industry: Hotel Disaster Prevention Literacy | English |
| 18 | Aladag et al. | 2020 | Strategy Implementation Research in Hospitality and Tourism: Current Status And Future Potential | English |
| 19 | Xu et al. | 2020 | How Will Service Robots Redefine Leadership in Hotel Management? A Delphi Approach | English |
| 20 | Talawanich & Wattanacharoen sil | 2020 | Transforming Graduates into Successful Hotel Management Trainees: Exploring Important Management Trainee Competencies | English |
| 21 | Ovchinnikova et al. | 2021 | The Importance of Corporate Social Sustainability in The Anti-Crisis Management of A Hotel Business | English |
| 22 | Dev | 2020 | The Future of Hospitality Management Programs: A Wakeup Call | English |
| 23 | Samatovich | 2021 | Importance of Marketing in Tourism and Hotel Industry | English |
| 24 | Sardar et al. | 2021 | ICT Applications in Tourism and Hospitality Industry of Bangladesh: A Research Review | English |
| 25 | Madera et al. | 2017 | Strategic Human Resources Management Research in Hospitality and Tourism: A Review of Current Literature and Suggestions for The Future | English |
| 26 | Sutono | 2019 | Supply Chain Management: Implementation Issues and Research Opportunities in Tourism Industry | English |
| 27 | Dyshkantiuk et al. | 2020 | Modern Hotel Business Management Tools | English |
| 28 | Gelbman | 2021 | Tourist Experience and Innovative Hospitality Management in Different Cities | English |
| 29 | Tsai et al. | 2009 | Tourism And Hotel Competitiveness Research | English |

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| 30 | Bednarska | 2013 | Quality of Work Life in Tourism – Implications for Competitive Advantage of The Tourism Industry | English |
| 31 | Jiang & Wen | 2020 | Effects of COVID-19 on Hotel Marketing and Management: A Perspective Article | English |
| 32 | Soelton | 2018 | How Culture, Training Standards, and Discipline on Employee Performance Affect Hotel Management | English |
| 33 | Moreno et al. | 2021 | Going Beyond the Curve: Strategic Measures to Recover Hotel Activity in Times of COVID-19 | English |
| 34 | Sharaf | 2011 | Hydrochemistry of The Groundwater Aquifer in As Suqah Area, Makkah District, Western Arabian Shield, Saudi Arabia. | English |
| 35 | Hoang et al. | 2021 | The Survival of Hotels During The COVID-19 Pandemic: A Critical Case Study in Vietnam | English |
| 36 | Brotherton | 1999 | Towards A Definitive View of The Nature of Hospitality and Hospitality Management | English |
| 37 | Grasparil & Bastida | 2022 | Sustainable Best Practices and External Environmental Factors as Determinants of Hotel Performance in Region XI | English |
| 38 | Pavlatos et al. | 2020 | Crisis Management in The Greek Hotel Industry in Response to COVID-19 Pandemic | English |
| 39 | Gössling et al. | 2021 | Pandemics, Tourism and Global Change: A Rapid Assessment of COVID-19 | English |
| 40 | Carlo | 2021 | Critical Success Factors in Hotel Companies: A Managerial Perspective | English |
| 41 | Salama & Mansour | 2022 | The Impact of the Covid-19 Pandemic on Green Hotel Management | English |
| 42 | Satti et al. | 2020 | Innovations for Potential Entrepreneurs in Service Quality and Customer Loyalty in The Hospitality Industry | English |
| 43 | Hao & Chon | 2022 | Contactless Service in Hospitality: Bridging Customer Equity, Experience, Delight, Satisfaction, And Trust | English |
| 44 | Pizam et al. | 2016 | Customer Satisfaction and Its Measurement in Hospitality Enterprises: A Revisit and Update | English |
| 45 | Bharwani & Mathews | 2021 | Techno-Business Strategies for Enhancing Guest Experience in Luxury Hotels: A Managerial Perspective | English |
| 46 | Lin et al. | 2020 | Task-Technology Fit Analysis of Social Media Use for Marketing in The Tourism and Hospitality Industry: A Systematic Literature Review | English |
| 47 | Norman et al. | 2014 | Technology Outsourcing in Human Resource Activities in Hospitality | English |
| 48 | Jones et al. | 2016 | Sustainability in The Hospitality Industry: Some Personal Reflections on Corporate Challenges and Research Agendas | English |
| 49 | Khawaja et al. | 2022 | How Is COVID-19 Pandemic Causing Employee Withdrawal Behavior in The Hospitality Industry? An Empirical Investigation | English |
| 50 | Jones & Comfort | 2020 | The COVID-19 Crisis and Sustainability In The Hospitality Industry | English |

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| 51 | Eva | 2024 | Covid-19 disruptions driving sustainable tourism: a case of the Hawaiian tourism industry | English |
| 52 | Gržinić & Šergo | 2023 | Security Challenges in Croatian Tourism – New Perspectives for Stakeholders | English |
| 53 | Rimbano | 2023 | The application of POAC management in the tourism sector in post-pandemic economic recovery based on e-commerce | English |
| 54 | Nasution et al. | 2023 | Post-covid tourism recovery strategy for tourism villages: multi-stakeholder participatory approaches | English |
| 55 | Widjaja et al. | 2023 | Tourism business sustainability analysis in the post-pandemic era: A systematic literature review | English |
| 56 | Rahman et al. | 2023 | Local economic impact of COVID-19 on the urban tourism-related services: A perspective of Kochi Heritage City, Kerala | English |
| 57 | Noor | 2023 | Exploring user-generated content for beach resorts in Cox's Bazar, Bangladesh: A pre-and post-pandemic analysis. | English |
| 58 | Tormysheva | 2023 | Factors influencing customer activity in the contemporary tourism industry in Aotearoa. | English |
| 59 | My & Tùng | 2023 | Travel intention and travel behavior in the post-pandemic era: Evidence from Vietnam | English |
| 60 | Wu | 2024 | An empirical Study on the Tourist cognitive evaluations of Tourism Public Services in Xinjiang Province, China | English |
| 61 | Sobhani et al. | 2022 | Tracing the impact pathways of COVID-19 on tourism and developing strategies for resilience and adaptation in Iran | English |
| 62 | Maiti | 2022 | Impact of COVID-19 on individual income in tourism and hospitality industry in India: a difference-in-differences approach. Tourism Economics | English |
| 63 | Xia | 2023 | How has online digital technology influenced the on-site visitation behavior of tourists during the COVID-19 pandemic? A case study of online digital art exhibitions in China | English |
| 64 | Adnyani | 2024 | The participation of the Indigenous Women's Association in the recovery of cultural tourism in Bali, Indonesia. | English |
| 65 | Yang | 2024 | Analysis of local characteristic tourism based on gray prediction and bp neural networks. Frontiers in Sustainable Development | English |
| 66 | Wu et al. | 2023 | Analysis of tourist market structure and its driving factors in small cities before and after COVID-19. | English |
| 67 | Adekuajo | 2023 | The digital evolution in hospitality: a global review and its potential transformative impact on U.S. tourism. | English |
| 68 | Fatema & Elbanna | 2023 | Drivers and outcomes of corporate sustainability in the Indian hospitality industry | English |
| 69 | Singh | 2023 | Theoretical and methodological contribution of sustainable practices to the hospitality industry | English |
| 70 | Zhang et al. | 2023 | The COVID-19 pandemic and tourists' risk perceptions: tourism policies' mediating role in sustainable and resilient recovery in the new normal | English |

*Appendix 2: Sources and Categories*

| **Source** | **No. of Articles** | Code no. | **Category** |
|---|---|---|---|
| International Journal of Contemporary Hospitality Management | 9 | (19) (25) (31) (36) (43) (44) (46) (48) (50) | Crisis Management: Covid-19 Pandemic<br>Social Science: Economy, Sustainable Behavior<br>Modern Science: Service Design, Contactless Service, Hospitality Technology |
| International Journal of Hospitality Management | 3 | (3) (7) (33) | Strategic Management: Customer Value, Service Quality<br>Social Science: Consumer Psychology<br>Crisis Management: Covid-19 Strategic Measures |
| Journal of Tourism and Hospitality Management | 2 | (11) (40) | Strategic Management: SERVQUAL Model<br>Social Science: Service Quality, Service Quality Gap, Expectations, Perceptions, And Satisfaction |
| International journal of research | 1 | (1) | Crisis Management: Covid-19, Pandemic<br>Social Science: Economics, GDP<br>Environmental Science: Pollution, Natural Resources |
| British Food Journal | 1 | (2) | Environmental Science: Sustainability Indicators<br>Social Science: Sustainable Supply Chain, Food Waste Management<br>Strategic Management: Food Chain Management |
| Academic Journal of Interdisciplinary Studies | 1 | (4) | Crisis Management: Global Crises, Covid- 19, Recovery |
| Tourism Management | 1 | (5) | Crisis Management: Covid-19, Pandemic<br>Strategic Management: Employment Regulations, Innovation And Differentiation Strategies, Reorientation |
| Journal of Hospitality Application & Research | 1 | (6) | Strategic Management: Globalization, Modes Of Entry Of Hospitality Companies In The International Markets |
| Research in Hospitality Management | 1 | (8) | Strategic Management: Value Chains, Power Asymmetries<br>Social Science: Sustainability, Governance, Least Developed Countries |
| INTERNATIONAL LABOUR OFFICE | 1 | (9) | Strategic Management: Human Resources Strategy, Women Employment,<br>Social Science: Global Policy Gender Equality |
| Advances in Economics, Business and Management Research | 1 | (10) | Social Science: Shariah Policy, Economic Performance<br>Crisis Management: Covid-19, Pandemic Recovery<br>Strategic Management: Shariah Financial Management Strategies |
| International Journal of Engineering, Business and Management | 1 | (12) | Social Science: Service Quality, Customer Satisfaction |
| Canadian Journal of Business and Information Studies, | 1 | (13) | Crisis Management: COVID 19, And Challenges to Tourism |
| 7th Int. Conf. on Data Science & SDGs | 1 | (14) | Strategic Management: Statistical Approach, Need Assessment, Communications |
| Cornell Hotel and Restaurant Administration quarterly | 1 | (15) | Strategic Management: Structural Planning<br>Social Science: Customer Satisfaction, Sustainability |

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|---|---|---|---|
| Scientific Research Journal | 1 | (16) | Strategic Management: SAARC Tourism, Tourism Products, Bangladesh ParjatonCorporation<br>Social Science: Domestic and Foreign Tourists And Institutional Facilities |
| Journal of Hospitality and Tourism Management | 1 | (17) | Crisis Management: Disaster Prevention Literacy, Scale Development<br>Strategic Management: Modified Delphi Method, Experimental Designs |
| International Journal of Hospitality Management | 1 | (18) | Strategic Management: StrategicPlanning, Implementation Aspects<br>Social Science: Future Potentials |
| Journal of Teaching in Travel and Tourism | 1 | (20) | Strategic Management: Management Trainee, Competency, Entry-Level Manager, Hospitality Management Curriculum |
| Advances in Social Science, Education, and Humanities Research | 1 | (21) | Crisis Management: Covid-19 Crisis<br>Strategic Management: Corporate Sustainability |
| Journal of Hospitality & Tourism Research | 1 | (22) | Strategic Management: Hospitality Management Programs, Challenges, Opportunities, Future |
| International Journal of Business, Technology, and Organizational Behavior | 1 | (23) | Strategic Management: Strategic Goals, Tourism Marketing Functions |
| Journal of Business management | 1 | (24) | Modern Science: ICT Application In Tourism And Hospitality Industry, Content Analysis |
| Uncertain Supply Chain Management | 1 | (26) | Strategic Management: Supply Chain, Customer Relationship Management, Tourism Industry Performance, Marketing Planning Capabilities, Marketing Implementation Capabilities, Customer Orientation, Knowledge Management |
| International Journal of Advanced Research in Engineering and Technology | 1 | (27) | Modern Science: Booking Module, Chabot, Internet, Acquiring, Social Platform |
| Sustainability | 3 | (28) (56) (60) (61) (63) (70) | Social Science: Sustainability, Urban Tourism, Local Culture, Local Economy, Vision and Values, Community-Based Tourism<br>Modern Science: Creativity, Innovation, Technology<br>Crisis Management: COVID-19 Impact, Post-Pandemic Recovery |
| Journal of Travel & Tourism Marketing | 1 | (29) | Strategic Management: Competitiveness, Destination, Productivity |
| Journal of Travel and Tourism Research | 1 | (30) | Strategic Management: Quality Of Work, Human Resources, Competitive Advantage |
| European Research Studies Journal | 1 | (32) | Strategic Management: Training Standards, Discipline, Employee Performance<br>Social Science: Kaizen Culture |
| journal of king Abdulaziz university earth sciences | 1 | (34) | Environmental Science: Natural Resources |
| Serv Bus | 1 | (35) | Crisis Management: Covid-19, Survival Strategies<br>Social Science: Sustainable Approaches |
| The International Journal of Business Management and Technology | 1 | (37) | Strategic Management: Business Management, Hotel Performance, Descriptive – Correlation<br>Environmental Science: Sustainable Best Practices, External Environmental Factors |

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|---|---|---|---|
| Anatolia | 1 | (38) | Crisis Management: Covid 19<br>Strategic Management: Management Practices |
| Journal of Sustainable Tourism | 1 | (39) | Crisis Management: Covid 19, Pandemic<br>Social Science: Global Change, Travel Restrictions, Tourism Demand, Resilience |
| African Journal of Hospitality, Tourism and Leisure | 1 | (41) | Environmental Science: Green Hotels, Green Management<br>Crisis Management: Covid-19, Pandemic |
| Asia Pacific Journal of Innovation and Entrepreneurship | 1 | (42) | Strategic Management: Service Quality, Customer Satisfaction<br>Social Science: Innovations, Customer Loyalty, Perceived Price |
| Worldwide Hospitality and Tourism Themes | 1 | (45) | Modern Science: Technology, High-Tech, Luxury Hotels, Guest Experience, High-Touch |
| Journal of Hospitality and Tourism Technology | 1 | (47) | Modern Science: Human Resource Technology, Technology Outsourcing, Hospitality Outsourcing |
| Journal of Hospitality and Tourism Insights | 1 | (49) | Crisis Management: Covid-19, Withdrawal Behavior |
| International Conference on Tourism Research | 1 | (51) | Social Science: Sustainable Practices |
| Faculty of Security, Skopje | 1 | (52) | Crisis Management: Security Challenges<br>Strategic Management: Stakeholders' Perspective |
| European Journal of Theoretical and Applied Sciences | 1 | (53) | Crisis Management: Post-Pandemic Recovery<br>Modern Science: Technology, Digitalization, Innovation |
| Journal of Contemporary Governance and Public Policy | 1 | (54) | Crisis Management: Post-Pandemic Recovery<br>Strategic Management: Stakeholders' Perspective |
| Journal of Business and Management Studies | 1 | (55) | Social Science: Sustainable Tourism<br>Crisis Management: Post-Pandemic Recovery |
| Environment and Social Psychology | 1 | (57) | Social Science: Customer Satisfaction<br>Crisis Management: Effect of COVID-19, Post-Pandemic Recovery |
| The Journal of Applied Research and Practice | 1 | (58) | Social Science: Sustainable Approaches, Customer Approaches |
| Organizations and Markets in Emerging Economies | 1 | (59) | Crisis Management: COVID-19, Post-Pandemic Recovery |
| Tourism Economics | 1 | (62) | Criss Management: COVID-19 Impact<br>Social Science: Economy |
| Jurnal Manajemen Perhotelan | 1 | (64) | Social Science: Local Culture<br>Crisis Management: COVID-19 Effect, Post-Pandemic Recovery |
| Frontiers in Sustainable Development | 1 | (65) | Social Science: Local Practices, Sustainable Practices |
| Isprs International Journal of Geo-Information | 1 | (66) | Social Science: Market Structure<br>Crisis Management: Pre-Pandemic Effect, Post-Pandemic Recovery |
| International Journal of Applied Research in Social Sciences | 1 | (67) | Modern Science: Technology, Digitalization, Innovation |
| Management Decision | 1 | (68) | Social Science: Sustainable Practices |
| Evergreen | 1 | (69) | Social Science: Sustainable Practices |

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