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## **Exploring the nexus between financial sector reforms and the emergence of digital banking culture – Evidences from a developing country**

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### **Abstract**

Several financial and banking sector reform programs were instituted in different countries over the last three decades. The underlining purpose of these reforms was largely to improve banking sector supervision and regulation, introduce bank privatization mechanism, introduce clearance and settlement systems, infuse competition and to stimulate financial innovation. The objectives of this study are to 1) review the relevant published literature and market survey reports on the financial & banking sector reforms undertaken in Pakistan and elsewhere, 2) analyze how these reform programs develop digital banking culture and increase financial inclusion in the country and 3) guide future research by putting forward a research agenda. The findings of the study suggest a link between the financial and banking sector reforms and the stimulation of financial innovation; the promotion of digital banking culture; and the infusion of financial inclusion in Pakistan. We discuss managerial/policy implications of the study, limitations and presents recommendations for future research.

*Keywords:* Financial and banking sector reforms; financial liberalization; digital banking; financial inclusion

## **Highlights**

- This research reviews the published literature and market reports on the financial & banking sector reforms programs undertaken in a developing country and elsewhere.
- Unlike the previous studies, this research analyzes how reforms programs promote digital banking culture and increase financial inclusion in a developing market.
- The findings of the study suggest a link between these reforms programs and the stimulation of financial innovation; the promotion of digital banking culture; and the infusion of financial inclusion in Pakistan.

## 1. Introduction

Over time, the expected benefits from an increased centralization of the financial system and an excessive government regulations and restrictions did not materialize (Bertrand et al., 2007) and resultantly, the financial sector undergone radical reform programs in many countries around the world. As banking is an integral sector of the financial system, the majority of those reforms were fundamentally directed towards the banking sector. According to Barth et al. (2001), since early 1980s more than 130 countries have experienced banking and financial problems that impede growth, have been costly to resolve, and considered disruptive to economic development. This troublesome situation had led to calls for financial & banking sector reforms by national governments, regulators and international financial institutions such as the World Bank and the International Monetary Fund (IMF).

The focus of these reform programs was largely placed on regulators and financial institutions and the underlining purpose of these reforms was likely to chart out the process to make the financial sector more productive, vibrant, and efficient. Similarly, improving banking sector supervision and regulatory mechanism, introducing bank privatization mechanism, establishing efficient clearance and settlement systems, deregulating interest rates, infusing competition, and enhancing financial developments and innovations were also the underline purposes of these reform programs (Ağca et al., 2013; Edirisuriya, 2007).

In addition to developed countries such as the United States, many transition countries located in Eastern Europe have pursued reform programs during the last few decades. In South Asia region, Sri Lanka, India and Pakistan were among the forerunners of these reform programs (Edirisuriya, 2007). Consequent to these reforms the financial sector in India and Pakistan become relatively less state-directed, more efficient, more competitive, and open to foreign banks and non-banking financial institutions (Ataullah et al., 2004).

Consistent with the interest in reform programs, a great deal of banking, financial and economic research started exploring the relationships or links between reform programs and bank competitiveness, efficiency and economic growth (Sehrawat and Giri, 2015; Mwenda and Mutoti, 2011), income inequality (Christopoulos and McAdam, 2017), bank competition (Lee and Hsieh, 2014), output growth (Levine, 2005), employment growth (Boustanifar, 2014), profit and cost productivity of the banking sector (di Patti and Hardy, 2005) and so forth. In some cases, these reforms became necessary due to the destabilization effects of global financial crises in regional markets such as ASEAN (Gimet and Lagoarde-Segot, 2011) and African countries (Senbet, 2009).

These research trends suggest that there has been barely any research that has analyzed the nexus between financial sector reforms and the emergence of digital banking culture. Moreover, a small amount of empirical literature exists that have examining the reform programs in developing countries (Limi, 2004) as compared to transition (Kyrgyzstan), emerging (China, India, Brazil) and developed countries (USA, EU). This paper is, therefore, motivated by the lack of empirical studies that examine the impact of reforms in developing country and their role in promoting digital banking culture.

In order to fill this gap in the literature as well as after considering the importance of the reform programs in making the financial sector more productive and efficient, this study is important on three accounts. *First*, our study contributes to the on-going debate concerning financial and banking sector reforms especially in the context of a developing country.

Pakistan as a case example can be considered ‘representative’ of fast emerging developing economies and, therefore, findings of this study can be transferred to investigate the similar financial sector reform programs instituted in other developing and emerging countries. The study was done by examining a host of individual datasets. These datasets are published by the banking companies in Pakistan and the State Bank of Pakistan since late 1980s when Pakistan undertook the first program of financial sector reforms. *Second*, unlike majority of the related studies, there is a striking paucity of empirical studies that have explicitly documented the impact of deregulation and financial sector reforms on the emergence as well as the growth of digital banking culture in a developing country and how do these reforms improve the quality and variety of banking services as well as promote financial innovation. *Third*, this study also add to knowledge accumulation and creation in the banking & finance literature by summarizing what we know about the global financial crises, the reform programs, and their impact on digital banking domain.

The objectives of this study are *first* to review the relevant published literature and market reports on the reforms program instituted in Pakistan and elsewhere. *Second* to document and describe the reform programs in Pakistan as well as the state of digital banking and financial inclusion by focusing on various reform periods including early phases of reforms instituted in the late 1980s as well as the latest period during 2000 and onwards. *Third* to analyze how these reform programs promote digital banking culture and increase financial inclusion for the poor in Pakistan, and *fourth* to put forward a research agenda for future research.

This paper begins with a debate on global financial crises and how the financial sector reforms were initiated (Section-2). Thereafter, led the authors conveniently to the major research question of how the financial sector reforms were instituted in Pakistan (Section 3). Next the authors provide a detailed status of digital banking, branchless banking and financial inclusion in Pakistan before and after the reforms program (Section 4). Final section (Section 5) summarizes and concludes with a discussion on the primary contributions of this research as well as the theoretical and managerial implications, and limitations that warrant additional investigation.

## **2. A debate on global financial crises and financial sector reforms:**

According to Fohlin (2016), a financial system consists of a set of banking and microfinance institutions and markets that gathers excess cash or funds from savers and allocates financial capital to entrepreneurs, industry, and others in need of credit. Whereas, ‘strengthening the financial systems’ means cooperating to promote principles and sound practices for financial stability through development of well-functioning financial systems and market discipline (Bossone et al., 1998, p.1). Given the importance of banking and financial sector in influencing the other sectors of the economy, many countries over the last three decades introduced reforms into the supervisory architecture of their financial sector (Doumpos et al., 2015). These countries, for instance, include European Union member countries, North America, Korea, Nigeria, China, Egypt, Bangladesh, India and Pakistan.

Research uses various terms to refer to reform programs, including “Financial system reforms” (McKinsey and Co., 2006), “financial sector liberalization” (Bandiera et al., 2000), “financial sector transformation” (Ağca et al., 2013), and so forth. According to Obienusi and Obienusi (2015), financial (and banking) sector reforms focus on restructuring financial sector institutions including the regulators and commercial banks, microfinance institutions via institutional and policy reforms. Moreover, the banking and financial sector development is important for developing economies such as Pakistan since a bank-based system exerts a

greater impact on growth at the early stage than does a market oriented financial system (Iimi, 2004). Another common terminology used interchangeably with financial sector reforms is: ‘financial liberalization’. It is widely recognized that financial liberalization is an important part of financial sector development (Ang and McKibbin, 2007).

Especially with regard to the global financial crises, prior research (e.g., Benedikter, 2011) has largely identified two economic and financial ‘bubbles’. The first bubble known as the ‘real estate bubble’ and the second was the ‘derivative bubble’ that was triggered by a liquidity shortfall in the United States banking system. By mutually influencing and aggravating each other, these bubbles created severe banking and financial crises during the period 2007-2010 which led to economic crisis globally (Benedikter, 2011). Since banking companies and other financial institutions as well as services are closely interconnected in this globalized era, the resulting crisis on one hand sprung new challenges for the governments, regulatory authorities and the financial institutions and on the other hand led to a worldwide recession, unemployment, and increasing poverty. According to the literature (e.g., Benedikter, 2011; Hu et al., 2012):

- Over 180 banks in the United States and dozens in Europe collapse during January 2009 and March 2010.
- Around 7 million Americans and 5 million Europeans lost their jobs.
- More than 10 million Americans and 2 million Europeans were pushed below the poverty line.

These unwarranted financial and economic crises raised several questions over the role played by the Governments as well as the supervisory and regulatory authorities in restoring financial stability as well as averting and mitigating future crises. These crises have created two distinct challenges for the supervisory authorities. The first defines the availability of a comprehensive statutory / regulatory framework for banking and non-banking institutions; the second demands an effective and pro-active supervisory & regulatory culture.

Placing greater emphasize over the role played by the regulatory authorities, Carretta et al. (2015, p.180) argued that ‘2008 global financial crisis was the result not only of incomplete regulation but also of ineffective supervision’. Similarly, Leung (2009) found that the global banking, financial and economic crisis of 2007/10 demonstrated the important role played by the central banks reacting promptly to rapid changes in the global economy, as well as to improve their ability to manage the information asymmetry problems in their supervision and an effective regulation of the financial sector. Considering the crucially of role played by the central banks, it is now widely agreed that an inappropriate and inefficient regulatory mechanism not only retards the long-term economic growth of a country but also increases the likelihood of a financial crisis that could spread beyond the country’s own border (Chowdhury, 2002).

In the past decade several countries have experienced financial crisis and many of them have turned to the IMF for assistance. Table 1 provides a summary of major financial and banking sector reforms program institute in different countries globally. The liberalization of the financial sector by most developing countries sought to ease restrictions, introduce private sector participation and stimulate growth (Arun and Turner, 2002; Ang and McKibbin, 2007; Balogun, 2007).

[Insert Table 1 about here]

However, there are conflicting views with regard to the success of the IMF in helping the affected countries recover from the crisis and establish long-run economic growth (Kutan et al., 2012). Here, a cursory analysis of the past literature suggest that the experience of these reforms and deregulation programs with respect to the banking sector has been not always very successful and one thing that is generally agreed on about the consequences of these reform programs is that things did not quite work out the way they were intended (Rodrik, 2006). For instance, the measured cost productivity actually decreased following deregulation in the United States (Berger and Mester, 2001); the total factor productivity declined between 5.5% and 3.4% annually during 1986-91 following deregulation in the Spanish banking system during 1980s (Kumbhakar and Sarkar, 2003); close to 40 percent of Thailand's loans were non performing and Indonesia remains deeply mired in recession after the reforms. Unemployment rates remain far higher than they were before the crisis (Stiglitz, 2000). Consequently, it should be no surprise that these reform programs were often unsuccessful and in many cases led to financial crises (Arestis, 2003).

In addition, political and legal impediments make it difficult for these reforms processes to be implemented efficiently. Financial reforms can be effectively implemented if at the policy formulation stage there is 'a shared ownership' of policy idea among both the formulators and the implementers in a more bottom-up approach involving all stakeholders than is done in most developing countries. This makes it easier to avoid some of the impediments (e.g. political, legal, social) which tend to 'hold-back' progress envisaged in the implementation of such reforms.

### **3. How financial sector reforms were instituted in Pakistan?**

The underline purpose of reforms program instituted in Pakistan was to undertake broader structural changes in the financial sector. These structural changes largely include restructuring the central bank, strengthening the regulatory set-up, restructuring the public sector banks and semi government financial institutions, and liberalizing bank branching policy (Ahmad, 2011). Table 2 provides the salient features of the reforms program instituted in Pakistan during the period from late 1980s till mid-2000.

“Insert Table 2 about here”

The Government of Pakistan in consultation with the SBP initiated macroeconomic and financial (and banking) sector restructuring program under the guidance of the IMF (Ahmad, 2011). According to the details retrieved from various scientific studies (e.g., di Patti and Hardy, 2005) and SBP publication (e.g., SBP Annual Report, 2015-2016); SBP Financial Sector Assessment Report (1999-2000), the reforms program instigated in Pakistan in 1988 and later completed in three different phases during 1988 –1996, 1997-2001, and 2002-2004 (Rehman, 2012). These reforms were aimed at strengthening the banking and financial institutions; restructuring of banks and developmental financial institutions, improving regulatory framework, and reducing the role of the state in financial markets.

The first set of prudential regulations was drafted and introduced by the SBP for the local banking industry in 1989 which were later revised and strengthened in 1992 (Hardy and di Patti, 2001). In addition, the majority of the least efficient public sector banks were privatized along with the transfer of management and decision making control to the private sector, new banking license were issued which facilitate the establishment of private banks, and foreign as well as leading global banks were allowed to open their branches in the country.

The privatization of government owned banks was the cornerstone of the financial reforms which brought many benefits to the banking companies, economy and the society in general. Among the widely recognized benefits include the evolution and expansion of digital banking culture in Pakistan during mid-1990s. For instance, a few government controlled banks were privatized and permission was granted for setting up of new banks in the private sector with 10 new banks getting licenses to commence their operations in 1991 (SBP Research Bulletin, 2006). The management control of two medium-size state-owned banks i.e. Muslim Commercial Bank (MCB) and Allied Bank Limited (ABL) was shifted to private sector in 1991-92 (Hardy and di Patti, 2001).

Benefiting from these reforms, the private sector in Pakistan took a major initiative and established several organizations facilitating, promoting and supporting digital banking culture in the country. For instance, in 1995, National Institutional Facilitation Technologies (Pvt.) Ltd. (NIFT) was established by a consortium of six banks and entrepreneurs from the private sector. The major functions of NIFT include automated clearing that provide fast, efficient and cost effective clearing of paper based instruments processing particularly in the payment arena.

Soon after getting autonomy 1997, major developments were also taken place at the SBP. For instance, in 2002 the SBP created two independent legal entities or subsidiaries: SBP-Banking Services Corporation and SBP Training Institute (Formally known as the National Institute of Banking and Finance-NIBAF). The SBP-Banking Services Corporation, also known as SBP-BSC, handles non-core or operational functions. The SBP Training Institute handles various training and development functions and acts as delivery arm for training of State Bank officers, arranging various forms of institutional training, including post-induction training, foundation courses, management training and international courses, and selected specialized trainings (Annual Performance Review, 2002). This massive restructuring, as argued by Husain (2002) enabled the senior management of SBP to concentrate on their core functions in a more cohesive manner.

Another major initiative undertaken was the establishment of a separate and a dedicated Payment Systems Department (PSD) at the SBP. PSD was formed in 2002 with the objective to bring efficiency and mitigate risks in payment systems in general and digital banking in particular through development of regulation and oversight framework. In addition, several digital banking related circulars and guidelines were also issued. A close analysis of these circulars and guidelines issued by the PSD revealed that from 2002 till end 2015, a total of 50 statutory guidelines in the form of circulars, circular letter and instructions were issued to local industry covering various aspects of digital banking products and services including ATMS, Internet banking, payment cards and so forth.

Continue with the reforms program. the parliament of Pakistan and the SBP drafted, enacted, and implemented a set of laws and regulations to further promote and safeguard the electronic commerce, digital and branchless banking culture in the country. Among these prominent laws, the Electronic Transactions Ordinance (2002), Prevention of Electronic Crimes Ordinance (2007), the Payment Systems and Electronic Fund Transfers Act (2007) and latterly Branchless Banking Regulations (2008) occupy an important position. These laws and regulations streamlined the regulations that were scattered among different digital banking channels, products and services; and laid the foundation for the creation and implementation of a more comprehensive legal infrastructure meant to provide sanctity and protection to e-Commerce initiatives; and to effectively deal with cyber or internet crime as related to digital banking, among others.



A close analysis of these laws and regulations enacted during the reform program provided valuable and interesting information. For instance, the Payment Systems and Electronic Fund Transfers Act enacted in 2007 entails a “designation” criterion for the entities eager to operate as a “designated payment system” in the country. These entities include, but not limited to, non-banking institutions, telecom companies, service providers, start-ups, software houses, and others.

The underline objective to enact the Payment Systems and Electronic Funds Transfer Act was to define standards for the protection of the consumer interests especially in the growing information and digitization age and determining respective rights and liabilities of the financial institutions and non-banking actors, their consumers and other participants in a payment system.

During the third phase of the reforms program, two major ATM switch networks i.e. MNET Services Pvt. Limited and 1-Link Guarantee limited were established to provide safe and secure ATM inter-bank transaction routing across the country. Later on in 2004, these switches were interconnected with each other under the guidelines issued by the SBP. Consequently, cardholders of any bank in Pakistan can access any ATM machine in the country to execute financial (e.g., fund transfers) and non-financial (e.g., account balance requests) transactions.

#### **4. How did financial sector reforms advance digital banking culture in Pakistan?**

Regardless of what the terminology used to represent digital banking such as ‘online banking’, ‘electronic banking’, ‘virtual banking’, ‘portable banking’, ‘innovative banking’ and so forth, previous research (e.g., Fonseca, 2014; Rehman, 2012) has defined the digital banking as ‘conducting of transactions and accessing bank account information electronically via personal computers (PC). Here, the concept of digital banking includes all types of banking activities i.e. financial and non-financial transactions performed through various electronic banking channels commonly referred to as alternative delivery channels (ADCs) including ATMs, Telephone, POS, Mobile, and also social media.

Prior to reform programs and till early 1990s, the consumer payments system in Pakistan was heavily dominated by traditional branch-oriented banking and paper-based instruments such as checks, pay orders, demand drafts and so forth. Here, a few Government controlled public sector banks such as the National Bank of Pakistan (NBP), Allied Bank of Pakistan Limited (ABL), Muslim Commercial Bank Limited (MCB) were offering popular banking and payment services to largely banked population. As a result, the branch-oriented banking was the dominant banking strategy prior to reforms program with little or no attention on remote banking model. Nonetheless, as argued by di Patti and Hardy (2005), change in the management and ownership control usually creates more intense competition and stimulate innovation in the banking sector. The same goes well in case of Pakistan.

The efficiency of two newly privatized banks i.e. ABL and MCB increased substantially and after their privatization during the first phase of the reforms program (from late-1980s to mid-1990s), these banks invested significantly in the technology and introduced a host of innovative digital banking products and services. Particularly, the ABL introduced the first online (Internet) banking service in the country during 2004 and as at now, ABL owned the largest ATM and branch network in the country (Omar et al., 2011).

According to the Payment Systems Review (2014-15), the current status of digital banking infrastructure in Pakistan suggests that out of 45 commercial and microfinance banks

operating in the country, 21 (47 percent) were offering internet banking. While, 16 (35 percent) were offering mobile banking; 16 (35 percent) were offering call center/IVR banking; 12 (27 percent) were issuing credit cards; 27 (60 percent) were issuing debit cards; 9 (20 percent) were issuing pre-paid debit cards, and 28 (62 percent) banks were having their own ATM network in Pakistan. Table 3 provides a birds-eye view of the payment systems in Pakistan.

“Insert Table 3 about here”

In an effort to promote the financial inclusion in Pakistan, the SBP has taken significant steps creating a legal and regulatory environment where “bank-led” branchless banking can thrive. Eventually, bank-led branchless banking was first allowed and introduced in Pakistan in 2008 (CGAP, 2010) i.e. soon after the third phase of the reforms program from early 2000 to mid-2000. The significance of digital banking, of which branchless and mobile banking are an integral component, is that it provide financial services in otherwise remote and unbanked locations to bring millions of un-banked and under-banked people into the formal banking fold.

‘Branchless banking’ and ‘financial inclusion’ are two interrelated and interdependent terms. In this vein, the term ‘Branchless banking-BB’ was first coined by the Consultative Group to Assist the Poor (CGAP). According to Dermish et al. (2011, p.83), the branchless banking refer to a ‘new and innovative banking distribution channel that allow financial, banking institutions and other commercial actors to offer financial services outside traditional bank premises.’ In March 2008, SBP introduced the regulations designed specifically to encourage branchless banking in Pakistan (CGAP, 2011). These regulations were later revised in 2011. These regulations allow bank-led model, which entails that the service providers, mobile network operators or telecommunication companies in Pakistan can develop partnerships with any banking company or microfinance institutions in offering BB services to the consumers.

The branchless banking model widened the consumer base in Pakistan. The advent of mobile technology and the exponential increase in the usage of portable devices (according to Pakistan Telecommunication Authority, in January 2016, the mobile phone subscription in Pakistan reached 128 million or 68 percent of the total population of 187 million) such as cell phones in the country. Mobile technology enabled the banking and the microfinance companies to reach the under-banked and un-banked population of the country, which previously was a difficult thing to do. This necessitated the provision and accessibility to banking and payment services through the banking system to customers and the public from the comfort of their home or from specified outlets in the neighborhood. Considering the growing interest of consumers in accessing banking information through portable devices such as smartphones and tablets, sixteen (16) banks in Pakistan are using this channel and providing financial services to over 2.27 million registered mobile banking users. Over 1.47 million transactions amounting to PKR 32 billion have been transacted using cell phones (Payment Systems Review 2014-15).

## **5. Discussion and conclusion**

The authors presented an overview of the financial and banking sector reform program, and made analysis of its impact on digital banking and financial inclusion in Pakistan based on previous studies and a review of the literature. Like other South Asian countries, the financial and banking sector reforms were undertaken in Pakistan during late 1980s and later completed in three different phases during 1988 –1996, 1997-2001, and 2002-2004. The

authors argued that the underlining purpose of the financial & banking reforms was to improve banking sector supervision and regulation; introduce bank privatization mechanisms; introduce clearance and settlement systems, deregulation of interest rates, and the opening up of financial markets for foreign and domestic competition. In addition, to encourage efficient functioning of financial market with less government interferences, through the stimulation of competition and engendering financial innovation such as digital banking.

From the review of the literature, the authors found that the need for the financial sector reforms and the ownership of these reforms occupy significant positions. In order to undertake the reforms successfully, a country should first take the ownership of these reforms. Clearly, any financial sector reform that a country does not accept stands very little chance of success (Mathieu, 1998). The need and urge for the reforms should come from within the country eager to reform its financial sector.

The critical importance of timing financial sector reforms is crucial. Experiences over the past two decades show that the countries embracing reform programs should meet three major conditions (Williamson, 1994; Mathieu, 1998) i.e. the political party in power changes its stance and realizes the need for the reforms; alongside the political party in power, the bureaucracy through which the reforms program are implemented is persuaded to accept reforms as well as new policies; and the citizens or the consumers should also change their perception of reforms. Evidently, any reform initiative that does not enjoy the political support leads to the failure of reform program (Caspary, 2008).

Authors found strong relationship between the financial and banking sector reforms and the emergence of digital banking culture in Pakistan. In addition, these reform programs allow the establishment of necessary payment system infrastructure, policy guidelines and regulations that encourage financial institutions to offer new and innovative transactional instruments such as payment cards, ATMs, internet banking, mobile banking, branchless banking and so forth.

Another intriguing finding of this article is a detailed discussion about the branchless banking. Here the authors found that Pakistan is among a very few countries in the world that have identified 'branchless banking' as a separate alternative delivery channel having its own set of regulations and guidelines. In the backdrop of reform programs, the SBP achieved its autonomy in 1997 and took several policy and regulatory initiatives. Among these, the introduction of a separate set of regulations on branchless banking in 2008 occupies a significant position. Moreover, since its inception in 2008, branchless banking in Pakistan has been growing at an exponential rate.

### *5.1 Theoretical and Managerial implications*

In terms of theoretical contribution, this paper contributes to the current literature through a detailed analysis of qualitative and secondary data to provide a review of the state of the literature on financial (and banking) sector reforms. The authors provided an account of financial sector reforms instituted in a developing country context. Pakistan like most other developing countries is not isolated from global financial crisis though the impact of such crisis on the economies of developing countries differs in terms of the 'shocks'. This is because the micro and macro-economic fundamentals on which the various economies of these countries are 'built' differ from one country to the other. However, most of these countries are similar in terms of weak institutions, dependency on primary export commodities, inadequate infrastructure, low life expectancy and less revenue/income.

Another important theoretical contribution is the suggestion by this paper that a proactive and well-planned financial sector reform in a developing country is a strong impetus to growth of the financial sector (with emphasis on digital banking culture and financial inclusion) and the overall growth of its economy.

In terms of policy as well as managerial implication, this paper is of the view that the role of supervisory and regulatory authorities has become more important than before in averting and mitigating financial crisis (Carrett et al. 2015). There is the need for a more prudential approach to supervision and surveillance to ensure risks posed by unregulated or less regulated segments of the financial sector of the economy are addressed before things get out of hand. There is also the need for enforcement and the periodic updating of banking regulations to reflect the latest trends and developments taking place locally and globally. The enforcement of rules, regulations and laws has been a problem in most developing countries due to lack of strong and independent institutions. Interferences from political elites have been known to be a serious setback and hindrance to the effective working of institutions.

The impact of digitization has led to significant value addition of the whole array of financial services that are provided in contemporary times. An important policy implication has to do with handling of client/customer data confidentially and the provision of regulatory-driven high levels of operational and information security by both banks and non-banking.

There is no denying of the fact that financial sector reforms (especially in the context of a developing country) provide the necessary impetus for the growth of the sector. One important consequence of such reforms is the promotion of digital banking and financial inclusion to previously unbanked or underbanked segments of the population. Investment in technology, the introduction of innovative customer solutions, new product development and services brought about by private sector led investments and competition are worth mention. The new competitive environment introduced by these reforms has seen the participation of both new bank and non-banking (e.g. technology-driven providers such as telecoms) companies entering the financial sector.

## *5.2 Limitations and future research avenues*

One of the aims of this paper is to provoke an agenda for further research on how financial sector reforms stimulate digital banking culture. One way by which future studies within this field can be designed and initiated is for authors to take the limitations of the current study as point of departure. This is important because, first, this study did not examine the nexus between the reforms programs and banking performance/productivity on the economy. Hence, future research may examine the impact of financial and banking sector reforms on the banking industry's productivity as well as on the whole economy. Especially, by comparing its success or failure with other South Asian countries.

Second, although digital banking has recorded such very promising growth during the post-reforms period but this success could not be exclusively linked to the financial sector reforms that were instituted in Pakistan. Other factors such as the proliferation of portable devices, increasing broadband usage, and changing consumer behavior may influence the growth of digital and branchless banking in Pakistan. These factors could help explain the growth and adoption of digital banking in the research setting and, therefore worth further consideration.

Third, with the advent of many non-banking and mainly technology-driven companies such as telecoms and internet companies entering the banking and financial sector to provide financial services, there is the need for further studies to uncover the impact of the entrance of these technology-driven financial service providers on the overall development of the banking sector. For example, studies focusing on the regulation of technology driven financial service providers in the financial sector of developed and developing countries can provide further insight on the role of regulatory differences. Most developing countries are making conscious effort to promote the development of digital financial services in view of the significant role it plays in financial inclusion and economic development and growth. However, the formulation of guidelines, rules, processes and procedures in terms of the regulatory framework are not well developed in most developing countries. A sustainable, effective regulatory framework is a prerequisite for the development of digital banking. Thus, further studies are needed in these areas.

Fourth, though in our view, the qualitative approach used in this study is justifiable and appropriate in finding answers to our research questions and objectives, further studies using econometric, cost-benefit or/and other types of quantitative data analysis will be very useful. Future studies employing quantitative analytical techniques that use data from one or several countries in developed and/or developing countries will be very useful in demonstrating the economic and social impact of financial sector reforms on digital banking and its contribution to economic growth.

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## List of Tables

**Table 1: Summary of the financial and banking sector reforms programs institute in different countries globally**

<b>Citation</b>	<b>Purpose of the study</b>	<b>Location</b>	<b>Major Findings</b>
di Patti and & Hardy (2005)	This study evaluates the impact of financial sector liberalization and bank privatization, introduced during the 1990s in Pakistan, on bank productivity and relative efficiency.	Pakistan	Bank productivity in terms of profits has increased, and new entrants have been efficient, but the dispersion of efficiency remains wide. The privatized banks improved their profit efficiency in the period immediately following their privatization, but in the subsequent years only one significantly improved its efficiency, whereas the other did not differentiate itself in terms of efficiency from the remaining state owned banks. The new private domestic banks generally proved to be among the most efficient, and sometimes out-performed the foreign banks.
Brown et al. (2009)	This study examines the impact of financial sector reform on interest rate levels and spreads using Kyrgyz bank level data from 1998 to 2005.	Kyrgyzstan	Findings suggest that, in addition to macroeconomic stabilization, structural reforms to the banking sector significantly contributed to lower interest rates. In particular, the results suggest that foreign bank entry and regulatory efforts to increase average bank size were important in reducing deposit rates. In contrast, this study finds little evidence that banking sector reform or macroeconomic stabilization has impacted interest rate spreads.
Rehman et al. (2011)	This study aimed to enlist the major financial reforms undertaken by the Government of Pakistan and explore their impact on economic growth of Pakistan. This study has also explored correlation among economic growth, deposits, lending, real interest rate, savings, and inflation, taking data of thirty six years (1973- 2008).	Pakistan	This study finds a positive impact of financial reforms on economic growth and recommended removing the interest rate ceiling and overcoming the problem of inflation.

Ağca et al (2013)	Using a large panel of non-financial firms in emerging markets, this study examines the relation between detailed measures of banking sector reforms and corporate leverage.	17 Emerging Markets	This study finds that that banking sector reforms are associated with lower corporate debt in emerging market firms, consistent with the notion that these reforms improve banks' risk management and result in tighter lending standards, leading firms to use less bank debt in their capital structure. These effects are less pronounced for financially constrained firms, suggesting a relative increase in the supply of bank credit to firms which were rationed prior to the banking sector reforms.
Mwenda and Mutoti (2011)	This paper investigates the effects of market-based financial sector reforms on the competitiveness and efficiency of commercial banks, and economic growth, in Zambia.	Zambia	Major findings show that reforms adopted in different phases had significant positive effects on bank cost efficiency. Macroeconomic variables such as per capita GDP and inflation were insignificant. Further, using an endogenous growth model in which industrial production is a proxy for GDP growth, it was found that bank cost efficiency, financial depth, financial sector reforms, the degree of economic openness, and rate of inflation were significant determinants of economic growth.
Boustanifar (2014)	Making use of the U.S. banking reforms between the 1970s and the 1990s as a quasi-natural experiment, this paper studies the impact of credit market development on employment and documents the significant effects of these reforms on employment growth. Potential channels between finance and employment are also investigated.	USA	Major findings of this study show that the changes in the growth of the number of self-employed individuals, the entry and exit of firms, and investment growth do not explain most of the employment growth following the reforms. However, the reforms had a substantially higher impact in industries with higher labor intensity, which is consistent with the idea that labor has fixed costs that need to be financed.
Ang and McKibbin (2007)	The objective of this paper is to examine whether financial development leads to economic growth or vice versa in the small open economy of Malaysia.	Malaysia	Financial liberalization, through removing the repressionist policies, has a favorable effect in stimulating financial sector development. Financial depth and economic development are positively related; but contrary to the conventional findings, our results support Robinson's view that output growth leads to higher financial depth in the long-run.

Leung (2009)	This paper summarizes Vietnam's developments in the banking and financial sector; assesses the system's weaknesses that played an important role during the macroeconomic turbulence of 2008; and discusses the need for deeper reforms of the country's key macroeconomic institutions.	Vietnam	Findings generally suggested that for Vietnam to achieve its goal of becoming a modern industrialized economy by 2020, it needs to have world-class public institutions to complement a flexible and entrepreneurial private sector. Nowhere is this more true than in the banking and financial markets where effective policy-making and skillful regulation have to be balanced against profitable risk-taking — all set against a background of commitment to a one-party state where social and political stability still reigns supreme.
Psillaki and Mamatzakis (2017)	This paper investigates the effects of financial regulations and structural reforms on the cost efficiency of the banking institutions of 10 Central and Eastern European countries for the period 2004–2009.	10 Central and Eastern European countries	The empirical analysis of this research indicates that the structural reforms on labor and business markets exert a positive impact on bank performance. The authors also find that the effect of credit regulation banking on cost efficiency is positive. In addition, better capitalized banks are more cost efficient.
Edirisuriya (2007)	This study examines how the reform process has been helping in changing financial environment in Sri Lanka.	Sri Lanka	In the backdrop of these reforms, Sri Lankan banks have evolved to a more efficient and competitive market. However, lack of financial literacy among market participants, dominance of state owned banks and lack of clear directives for the government appear to be major issues in the banking sector. Findings also suggest that though there are substantial gains from financial sector reforms however, further reforms are necessary to improve efficiency in the financial sector in Sri Lanka.

**Table 2: Salient Features of Financial & Banking Sector Reforms instituted in Pakistan during the period from late 1980s till mid-2000** [Source: Khan and Khan, 2007; Husain, 2005]

S. No.	Reform Agenda/Features	Description
1.	Incremental Privatization of Nationalized Commercial Banks (NCBs)	Prior to reforms during 1990s, the banking sector in Pakistan was highly dominated by public sector. Consequent to these reform programs, the domination (management control as well as the ownership) of banks was reduced from almost 100 percent in 1991 to about 20 percent by end 2004.
	Greater autonomy of the State Bank of Pakistan (SBP-The central Bank)	The SBP was granted legal autonomy in 1997. Later on the central bank undertakes a massive restructuring program. Here, the SBP was divided into three legal entities: The State Bank of Pakistan, responsible for formulating policies, procedures, and regulations for the local banking industry and ensuring an effective implementation; the SBP Banking Services Corporation, responsible for performing non-core functions mostly operational in nature; National Institute of Banking and Finance (NIBAF) is responsible for conducting trainings and arranging workshops for the employees.
	Prudential Regulations	Prior to reform programs, the prudential regulations were mainly aimed at corporate and business financing. The SBP in consultation with the Pakistan Banking Association and other stakeholders developed a new set of regulations which cater to the specific separate needs of corporate, consumer and small and medium enterprise financing. These revised as well as new prudential regulations enable the banking companies to expand their scope of lending and customer outreach.
2.	Increased Corporate Governance and Accountability	Good governance practices were enforced to improve internal controls and bring about a change in the organizational culture of banking companies. The underline purpose was to bring transparency in the banking systems of Pakistan and to protect the consumer or depositors' interests.
3.	Capital Strengthening of Commercial Banks	In order to ensure a strong base and to develop ability in the banking sector to compete and withstand unanticipated shocks, the minimum paid-up capital requirements of the banks have been raised from PKR. 500 million to PKR. 1 billion and have again been raised to PKR. 2 billion by December 31, 2005. This resulted into a large scale mergers and acquisitions in the banking sector in Pakistan which witnessed a mushroom growth of commercial banks and non-bank financial institutions during the first

		reforms program initiated during late 1980s. As a result over 17 mergers and acquisitions were recorded during mid-2000.
4.	Improving asset quality	Because of a large scale reform programs, the stock of gross non-performing loans that amounted to PKR. 252 billion and accounted for 22 percent of the advances of the banking system (including developmental financial institutions) has been reduced to PKR. 225 billion i.e. 14 percent of advances. More than two-thirds of these loans are fully provided for and net non-performing loans to net advances ratio has come down to as low as 5 percent for the commercial banks. The positive development is that the quality of new loans disbursed since 1997 has improved and recovery rate is 95 percent.
5.	Liberalization of Foreign Exchange Regime	Pakistani Corporate sector, regulated and monitored by the Security and Exchange Commission of Pakistan (SECP), was allowed to acquire equity abroad. Foreign registered investors can bring in and take back their capital, profits, dividends, remittances, royalties, etc. freely without any restrictions.
6.	Consumer Financing	In order to boost the consumer financing, the SBP removed restrictions imposed on nationalized commercial banks for consumer financing. These reforms provided a large stimulus to the provision and domestic manufacturing of different services and products.
7.	Technology and Innovation	These reform programs motivate the banking companies to upgrade their technology and on-line banking services. Different developments were noticed during and soon after the reform programs. For instance, as compare to pre-reform situation when only one Automated Teller Machine (ATM) was deployed in 1988, a large deployment and expansion in the ATMs was carried out and over 700 ATMs are working throughout the country. Progress in creating automated or on-line branches of banks has been quite significant and by 2005 almost all the bank branches will be on-line or automated. Utility bills payment and remittances would be handled through ATMs, kiosks or personal computers reducing both time and cost.

**Table 3: Payment Systems in Pakistan (June 30, 2015)**  
 [Source: State Bank of Pakistan Payment Systems Review, 2014-15]

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>
<i>Banking and Financial Institutions</i>		
1	Commercial banks	35
2	Microfinance banks / institutions	10
3	Developmental financial institutions	8
<i>Categorization of commercial banks</i>		
1	Public sector (or Government-owned) banks	5
2	Private banks	21
3	Foreign banks	5
4	Specialized banks	4
<i>Digital Banking products and services</i>		
1	Commercial banks providing Internet banking	21
2	Commercial banks providing Mobile banking	16
3	Commercial banks providing call center & IVR* banking	16
4	Commercial banks issuing credit cards	12
5	Commercial banks issuing debit cards	27
6	Commercial banks issuing prepaid debit cards	9
7	Commercial banks having ATMs network	28
<i>Digital banking infrastructure</i>		
1	Automated Teller Machines	9597
2	Point of Sale (POS) Machines	41183
3	Bank Branches	622

*\*Interactive voice response*

