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CREDIT RISK MANAGEMENT IN ISLAMIC BANKING: A SYSTEM THINKING APPROACH

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ABSTRACT

This research article aims to develop a system dynamic mechanism for examining the Credit Risk Management (CRM) system of Islamic banking institutions (IBIs) of Pakistan. This model has facilitated to comprehend the connections among various characters of credit risk. For the development of the System Dynamic Model (SDM), this research has been carried out in three sequential stages. The system dynamic model illustrates that an upsurge in credit risk fuels IBIs to proactively form a mechanism for the management of credit risk according to the recommendations given by the State Bank of Pakistan (SBP). Therefore, the IBIs in Pakistan manage the credit risk by conducting credit risk analysis not only before providing finance to customers but also throughout the life of business relations. This analysis consists of the evaluation of a customer's financial needs along with repaying ability, analysis of the customer's credit history, assessment of the customer's business proficiency, and assessment regarding the reliability, appropriateness, and adequacy of provided guarantees and collaterals. The model also describes that it is essential for IBIs to honor their contractual commitments to avoid unnecessary counterparty risk. Moreover, for abating the credit risk, it is vital for IBIs to follow effective financial and administrative CRM procedures.

Disciplinary: Management Science (Banking and Finance).

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1 INTRODUCTION

The growth of the Islamic financial system is substantial in numbers as well as in size across the globe. Its ample progression in the global market indicates that it is attaining huge popularity in the Muslim countries as well as in the non-Muslim world (Alawode, 2015). Having an estimated asset base of more than 2 trillion US dollars, Islamic financial services have been offered by more than 700 institutions in more than 90 countries across the world (Saba, 2017). According to Maierbrugger (2018), the way the Islamic financial market is progressing, its asset base would touch 3.8 trillion US

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dollars before 2023. It has gained massive popularity after the financial crisis of the early twenty-first century as a good substitute for conventional banking, which is being explored by the world in this era of uncertainties.

Islamic banking prohibits interest and the use of unfair means to achieve profit (Khalid and Amjad, 2012). In addition to this, it also limits financing in socially and morally problematic businesses. The Islamic banking system prohibits dealing in transactions with indefinite returns (*Gharar*) (Hayat and Malik, 2014). Generating profit through gambling (*Maysir*) is also forbidden in the Islamic financial system (Hassan and Lewis, 2007). The financial system governed by Islamic *Shariah* is based on equity where all finances are properly backed by assets. It also promotes the norms of mutual benefits (Iqbal and Mirakhor, 2011). It connects the economy with the financial sector for shared social welfare (Ahmad, 2000).

In Pakistan's history of full-scale Islamic banking is just two decades old. The State Bank of Pakistan (SBP) introduced its first policy in 2001. The main aim of this policy was the development of the Islamic financial system parallel to the non-Islamic financial system more progressively (Lewis and Algaoud, 2001). Besides this, the SBP also introduced a "*Shariah* Complaint mechanism" to evolve the customers. This mechanism is multi-tier and robust containing: a) *Shariah* Board; b) *Shariah* advisors; and c) Audit structure based on *Shariah* (Akhtar, 2007).

The SBP has permitted locally existing banking institutions to initiate Islamic banking operations through Islamic windows or open separate full-scale Islamic banking branches to provide various financial services permissible by *Shariah* (Akhtar, 2007). In connection to this, Meezan Bank initiated full-scale Islamic banking in Pakistan, in January 2002 (El Tiby, 2011). At the moment, sixteen traditional conventional banking institutions are providing Islamic banking services in Pakistan through more than 1200 full-scale branches and 128 sub-branches across the country. Moreover, five full-scale Islamic Banking Institutions (IBIs) are also operating in the country with more than 1350 branches (SBP, 2018). According to the Islamic banking bulletin issued by the SBP in September 2018, the total profit earned by the IBIs in Pakistan was more than Rs 2,300 Million. Moreover, the report indicated that this profit figure had shown a growth of Rs 500 million as compared to last year (SBP, 2018). The SBP has developed the legal framework, which serves as the base for Islamic banking in Pakistan by combining the Bahraini and the Malaysian model. According to the SBP (2018), Islamic banking in Pakistan is growing steadily in terms of profitability as well as total market share. Moreover, despite being a small market player, this sector is giving healthy competition to its conventional peers.

There is no gain without pain. Risk-taking is essential for the endurance and progression of financial organisations (Hull, 2015). Financial institutions earn good profits through risk-taking and drop a good portion of their income by not managing the risks accurately and efficiently (Furash, 1994). All financial organisations have to encounter different risks, according to the nature of their businesses. So, the IBIs have to face the risks of traditional banking along with their own risk exposures, which are specific to Islamic banking. These risk exposures are caused by different liability structures and asset classes of Islamic banking Institutions (Hassan, 2009; El Tiby, 2001; Schoon, 2016). Credit risk is a very crucial factor that can cause financial instability in the economy. So, managing credit risk is critical for the endurance and progression of not only the traditional banks but also for the Islamic banking institutions.

2 CONCEPTUAL FRAMEWORK

2.1 CREDIT RISK

Whenever we question about the most important risk encountered by financial institutions, the answer is very simple and straightforward, 'Credit Risk' (Elgari, 2003). As far as Islamic financial institutions are concerned, the Islamic Financial Services Board (IFSB) has defined credit risk as to the probability that a counterparty fails to fulfil its promise and violates the pre-decided terms and conditions (IFSB, 2005). Otherwise speaking, if a customer fails to deposit complete or fractional payment with respect to the agreed contract, causing loss to the IBIs is termed as credit risk (Ahmed and Khan, 2007; Akkizidis and Khandelwal, 2008; Elgari, 2003; Rehman, 2016). This risk can take place in all the Islamic financial contracts including Profit and Loss sharing instruments (*Mudarabah* & *Musharkah*); working capital instruments (*Mudarabah*, *Istisna* and Salam); and receivable instruments (*Murabaha* and *Ijarah*). IBIs can face credit risk at any time throughout the life of the above discussed financial contracts (Akkizidis and Khandelwal, 2008).

2.1.1 CREDIT RISK IN DIFFERENT ISLAMIC FINANCIAL CONTRACTS

A situation may arise, during the life of a *Murabaha* contract, when an Islamic bank provides the asset to the client on a pre-determined date. However, the client fails to provide the proceeds in accordance with the pre-decided terms. Thus, the situation when a client fails to fulfil his financial obligations in accordance with the *Murabaha* contract may expose the Islamic Banking Institution (IBI) to credit risk (Swartz, 2012). These circumstances may expose the Islamic banking institution to another crucial factor of financial instability known as liquidity risk. Liquidity risk, in this situation, may arise when the bank is dependent on the expected amount to cover other financial obligations (Greuning and Iqbal, 2008; Ahroum, et al., 2017).

Diminishing *Musharkah* contracts also expose an IBI to credit risk. This particular position may arise when the customer fails to fulfil his commitment to purchase the agreed share in accordance with the agreed terms and conditions (Ahmad and VambaFofana, 2015). These circumstances may further expose the IBI to liquidity problems if it has to fulfil other financial commitments with the help of these proceeds (Abdul Rahman, et al., 2010).

Financial contracts such as *Salam* & Parallel *Salam* may also expose an IBI to credit risk if the contractor does not succeed in providing the contracted asset on time as per agreed terms. In this situation, the IBI may entirely or partially lose the investment (Ahmad and VambaFofana, 2015). Similarly, *Istisna* and parallel *Istisna* contracts may also expose an IBI to credit risk if the client fails to fulfil his financial commitments. Moreover, these circumstances may expose the IBI to another crucial factor of financial instability known as market risk. Market risk, in this situation, may arise when the default of the customer forces an IBI to find another purchaser of the asset from the market. This situation leads to the sale of the asset over a much lesser price causing financial loss to the IBI (Abdul Rahman, et al., 2010; Haron and Hock, 2012).

In an *Ijarah* contract, an IBI may have to face the credit risk if the lessee does not fulfil his commitment of paying lease rentals with respect to the agreed *Ijarah* terms (Ahmad and Vambafofana, 2015). This scenario may also lead to market risk. The failure of the customer to provide lease rentals may result in two different situations. Either the IBI has to find another customer for a new *Ijarah* contract or has to sell the asset in the market at the market price. In both situations,

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there is a high chance that IBI may get a lower price or rent (Haron and Hock, 2012; Akkizidis and Khandelwal, 2008; Swartz, 2012).

2.1.2 MANAGING CREDIT RISK

The SBP has provided guidelines to minimise credit risk faced by IBIs working in Pakistan. These principles have been described as follow.

The IBIs are required to formulate a *Shariah*-compliant financing strategy for the identification of maximum credit risk exposures, which can occur at different levels of financing contracts. The Board of Directors may be considered responsible for their banking institution's complete risk appetite, asset allocation, and risk divergence. This strategy should be available for every Islamic financial instrument. This may also include the catalogue consisting of all relevant and permitted financing activities for avoiding any *Shariah* non-compliance agreements. IBIs should take care of developing the *Shariah*-compliant strategy with respect to any inherited credit risk in different contracts.

It is essential for IBIs to access creditability; repay ability, and financial soundness of the potential customers before entering into any agreement. Evaluation and assessment of the counterparties are also obligatory in *Mudarabah* financing to assess: objective of the business; legal matters; business operations; economic conditions; and operative proficiency of the project, in addition to projected cash flow activities. Moreover, taking expert review in terms of extension in persisting contracts and grasping upcoming financing projects. These experts are required to ensure *Shariah*-compliant evaluation throughout the life of the project. The IBIs are also needed to develop strategies to measure and report the credit risk exposures resulting from different Islamic financial contracts. These credit risk exposures may include the risk of counter-party in "*Istisna"* and "*Salam"*. Furthermore, a plan of action is also required when a counter-party violates the purchase order, which is non-obligatory.

For risk mitigation, *Shariah*-compliant procedures may be adopted by the IBIs for each financial contract. The banks are also required to form a system to determine the return rate by including all possible risks in order to make the pricing decisions. There should be an appropriate administrative mechanism to deal with default customers. Banks are advised to develop such procedures as these can be helpful to recover the loans and to deal with problem loans. These measures may include:

- Proactive negotiation with the customer
- Enough timeframe should be allowed to customers for payment
- Allowing customers to reschedule or restructure the debt payment
- Utilization of the debt collection system
- Penalties and fines should be imposed. As per clause of *Shariah* rules, the amount received through penalty or fines may be used for charity purposes
- Enforcing collaterals or guarantees

The IBIs have been advised by the Central Bank of Pakistan to place appropriate policies and procedures to fulfil their commitments with respect to parallel *Salam* and parallel *Istisna* contracts. They are also required to honour their promises regarding the leased products. The IBIs are needed to provide *Shariah*-based *takaful* coverage against the worth of the product, where it seems essential.

Finally, the IBIs must have to ensure that there is an appropriate provisioning mechanism in place with respect to doubtful loans and expected losses in case of leased assets.

2.2 SYSTEM THINKING APPROACH

The system thinking approach implies observing events or data to identify the movement of behaviours across time and to look into primitive structures that caused such events and patterns. The system thinking approach also helps to understand the changing structures that are problematic and their solutions by expanding the available choices in a more satisfying way. On the whole, this approach leads to clarity and curiosity. The system thinking approach includes the passion for observing a situation with compassion and courage. This approach aims to thoroughly examine the event or data, to identify the inter-relations, to recognize the multiple interventions to a problem, and to identify the key interventions (Goodman, 1997).

According to Squires et al. (2011), a system thinking approach can integrate different viewpoints conceptually. This approach may also recognize the intra/interrelationships among different behaviours. The system thinking approach may recognize various operational aspects of structure to understand the complex behaviour of the system. It may also effectively perform in the context where the nature of the issue is entirely different. Furthermore, this approach is also reliable in forecasting the impact of the change on the structure of the system. Figure 1 exhibits a telescopic view regarding the system thinking approach.

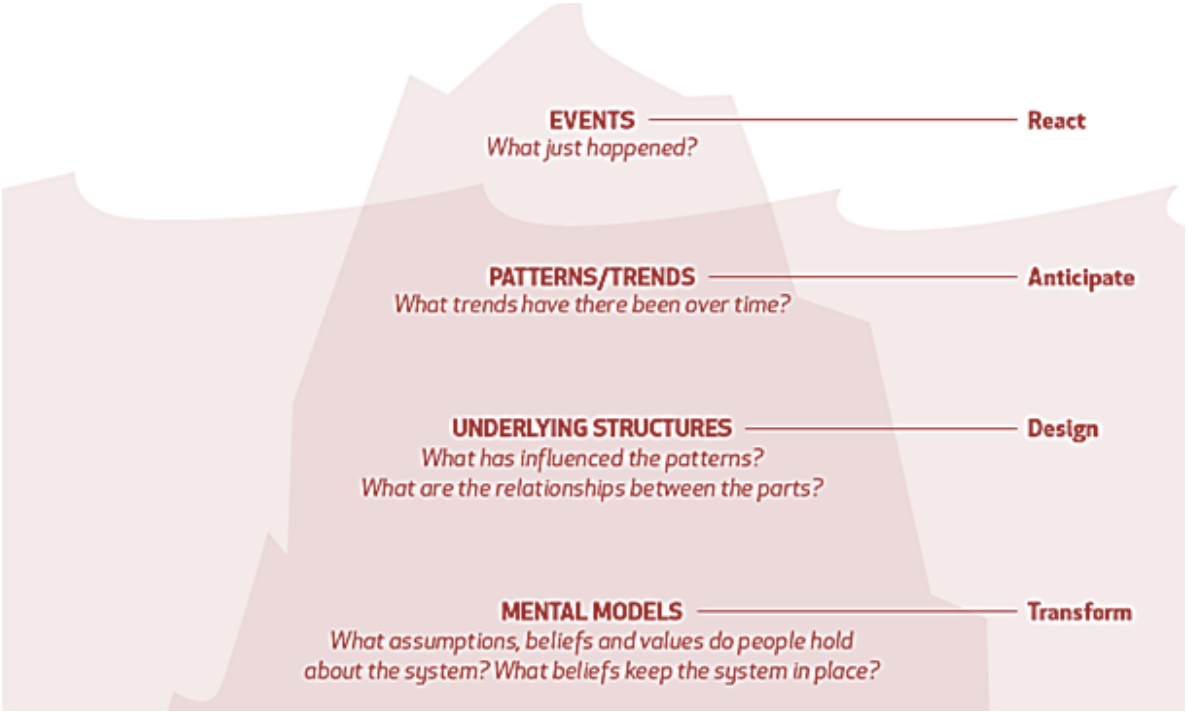

Figure 1: System thinking a telescope to observe primitive structures (Source: *The Iceberg Model* (Goodman, 1997)).

3 RESEARCH METHODOLOGY

In this study, an inductive research mechanism has been used to achieve the research objectives. Moreover, this is a case study in which the Pakistani Islamic banking system has been considered as a case. For this study, all Islamic banking institutions constitute the target population. The purposive sampling method has been utilized to collect data from experts. The purposive sampling method is

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time-saving and very economical. It is also a very effective technique to be used when the respondents are limited who can contribute to achieving the study objectives (Black, 2012).

Researchers have used semi-structured interviews to obtain the data. Twenty-one senior risk managers from all selected IBIs were interviewed. Since the research objective of this study is to grasp the architecture of causal interrelations among various variables of Credit Risk Management (CRM). So, the senior risk managers of the IBIs are the most appropriate respondents to answer the specific research questions. Being the experts of the system, these individuals can effectively endorse, ratify and refine the preliminary Causal Loop Diagram (CLD) of credit risk management. All these experts were thorough professionals having approximately more than ten years of professional experience in the field of credit risk management of Islamic banking.

For the development of the final qualitative model, this research has been conducted into three sequential phases. Initially, the researchers developed a preliminary CLD by utilizing their own experience and fundamental understanding gained through an extensive review of the literature on causal interrelationships between various characters of CRM. In the second phase, the researchers conducted semi-structured interviews with field specialists of each selected IBI to effectively endorse, ratify and refine preliminary CLD. In the final phase, primary data collected through interviews were analyzed to construct the refined qualitative model.

4 DEVELOPMENT OF QUALITATIVE MODEL

4.1 INITIAL CLD FOR CREDIT RISK MANAGEMENT

In this study, the researchers have used a systems-thinking methodology to comprehend and sketch a sequence of causality among various variables as determined by the CRM system in the IBIs of Pakistan. As the nature of the credit risk management system is too complicated in the mentioned banks. So, the researchers have developed a System Dynamic Model (SDM) to draw the CLDs to comprehend the dynamic actions of the CRM variables within the risk management mechanism of these institutions.

To develop a broader CLD for grasping the architecture of causal inter-relations among different characters of credit risk management, the researchers of the study first developed an initial causal loop diagram (See Figure 2) based on the fundamental information gained from the extensive literature on the relationships among various characters of the CRM in these banks. For the confirmation and construction of the system dynamic model (SDM) based on causal loop diagrams, researchers carried out semi-structured interviews with specialists in the field (see Figure 3).

4.2 VALIDATED CLD FOR MANAGING CREDIT RISK

The SBP defines Credit risk as the inability of a customer to fulfil his contractual commitments (SBP, 2008). A validated causal loop diagram for MCR has been depicted in Figure 3. This CLD for credit risk comprises of five balancing feedback loops, i.e. B31, B32, B33, B34 & B35 along with a couple of (R22 & R23) reinforcing feedback loops.

Loop diagram B31 (Consists of Credit Risk Management→ Professional Training → Qualified/Proficient Employees → Credit Risk → RIAAMC (Risk Identification, Assessment, Analysis, Monitoring and Controlling) explains the vital function of qualified and proficient employees of the Islamic banks being the performers of credit-related activities.

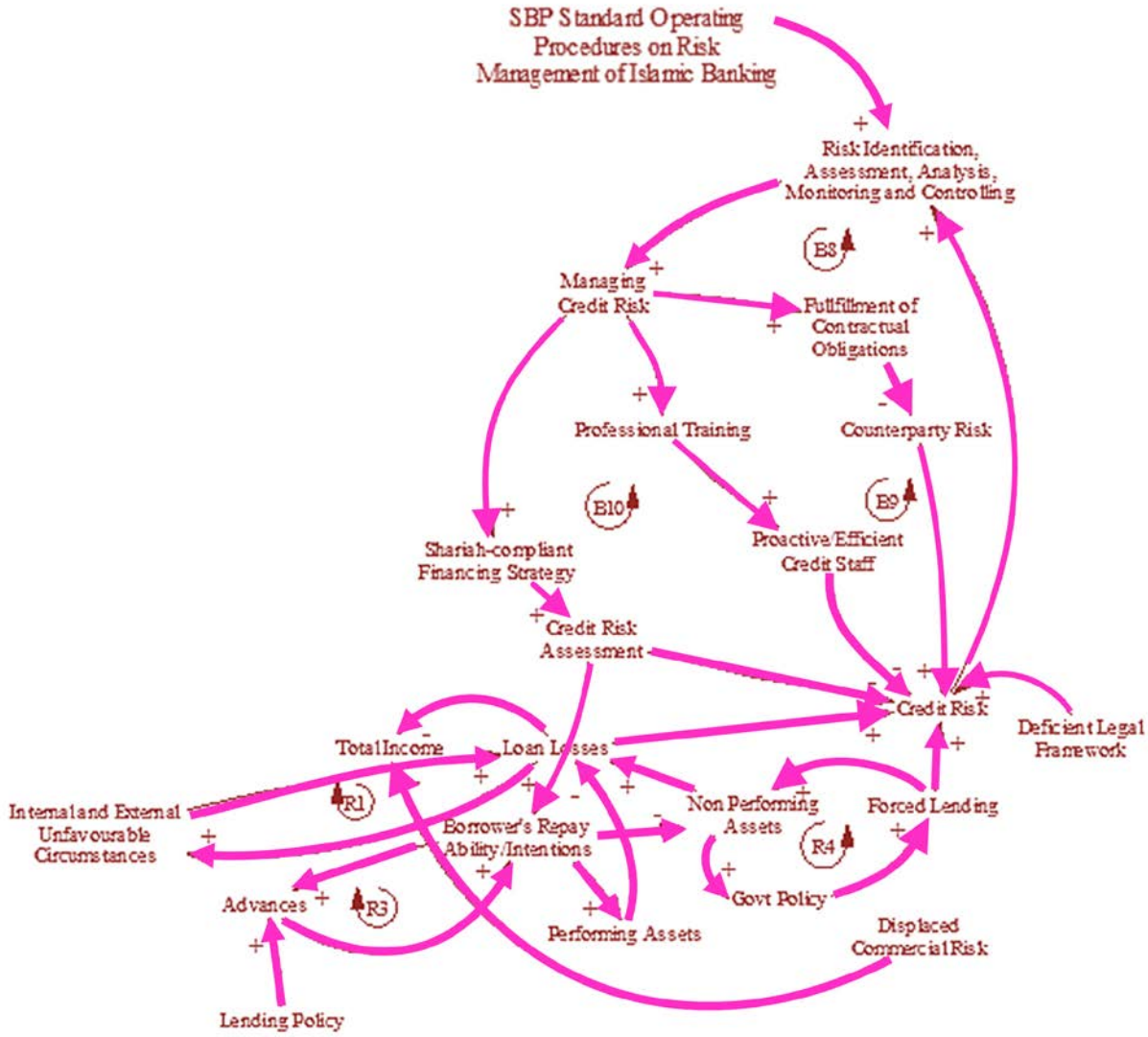

Figure 2: Preliminary CLD for credit risk management.

The IBIs train their employees who are directly engaged in lending activities to the maximum extent of expertise to make them competent enough to align the lending activities and operations for meeting the maximum possible standards as per the requirement of the Central Bank (Shafique, et al., 2013). Islamic banking institutions take keen interest to develop the professional expertise of their employees dealing in the credit department for maximum credit proficiency. On the other hand, incompetent staff may cause considerable losses to these institutions (Farhan, 2013).

Figure 3, loop diagram B32 (Consists of Credit Risk Management → Complying with Contractual Commitments → Counter-Parties Risk→ Credit Risk → RIAAMC) describes the action plan followed by Pakistani IBIs in order to manage the counter-parties risk which ultimately leads to the reduction of credit risk. Efficient and effective monitoring and fulfilment of these contracts are crucial to evade any preventable counterparty risk (Eid and Asutay, 2016).

Loop diagram B33 (Consists of Credit Risk Management → Administrative & Monetary Processes → Non Performing Assets→ Loan Losses→ Credit Risk→ RIAAMC) depicts that these banks fulfil regulatory requirements of the Central Bank by following Administrative and Monetary processes to manage the Non-performing assets which ultimately reduce the chance of bad debts. Administrative processes include frequent and pre-emptive interaction with the clients, proposing

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reorganization and restructuring of loans, and adopting the legal actions. On the other hand, monetary processes consist of all the actions taken by these banks for the enforcement of guarantees and collaterals.

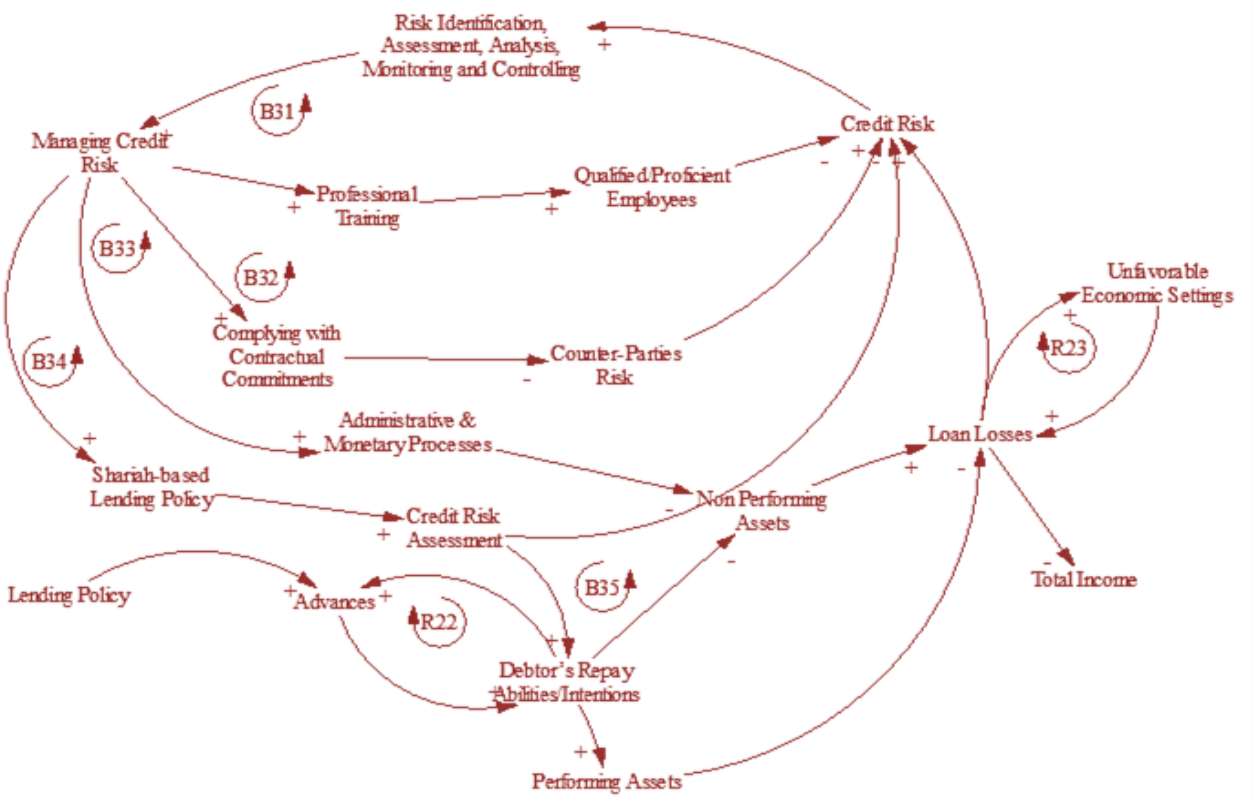

Figure 3: Validated CLD of credit risk management

Casual loop B34 (Comprising of: Credit Risk Management → *Shariah*-based Lending Policy → Credit Risk Assessment → Debtor's Repay Abilities/Intentions → Performing Assets → Loan Losses→ Credit Risk → RIAAMC) and Casual loop B35 (Comprising of: Credit Risk Management → *Shariah*-based Lending Policy→ Credit Risk Assessment → Debtor's Repay Abilities/Intentions → Non-Performing Assets→ Loan Losses→ Credit Risk → RIAAMC) basically explains the policies and procedures followed by IBIs to counter the credit risk. An increase in the credit risk induces these banking institutions to follow an effective course of action while following *Shariah* principles for minimizing this risk. It fuels to make an improved and efficient credit risk assessment to reduces the risk up to the maximum extent (Eid, 2012; Misman, et al., 2015). Moreover, these causal loop diagrams depict that Islamic banking institutions pro-actively assess the information relating to borrowers to analyze their ability and intent to repay the banking debt (Bilal, et al., 2013). Thus, pro-active and efficient credit risk assessment leads to an escalation in the level of performing assets and reduces the possibility of loan losses, which ultimately reduces credit risk.

This qualitative model also contains a couple of reinforcing feedback loops. Loop R22 (Consists of Advances → Debtor's Repay Abilities/Intentions) indicates that improved repayability of borrowers induces the banks to offer more loans. Moreover, the structure reinforces itself because the debtor's repayability can directly influence the amount offered as a loan by the banks (Farhan, 2013). Reinforcing loop R23 (Consists of Unfavorable Economic Settings → Loan Losses) depicts that loan losses of Islamic banking institutions depend on the economic settings prevailing in the country. Unfavourable conditions lead to more loan losses and vice versa (Farhan, et al., 2012).

5 CONCLUSION

The Qualitative System Dynamic structure of credit risk management in Pakistani Islamic institutions offering banking services explains various procedures and strategies to cope with credit risk for fulfilling the legal and regulatory obligations of the SBP. According to the model, credit risk is managed by these institutions by conducting credit risk analysis not only before providing finance to the customers but also throughout the life of business relations. This analysis consists of the evaluation of a customer's financial needs along with repaying ability; analysis of customer's credit history; assessment of customer's business proficiency; and assessment regarding the reliability, appropriateness and adequacy of the provided guarantees and collaterals. Proactive, qualified and proficient staff conduct this analysis. The model also describes that it is essential for IBIs to honour their contractual commitments to avoid unnecessary counterparty risk (Eid and Asutay, 2019). Moreover, to minimize credit risk, it is vital for IBIs to follow effective financial and administrative credit risk management procedures.

The qualitative system dynamic structure of this study renders productive, constructive and practical understanding to policymakers, scholars, managers, shareholders and regulators for the credit risk management mechanism of IBIs in Pakistan. Moreover, this qualitative system is also helpful and useful for the executive management and Board of Directors of local and international IBIs for developing an efficient, broad and effective credit risk management mechanism by prevailing over any deficiency in the existing mechanism or structure. Seriously, to manage credit risk, Pakistani IBIs are playing safely instead of throwing caution to the wind.

6 AVAILABILITY OF DATA AND MATERIAL

Information can be made available by contacting the corresponding author.

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