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Social Collateral and Repayment Performance: Evidence from Islamic Micro Finance

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Abstract

In this study we designed to test the remarkable repayment performance of *Akhuwat* in Pakistan; the most successful Islamic Microfinance Institution (IMFI), which offers interest-free loans in order to improve the quality of life and alleviate poverty. The model of *Akhuwat* is based on *Muakhaat* (brotherhood) and *Qard-e-Hasan* (offering financial assistance to somebody in need without interest). The primary objective of this study was to investigate the determinants of microfinance repayment performance. The study examined the borrowers' characteristics, loan attributes, lender/institutional characteristics and the social collateral characteristics related to the *Akhuwat* and the data of 387 borrowers is obtained from microfinance programs carried out on a continuous basis by *Akhuwat*. The findings depicted that among the socio-demographic factors like gender, marital status, number of dependents and numbers of previous loans are significantly and positively associated with loan repayment performance. However, previous loan default and religion are significantly and inversely associated with the loan repayment performance. The findings of the study supported the role of social ties in improving repayment performance and hold key insights and directions about microfinance policymaking in Pakistan.

Keywords: Islamic Microfinance, Repayments; Pakistan, Social Collateral.
JEL Classification: G20, G21, G29.

1. Introduction

1.1 Background

Enough literature has been documented to describe the causal

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relationship between the financial sector and economic growth (Levine, 2005; Beck, 2011; Panizza, 2014). The relationship exists at various levels of aggregations including household, firm, sector, and country. However, the failure of financial institutions to provide adequate financial services to poor people is also an eminent feature of the global financial system. Particularly, a large segment of the population in the developing world lacks access to finance. The statistics of the World Bank reveal that globally around 200 million formal and informal Micro Small and Medium Enterprises (MSMEs) in developing economies are deprived of access to finance. Moreover, the statistics also indicate that MSMEs cite a lack of collateral and credit history as major deterrents to adequate access to finance to grow. Consequently, policymakers around the globe have taken key initiatives to ameliorate the problems associated with access to financial services. Among these initiatives is the reliance on microfinance. In the last two decades, the microfinance revolution has received significant attention in academic and policymaking circles. It is believed to be an effective tool for poverty alleviation and helpful in accelerating household income and economic activity (Bennett & Cueves, 1996; Ledgerwood, 1999). Although, there are many unsettled queries about the effectiveness of Microfinance Institutions (MFIs), yet they have proliferated in emerging markets. The estimates of International Finance Corporation depict that during the last 15 years MFIs have added 130 million new clients. A report of the World Bank on financial inclusion asserts that around 30 countries have incepted national programs on financial inclusion. However, this remarkable augmentation is weakened by the fact that MFIs have reached only 20% of the potential market.

1.2 Microfinance Model

Microfinance is considered as a vital financial innovation in recent times. The genesis of the microfinance paradigm could be traced back to the Grameen Bank established in 1970 by Dr. Muhammad Yunus of Bangladesh who was awarded Nobel Prize in 2006 for his contribution. Micro Finance is regarded as an effective tool to eliminate poverty (Armendáriz de Aghion & Morduch, 2005; Zeller & Meyer, 2002) and accelerate economic activity by enhancing self-

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employment opportunities in emerging economies. During the last few decades, joint endeavors of various stakeholders around the globe facilitated cutting edge microfinance programs to support individuals for successful entrepreneurial ventures.

Similar to their conventional larger counterparts MFIs are also financial intermediaries. Financial intermediation in all forms is associated with problems like asymmetric information, moral hazard and loan collection. The problems are more distinctive among MFIs, as the clients have very low incomes and lending to the poor involves higher costs, lower profits and high defaults which signals lower sustainability of MFIs. Further, lack of education, no understanding of basic financial skills, weak political and legal rights worsen the problems (Aggarwal et al. 2015).

MFIs differ in various ways from traditional banking. Firstly, unlike traditional banking, MFIs do not primarily rely on customer deposits but on social, ethical and cultural environments to reduce the exposure associated with lending to poor. Secondly, MFIs lending significantly differs from traditional bank lending. Theoretically, MFIs reinforce the goals of a "double bottom line" by facilitating the poor along with sustainable financial performance. So MFIs lending to poor depends materially on social networks. This compels for a more innovative approach with respect to the credit repayment strategies. The mechanism of early and frequent repayment in MFIs loans helps in reducing the costs of loan collection, monitoring, and defaults.

1.3 Social Collateral

A large strand of literature in economics and sociology extensively investigated the notion of social capital (Coleman, 1990; Putnam, 1995; Thomas, 1996; Belliveau et al., 1996; Woolcock, 1998; Nahapiet & Ghoshal, 1998; Lin, 2008). Social capital becomes a very effective tool of lending microfinance in emerging markets where formal insurance is to a great extent inaccessible and contract enforcement is feeble. As described earlier the MFIs customers are mostly uneducated and less aware of the financial matters, so the problems of asymmetric information, moral hazard, and adverse selection and agency costs are more pronounced than in traditional lending. This implies that lending to the poor with low or irregular incomes and weak political and legal

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rights is costlier and risky (De Soto, 2000; Armendáriz de Aghion & Morduch, 2005; Karlan & Morduch, 2009; Karlan & Zinman, 2009; Garmaise & Natividad, 2010).

In order to overcome the aforementioned financial intermediation problems, MFIs use a group lending approach which is commonly referred to as "Social Collateral ". This means that MFIs lend to poor entrepreneurs without collateral requirements. The group lending method primarily relies on joint liability to minimize credit risk and achieve repayment performance. In joint liability system group members act as guarantors which necessitates them to collect soft information from social networks about each other. This enables the group members to monitor each other and ensure that every group member is repaying the loan. The mechanism assists MFIs to reduce ex-ante moral hazard problems and strategic loan defaults (ex-post moral hazard) (Postelnicu, Hermes, & Szafarz, 2013). Moreover, social collateral acts as a substitute for physical collateral where borrowers as a joint liability group pledge the social capital embedded in social ties for mutual benefit. In other words, the success of the microfinance program is partially dependent upon the social collateral and the group lending approach allows the MFIs to reduce information asymmetries through incentivizing group members and using social pressure in repayment of the loan.

1.4 The Concept of Islamic Moral Economy

The concept of the Islamic moral economy proposes an economic and financial system that embeds moral values like justice, fairness and equity in economic and financial activities (Chapra, 1985; Siddiqi, 2004; Obaidullah, 2005). Chapra (1985) argues that the goals of the Islamic economic system are to achieve a fair distribution of wealth and full employment. However, the prevailing economic and financial paradigm in Muslim countries is contrary to the objectives of the Islamic moral economy. Half of the global population under the poverty line resides in Muslim countries and the problem is exacerbated by inequitable distribution of wealth. Further, the majority of these countries have large informal economies and low tax to GDP ratios which reinforce the idea that these countries need strong financial systems (Shaikh & Shaikh, 2017).

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Obaidullah (2008) asserts that there two basic types of Islamic microfinance models which include non-profit charity based models and commercial market-based models. The earlier type contains *Zakat*, *Waqf* and *Qard-e-Hasan* which are non-compensatory allowances and loans. The second category includes *Murabaha* and *Ijarah* for microcredit and leasing. Demirguc-Kunt, Klapper, & Randall (2014) explained that Muslims are significantly less likely to have formal bank accounts or deposit savings in an interest-based financial institution. This voluntary financial exclusion highlights the important role of Islamic Microfinance Institutions (IMFIs). The Global Financial Development Report of 2014 shows that out of 40% of the poor population in Muslim countries only 7.7% borrow from formal financial institutions. The empirical evidence presented by few studies reinforced the theoretical notion that IMFIs can outperform their conventional counterparts. Ahmed (2002) advocated that the Islamic mode of microfinance substantially reduces the problems of high monitoring costs and moral hazard. El-Komi and Korson (2013) found a higher compliance rate for Islamic contracts as compared to the conventional type of contracts. Ashraf, Hassan, and Hippler (2014) depicted that lower orientation is positively associated with higher loan default rates.

1.5 The Local Context of Pakistan

A large population segment in the country is employed in the informal sector with minimum access to finance to grow. The micro-entrepreneurs are dependent on informal sources of finance which are limited and expensive. In the beginning, Non-Government Organizations (NGOs) were largely the promoters of micro-financing in the country. However, later on, the participation from financial institutions in the microfinance industry has increased. At the end of 2016, there were 2367 branches of microfinance institutions in the country with more than 4.2 million active borrowers. The microfinance industry grew at a rate of 16% in terms of outreach. Further, the sector has emerged as a key player to extend marginal financing in rural areas with 54% of borrowers in rural areas.

Although the statistics show promising performance of the microfinance industry in Pakistan over the last decade there is a dearth

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of empirical research on the actual effectiveness of MFIs in alleviating poverty and stimulating economic activity in Pakistan. Naveed and Ali (2012) found that around 58.7 million people in Pakistan were living under the poverty line. Additionally, they exhibited that 18% of the urban and 46% of the rural population was living under the poverty line. The statistics of the Asian Development Bank showed that at the end of 2013, 29.5% of the population of Pakistan lived under the poverty line.

1.6 Akhuwat – A Trend Setter in Islamic Microfinance in Pakistan

Akhuwat is a microfinance institution established in 2001 by Dr. Muhammad Amjad Saqib in Lahore, Pakistan. *Akhuwat* is devoted to enhancing the lives of poor people; the individuals who are monetarily manhandled and relinquished by society. The model of *Akhuwat* is based on *Muakhaat* (i.e. brotherhood) and *Qard-e-Hasan* (i.e. offering financial assistance to somebody in need without interest). *Akhuwat* has so far relieved 900,000 poor families from the poverty trap by distributing PKR17 billion till now. *Akhuwat* has now turned into a giant MFI having 490 branches in 351 cities with 2500 employees all over Pakistan. Its outreach is expanding with every passing day.

Following the conventions of Islamic finance, the institution offers interest-free loans in order to improve the quality of life and alleviate poverty in Pakistan. Unlike conventional MFIs, *Akhuwat* does not charge interest or any other kind of profit on its credit which assists the borrower to grow rapidly. As the profit is again routed in the business, this helps micro-entrepreneurs grow business rapidly contrary to conventional MFIs with exorbitant interest rates ranging from 20% to 40%. With its prime focus on the clients' diverse needs, *Akhuwat* always strives to develop and provide a wide range of products and services for its clients. Table 1 depicts the portfolio of products being offered by *Akhuwat* currently.

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Table 1: Loan Portfolio of Akhuwat

Family Enterprise Loan	Family Enterprise Loan is the most popular advance offered by *Akhuwat*. This advance is called the Family Enterprise Loan as the whole family is included in the process with the aim to make it a family venture rather than an individual exertion. These advances are given for establishing a new business or growing an existing one. It contains 91% of *Akhuwat*'s advance portfolio. The Family Enterprise loan ranges between PKR 5,000 to PKR 30,000. The most common sum for the first advance is PKR 15,000. The individual needs to think of a feasible business plan to be qualified for this specific credit.
Freedom Loan	This advance is utilized for reimbursement of credits tackled excessively high loan fees. This kind of credit is given to the individuals who have acquired cash from cash moneylenders. *Akhuwat* trusts that the loaning by the cash moneylender is sheer abuse of poor people, and results in expanding neediness, hardship, and defenselessness to wrongdoing. *Akhuwat* pays the guideline sum in one go for the customer and afterward the customer needs to pay back the standard sum in interest-free portions to *Akhuwat*. The range of this advance is up to PKR 50,000.
Education Loan	This credit is used for paying educational expenditures or for buying books and educational material for the poor. The maximum limit of education loans is PKR 25,000.
Marriage Loan	Marriage credit is for wedding expenses and/or dowry arrangements for brides from poor families. Its maximum limit is PKR 25,000.
Emergency Loan	This credit is utilized to meet urgent crisis circumstances, e.g. admission fees for school, treatment of a patient, buying of medicine, etc. The sum is given to the poorest of the poor and it ranges between PKR 5,000 to 20,000. This amount is required to be repaid within one year.
Silver Loan	This credit is used for further growth of customer's current business. These medium-size advances of PKR 50,000 are given to the individuals who have effectively finished three or more cycles of acquiring loans from *Akhuwat* and are interested in further growth of their businesses.
Housing Loan	This advance is given for building or remodel of house, development of room, rooftop, or dividers, etc. The range is PKR 25,000-100,000 and must be reimbursed within two years' time. *Akhuwat* started this facility in a joint effort with Al-Noor Umar Welfare Trust.

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Table 2: Progress of Akhuwat

Year	No. of Loans	Amount Distributed (in PKR)	% of Recovery
2001-02	192	1,895,000	100%
2002-03	282	2,791,300	99.90%
2003-04	832	8,504,000	99.90%
2004-05	3,124	31,811,000	99.90%
2005-06	6,264	66,020,700	99.90%
2006-07	8,674	89,935,600	99.80%
2007-08	11,388	122,445,242	99.80%
2008-09	13,821	164,226,000	99.80%
2009-10	21,073	251,808,800	99.80%
2010-11	34,194	418,211,100	99.80%
2011-12	67,683	1,137,684,000	99.83%
2012-13	159,138	2,580,467,000	99.82%
2013-14	234,883	4,047,109,100	99.85%
2014-15	367,798	7,310,527,000	99.92%
2015-16	496,458	11,205,522,500	99.92%
2016-17	619,396	16,585,952,800	99.96%

Source: Akhuwat website.

The impressive growth of *Akhuwat* over the years presents an excellent case to probe. As mentioned earlier there is little empirical research focused on investigating the efficacy of IMFIs in Pakistan. In this study, we design to test the remarkable repayment performance of the most successful IMFI in Pakistan. The primary objective of this study is to investigate the determinants of microfinance repayment performance including determinants related to social collateral. The study examines the borrowers' characteristics, loan attributes, lender/institutional characteristics and the social collateral characteristics related to the *Akhuwat*; the trendsetter and the most successful Islamic MFI in Pakistan. The study presents empirical evidence based on data collected from borrowers of *Akhuwat*. This type of case study will be helpful to determine the institutional configurations of IMFIs in Pakistan.

2. Literature Review and Hypothesis Development

Group based lending is considered as a synonym of microfinance activities. Extant literature extensively documented the repayment performance of MFIs for joint liability groups (Besley & Coate, 1995;

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Sharma & Zeller, 1997; Ghatak, 1999; Godquin, 2004; Cassar, Crowley & Wydick, 2007; Hadi & Kamaluddin, 2015; Mirpourian et al. 2016) and the superior performance of group-based lending in mitigating loan default rates as compared to the individual loans (De Aghion, 1999; Ghatak, 2000; Matta, 2004; Gangopadhyay, Ghatak & Lensink, 2005; Bhole & Ogden, 2010). The synopsis of the notable literature on MFIs highlighted the notion that group-based lending results in better peer screening, peer monitoring, and peer enforcement. Stiglitz (1990), Banerjee, Besely and Guinnane (1994) and Chowdhury (2005) explained that joint liability lending can reduce problems related to monitoring and moral hazards. Further, Ghatak (1999, 2000) and Gangopadhyay et al. (2005) exhibited how group-based lending contracts can mitigate the problem of adverse selection. Furthermore, Besley and Coate (1995) and Wydick (2001) illustrated the role of social ties in improving the repayment performance of joint liability groups. Studies of Ahlin and Townsend (2007), Cassar et al. (2007) and Hermes, Lensink & Mehrteab (2006) presented theoretical forecasts about the determinants of repayment performance of joint liability groups. They also argued that the aforementioned studies were carried out in diverse economic environments with a focus on divergent problems, so the forecasts about the determinants of repayment performance can vary between models.

However, another line of literature advocated how group-based lending can result in lower repayment performance. Armendáriz de Aghion and Morduch (2000) argued that direct monitoring, non-financial threats, and frequent repayment schedules lead to better repayment performance in MFIs even in the absence of physical collateral and joint liability contracts. Chowdhury (2005) asserted that a lack of sequential financing can cause a lower level of monitoring resulting in a selection of risky projects by the borrowers. Additionally, Diagne (2000) depicted that the major factor driving high repayment performance in group lending is the attached value of access to a future loan.

Previous studies have identified diverse characteristics that affect loan repayment performance in MFIs. Based on the characteristics, the factors influencing the repayment performance can be divided into

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four categories that include separate characteristics of an individual (borrower), institution (lender), loan and social collateral.

2.1 Characteristics of Borrower

The existing evidence indicates that MFIs can reduce conventional intermediation costs because they can replace traditional lending procedures with soft information collected through social networks. A series of studies investigated the role of socio-demographic factors on repayment performance in microfinance. Bhatt and Tang (2002) determined the impact of socio-demographic factors including borrower's gender, education level, household income, the formality of business, experience, and proximity to the lending institution. Similar studies were also carried out by Baklouti (2013) and Nawai and Shariff (2012). The findings of these studies are divergent in terms of the impact of different socio-demographic factors on repayment performance in microfinance.

2.1.1 Gender

The focus of the most recent research on the repayment performance of MFIs is about the role of gender. D'espallier, Guérin, and Mersland (2011) exhibited that woman clients in MFIs are associated with a lower level of credit risk, write-offs, and portfolio risk. Kevane and Wydick (2001) explained that women female groups outperformed male groups in loan repayment performance in Guatemala. Abdullah and Quayes (2016) found that target female borrowers increase the profit margin for MFIs. However, Bhatt and Tang (2002) illustrated that gender is not statistically a significant factor in explaining the repayment performance. Keeping in the view above discussion the first research hypothesis of the study is formulated as under:

H_1: Microfinance repayment performance significantly differs across gender.

2.1.2 Education

Bhatt and Tang (2002) advocated that better education is a significant factor affecting the repayment performance because educated entrepreneurs are more capable to make better business decisions. Additionally, Baklouti (2013) also found that borrowers with higher

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education tend to have better repayment performance. The second research hypothesis of the study is formulated as under:

H_2: Microfinance repayment performance significantly differs with respect to the education level of the borrowers.

2.1.3 Age

Studies argued that higher age is associated with low default rates (Dunn & Kim, 1999) because the elder borrowers are considered to be risk-averse and more responsible as compared to young borrowers. Similarly, borrowers' age is conceptualized to have a significant effect on the repayment performances of MFIs. Based on the aforementioned notion, the third research hypothesis of the study is formulated as under:

H_3: Microfinance repayment performance differs significantly among different age groups of the borrowers.

2.1.4 Work Experience

Bhatt and Tang (2002) asserted that micro-entrepreneurs with more experience tend to have better cash flow management and sales level which provides them higher debt capacity. Following this argument, the fourth research hypothesis of the study is formulated as under:

H_4: Microfinance repayment performance significantly differs with respect to the duration of work experience of the borrowers.

2.1.5 Marital Status

Clark and Kays (1999) discussed that micro-entrepreneurs often utilize loans for family expenditures like children's education, buying food and paying other bills, etc. Additionally, Dinh and Kleimeier (2007) showed that the default probability for married investors is greater than single investors. Keeping in the view above discussion, the fifth and sixth research hypotheses of the study are formulated as under:

H_5: Microfinance repayment performance differs significantly with respect to the marital status of the borrowers.

H_6: Microfinance repayment performance differs significantly with respect to the number of dependents of the borrowers' family.

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2.1.6 Business Formality

Membership of poor communities implies few income alternatives and financing sources that incentivize borrowers to maintain a good relationship with lending agencies. Bhatt and Tang (2002) argued that micro-entrepreneurs with less informal businesses tend to have better repayment performance. The seventh research hypothesis of the study is formulated as under:

H_7: Microfinance repayment performance differs significantly with respect to different types of borrowers' businesses.

2.1.7 Religion

Ashraf et al. (2014) found that low religious orientation associates with higher default risk. AbdulSamad (2014) advocated that the suicide incidents of Indian farmers caused by micro-credit programs could have been contained if the Islamic microfinance principles of risk-sharing and asset base were followed. Based on this discussion, the eighth research hypothesis of the study is formulated as under:

H_8: Microfinance repayment performance differs significantly with respect to the religion of the borrowers.

2.1.8 Loan and Default History

Baklouti (2013) discussed that loan history is the most vital predictor of repayment performance and defaulted borrowers face a significant level of difficulty in obtaining new loans. This argument suggests that credit history and default information (if any) can have a strong impact on the repayment performance in micro-credit. Based on this notion, the ninth and tenth research hypotheses of the study are formulated as under:

H_9: Microfinance repayment performance differs significantly with respect to the number of loans previously taken by the borrowers.

H_{10}: Microfinance repayment performance differs significantly with respect to previous loan defaults by the borrowers.

2.2 Loan Characteristics

Loan characteristics like loan amount, repayment frequency, flexibility in repayment amount and loan objective are other factors

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that affect loan repayment performance. Chaudhary and Ishfaq (2003) explained that lengthy loan repayment time diverts borrowers and they utilize spare cash on non-productive activities like consumption. Additionally, with an increase in loan size, the loan repayment declines. Godquin (2004) depicted that large loan size causes a delay in repayment of the loan over a definitive period of time. Armendáriz de Aghion and Morduch (2000) also explained that frequent repayment causes better repayment performance of microfinance loans. Feigenberg, Field, and Pande (2013) found that a flexible schedule can substantially decrease transaction costs and loan defaults. Based on the above-cited literature, the eleventh, twelfth, thirteenth and fourteenth research hypotheses of the study are formulated as under:

H_{11}: Microfinance repayment performance differs significantly with respect to the amount of the current loan.

H_{12}: Microfinance repayment performance differs significantly with respect to the repayment frequency of the current loan.

H_{13}: Microfinance repayment performance differs significantly with respect to the flexibility in the repayment of the current loan.

H_{14}: Microfinance repayment performance differs significantly with respect to the loan objective of the borrowers.

2.3 Institutional Characteristics

Christen (1992) argued that micro-entrepreneurs consider convenience and flexibility in financial services as compared to the cost of accessing the capital. Branch location, loan processing fees, the efficiency of staff, loan approval process and late fees penalty also play a crucial role in loan repayment performance. Nawai and Shariff (2012) showed a significant and positive association between branch location and repayment performance. Bhatt and Tang (2002) asserted that high transaction costs also cause lower repayment performance. Additionally, they conceptualized that borrowers will be less encouraged to repay if they bear high transaction costs due to institutional inefficiencies. In the light above discussion, the fifteenth, sixteenth, seventeenth, eighteenth and nineteenth research hypotheses of the study are formulated as under:

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H_{15}: Microfinance repayment performance differs significantly with respect to a branch location.

H_{16}: Microfinance repayment performance differs significantly with respect to the amount of processing fees of the loan.

H_{17}: Microfinance repayment performance differs significantly with respect to the efficiency of the staff of the microfinance institution.

H_{18}: Microfinance repayment performance differs significantly with respect to the loan approval process of the microfinance institution.

H_{19}: Microfinance repayment performance differs significantly with respect to the late fees penalty of the loan.

2.4 Social Collateral Characteristics

Udry (1994) exhibited that the social capital prevailing in conventional societies induces efficient loan contracts as compared to the markets with low social capital. Besley and Coate (1995) asserted that the existence of social capital based micro-credit has a significant competitive advantage over an individual loan. Bhatt and Tang (2002) mentioned that social collateral facilitates common monitoring along with group members and build inducement for loan repayment. Consequences like a social endorsement, community awkwardness, and social barring have constructive control on loan repayment performance. Godquin (2004) found that longer the group member known to each other, lessen would be the chances of default. Based on these discussions, the twentieth, twenty-first, twenty-second and twenty-third research hypotheses of the study are formulated as under:

H_{20}: Microfinance repayment performance differs significantly with respect to the duration of the relationship of the guarantor and the borrowers.

H_{21}: Microfinance repayment performance differs significantly with respect to the guarantor of the current loan.

H_{22}: Microfinance repayment performance differs significantly with respect to the loan referee of the current loan.

H_{23}: Microfinance repayment performance differs significantly with respect to the type of the current loan.

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3. Data and Methodology

3.1 Data and Estimation

In order to verify the effect of characteristics of the borrower (an individual), the lender (institution), loan and social collateral on the repayment performance of IMFIs, we utilized novel data set on microfinance loans. The data is obtained from microfinance programs carried out on a continuous basis by *Akhuwat*. Initially, 500 questionnaires were distributed among borrowers of *Akhuwat*, out of which 438 were returned. Among those received, 50 were incomplete and were not used for the purpose of the research. The final sample size contained 387 respondents. Logistic regression was used as an estimation technique, as it is a useful approach when the dependent variable is a dichotomous variable.

3.2 Variable Definition

Dependent Variable for this study is Loan Repayment Performance which is measured as: 0 = never defaulted, 1 = defaulted at any time during last one year.

Table 3 describes independent variables with measurement criteria:

Table 3: Independent Variables

1	Independent Variables	Measurement Criteria
2	Age	1 = less than 20 years 2 = b/w 21-30 years 3 = b/w 31-40 years 4 = b/w 41-50 years 5 = b/w 51-60 years
3	Gender	1 = Male 2 = Female 3 = Both
4	Education	1 = None, 2 = Primary (Grade I - V) 3 = Secondary (Grade VI – X) 4 = Higher Secondary (Grade XI – XII) 5 = Graduate and above
5	Work Experience	1 = None 2 = Less than 2 years 3 = 2-5 years 4 = 5-10 years 5 = More than 10 years
6	Marital Status	1 = Married 2 = Single 3 = Divorced

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1	Independent Variables	Measurement Criteria
7	Number of dependents	1 = Less than 2 2 = 2 – 3 3 = 4 – 5 4 = 6 – 10 5 = More than 10
8	Number of Previous Loans	1 = None 2 = One 3 = Two 4 = Three 5 = More than three
9	Previous Loan default	1 = First loan 2 = Zero default 3 = Some time default 4 = Frequent default 5 = Always default
10	Business Sector	1 = Services 2 = Trade 3 = Manufacturing 4 = Agriculture 5 = Other
11	Religion	1 = Islam 2 = Christianity 3 = Hinduism 4 = Others
12	Branch Location	1 = Green Town 2 = Bagiriyan 3 = Township (Head Office) 4 = Firdous Market 5 = Walton 6 = Chungi Amar Sidho 7 = Nishtar 8 = Kahna Nuh 9 = Bedian road.
13	Processing Fee	1 = Very less 2 = Less 3 = Don’t know 4 = High 5 = Very high
14	Staff Efficiency	1 = Very efficient 2 = Efficient 3 = Don’t know 4 = Bad 5 = Very bad
15	Loan Approval Process	1 = Very fast 2 = Fast 3 = Moderate 4 = Slow 5 = Very Slow
16	Late Fee charges	1 = Very less 2 = Less 3 = Don’t know 4 = High 5 = Very high

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1	Independent Variables	Measurement Criteria
17	Amount of Loan	1 = Less than PKR 10,000 2 = b/w PKR 10,001 - 20,000 3 = b/w PKR 20,001 - 30,000 4 = b/w PKR 30,001 - 40,000 5 = b/w PKR 40,001 - 50,000
18	Frequency of Repayment	1 = Monthly 2 = 5-10 installments 3 = 11-20 installments 4 = 20-30 installments 5 = More than 30 installments
19	Flexibility in Repayment	1 = Very easy 2 = Easy 3 = Neutral 4 = Difficult 5 = Very difficult
20	Loan Objective	1 = Expansion of existing business 2 = Start of new business 3 = Marriage 4 = Education 5 = Others
21	Loan Referee	1 = Friends 2 = Colleagues 3 = Neighbors 4 = Landlord/tenant 5 = Any other
22	Duration of Relationship with guarantor	1 = Less than 1 year 2 = 1-2 years 3 = 2-3 years 4 = 3-5 years 5 = More than 5 years
23	Guarantor of Loan	1 = Friends 2 = Colleagues 3 = Neighbors 4 = Landlord/tenant 5 = Any other
24	Type of Loan	1 = Individual loan 2 = Group loan 3 = Any other

3.3 Empirical Models

Model 1 (Individual/Borrower characteristics)

The following empirical model estimates the impact of individual/Borrower characteristics on the repayment performance of microcredit.

$$MLRP = \alpha + \beta 1Age + \beta 2Gen + \beta 3Edu + \beta 4Work + \beta 5Mar + \beta 6Dep + \beta 7Sec + \beta 8PreL + \beta 9PreLD + \beta 10Reli + u_t$$

Where;

MLRP = Micro finance loan repayment performance

Age = Age of borrowers

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Gen = Gender of Borrowers
Edu = Education of borrowers
Work = Work Experience of Borrowers
Mar = Marital Status
Dep = Number of Dependent
Sec = Business sector of the borrower
PreL = Previous loan taken by the borrowers
PreLD = Previous default by any loan
Reli = Religion of borrowers

Model 2 (Institutional/lender characteristics)

The following empirical model estimates the impact of institutional/lender characteristics on the repayment performance of microcredit.

$$\mathbf{MLRP = \alpha + \beta_1 Bran + \beta_2 ProF + \beta_3 Effi + \beta_4 LAP + \beta_5 LFP + u_t}$$

Where;
MLRP = Micro finance loan repayment performance
Bran = Location of Branch from where the borrower got the loan
ProF = Processing fees of the current loan
Effi = Efficiency of the staff in loan process
LAP = Loan Approval Process
LFP = Late Fees Penalty

Model 3 (Loan characteristics)

The following empirical model estimates the impact of loan characteristics on the repayment performance of microcredit.

$$\mathbf{MLRP = \alpha + \beta_1 LAmo + \beta_2 RepF + \beta_3 FRep + \beta_4 LObj + u_t}$$

Where;
MLRP = Micro finance loan repayment performance
LAmo = Loan Amount
RepF = Repayment frequency of loan installment
FRep = Flexibility in loan repayment amount
LObj = Loan Objective

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Model 4 (Social collateral characteristics)

Following empirical model estimates the impact of Social collateral characteristics on the repayment performance of microcredit

$$\mathbf{MLRP = \alpha + \beta_1 LRef + \beta_2 DGrt + \beta_3 Grt + \beta_4 TOL + u_t}$$

Where;

MLRP = Microfinance loan repayment performance

LRef = The one who has referred to the Loan.

DGrt = The one who has taken guarantee of the borrower for current loan

Grt = The one who is a guarantor

TOL = Type of loan

4. Results and Findings

4.1 Descriptive Statistics

Table 4 shows that the average age of the borrowers is between 31 years to 40 years and the majority of the borrowers are male with an average education level in primary school. The work experience is between two to five years, married, four to five dependents and already taken one loan previously and never defaulted. Most of the borrowers are small manufacturers and are Muslim. Further, the majority of the borrowers obtain a loan directly from the head office in Lahore. Nearly all of the borrowers believe that the processing fee of the loan is very less and the staff of the *Akhuwat* is very efficient. Further, most of the borrowers also believe that late fees charges are also very less. The average borrowed amount is between PKR 20,000 to PKR 30,000 and repaid in 11 to 20 installments. Furthermore, borrowers also believe that the flexibility of repayment is also very easy. The majority of the borrowers take a loan for the expansion of their business. Moreover, the loan is mostly referred by neighbors of the borrowers and the duration of the relationship of borrowers with their neighbors is more than five years. Usually, neighbors also become the guarantor of the borrowers.

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Table 4: Descriptive Statistics

	N	Valid	Mean	Mode
Loan default DUMMY	387	0	0.91	1.00
Age	387	0	2.95	3.00
Gender	387	0	1.48	1.00
Education	387	0	2.28	2.00
Work Experience	387	0	2.96	3.00
Marital Status	387	0	1.16	1.00
Dependents	387	0	2.75	3.00
Number of Previous loan	387	0	2.21	2.00
Previous default	387	0	1.71	2.00
Business sector	387	0	2.77	1.00
Religion	387	0	1.07	1.00
Branch	387	0	5.16	3.00
Processing Fees	387	0	1.55	1.00
Efficiency of Staff	387	0	1.37	1.00
Loan approval process	387	0	1.61	1.00
Late fees penalty	387	0	1.28	1.00
Loan amount	387	0	2.70	3.00
Repayment frequency	387	0	2.75	3.00
Flexibility of Repayment	387	0	1.37	1.00
Loan objective	387	0	1.30	1.00
Loan reference	387	0	2.22	3.00
Duration Guarantor	387	0	3.99	5.00
Guarantor	387	0	2.37	3.00
Type of Loan	387	0	1.85	2.00

4.2 Results and Discussion

4.2.1 Model 1 – Results and Discussion

Binomial logistic regression estimates the probability of an event occurring. This study measures the probability of loan repayment default. If the borrower pays all installments on time, then there is no loan default. And if a borrower delays or skips payment once or more in a year, then it is considered in the category of loan default.

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Table 5: Classification - Model 1

Observed			Predicted		
			MLRP		Percentage
			0.0	1.0	
Step 1	MLRP	.0	2	32	5.9
		1.0	2	351	99.4
Overall Percentage					91.2

Note: *The cut value is .500.

The first half of Table 5 represents observed values i.e. the number of 0's and 1's in the loan default, whereas, the second half represents predicted values of the loan default based on the full logistic regression model. This table also shows how many observations are appropriately predicted (2 observations are observed appropriately predicted to be 0; 351 observations are observed and appropriately predicted to be 1), and how many observations are not appropriately predicted (32 observations are observed to be 0 but are predicted to be 1; 2 observations are observed to be 1 but are predicted to be 0). Finally, this table also depicts the overall percentage (92%) of observations that are appropriately predicted by the model.

Table 6: Binary Logistic Regression Analysis - Model 1

	B	S.E.	Wald	df	Sig.	Exp(B)
Age	-0.145	0.257	0.316	1	0.574	0.865
Gen	0.928	0.442	4.413	1	**0.035	2.529
Edu	0.268	0.203	1.733	1	0.188	1.307
Work	0.138	0.182	0.573	1	0.449	1.148
Mar	1.183	0.583	4.125	1	**0.042	3.265
Dep	1.066	0.262	16.561	1	*0.000	2.903
Sec	0.062	0.136	0.208	1	0.649	1.064
PreL	0.510	0.307	2.759	1	***0.096	1.665
PreLD	-0.873	0.466	3.509	1	***0.061	0.418
Reli	-2.007	0.544	13.634	1	*0.000	0.134
Constant	-0.868	1.631	0.283	1	0.595	0.420
Cox & Snell R-Square = 0.108 and Nagelkerke R-Square = 0.240						

Note: At significance level *1%, **5% and ***10%.

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Table 6 represents Cox and Snell R^2 and Nagelkerke R^2. Researchers usually prefer Nagelkerke R^2 which suggests that Model 1 explains 24% of the variation in the loan repayment default (dependent variable). Moreover, this table also shows the relationship between the dependent variable and independent variables where the dependent variable is on the logit scale. Previous default and religion are significantly and inversely related to the loan repayment default (p-value 0.061 and 0.000 respectively). Gender, Marital status, number of dependents, number of previous loan defaults are significantly and positively associated with loan repayment default. Contrary to these, age, educational level, work experience, and business sector are not significantly related to loan repayment default.

4.2.2 Model 2 – Results and Discussion

Table 7: Classification - Model 2

Observed			Predicted		
			MLRP		Percentage
			.0	1.0	
Step 1	MLRP	.0	2	32	5.9
		1.0	3	350	99.2
	Overall Percentage				91.0

Note: *The cut value is .500.

Table 7 shows the number of observations that are appropriately predicted (2 observations are observed and appropriately predicted to be 0; 350 observations are observed and appropriately predicted to be 1) and how many observations are not appropriately predicted (32 observations are observed to be 0 but are predicted to be 1; 3 observations are observed to be 1 but are predicted to be 0). Finally, this table also depicts the overall percentage (91%) of observations that are appropriately predicted by the model.

Table 8 represents Cox and Snell R^2 and Nagelkerke R^2. Nagelkerke R^2 suggests that that Model 2 explains 22.5% of the variation in the loan repayment default (dependent variable). Reference of loan and duration of a borrower-guarantor relationship are significantly and positively related to the loan repayment default

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(p-value 0.001 and 0.000 respectively). However, the guarantor and type of loan are not significantly related to loan repayment default.

Table 8: Binary Logistic Regression Analysis - Model 2

	B	S.E.	Wald	df	Sig.	Exp(B)
LRef	.819	.252	10.545	1	*0.001	2.267
DGrt	.679	.158	18.460	1	*0.000	1.972
Grt	-.096	.204	.224	1	.636	.908
TOL	-.273	.446	.374	1	.541	.761
Constant	-.869	.915	.901	1	.342	.419
Cox & Snell R-Square = 0.101 and Nagelkerke R-Square = 0.225						

Note: At significance level *1%, **5% and ***10%.

4.2.3 Model 3 – Results and Discussion

Table 9: Classification - Model 3

Observed			Predicted		
			MLRP		Percentage
			.0	1.0	
Step 1	MLRP	.0	0	34	0.0
		1.0	3	350	99.2
Overall Percentage					90.4

Note: *The cut value is .500.

Table 9 shows the number of observations that are appropriately predicted (2 observations are observed and appropriately predicted to be 0; 350 observations are observed and are appropriately predicted to be 1) and how many observations are not appropriately predicted (34 observations are observed to be 0 but are predicted to be 1; 3 observations are observed to be 1 but are predicted to be 0). Finally, this table also depicts the overall percentage (90.4%) of observations that are appropriately predicted by the model.

Table 10 represents Cox and Snell R^2 and Nagelkerke R^2. Nagelkerke R^2 suggests that Model 3 explains 21.1% of the variation in the loan repayment default (dependent variable). The loan amount and repayment frequency are significantly and positively related to the loan repayment default (p-value 0.005 and 0.000 respectively).

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However, the flexibility of repayment and loan objective is not significantly related to loan repayment default.

Table 10: Binary Logistic Regression Analysis - Model 3

	B	S.E.	Wald	df	Sig.	Exp(B)
LAmo	.822	.294	7.796	1	*0.005	2.275
RepF	1.085	.209	26.959	1	**0.000	2.959
FRep	.306	.357	.736	1	.391	1.358
LObj	.565	.772	.536	1	.464	1.759
Constant	-3.279	1.229	7.115	1	.008	.038
Cox & Snell R-Square = 0.094 and Nagelkerke R-Square = 0.211						

Note: At significance level *1%, **5% and ***10%.

4.2.4 Model 4 – Results and Discussion

Table 11: Classification - Model 4

Observed			Predicted		
			MLRP		Percentage
			.0	1.0	
Step 1	MLRP	.0	0	34	0.0
		1.0	2	351	99.4
	Overall Percentage				90.7

Note: *The cut value is .500.

Table 11 shows the number of observations that are appropriately predicted (2 observations are observed and appropriately predicted to be 0; 351 observations are observed and appropriately predicted to be 1) and how many observations are not appropriately predicted (34 observations are observed to be 0 but are predicted to be 1; 2 observations are observed to be 1 but are predicted to be 0). Finally, this table also depicts the overall percentage (90.7%) of observations that are appropriately predicted by the model.

Table 12 represents Cox and Snell R^2 and Nagelkerke R^2. Nagelkerke R^2 suggests that Model 4 explains 26.51% of the variation in the loan repayment default (dependent variable). The location of the branch and the amount of processing fees are positively and

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significantly associated with loan repayment default (p-value 0.000 and 0.019 respectively). On the other hand, the late fees penalty is significantly but negatively associated with loan default (p-value 0.079). However, the efficiency of staff and the loan approval process is not associated with loan repayment default.

Table 12: Binary Logistic Regression Analysis - Model 4

	B	S.E.	Wald	df	Sig.	Exp(B)
Bran	.561	.112	24.881	1	*0.000	1.752
ProF	1.030	.440	5.477	1	**0.019	2.801
Effi	-.009	.330	.001	1	.977	.991
LAP	-1.031	.857	1.447	1	.229	.357
LFP	-.705	.403	3.065	1	***0.079	.494
Constant	.416	1.293	.104	1	.748	1.516
Cox & Snell R-Square = 0.10189 and Nagelkerke R-Square = 0.2651						

Note: At significance level *1%, **5% and ***10%.

5. Conclusions

The study aimed at investigating the determinants of loan repayment performance of IMFI in Pakistan. The study examined the impact of attributes of borrowers, lender, loan and social collateral related to the *Akhuwat* on loan repayment performance. *Akhuwat* is leading IMFIs which offers interest-free microcredit. *Akhuwat* performed remarkably since its formation and the loan portfolio of the institution has increased manifold at the end of 2018. The average recovery rate during the period is 99.9%. The results obtained from the study are divergent, as some of the findings are consistent as well as inconsistent with existing literature on the repayment performance of MFIs.

The findings show that some socio-demographic factors like gender, marital status, number of dependent and number of the previous loan are significantly and positively associated with loan repayment performance. However, previous loan default and religion are significantly and inversely associated with the loan repayment performance. The findings of the study are in line with the literature that highlights gender as a major determinant factor of loan repayment

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performance in microfinance. However, the education factor is not significant which is indeed a surprising finding because a plethora of research in other markets have shown that entrepreneurs with better education level can manage business more effectively. The findings reveal that entrepreneurs with more experience tend to have better loan repayment and married entrepreneurs act responsibly and use the financing for the purpose of the business instead of utilizing loans for consumption. This study explains the promising recovery rates achieved by *Akhuwat* because the borrowers use the funds for business purposes only. The majority of the borrowers surveyed had no prior defaults and the findings also confirm that previous loan defaults are significantly negatively associated with loan repayment performance. The findings are explained by lower borrower's motivation, whereas the motivation for receiving future loans serves as a major motivating factor.

Institutional characteristics like branch location and amount of processing fees are significantly and positively associated with repayment performance. However, the late fees penalty is significantly and inversely related to the loan repayment performance. These results are in line with earlier evidence which reinforces that the repayment performance improves with lower transaction costs and proximity to MFI. Additionally, the evidence reveals that poor borrowers respond negatively to default penalties because they are already financially constrained.

Loan-related characteristics like the amount of loan and ease in repayment frequency are significantly and positively related to the microfinance loan repayment performance. These findings are also consistent with earlier pieces of evidence that show one of the competitive advantage MFIs holds over individual loans is frequent repayments. However, the results of this study are divergent from earlier studies that show that higher loan size is associated with high default rates. Lastly, social collateral characteristics like loan referees and duration of the borrower-guarantor relationship are the significant factors that affect the loan repayment performance. The findings support the literature that advocates the importance of social ties in improving microfinance repayment performance.

The findings of the hold key insights for the policy-making

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perspective, as evidence obtained from field data, reveals the important determinants and factors affecting the repayment performance of microfinance programs in Pakistan. However, the results obtained from our study should be interpreted with wisdom, as they reflect a limited sample size. The finding also serves as a vital policy indicator for designing a microcredit program to reduce the number of defaults in Pakistan.

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