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# Microfinance Institutions of Bangladesh: The Effects of Credit Risk Management on Credit Performance

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**Abstract**
The main aim of this study is to investigate the effects of credit risk management on the credit performance of microfinance institutions in Bangladesh. For this purpose, an econometric model with a cross-sectional dataset has been taken into account. The primary data is collected from125 officers of 35 microfinance institutions in Bangladesh. Multiple variables namely, credit policy, credit terms, credit appraisals process, credit risk control, credit collection procedures and Institutional factor have been adopted as the components of credit risk management. The data has been collected using a structured questionnaire completed by microfinance institutions officers of different levels in Bangladesh. The study reveals that credit policy, credit risk control, credit collection procedures and Institutional factor have positive effects on credit performance, and they are statistically significant at 5%, 10%, 1% and 1% levels respectively; while credit terms and credit appraisals process have positive but insignificant effects on the credit performance of microfinance institutions. The empirical findings will support the policymakers in restructuring their overall credit risk management strategies to improve and sustainable credit performance.
**Keywords:** Competition, Overlapping credit, Institutional factor, Effects, Insolvency

## 1. Introduction

Poverty is a global issue. It is estimated that there are about 767 million people are living below the poverty line over the world (World Bank 2016). In the South Asia region, there are about 33.4% of people remain under the poverty line (World Bank 2016). It is second highest in the world. Poverty in Bangladesh is also an alarming issue which put a great pressure on the government and other line agencies to deal with poverty. According to the Asian Development Bank (2017), 31.5% of the total population of Bangladesh is living under the national poverty line. Under such circumstances, provision of micro-credit among the poor people plays a significant role as an economic and social technique to create self-income generating sources to improve their income level and living standard (Khatun *et al.* 2012). The importance of Micro Finance Institutions (MFIs) is highlighted in different ways by different researchers/institutions. For instance, MFIs are introduced as an alternative source of financing and active tool for poverty alleviation to poor households by providing micro financial services, i.e. microcredit, microinsurance, micro deposit and money transfer services (ADB 2000; Robinson 2001). Similarly, MFIs are a strong channel as a long run strategic policy to poverty reduction and sustainable economic development especially for developing countries (Gutierrez-Nieto *et al.* 2007; Copestake 2007). Sengupta and Aubuchon (2008); Hermes *et al.* (2011); Habib and Jubb (2015) also mentioned that MFIs are justified as an effective and dynamic mechanism for poverty reduction. Microfinance according to Schreiner and Colombet (2001) is the initiatives to facilitate the small credit and savings services for poor household those who have no access to banks. MFIs main objective is to provide financial services to the poor people- those who are financially vulnerable, to enable them to engage in income generating activities or start micro level businesses (Kneiding and Mas 2009).

From the above references on definition and importance of MFIs, it is proven that MFIs always deals with the poor and poverty alleviation. However, the poor may be of different sorts such as – landless poor, low-income poor, extreme poor, moderate poor, vulnerable non-poor etc., and the main focus of the MFIs is providing services to these poor people. Therefore, there is a possibility not to receive or repayment of money from the borrowers with interest which is the common event of MFIs during the microcredit practices. The reasons none repayment of money are mainly because the borrowers live far below the poverty line and they do not utilise their money for productive activities. So there are no doubts that MFIs are involved with the risky business operation.

Eventuality, MFIs are facing vulnerability for the above situations, and delinquency can quickly spread from a handful of loans to a significant portion of the portfolio due to most micro-credits being unsecured in the absence of collaterals. The above situations perform as a contagious mode that is exacerbated by the fact that

 

credit portfolios of microfinance often have a high meditation indefinite business segments. The MFIs are facing market competitions with commercial banks and other large-scale financial institutions for offering credit and savings cause of economic liberalisation, surplus liquidity in commercial banks and insufficient financial capitals resulting to liquidity shortage in credit institutions among all other factors (Constantinou and Ashta 2011). It is also found that installments of institutions' credits are not being considered seriously by clients due to lower level interest charged, lack of appropriate guarantors and poor administrative structures of credit collection. Subsequently, many of them are trapped in severe cash flow difficulties. The situation was further complicated by over drafting whereby organisations negotiate with commercial banks at high-level interest is credited to clients at low-level interest (Pamoja 2010).

In the recent year microfinance market has reached the maturity stage and the competition among MFIs has expanded. Competition among MFIs has not only created advantages such as easy access and reasonable interest-rates but also introduced complexities (Saloner 2007). Against this backdrop of the extreme level of competition, overlapping credit problems among the MFIs and clients have raised as a big crisis in Bangladesh (Yuge 2010). Overlapping means one client takes credit from more than one institution for the same purpose and same time because branch offices of MFIs have no interconnected database about their clients. Whereas, commercial banks in Bangladesh have the Credit Information Bureau (CIB) and they can easily trace the previous and current credit history of the clients. But it is absent in the MF industry. As a result, the number of overlapping credits is growing day by day. It might grow systematic risk among the MFIs and blunt the basis of the microfinance sector in Bangladesh as a whole. These negative effects retreat not only on the MFIs, which are continuous struggling to retain their level of performance but also on the credit customers. These overlapped customers are facing very critical problems to repaying the credit amount to lending institutions. According to Peeters (2003), 25% of microfinance institutional borrowers take credits from six or more than six separate financial institutions which ultimately guide to critical situation of repayment in the microfinance sector. The consequence of repayment crisis is a liquidity shortage which adversely influences the regular performance of MFIs.

Effective credit risk management can be resolves this crucial issue for the sustainable operation of MFIs. As a critical aspect and burning issue among the issues faced by the microfinance industry, credit risk management needs focal attention. The credit risk management issue is not only important for sustainability but also for the growth of the microfinance industry. The sustainable growth and development of MFIs can bring financial stability to the national economy (Greuning and Bratonovic 2003). Ineffective and inefficient credit risk management may cause liquidity shortage and lead to insolvency of MFIs. A good number of Bangladeshi microfinance institutions are regularly fighting against credit recovery problem. Hence, the microfinance industry may be likely to face deadlock if there is a little decline in credit quality.

In the last few years, credit risk management gained most importance because of the big economic losses faced by large-scale international financial institutions (Nikolaidou and Vogiazas 2014). Nevertheless, a small number of research works have been done to measure the effect of credit risk management on credit performance, and there are also no specific determinations about credit risk management components which can be lead to reduce credit risk. In the case of Bangladesh there are several research works have been conducted on different issues of the microfinance industry such as; examination of the financial sustainability of MFIs (Rahman and Mazlan 2014); Financial and social outreach of MFIs (Mia and Chandran 2015); Efficiency analysis of MFIs (Azad *et al* 2015); Productivity and efficiency analysis of MFIs (Bairagi 2014); capacity to eliminate poverty by MFIs (Mazumder and Lu 2015; Mahjabeen 2008; Habib and Jubb 2015). However, none of these studies focused on the credit risk management factors contributing to credit performance of microfinance in Bangladesh. Hence most importantly, it is required to measure the effect of credit risk management factors on credit performance of MFIs in Bangladesh. Therefore the objective of this study is set to determine the effects of credit risk management on credit performance of Bangladeshi MFIs.

This study may contribute to three different aspects. Firstly, to the Author's best of knowledge, it is a first-time measure of the effects of credit risk management on credit performance of MFIs in Bangladesh. Secondly, to the best of the Author's knowledge, it is also about the first time using six variables to measure the credit performance of MFIs; since none of the reviewed studies has been conducted in this way which uses six credit risk variables. This measurement may help to identify the major influencing risk factors of credit performance of MFIs. Finally, the results may highlight the need for additional attention of MFI's authority to minimise the classified loan and sustainable credit management.

The study is organised as follows: the following section summarising the microfinance industry in Bangladesh. In the next, a literature review is presented, which is followed by the research hypothesis and methodology. Results are discussed later followed by a conclusion.

## 2. Microfinance Industry in Bangladesh

Microfinance of Bangladesh is a key economic unit contributing to poverty alleviation and overall economic

 

development. This sector is very large and consisting of different formal and informal organisations. It consists of public and private commercial banks, Grameen Bank, NGOs and different ministries operated special programs for poverty alleviation. In Table 1, as per MRA (2015), the microfinance sector has disbursed total credit USD 10,439 million, credit outstanding is around USD 6,297 million and savings USD 4,015.875 million. The number of clients of MFIs is 34.58 million that expedites economic status of the country.

Table-1: Microcredit Status in Bangladesh

| Particulars | Clients (in million) | Savings (US$ in million) | Credit Balance (US$ in million) | Credit Disbursement (US$ in million) |
|---|---|---|---|---|
| Licensed MFIs from MRA | 27.5 | 2,133 | 5,742 | 9,783 |
| Grameen Bank | 6.96 | 2,298 | 1,367 | 2,116 |
| Public and Private Commercial Banks | 0.53 | 123 | 300 | 377 |
| Ministries of Government | 1.12 | 95 | 392 | 293 |
| **Total** | **36.11** | **4649** | **7801** | **12,569** |

Source: Micro Finance Regulatory Authority (MRA) – MIS database 2016. (Approx. exchange rate $ 1 = 80 Taka)

Microfinance of Bangladesh shows strong resilience and continues its contribution towards the progress of macroeconomic growth, though there was a complexity of global 'double-dip' recession and over-indebtedness crisis in the microfinance sector in many countries. Table-2 presents the overall scenario of licensed NGO MFIs in Bangladesh. It is shown that total outstanding credits of licensed NGO MFIs have risen by 164 percent from 2011 to 2016 which is USD 5,742 million distributed to 27.50 million poor people, supporting them in creating income generating activities and enhance the overall economic progress of the country.

Table-2: Overview of NGO-MFI in Bangladesh

| **Particulars** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
|---|---|---|---|---|---|---|
| No. of Licensed NGO MFIs | 576 | 590 | 649 | 676 | 697 | 680 |
| No. of Employees | 111,828 | 108,654 | 110,734 | 114,644 | 110,781 | 127,820 |
| Clients (in millions) | 26.08 | 24.64 | 24.60 | 25.17 | 26.00 | 27.79 |
| Borrowers (in millions) | 20.65 | 19.31 | 19.27 | 19.98 | 20.35 | 23.28 |
| Credit Outstanding (US$ in millions) | 2172 | 2641 | 3212 | 3475 | 4405 | 5742 |
| Amount of Savings (US$ in millions) | 791 | 940 | 1,173 | 1,412 | 1692 | 2139 |

Source: Micro Finance Regulatory Authority (MRA) – MIS database 2016. (Approx. exchange rate $ 1 = 80 Taka)

The amount of savings is also increasing each year significantly and contributes to capital formation in the economy. Table 2 also presents the number of licensed NGO-MFI is growing annually. A total number of licensed NGO-MFIs 2011 and 2016 are 576 and 680 respectively. Total 18% licensed NGO-MFIs increased from 2011 to 2016. It is noted that every year MRA approved and cancelled the license of some MFIs as a result total number of MFIs is increased every year except 2016. It is found that in 2016 number newly approved MFIs are lower than the cancelled MFIs.

## 3. Literature Review

MFI's main activity is providing microcredit to poor and vulnerable non-poor people without collateral. The borrower may not return the credit and interest amount due to the low capacity of repayment. Therefore, Craig and Frankiewicz (2006) argued that microfinance business is not a safe business; it is very vulnerable and risky; some of the risks are disturbing while other risks threaten to damage the MFIs. So microfinance authorities need to give more concentration to explore a better way to deal with exposed risks of MFIs; Else MFIs could not control the losses and improve their performance.

Credit risk refers to the threat faced by the lender to lose the credit amount due to borrower's inability to repay. It may create a default risk (Moti *et al.* 2012). Lenders may face high collection cost, and cash flows decreased if there is any defaulted loan. Fredrick (2012) defines credit risk as the borrowers' chance of failing to carry out agreed credit terms and conditions. Credit risk is the highest expensive risk, and its effect is more significant than other risks as it directly influences the solvency of financial institutions (Chijoriga1997). Some of the prior studies have noted that if the financial organizations practice strong credit risk control policies then there is a chance of low default risk; therefore, the risks related to credit could be minimized by critically evaluating credit application, legal contracts, highly protected credit, broadening and tightening (Ross et al. 2008). Some of them are argued that efficient and effective credit lines management is most important for quality credit risk management. Furthermore, MFIs have to increase the level of knowledge about different aspects of prospective customers like, economic strength, previous credit records and changing payment designs

 

to reduce the over-reserving and bad debt risk.

Nowadays, proper credit management is getting attention as an important issue for the sustainable development of the MFIs and social outreach. Otherwise, MFIs will face a lot of difficulties for smooth operation. For example, the Kenyan MFIs are not working well by credit management. Amount of non-performing credits in Kenyan MFIs is increasing day by day. Achievement of their goals will be difficult if non-performing credits cannot be controlled (Moti *et al.* 2012). According to Arora and Kumar (2014) Credit risk management (CRM) is very important for continuing business and ensuring the profitability of commercial banks in India; for that banking institutions of India practicing these credit risk management (CRM) system over the years since inception of CRM; new policies have been introduced, old policies have been substituted by new sophisticated policies. The empirical result found by Sufian and Chong (2008) is that credit risk management is one of the key indicators of Philippines' bank's profitability.

According to Arora and Kumar (2014), the CRM policy defines basic codes of conduct to manage the portfolio of the loan. Nikolaidou and Vogiazas (2014) define credit risk management as a set of activities controlling and reducing risks exposed by an organisation through specific credit risk management strategies and procedures related to the objectives of the organisation. Bezzina *et al.* (2014) said risk management practices are not introduced and aimed to eliminate total risks, but their target is to control chance of the happening of any unforeseen event that may create an economic loss. Moreover, risk management uses also assure financial organisations strong, basic and legal framework for making a decision that helps to attain the firm's objectives as contend by Ross *et al.* (2008). In contrast, García *et al.* (2013) explained that active credit risk management applications have always ignored the human element in decisions making about minimising risks.

Cooper *et al.* (2003) noted that the performance of the financial institution is varying according to the variation of health of credit portfolio risk management by banks. Miller and Noulas (1997) depicted that if financial organisations are involved with too many high-risk credits, there could increase bad debts along with low profits. Credit risk considered as the most critical and costly risk for financial institutions. The impact of credit risk is most significant compared to other risk related to banking sector; since it is directly linked to the solvency of the financial institution (Chijoriga 2011). Credit risk is strongly associated with solvency risk and magnitude level of loss also. It may cause higher credit loss and even destroy the financial institutions (Richard *et al.* 2008).

Credit portfolio is the largest asset and the main source of revenue generation, but it is the highest source of risk for safety and soundness of the financial institutions (Richard *et al.* 2008). Therefore credit risk management is treated as the best road map for safety and soundness of the financial institutions through frugal activities likewise supervising and performance. Weak credit risk management is a most important risk to financial institutions; it is a threat to the banking industry (Chijoriga1997). There should be a good disbursement of credits according to well-defined credit policies and guidelines (Schreiner 2003). Well established credit policy is advantageous for institutional financial performance. Hence it supports institutions to practice the same for risk management and fulfilling targeted requirements (Ledgerwood 2000). A credit review is an activity of credit policy and is crucial, guiding management to problem recognition on a regular basis, to inquire whether credit officers are maintaining the credit policy in true letter and essence or not. Commercial banks can apply credit review policy very effectively through the use of updated technology than other financial institutions; hence it can easily be able to liquidate credits (Craig and Frankiewicz 2006).

Previous research works indicate that MFIs have to practice a sound and effective credit risk management policy to ensure quality credit recovery from borrowers (Bezzina *et al.* 2014). Lending is the main source of income of MFIs, that's why it has to be guided by an effective credit risk management policy. The credit reimbursements may be questionable, and the achievement of giving out credit depends on the principles related to credit assessing and approval process (Moti *et al.* 2012). Afterwards, the credit choice should determine all dangers about credits and the borrowers. Several techniques have been introduced in prospective borrower assessment preparation by budgetary establishments which operate from generally clear-cut techniques, for example, the use of subjective methodologies, to logically mind-boggling ones; another example is the use of technology-based reproduction models (Horcher 2005; Horne and Wachowicz 2008).

During the current literature review of credit risk management, four credit management components were found great significance to credit performance in the microfinance sector. For instance, to assess the effects of credit risk management systems on credit performance of MFIs, the credit risk variables used are as credit terms, client appraisal, credit risk control and credit collection policies by (Moti *et al.* 2012; Ahmed and Malik 2015). Again, Maina and Kalui (2014) considered the factors loan policies, initial loan appraisals and loan recovery procedures for assessing the loan defaulting in MFIs. Whereas, Kiplimo and Kalio (2014) adopted only client appraisal is a credit management component to the credit performance of MFIs. After the review of the literature, it is found that there is a big scope to work in this field because of there are a few early studies done in this aspect and these studies are used few numbers of risk variables and small dataset. To end of this, we are intended to do extensive research with a big dataset and a maximum number of credit risk management variables. The

 

variables are supported by the previous studies and related with credit performance.

**4. Hypotheses**

After the minute reviewing of literature, this study has been developed the following research hypothesis relating to the research objective. There are six credit risk management variables are considering to evaluate the effect on credit performance. Based on these variables it is hypothesised that each variable has a significant positive effect on the credit performance of MFIs. Thus it is summarised that the variables respectively (1) credit policy, (2) credit terms, (3) credit appraisals process, (4) credit risk control, (5) credit collection procedures and (6) Institutional factor are individually positively significant to credit performance of MFIs.

**5. Methodology of the Study**

This study aims to state and isolate the strength and the order of the effects of credit management on credit performance of MFIs. The MFIs regulated under MRA of Bangladesh are taken into account for this purpose. The data location has been selected purposively to gather best combination and representative data. The selected locations are Barisal, Patuakhali and Lakshmipur districts. Barisal city is an economically rich area, Patuakhali is disaster prone and rural lag behind area and Lakshmipur is also rural but economic condition is something better than Patuakhali. The primary data are accumulated from 35 MFIs (including top 08 MFIs) located in the selected districts. The data has been collected from purposively selected 125 officials who are involved with credit management of these MFIs; the officials are branch managers, area managers, credit officers and collection officers. The following mentioned six independent variables are taken into consideration to justify the credit performance of MFIs as the scope of the credit management. The modified questionnaires and five-point Likert scale are adopted for the different issues of credit management based on the previous studies. The data has been calculated using Statistical Package for the Social Sciences (SPSS) and spreadsheet software. The analysis is done by applying the inferential and descriptive statistical techniques. The mean and standard deviation are considered in the presentation of descriptive statistics. In case of inferential statistics, the correlation and multiple regression analysis have been used to finalise the decisions of the study. The following econometric model we used in this research:

$CP = f(CPL, CTM, CAP, CRC, CLP, InsFct)$…… *(i)*

$CP = \alpha + \beta_1 CPL + \beta_2 CTM + \beta_3 CAP + \beta_4 CRC + \beta_5 CLP + \beta_6 InsFct + \varepsilon$…… *(ii)*

Where,

CP= Credit Performance, CPL = Credit Policy, CTM= Credit Terms, CAP = Credit Appraisal Process, CRC = Credit Risk Control, CLP = Credit Collection Procedures and InsFct = Institutional Factor

$\varepsilon$ is the error or disturbance term that absorbs the influence of omitted variables in the proxies used.

$\alpha$ is the intercept; $\beta_{1\text{-}6}$ are the coefficients of the explanatory variables.

The cross-sectional data has been used to calculate regression, before that, each variable has been checked by the reliability test. The multicollinearity and autocorrelation problem of variables is checked by variance inflation factors (VIF) and Durbin Watson statistic techniques. The dependent and independent variables are consisting of multiple questions. For the multiple regressions, the data has been compiled by summation of a score of each question divided by the number of questions for each respondent.

 

Table 3: Data and Variables

**Dependent Variable:**

**Credit Performance (CP)**: Means how efficiently MFIs are performing their credit activities. To measure CP different factors have been adopted in the questionnaire.

**Independent Variables:**

**Credit Policy**: Credit policy is the compilation of some wise decisions, which helps the credit officer in every step of the credit process to execute his/her duty efficiently and properly. Without having understandable credit policies, it may lead to distressed loans; if MFIs do not have strict policies, then they stand the chance of losing their credit as well as financial performance.

**Credit Terms**: Credit terms mean a set of conditions by which MFIs sanctions credit to its customers. It specifies the rates of interest and credit period. The credit period means the period considered for credit approval. The length of credit depends on security, level of credit risk, the amount of the credit and competitors in the market (Ross *et al.* 2008).

**Credit Appraisal**: Credit appraisal is a process to evaluate the credit application accepted from prospective borrowers. Different techniques like 5 C's, 5 R's, CAMPARI and PARSAR are used by MFIs to assess the borrowers. Abedi (2009) contends that MFIs apply the 5 C's technique to credit analysis, because of its contribution to increasing credit performance, previous they can know their customer is better. Credit appraisal can play a vital role in reducing the loss of credit, if the institutions do not appoint competent officers to conduct credit appraisal then there would be a great chance to lending credit to non-deserving customers (Boldizzoni 2008).

**Credit Risk Control**: For most credits, there are some risks that the borrowers will be unable to repay the interest and principal on time or at all and is called credit risk. Credit risk could be mitigated if the financial institutions use risk-based credit pricing, diversification of credit, tightening the credit policy, credit insurance (*Ross et al.* 2008).

**Collection Procedures**: Collection policy is one of the important policies because all clients do not repay their due amount on time. The collection procedures should aim to expedite collections from the clients those who are paying late and minimising distressed loan (Kariuki 2010). The accumulation of effort aims to subsequently drive for accelerating collection from moderate credit payers and reducing unpleasantness.

**Institutional Factor**: Institutional factor is also considered as an important contributing component to credit performance. It considers the overall aspects like inspection of client's business activities, management decisions, conditions and procedures, quality of employees, size of Institutions, goodwill, experiences, location and willingness of management etc. So, Institutional factors should be standardised for standard credit performance of MFIs.

The P (sig.) value is considered as a decision criterion for testing hypothesis. If P (sig.) value is lower than 0.10, it will reject the null hypothesis and accept the research hypothesis and vice-versa.

## 6. Result and Discussion

### 6.1 Descriptive Statistics

This part is starting with descriptive statistics which contains the rudimentary features of the data used in research. The results of the descriptive statistics demonstrated in table 4 that is the mean value of credit performance is 3.556, and the standard deviation is 0.64. This specifies that the average performance of the credit is near to better according to the respondents of MFIs of Bangladesh. The mean values of independent variables are 3.51, 2.78, 3.31, 3.45, 2.58 and 3.02 respectively. It is depicted that Credit Policy (CPL) has maximum mean value, i.e. 3.51; whereas Collection Procedures (CLP) statistical mean value is lowest among the independent variables, i.e. 2.588. It means CPL has the highest effect and CLP has the least effect on credit performance. There is highest and same standard deviation in CTM and CAP that is 0.855; which means the evaluation of respondents are very inconsistent. The respondents evaluate the new component Institutional Factor (InsFct) is at a moderate level that is 3.110, and the standard deviation is 0.58; which presents almost the lowest variation among the variables.

Table 4: Descriptive Statistics

| Variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| CP | 125 | 2.08 | 5.00 | 3.5560 | 0.64472 |
| CPL | 125 | 2.11 | 4.89 | 3.5132 | 0.67343 |
| CTM | 125 | 1.43 | 4.52 | 2.7861 | 0.85526 |
| CAP | 125 | 1.00 | 4.78 | 3.3110 | 0.85825 |
| CRC | 125 | 1.43 | 4.57 | 3.4501 | 0.78523 |
| CLP | 125 | 1.43 | 4.29 | 2.5886 | 0.57989 |
| InsFact | 125 | 2.00 | 4.33 | 3.0246 | 0.58433 |

Source: Field Data-2016

 

### 6.2 Correlation Analysis

The study result regarding the correlation between variables in Table 5 shows most of the variables are positively correlated, but there are some variables have an inverse relationship which indicates the decrease of a particular variable will lead to increase in another particular variable and vice-versa. In this part, it was found that CPL, CTM, CRC, CLP and InsFact are positively and strongly correlated with CP. The CP and these five variables have a positive relationship at 1% level of significance. It was also found that CAP has a positive relationship with CP. But the relation is statistically insignificant. In nut shell, it is demonstrated that all independent variables except CAP have a strong positive relationship with the dependent variable. It means most of the respondents did not consider CAP as important variables for credit performance because they deal with the poor, landless and vulnerable non-poor. So they have no chance to maintain all aspects of CAP strongly.

Table 5: Correlation Matrix

| | CP | CPL | CTM | CAP | CRC | CLP | InsFact |
|---|---|---|---|---|---|---|---|
| CP | 1 | | | | | | |
| CPL | .268** | 1 | | | | | |
| CTM | .338** | .214* | 1 | | | | |
| CAP | .027 | -.109 | -.034 | 1 | | | |
| CRC | .250** | .196* | .378** | .001 | 1 | | |
| CLP | .451** | .206* | .156 | -.323** | .142 | 1 | |
| InsFact | .608** | .057 | .252** | .020 | .054 | .423** | 1 |

* Significance Level 5% and ** Significance Level 1%

### 6.3 Reliability Analysis

A reliable fitness test is a test to rely on something that is consistent to measure. Cronbach's alpha is a method used to assess the reliability or internal consistency of a set of test items or scale. Although there is no specific standard for makes Cronbach's alpha (α) coefficient is good; it is totally depends on theoretical knowledge of the scale in question and arbitrary also but it is recommended by many methodologists an acceptable Cronbach's alpha (α) is between 0.65 and 0.8 (or higher in many cases). If alpha (α) coefficients are less than 0.5 then it is unacceptable (Goforth 2015). Note that an alpha (α) coefficient of .70 or more is considered as "acceptable" in most social science research fields.

Table 6: Reliability Test

| Variable | Items | Reliability |
|---|---|---|
| CP | 12 | 0.780 |
| CPL | 9 | 0.752 |
| CTM | 7 | 0.739 |
| CAP | 7 | 0.753 |
| CRC | 7 | 0.745 |
| CLP | 7 | 0.719 |
| InsFact | 7 | 0.706 |

Source: Field Data-2016, calculated by using SPSS.

The Cronbach's alpha (α) of the variables of this study (Table 6) revealed that entire variables have the alpha (α) value up to the standard level, i.e. 70 percent and above (Nunnally 1978). So, the nominated questionnaire may be applied to the study of the data of variables for regression analysis. Among independent variables, CPL and CAP have a top percentage of reliability that indicates higher consistency among internal statements of these two variables separately. No variable reliability is good or excellent because it doesn't touch the range of 80 percent or above. The reliability of the dependent variable is highest among all variables, i.e. 78 percent.

### 6.4 Regression Analysis

In order to shade more light on the relationship and implication of the explanatory variables on the credit performance of the MFIs of Bangladesh the estimated regression analysis was conducted. It is observed from the regression analysis in table 7; all explanatory variables were found a positive relationship with the credit performance of the MFIs. Furthermore, it is observed that except CTM and CAP variables other explanatory variables were found to be statistically significant in affecting credit performance of the MFIs in Bangladesh, holding other things constant.

The result shows that the positive coefficient of CPL and CRC is statistically significant at 5% and 10% level respectively for the sample of MFIs in the study. This result proves that MFIs of Bangladesh is taken into account the CPL and CRC as important issues to credit performance. The respondents thought that MFIs should more concentrate on credit policy and credit risk control of specific MFI.

 

Table 7: Regression Result of Credit Performance and Explanatory Variables

| | Coefficient | Std. Err. | T | P value | Collinearity Statistics | |
|---|---|---|---|---|---|---|
| **CP** | | | | | **Tolerance** | **VIF** |
| (Constant) | -0.584 | 0.459 | -1.271 | 0.206 | | |
| CPL | 0.177** | 0.076 | 2.338 | 0.021 | 0.575 | 1.738 |
| CTM | 0.095 | 0.064 | 1.481 | 0.141 | 0.822 | 1.216 |
| CAP | 0.095 | 0.061 | 1.559 | 0.122 | 0.420 | 3.815 |
| CRC | 0.114* | 0.068 | 1.681 | 0.095 | 0.951 | 1.051 |
| CLP | 0.283*** | 0.102 | 2.788 | 0.006 | 0.691 | 1.448 |
| InsFact | 0.599*** | 0.096 | 6.231 | 0.000 | 0.435 | 3.338 |
| F Stat | | | | 19.509*** | | |
| 0.000 | | | | | | |
| R Square | 0.592 | | | | | |
| Adjusted R Square | 0.572 | | | | | |
| Durbin-Watson stat. | 1.657 | | | | | |

* Denotes 10% level of significance, ** denotes 5% level of significance *** denotes 1% level of significance.

From the regression result in the table 7, the regression equation for this study can be formed as follows:

*CP = - 0.584 +0.177 CPL + 0.095 CTM + 0.095 CAP +0.114 CRC + 0.283 CLP + 0.599 InsFact + ε…….(iii)*

The CLP and InsFact have strong positive associations with the credit performance of the MFIs at 1% level of significance. Therefore, it is proven that all respondents evaluated the CLP and InsFact as most influencing factors of credit performance of MFIs. CLP can motivate the borrowers of the MFIs to repay the credit amount with interest. Most of the respondents told that Institutional factors could influence the performance of credit a lot.

The exceptional two variables CTM and CAP have positive associations with CP, but it is statistically insignificant; it means that CTM and CAP cannot create significant positive effects on credit performance; these two also contain the same coefficient is 0.095. In this case, most of the respondents observed that credit terms and credit appraisal process cannot maintain fully for the microcredit operation of MFIs; because microcredit borrowers are poor and they have no such type of assets that can be taken into account as collateral. Even in the case of interest rate borrowers are not sensitive because most of the borrowers are illiterate and not concern about the interest rate. The clients of MFIs tend to borrow the actual amount they need even if the rate of interest increases, indicating that they are not sensitive within a certain range. In fact, borrowers are often interested to pay higher interest for quality service. So MFIs have very small room for application of credit terms and credit appraisal process. They only consider the ability to repayment of the microcredit borrowers.

The results of this study are supported by some relevant previous works suppose; the study outcome of Kagoyire and Shukla (2016) is revealed that client appraisal, credit risk control and collection policy significantly influence financial performance of equity bank. Collection procedure was found to have a higher effect on financial performance. From the study of Maina and Kalui (2014), it was found that all the three factors credit policies, loan recovery procedures and initial credit appraisal had a significant impact on the loan default rate in MFIs in Kenya. According to Moti *et al.* (2012), collection procedure has a greater effect on loan repayment. But the results of Ahmed and Malik (2015) are not matching with other's findings; they investigated loan performance is positively and significantly influenced by client appraisal and credit terms, but it is not influenced by credit risk control and credit policy however it has a positive relationship with them.

Finally, the findings of multiple regression analysis indicate the significance value of the F statistic is 19.509 illustrating that the model applied for the analysis is well specified. On the other hand, the illustrative competence of the model is 59% as justifying by the R-square value such as 0.592. The constant term assessment is insignificant, which indicates not require to include additional independent factors in the model. The Durbin-Watson statistic is 1.657; it means there are no positive autocorrelations between independent variables and CP. The acceptable Durbin-Watson statistic is 1.50 to 2.50. The tolerance values of all independent variables are higher than the 0.20 and Variance Inflation Factors (VIF) are lower than 5; so it is proved that there are no multicollinearity problems of independent variables.

### 6.5 Hypothesis Testing

As the above last part presents the brief explanation of the regression results, in this section study presents a detail hypothesis testing by manifesting which of the credit risk management factors have effects on the credit performance of MFIs in Bangladesh. Hypothesis testing administered based on the relationship between dependent variable and independent variables concerning prior studies and the decision criteria already mention in the methodology part.

 

Table 8: Testing Research Hypothesis

| Independent variables | Predicted Direction | Actual Direction | T value | P-value | Research hypothesis accepted/rejected |
|---|---|---|---|---|---|
| CPL | + | + | 2.338 | 0.021 | Accepted |
| CTM | + | + | 1.481 | 0.141 | Rejected |
| CAP | + | + | 1.559 | 0.122 | Rejected |
| CRC | + | + | 1.681 | 0.095 | Accepted |
| CLP | + | + | 2.788 | 0.006 | Accepted |
| InsFact | + | + | 6.231 | 0.000 | Accepted |

Notes: "+" indicate that independent variable and credit performance has positive relationship. "-" indicate that independent variable and credit performance has negative relationship.

Table 08 presents the summary of formulated hypothesises. The result shows that the predicted and actual direction of hypothesizes first, fourth, fifth and sixth are positive; the p-value of these hypothesizes are 0.021, 0.095, 0.006 and 0.000 respectively; since the p-values are lower than the 0.10; it is directed that research hypothesizes first, fourth, fifth and sixth are accepted. It means there are significant positive effects of credit policy, credit risk control, collection procedures and Institutional factors on credit performance of MFIs in Bangladesh.

The second and third hypothesises have set to assess the effects of credit terms and credit appraisal process on credit performance (CP). The result shows that the predicted and actual direction are positive for both second and third hypothesises. The p-value of both second and third hypothesise are 0.141 and 0.122 respectively which are higher than the 0.10; so according to decision criterion research hypothesises are rejected, and the null hypothesis is accepted; it implies there is the insignificant positive effect of credit terms and credit appraisal process on credit performance.

On the other way hypothesis can be testing by t-value, if t-value is higher than the critical value, then research hypothesis is accepted and vice-versa. Here, t values 2.338, 1.681, 2.788 and 6.231 are higher than critical value (table value)1.6572 it indicates that hypotheses first, fourth, fifth and sixth are accepted while t values of hypotheses second and third are 1.481 and 1.559 respectively which are lower than the critical value 1.6572; it indicates second and third hypothesizes are rejected.

## 7. Conclusion and Policy Implication

As we have intended to investigate the contributing components of credit risk management on the credit performance of MFIs in Bangladesh. Owing to that, we have been adopted six independent variables purposively and revealed that four variables such as the credit policy, credit risk control, credit collection procedures and institutional factor have positively significant effects on credit performance of MFIs in Bangladesh; credit terms and credit appraisal process have no significant effects though they have positive association with credit performance. These results are in route with the previous findings as having been discussed in the works. The findings of the study may lend strong policy support to the sector particularly for the management of MFIs to enrich the credit performance. Furthermore, we hope the study may help to scrutinise the present credit management practices of the MFIs. Finally, we assume that if MFIs emphasis the illustrative factors used in our research, the credit performance would be better than the current performance.

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