Factors Affecting Non-Performing Loan Portfolio in Micro-Lending: Evidence from Sri Lanka

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Abstract: ***This study identified pre-loan and post loan evaluation factors on non-performing loans in micro-lending based on the Gami Pubuduwa loan scheme of Hatton National Bank of Sri Lanka. Microcredit officers and actual non-performing loan clients were the samples of the study. Pre-loan evaluation factors were identified based on the CAMPARI model while the post-loan evaluation factors evaluated through three basic management functions. Data were collected using questionnaires. The CAMPARI model was tested using the binomial sign test. The study found the importance of proper consideration of the ability of the borrower and purpose of the loan in prior loan evaluation to reduce non-performing loans in microlending. Further poor financial management practices of actual non-performing loan clients were identified as a significant post-loan evaluation factor of non-performing loans by both microcredit officers and actual non-performing loan clients. Credit officers were on the opinion that poor operational management practices as a post-loan evaluation factor of non-performing loans. Findings provide implications to micro-lending institutions on the importance of pre-loan evaluation and post-loan evaluation in reducing the non-performing loans.***

Keywords: Microlending, CAMPARI model, Non-performing loans, Pre-Loan evaluation factors, Post loan elevation Factors

1. Background of the Study

Healthily and stable banking system is necessary for the economic growth of a country. Non-performing loans (NPLs) is a global issue that affects on financial system stability and banking industry profitability. The banks, which considered as the heart in an economy that pumps blood flow in the form of funds through financial intermediation. Moreover, to develop entrepreneurship proper financial support from the banking system is essential and it has become a key requirement in developing a country.

The main income source of a bank is lending. The largest portion of the asset base of a bank consists of loans and advances given to customers. Therefore, NPLs create risks to an asset base of a bank. Declining of even a small portion of its asset base would severely impact the stability of a bank and low economic growth, [Jolevska and Andovski, [6]. As World Bank, [20] explained, Sri Lanka accounts for moderately high NPLs ratio among Asian countries except for Bhutan and Pakistan. When microlending is subject to non-performing it hinders the required development in the sector and is a threat to smoother outreach in the field. The NPLs ratio of Sri Lanka stood at 3.4 percent in Dec 2018, compared with the ratio of 2.5 percent in the previous year. The data reached an all-time high of 15.8 percent in Dec 1999 and a record low of 2.5 percent in Dec 2017, (Central Bank of Sri Lanka, [1].

Microfinance is a widely accepted instrument for poverty alleviation throughout the world and has been used in Sri Lanka spanning for over several decades. As Panda [12], microfinance has a positive impact on society and microcredit, the key sub-element of microfinance has a positive impact on the eradication of poverty. Microcredit is defined as an extension of small loans to the small scale businessman or a person to start up a new business. The preferable target market for microcredit is poor people operating micro-enterprises. Micro-entrepreneurs are an essential requirement for developing a country. Despite the long history and a large number of institutions providing microcredits, commercial banks play a big role in providing microcredit and services particularly to those who are too poor to be served by regular banks, mainly because they are unable to offer sufficient collateral.

As Attapatu [3], NPLs among the major problems faced by leading organizations all over the world. According to the definition of the central bank of Sri Lanka, the NPLs are any advance which does not give any income for the bank or any other financial organization due to the no repayment of the loan by the borrower for more than 90 days. As Kumarasinghe [8], the relationship of the gross domestic product with the NPLs and the relationship of the profitability of the banks with the NPLs are found to be positive and therefore, the effect of NPLs is gradually felt in all parts of the economy such as savings, investments, production, employment and services, economic growth, fiscal deficit, inflation and finally the whole image of the country.

Hatton National Bank PLC (HNB) is a private commercial bank in Sri Lanka, which consolidated its reputation as the most innovative bank in Sri Lanka, by being awarded as the best retail bank and best microfinance bank at international finance awards 2018. The HNB's microfinance is a key growth area for the bank with a vision of accelerating economic activity in the provinces and broad basing the country's growth. Inevitably, the NPLs ratio of the HNB has increased to 5.6 percent during 2018 compared with the ratio of 1.3 percent and 4.2 percent in the year 2016 and 2017 respectively, (HNB annual report 2018). Although HNB is being managed through increased monitoring to identify early warning signs and providing more flexible solutions to clients to optimize management of the microfinance portfolio, the considerable concern is required on the risk in microlending before affecting it to the profitability of the bank.

Consequently, this study investigates the impact of pre-loan-evaluation factors and post-loan evaluation factors on NPLs in micro-lending special reference to the Gami Pubuduwa(GP) loan scheme of HNB. The GP loan scheme of the HNB is among the leading and renowned microfinance projects in Sri Lanka. The GP loan scheme has been in existence for the past 22 years and has shown a year on year improvement in terms of outreach, profitability and asset base. Further, this is the main renowned microfinance scheme managed by a private sector commercial bank in Sri Lanka.

Pre-loan evaluation factors are the factors that are evaluated before granting a loan to identify the creditworthiness of a borrower. The popular CAMPARI model of individual loan appraisal was employed to evaluate the pre-loan evaluation factors. As Charted Institution of Bankers [4], has explained, the CAMPARI model is among the most effective model to evaluate small size individual credit proposal. The CAMPARI represents seven variables the bank can use to evaluate credit applications namely character, the ability of loan customers, margins, propose of loan, amount of loan, repayment of loan and insurance. The character refers to the way of establishing the honesty and integrity of a client before approval of a loan. Ability refers to the borrower's knowledge, experience, education, and resource ownership. The amount of interest and other charges related to microcredit are defined as the margin of loan. The purpose of loan means by the way the loan funds are allocated. The amount of loan refers to the financial value of the loan extended to the microloan client. The repayment is defined as a repayment period and type of loan installment offered for microcredit. Insurance refers to the borrower's life insurance mainly for long term loans such as housing loans. Post-loan evaluation factors for NPLs are the factors that could influence the transfer of a performing microloan to a non- performing section. There could be a large number of reasons, but this study evaluated three management branches namely marketing, financial and operational management. Inefficient and poor management of marketing mix, business operations, and financial resources can lead to loan repayment deviations. Post-loan evaluation factors were tested based on the knowledge of the micro-credit officers' (MCOs) and the experience of non-performed loan clients (NPLCs).

This section has explained the background of the study. The rest of the paper is arranged as follows. The second section describes the data used and the methodology. The third section analyzes and discussion of the empirical results. Finally, the conclusion will be the fourth section.

2. Method

2.1 Data and Sample

The sample of the study consisted of 220 actual (NPLCs) of HNB's GP loan scheme representing around 20 percent of the total NPLCs and 75 MCOs representing around 53 percent from the total MCOs of the HNB. Data for the analyses were collected during December 2018. As Nelson]9], the MCOs were selected using the systematic sampling method excluding MCOs on a probationary period. As Papais and Ganesan [11], the convenience sampling method was used in selecting the sample of 220 actual NPLCs from a total of 1123.

2.2 Statistical Method

As explained above, pre-loan evaluation factors were identified based on the CAMPARI model and post-loan evaluation factors were identified related to three management branches. Two questionnaires were developed for data collection. One for MCOs and the other one for actual NPLCs in the GP loan scheme of HNB. Both questionnaires prepared using the scaling technique of the Likert scale with five levels of response. The first part of each questionnaire allocated for collecting the demographic data of MCOs and actual NPLCs. The data collected from MCOs were used to evaluate both pre-loan evaluation factors and post-loan factors on NPLs, while the data collected from actual NPLCs were used to test the significance of post-loan evaluation factors on NPLs. The sub-dimensions used in testing pre-loan and post-loan evaluation factors are presented in Table 1.

Table 1: Sub dimensions of loan evaluation factors

Concept	Variables	Sub dimensions
Pre-Loan evaluation Factors	Character of client	age, education level, number of dependents, marital status
	Ability of client	asset base/ownership of the customer and his family, the experience of the field, financial literacy, existing debt level, record keeping ability
	Margin of loan	interest rate, loan charges
	Purpose of loan	working capital, capital investment only, both working capital and capital investment, new project, existing business
	Amount of Loan	amount of loan, security/collateral offered
	Repayment of loan	repayment period, payment pattern
Post Loan evaluation Factors	Marketing Management	competition, demand, quality of goods, outreach for the potential market
	Operation Management	low performance due to natural deserter, due to life cycle events such as marriage, death, etc, the resignation of key workers, high staff turnover, no succession plan, poor knowledge of management functions
	Financial Management	profit margin, over finance or under finance by the bank, debt level, outside borrowing of the customer, maturity mismatch with the loan purpose, bad debt, savings, earnings, cash flow

The following hypotheses were tested to identify the significance of pre-loan evaluation factors and post-loan factors on NPLs.

H_1: Pre-loan evaluation factors, character, ability, the margin of loan, purpose, amount and repayment have a significant impact on NPLs

H_2: Post-loan evaluation factors, marketing, operation, and financial management problems have a significant impact on NPLs

3. Analyses of Results and Discussion

As revealed by the descriptive analyses, 81 percent of the MCOs had over 48 months of work experience in the field. The loan portfolio of a micro-credit officer included 126 performing loans and 29 NPLs on average. Further, for more than 50 percent of MCOs, the NPL ratio was at around 4.1 percent.

Confirming the satisfactory loan repayment of women consistent with Roslan [14] and Shahriar, Unda and Alam [16], 81 percent of actual NPLCs were male. Further, 93 percent of actual NPLCs were over 26 years of age. Assuring a good education level, 65 percent of actual NPLCs were passed general certificate (ordinary level) examination. Out of the total NPLCs, 81 percent were married and had three to four dependents with high financial commitments that might be caused to high non-repayment of loans. Further, 56 percent of NPLCs were from the manufacturing sector and 47 percent were taken micro-credit for working capital management. Also, only 33 percent were maintained proper recode on their business activities. The majority (79 percent) of NPLCs did not have appropriate knowledge in accounting concepts which are supposed to be

The highest mean value is reported for ability. Except for the repayment and margin, all other pre-loan evaluation factors had mean values greater than three. Therefore, excluding the repayment and margin, other pre-loan evaluation factors required to be considered before granting a loan since these pre-loan evaluation factors are measured using the five-point

Table 3: Descriptive statistics of post-loan evaluation factors

This table presented descriptive statistics of post-loan evaluation factors identified related to three management branches namely marketing, Operations, and Finance. Post-loan evaluation factors have analyzed from both MCOs and NPLCs perspectives. The mean and median are presented as the measures of central tendency while standard deviation, variance, minimum, maximum, kurtosis, and skewness are presented as the measures of variability.

	Marketing management Problems		Operation Management Problems		Financial Management Problems	
	MCOs	NPLCs	MCOs	NPLCs	MCOs	NPLCs
Sample size	75	220	75	220	75	220
Mean	2.97	2.71	3.23	2.46	3.81	3.10
Median	3.00	2.75	3.17	2.40	3.89	3.25
Std. Deviation	0.92	0.74	0.72	0.764	0.49	0.69
Skewness	-0.24	0.06	-0.31	-0.214	-0.39	-0.99
Kurtosis	-0.86	-0.76	-0.68	-0.738	-0.94	1.46
Minimum	1.25	1.25	1.67	1.00	2.78	1.00
Maximum	4.50	4.25	4.50	3.80	4.67	4.50

Source: author compiled based on data collected in December 2018

As reported in Table 3, operation management problems and

important for the success of a business, irrespective of its size. Further, 40 percent of NPLCs had other outside debt. The descriptive statistics for the CAMPARI factors are presented in Table 2.

Table 2: Descriptive statistics of Pre-loan evaluation Factors

This table presented descriptive statistics of pre-loan evaluation factors of the CAMPARI model excluding the insurance. The sample includes 75 MCOs. The mean and median are presented as the measures of central tendency while standard deviation, variance, minimum, maximum, kurtosis, and skewness are presented as the measures of variability.

	Character	Ability	Margin	Purpose	Amount	Repayment
Sample size	75	75	75	75	75	75
Mean	3.17	3.86	2.73	3.57	3.34	2.93
Median	3.20	3.92	3.00	3.42	3.00	3.00
Std. Deviation	0.811	0.559	1.189	0.687	1.167	1.074
Skewness	-0.237	-0.485	.134	0.216	-0.099	-0.079
Kurtosis	-0.709	0.120	-1.298	-0.711	-0.884	-0.927
Maximum	4.60	4.83	4.50	4.67	5.00	5.00
Minimum	1.20	2.33	1.00	2.17	1.00	1.00

Source: author compiled based on the survey data collected in December 2018

Likert scale. Except for ability (standard deviation, 0.559), the other pre-loan evaluation factors reported considerably high dispersion.

Post-loan evaluation factors were analyzed using the data collected from both MCOs and actual NPLCs. The descriptive statistics of post-loan evaluation factors are presented in Table 3.

financial management problems were important post-loan evaluation factors affected on NPLs as their mean values were greater than three from both MCOs and NPLCs perspectives. Further Table 3 highlights less importance of marketing management problems and high influence of financial management problems on NPLs.

The inter-item consistency and reliability of the Likert scale questions were tested using Cronbach's alpha coefficient and it was greater than 0.60 for each factor. As reported in Table 4, four factors of the CAMPARI model and three post-evaluation factors were not normally distributed, hence the hypotheses of the study were tested using the Binomial Sign test considering the population median instead of the mean [The Binomial sign test is a nonparametric alternative to 1-sample Z-tests and to 1-sample t-tests, which use the median rather than the mean].

Table 4: Test of normality of loan evaluation factors

This table presented results of the Kolmogorov-Smirnova test and the Shapiro-Wilk test for normality of pre-loan evaluation factors and post-loan evaluation factors. Test values that are significant at the five percent level were marked with 1 (*). Only character and ability were normally distributed at a five percent level of significance.

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig	Statistic	df	Sig
Character	0.108	75	0.09*	0.969	58	0.14*
Ability	0.098	75	0.20*	0.971	58	0.17*
Margin	0.179	75	0.00	0.905	58	0.00
Purpose	0.158	75	0.00	0.946	58	0.01
Amount	0.168	75	0.00	0.930	58	0.00
Repayment	0.152	75	0.00	0.947	58	0.01
Marketing Management problems	0.184	75	0.00	0.940	58	0.00
Operational Management problems	0.122	75	0.03	0.965	58	0.01
Financial Management problems	0.161	75	0.00	0.946	58	0.01

Source: author compiled based on the survey data collected in December 2018

3.1 Hypotheses Testing

The Binomial Sign test results of the significance of pre-loan evaluation factors and post-loan evaluation factors on NPLs from MCOs and actual NPLCs perspectives are presented in Tables 5 and 6.

Table 5: Binomial Sign test for pre-loan evaluation factors

This table includes binomial sign test results for pre-loan evaluation factors from the perspective of MCOs. Test values that are significant at the five percent level were marked with 1 (*).

Variable	N	Below	Equal	Above	P	Median
Character	75	32	16	27	0.17	3.20
Ability	75	8	22	45	0.00*	3.97
Margin	75	38	17	20	0.95	3.00
Purpose	75	14	18	43	0.00*	3.42
Amount	75	37	7	31	0.11	3.00
Repayment	75	33	14	28	0.56	3.00

Source: author compiled based on data collected in December 2018

Table 6: Binomial sign test for the post-loan evaluation factors

This table has presented binomial sign test results for post-loan evaluation factors from the perspective of MCOs and NPLCs. Test values that are significant at the five percent level were marked with 1 (*).

MCOs Perspective						
	N	Below	Equal	Above	P-value	Median
Marketing management problems	75	25	21	29	0.23	3.000
Operation management problems	75	29	7	39	0.05	3.167
Financial management problems	75	20	2	53	0.00*	3.889
NPCs Perspective						
Marketing management problems	220	73	85	62	0.98	2.750
Operation management problems	220	66	26	128	0.99	2.400
Financial management problems	220	14	79	127	0.03*	3.250

Source: author compiled based on data collected in December 2018

As reported in Table 5, the ability of the customer and the purpose of the loan were significant pre-loan evaluation factors from MCOs' point of view. As reported in Table 2, the ability of the customer had the highest median value of 3.971. Although the ability of the customer was a significant pre-loan evaluation factor for NPLs, it hardly found supportive empirical evidence for it. As Seema [15] borrowers' honesty in disclosing the information, better monitoring and evaluation of the loan, have a significant impact on NPLs in Nepal. Consistent with Papias and Ganesan [11] the purpose of the loan is a significant factor in determining NPLs.

According to the binomial sign test results on the significance of the post-loan evaluation factors presented in Table 6, operation management problems and financial management problems were significant post-loan evaluation factors from the MCOs point of view at five percent significant level. Further, consistent with Nelson (2009), financial management problems were significant post-loan evaluation factors from both MCOs and actual NPLCs perspectives. Therefore, concentration must be on factors such as reduction of profit margin, over financing or under financing by the bank, low equity and high debt, extensive borrowing of customer, maturity mismatch with the loan purpose, high bad debt of project, low savings of customer from project earnings and cash flow problems to minimize the NPLs. Although Stoner [17] has confirmed, the significant impact of market familiarity for small level businessmen, findings reveal an insignificant influence of marketing management problems on NPLs. Thus it seems that elements such as high competition, demand related issues, quality of goods and low outreach for the potential market are not significant on NPLs. Operation management problems, the effective and efficient management of day-to-day routine work and human resource management issues of micro-businesses have a significant impact on NPLs from MCOs' point of view. The MCOs were on the view that low performance due to natural deserters or life cycle events such as marriage, death, etc., the resignation of a key worker, high staff turnover, no succession plan and poor knowledge in management functions are as significant factors towards transferring a micro-loan to a non-performing section. But actual NPLCs had a contradictory idea about operation management problems and they have not seen a meaningful relationship between operation management problems and non-payment of the loan. Consistent with Richard [13] the poor financial management skills of the actual NPLCs were a key reason for NPLs in microfinance. Therefore, as per Richard [13], this study highlights the requirement of providing training on financial management fundamentals for actual NPLCs through microfinance institutions. Further close monitoring of actual NPLCs and establishing a good relationship with them are recommended to be employed by banks in the effort of reducing NPLs. Further consistent with Kavwanyiri and Mutua [7], Viswanadham [18] Waura [19] and Olokoyo [10], banks should put in place a vibrant credit process that ensures proper customer selection and risk identification, robust credit analysis, proactive monitoring and clear recovery strategies for NPLs. Further consistent with Kavwanyiri and Mutua [7], the banks should develop credit procedures, policies and analytical capabilities and these efforts should be expanded into full credit management including origination, approval, monitoring and problem management tailored to the needs of each bank.

4. Conclusion

This study attempted to evaluate the significance of pre-loan evaluation factors and post-loan evaluation factors on NPLs using the GM loan scheme of HNB. The ability of the borrower and purpose of the loan were significant pre-loan evaluation factors that affected to NPLs. Further, both MCOs and actual NPLCs confirmed the significance of financial management problems of actual NPLCs on NPLs. Findings provide implications for microfinance institutions on the importance of pre-loan evaluation and post-loan evaluation in reducing the NPLs in microcredit.

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