IMPACT OF THE INTEREST RATE CEILING ON THE SUSTAINABILITY OF MICROFINANCE INSTITUTIONS

IN CAMBODIA

By

ROEUNG, Sovannara

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

MASTER OF DEVELOPMENT POLICY

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ABSTRACT

Impact of Interest Rate Ceiling on Sustainability of Microfinance Institutions in Cambodia

By

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The main objective of this paper was to assess the impact of interest rate ceiling policy on sustainability of MFIs in Cambodia. This study covered the data analysis of Microfinance Institutions (MFIs) which have been operated from 2014 to 2017. This research used descriptive statistic to compare the trend of several critical variables related to sustainability and interest rate to make a comparison before and after the policy is implemented. In addition, the correlation coefficient was also employed to find out the relation between several critical variables. The findings of this research claimed that the policy had the negative impact on the sustainability of MFIs. In addition, high total cost of lending, mainly due to high operating cost, also lowered the sustainability of MFIs in Cambodia.

Keywords:

Microfinance Institutions, interest rate ceiling policy, sustainability.

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ABBREVIATIONS

MFIs: Microfinance Institutions

MDIs: Microfinance Deposit Taking Institutions

NBC: National Bank of Cambodia

CMA: Cambodia Microfinance Association

CGAP: Consultative Group to Assist the Poor

VOA: Voice of America

LDCs: Less Developed Countries

APR: Annual Percentage Rate

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Chapter 1: Introduction

1.1. The Global Concept of Microfinance

Microfinance Institutions (MFIs) are known as the bank for the poor by providing financial services to poor people who find it hard to access financial services with commercial banks. Micro-credit, micro-deposit, and payment services were rendered to the poor people in a purpose of financial inclusion to allow them to participate in the economic development process of countrywide (Obaidullah 2008).

In a global glance, MFIs were rooted in the 1970s in Less Developed Countries (LDCs) and they continued to expand in the purpose of poverty alleviation which operated in informal business. In the early 2000s, the growth of MFIs was significantly seen and their business was no longer informal (Srnec and Svobodov 2009).

MFIs play a very critical role in reducing the poverty which is still the issue of global concern. The poor get poorer because of the inability to obtain fund for running even a small business. Through the provision of financial services, the poor can overcome the poverty and participate in economic development. At the meantime, there are a number of MFIs which provide not only financial services but also the educational training services which enables the customer to have knowledge related to financial management, credit culture and agriculture (Samer et al. 2015).

According to Muhammad Yunus is the founder and Managing Director of the Grameen Bank and the winner of Nobel Peace Prize, introduced MFIs as the bank for poor by explaining two types of the social business in which social benefit is concentrated rather than profit maximization. This is the model of Grameen Bank which lifts up millions of people in

Bangladesh from the poverty (Yunus 2014). This is the case that MFIs which plays a role as the bank for the poor, will, without doubt, function as the tool for the poverty reduction.

1.2. The Microfinance in Cambodia

Not different from the global definition, MFIs are defined by National Bank of Cambodia (NBC), the central bank of Cambodia, "*Micro-finance is defined as follows: The delivery of financial services such as loans and deposits, to the poor and low-income households, and to micro-enterprises*" P 220 (NBC 2011).

In Cambodia, MFIs were born in the early 1990s in the form of NGOs which began their financing project with poor and micro-entrepreneurs. As in the phase of start-up, MFIs depended greatly on the donor to finance credit projects which resulted in unsustainability. During 1995- 1999, the sustainability of MFIs to continue its social mission called the attention from academic and policymakers. Thus, the phase of institutionalization was in the process and MFIs evolution did not yet come to an end. In the 2000s, MFIs began their legal commercialization through the regulations of government and regulators by integrated into the formal financial system of Cambodia (Mark Flaming, Eric Duflos, Alexia Latortue, Nina Nayar 2005).

The number of MFIs keeps drastically growing. The year of 2005 was declared to be the international year of MFIs which began with 16 licensed MFIs. By 2017 and 2016, the number of MFIs was 69 and 64 respectively. Comparing to 2015 and 2014, the number of MFIs were 45 and 32 respectively. Participating in Cambodia financial system, MFIs loan reaching to 2,266,829 million KHR (equivalent to 561,51 million USD) in 2017 comparing to 2016 MFIs loan was 1,793,006 million KHR (equivalent to 444,14 million USD). This data reveals that the need for MFIs is undeniable which result in increasing the number of MFIs in the financial system (General Directorate of Banking Supervision 2017, 2016, 2015, 2014)

1.3. The Issues of MFIs' Mission Drift

In the 2000s, policymakers and academics began to cast doubt over the benefit of the social mission of MFIs regarding poverty alleviation and the determination of MFIs to the social mission. The high-interest rate of MFIs has become a critical issue which provokes a number of arguments in regard to the question of mission drift from social purpose oriented to the profit-oriented organization (Mia and Lee 2017; Mitra 2009).

On one hand, a number of arguments have been raised in regard to the high-interest rate of MFIs. Mitra (2009) claims that in the case of India, MFIs have been criticized by the government due to charging the high-interest rate, force loan recovery, and lack of transparency. Some MFIs using the flat rate of interest show it as the formal rate to the customer while the real interest rate greatly higher. Some fee charge has been incurred for the insurance premium for loan and other hidden fees. More than that, the high penalty for late repayment and the early loan pay-off has also been the issue. Therefore MFIs is portrayed to be even worse than the moneylender (Kuma 2006 as cited in Mitra 2009). Even more serious, 10 borrowers of MFIs in the Krishna district of India committed suicide due to the lack of ability to repay the loan to MFIs (Shylendra 2016 as cited in Mitra 2009).

On the other hand, it is claimed that MFIs' high-interest rate is actually acceptable due to the nature of the transaction that involves with high operating cost (CGAP 2002; Rosenberg, Gonzalez, and Narain 2009; Asian Development Bank 2016). There are plenty of reasons why the interest rate of MFIs is even a lot higher than the interest rate of the bank. This situation results from inevitably high operating cost, and cost of fund. As mentioned, operating cost or administrative cost as percentage loan portfolio of MFIs for Asia is shown as 18% which is not yet included other costs such as the cost of fund, loan loss provision expense and even some portion of profit to sustain their operation. The microcredit needs the labor-intensive work that

requires a lot of effort from the credit officers to analyze the customer before loan granting and regularly monitor after loan granting. Traveling expense which is composed in operating expense is also known as a significant part of this expense. Microcredit is grated to the rural or remote people living a bit far from the city. Thus, MFIs incurred a lot of traveling cost for monitoring the quality of credit as well as to ensure the credit is granted to use in the purpose which is supposed to be (Rosenberg, Gonzalez, and Narain 2009).

In Cambodia, taking a glance on the interest rate, it is noticeable that the MFIs annual lending rate is 34.5% for domestic currency loan and 29.6% for US dollar loan in 2016 (General Directorate of Banking Supervision 2016). Recently, due to the high-interest rate, there are much attention has been paid to the criticism of MFIs mission. According to local press, CAMBODIA DAILY, on one side, microcredit was actually a great help to the poor and some found it affordable. On the other side, microcredit is a trap for poor leaving them in over-indebtedness (Kimsay 2017).

1.4. The Global Implication of Interest Rate Ceiling Policy

Cambodia is not the first and the only country implemented the interest rate ceiling policy. Restriction on the interest rate for MFIs is still used for many countries in the world to ensure that MFIs mission in assisting the poor in accessing financial services are the primary objective. By the World Bank Group (2014), the interest rate ceiling is still used to cease the excessive interest rate charging on clients to promoting the social performance of MFIs. More than that, interest rate ceiling is known as an instrument of government for intervening in the market failure in the particular industry or to boost the productivity of the certain sector (Miller and Nathan Associates 2013).

According to the World Bank Group (2014), there are 76 countries around the world imposed the interest rate ceiling policy in varied forms.

Table 1: Summary of Some Countries Implemented the Interest Rate Ceiling Policy.

Region	Country	Implication
Sub-Saharan Africa (24 countries)	South Africa	In 2007, interest rate caps are introduced as 5 percent per month on short-term loan and credit related fee are also capped.
	8 countries in the West African and Monetary Union (WAEMU)	In 2013, MFIs are required to charge the maximum rate of 24 percent.
	African countries, CEMAC— which includes Cameroon, the Central African Republic, Chad, the Republic of Congo, Equatorial Guinea, and Gabon	The ceiling is calculated as the average effective interest rate charged by microfinance institutions during the previous six months plus a margin of 33 percent.
	Zambia	Commercial lending is 18.25%, Non-financial institution* 42 %. Other non-financial institution 30%.
East Asia and the Pacific	Japan	20 percent on unsecured loans.
	Thailand	36 percent for MFIs.
	Myanmar	2.5 Per month or 30 percent per year for microloans.

Europe and Central Asia	Armenia	Interest rate ceilings on loans provided by commercial banks and microfinance institutions cannot exceed twice the banking rate set by the central bank.
	Slovenia	Applicable for nonbanking sector only and an interest rate cap of twice the average APR** charged by banks and savings institutions applies to consumer credit based on the term and the amount of the credit.
	Estonia	Three times the market average.
	Poland	Four times the central bank Lombard rate on the consumer loan.
	The Slovak Republic	Twice the average APR for the consumer credit extended.
	the Kyrgyz Republic	The weighted interest rate for bank loans plus 15 percent.
	Turkey	13.5 percent or 50 percent more than the official interest rate set at 9 percent by the cabinet consumer on credit card loans.
Latin America and the Caribbean	Chile	50 percent the current interest rate set at the time of the convention
	Argentina	25 percent the rate that the lender charges for personal lending operations.

	Colombia	1.5 times the weighted average of interest rates for the specific segments of commercial credit, consumer credit, and microcredit.
	Nicaragua	Two times the weighted average charged by authorized commercial banks
	Brazil	8 percent per year for loans of up to R$15,000
	Uruguay	Interest rate cap is calculated as a weighted average of all credit operations carried out in the past four weeks by segment based on the amount and multiplied by a risk factor determined by the central bank
	Dominican Republic	Interest rates on loans in the microfinance sector have been subsidized, which is considered a de facto control over interest rates.
The Middle East and North Africa	Tunisia	Interest rates on loans at 5 percent including all commissions and fees.
	Egypt	Civil and commercial transactions are subject to a ceiling of 7 percent, while banks can determine their interest rate freely.
South Asia	Bangladesh	27 percent for microcredit loans
	India	12 percent plus their cost of borrowing
	Pakistan	interest rate cap of 9.5 percent on agricultural loans
Western Europe	France	133 percent of average APR, according to the amount of the loan.

	Germany	twice the average interest rate in a specific sector or the average interest rate in the sector by 12 percentage points
	Ireland	Credit unions can charge of 12.68 percent APR and a maximum of 187 percent APR for moneylenders.
	Netherlands	The legal interest rate plus 12 percent
	Spain	Current account overdrafts at 2.5 times the legal interest rate
	United Kingdom	3 percent per month for the credit union.
Source: the World Bank Group (Maimbo and Gallegos 2014).		

* Nonbanking financial institutions include companies, building societies, microfinance institutions, development banks, savings and credit institutions, and bureaus de change.

**APR: Annual Percentage rate.

Not different from other country, due to high lending interest rate as an excessive charge which portraits the MFIs as profit-oriented, the NBC issued and implemented the restriction on the interest rate by issuing a regulation "Prakas on Interest Rate Ceiling on Loan" which is applicable for MFIs, Microfinance Deposit Taking Institution (MDIs), and rural credit operator to bring down the annual interest rate to 18% regardless of maturity of loan. This regulation is believed to protect consumers, basically the poor, from the exploitative intention of MFIs and enable the customer to access to affordable loan (The National Bank of Cambodia 2017).

1.5. Research Problem and Gap

Sustainability and social mission of MFIs in providing the services to poor are found to be controversial. By all mean, to continue their social mission, MFIs need to sustain their operation and feeding themselves to operate in a safe and sound manner.

However, to sustain their operation, MFIs must be able to cover their costs by the interest and fee charges they earn. Due to asymmetry information and moral hazard problem as well as high operating cost and cost of fund, generally, MFIs lending interest rate is higher than the lending rate of the commercial bank (Kathomi and Kariuki 2017). The trend of higher interest rate becomes the problem whether or not the poor can really afford, resulting in argument by regulator whether MFIs mission has drifted to profit-oriented rather than social mission oriented (Mia and Lee 2017).

In Cambodia, this high-interest rate becomes very questionable whether MFIs are seeking sustainability, or they are seeking huge profit. MFIs attract criticism as they make poor even poorer then to put exploitative interest rate to an end, interest rate ceiling policy is imposed. Within the intention of protecting the poor, restriction on the lending rate for MFIs is implemented globally including Cambodia.

Meanwhile, the impact of this policy instrument is still an issue for the scholar to debate. Criticism of policy has been covered by the press release as the policy will have much great impact on MFIs industry. The Southeast Asia Globe Magazine extracted the speech of Yun Sovanna, general secretary of the Cambodia Microfinance Association (CMA) who stated that "Going down to remote areas and offering small loans to people with low incomes has huge operational costs – for some MFIs, these costs alone can be [equal] to 20% or 30% [of interest]. Continuing to operate like this under an 18% interest rate cap would not make business sense," (Black 2017). In similar, the VOA has published an article to express the same concern regarding the impact of this policy as the outreach is greatly impacted and the small loan will be no longer available for the poor (Carmichael 2018).

Thus, the impact of interest rate ceiling policy is controversial for global debate (Kyereboah-Coleman 2007; Miller and Nathan Associates 2013; Alshebami and Khandare 2015; Asian Development Bank 2016; Hubka and Zaidi 2005; Par, Adair, and Berguiga 2015).

Whereas the previous study addressed the impact of interest rate ceiling on MFIs industry in varied countries, this research intends to discuss the impact of policy instrument on sustainability in Cambodia by drawing the relation between variables of interest rate and variables of sustainability, examining the total cost of lending, impact of interest rate ceiling on sustainability of MFIs, analyzing whether this policy instrument shall be still used or policy adjustment shall be needed in the case of Cambodia.

Thus, this research will discover the total cost of lending and significant cost incurred and in what level of interest rate which enables MFIs to breakeven their cost after interest rate ceiling is introduced. Ultimately, this research will attempt to find out whether sustainability still can be achieved by MFIs during the implication of interest rate ceiling regime.

1.6. Research Objectives and Research Questions

The main objectives of this research are:

1. To examine the total cost of lending of MFIs before and after introduction of interest rate ceiling policy.
2. To understand the determinant of the sustainability of MFIs.
3. To explain the relationship between the main components of interest rate and sustainability of MIFs in Cambodia.
4. To analyze the impact of interest rate ceiling on the sustainability of MFIs.
5. To analyze achievement of sustainability of MFIs after introducing the loan interest rate ceiling.

In response to the research objectives, this research will provide a more thorough understanding of the impact of interest rate ceiling policy by attempting to answer the following questions:

1. What are the main components of the interest rate of MFIs?
2. What is the level of the total cost of lending?

3. What are the determinants and level of sustainability of MFIs?
4. What is the relation between each component of interest rate to the sustainability of MFIs?
5. To what extents, does the interest rate ceiling have the impact on the sustainability of MFIs in Cambodia?
6. Should the interest rate ceiling policy be continued to be implemented in the case of MFIs in Cambodia?

1.7. The Significance of Study

This research paper has some important implications for:

- The policymakers and supervisory authorities: by providing the insight of impact of the interest rate ceiling policy on the sustainability of MFIs, which contributes to consideration of continuance of policy implementation and policy revision, and for further policy issues related to the sustainability of MFIs.
- Financial Institutions: by providing the knowledge of overall cost structure of MFIs and significant cost contributed to lending rate in the system, thus individual MFIs can make a comparison and setting the strategy. Plus, this research will provide the information to the policymaker whether the interest rate ceiling will impact the sustainability of MFIs, thus MFIs which are suffered could have advantages.
- Researchers who are interested in the MFIs field.

1.8. The Scope and Limitation

The purpose of this study is to mainly focus on the impact of interest rate ceiling on the sustainability of MFIs in Cambodia while MDIs and the rural creditor operators which also fall under the interest rate ceiling regulation are out of the boundary of this research. Thus, this study will cover 208 observation from 2014 to 2017. It seems appropriated to limit the study

to only MFIs because MFIs are smaller in size comparing to MDIs, thus funding structure could largely different resulting in the great difference in composing lending rate. On the other hand, the rural credit operators are also excluded from the study due to data availability. The impact of the interest rate ceiling on the overall financial system will not be fully covered in this paper. Instead, this could be the subject of the future research.

Chapter 2: Literature Review

This section will present an account of the development of scholarship and theoretical framework to analyze the impact of interest rate ceiling on the sustainability of MFIs.

2.1. Sustainability of MFIs

Before proceeding to further discussion, the meaning of sustainability shall be thoroughly defined. However, defining sustainability has become very critical to ensure the level of sustainability can be measured. When MFIs can continue their business on ongoing basis both in financial and operational viability, then it is said that MFIs could achieve the sustainability (Wanjiku 2017). In another word, ability to cover the costs by income earned from the services, particularly by interest earned from loan and other services fees are regarded as the achievement of sustainability (Kathomi and Kariuki 2017).

To continue the business, several MFIs are depending on the donor to provide more fund. However, this financing strategy would be put to the end when the donor funds are no longer available. Currently, the issue of sustainability persists; thus, MFIs are believed to have sustainability by their own operations. In regard to this issue, MFIs inevitably provides the loan with the high-interest rate to cover the high cost of lending (Kathomi and Kariuki 2017).

2.2. The Impact of Interest Rate Ceiling on MFIs

Recently, there has been a growth of global interest on the studies of the impact of interest rate ceiling on varied issues which impact MFI's the financial inclusion, financial performance, outreach of MFIs (Kyereboah-Coleman 2007; Miller and Nathan Associates 2013; Alshebami and Khandare 2015; Asian Development Bank 2016; Hubka and Zaidi 2005; Par, Adair, and Berguiga 2015).

The arguments of the effectiveness of interest rate ceiling on protecting the poor are still being discussed. Alshebami & Khandare (2015) point out that the cure of MFIs exploitative behaviors could possibly turn out to poison for financial inclusion. Because the interest rate is capped to some level that MFIs could no longer earn the profit, there is no doubt that some MFIs would exit the system, leaving demand is greater than supply. Basically, the poor find it hard to access for finance from the commercial bank where the strict criteria would be applied to obtain the finance.

Beside the limited access to finance by the poor, interest rate ceiling also causes MFIs to operate less transparent. Helms & Reille (2004) claim that due to a lower interest rate; MFIs come up with higher fee charge of services. Undeniably, the level of financial literacy of the poor is so limited. They sometimes use the financial services without the clear understanding of terms and conditions of those services. Therefore, adding more fee and commission could be the solution to cover the cost while also complying with the regulation and due to lack of knowledge and ability to compare the financing cost, the poor will end up with accepting the lower interest rate while higher fee charge.

In addition, Kathomi and Kariuki (2017) pointed out that the implementation of interest rate ceiling has the negative impact on the sustainability of MFIs in Nairobi country. When the interest rate of loan is capped, the profit is reduced and leads to basically reduce the level of sustainability of MFIs.

This paper tends to agree with Islam (2014) who claimed that in the case of MFIs in Bangladesh, MFIs' sustainability is impacted by the interest rate ceiling policy but some MFIs which could control the cost effectively, still actually achieve the sustainability after the interest rate ceiling is imposed.

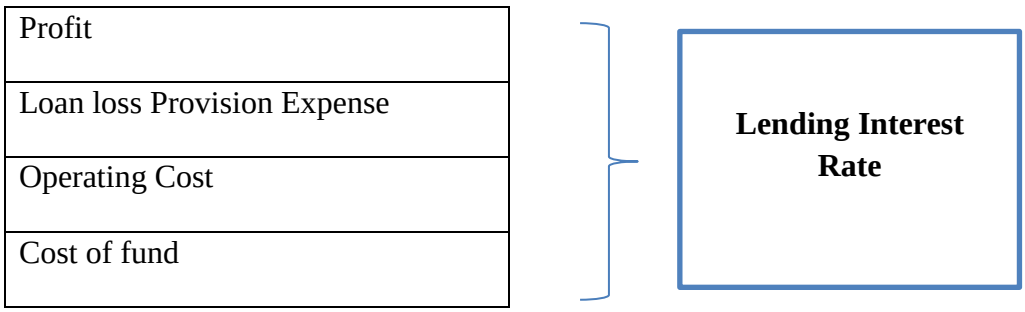
2.3. Theoretical Framework and Hypothesis Development

To respond to the research questions, this research will break down the components of interest rate and determinants of sustainability of MFIs to address the significant cost, total cost of lending, trend and level of cost and sustainability of MFIs on 4 years basis (2014-2017) to draw the conclusion on sustainability achievement of MFIs after interest rate ceiling (18%) is being implemented.

2.3.1. The Components of Lending Interest Rate

To begin with, loan is the most significant earning asset of MFIs which contribute to profit and ultimately sustainability of MFIs. Loan pricing reveals the cost structure of MFIs, thus understanding of interest rate composition of MFIs is very essential for further examination of significant cost, effectiveness, and efficiency of cost management, and even profit orientation.

Figure 1: The Components of the Interest Rate of MFIs.



Source:(Rosenberg et al. 2013; Ledgerwood 1999)

First, **cost of fund** is the amount of money that MFIs must pay to their lenders who can be the company, commercial banks or depositors. In Cambodia, the main source of fund of MFIs is the borrowed fund and owner fund while deposit is not taking into accounts since MFIs are not allowed to take the deposit from the public (NBC 2011). Second, **total operating cost** refers to expense used to generate profit during the provision of services. Operating cost of MFIs can be the cost for credit underwriting and monitoring regarding salary expense for personnel and traveling, and other overhead expense such as depreciation of fixed asset and utility. Third, **loan loss provision expense** is the amount of money MFIs loss when loan default and recognized as the expense. Because providing loan is exposed to credit risk which the chance of loan become delinquent is uncertain, thus MFIs are required by the regulation, to set aside loan loss provision by the credit classification. After the loan is no longer collectible, MFIs incur losses for the loan default as the expense of the year. Fourth, **net profit** is a critical component of lending interest rate which contributes greatly to the sustainability of MFIs, the higher the profit is the higher sustainability MFIs could achieve by effectively managing other costs.

To find out the interest rate which can cover the total cost of lending, each component shall be converted into ratio as the percentage of the average gross loan portfolio as presented below to determine the cost in providing loan.

Table 2: The Components of Lending Rate and Formulas

Components of Lending Rate	Formulas	Application
Net Profit Ratio (NETPROFIT)	Net Profit / Average Gross Loan Portfolio.	Measure the net profit that MFIs can earn from their financial assets.

Loan-loss provision expense Ratio (LLP)	Loan-loss provision expense /Average Gross Loan Portfolio.	Measure the efficiency in credit management of MFIs.
Total Operating Cost Ratio (OPC)	(Personnel expense + Administrative expense)/ Average gross loan portfolio.	Measure efficiency in managing the operating cost.
Cost of fund ratio (COF)	Interest and fee expense for borrowed fund/ Average gross loan portfolio.	Measure blended interest rate that MFIs borrow from the lender to finance their financial assets.

Source: (CGAP 2003; Ledgerwood 1999)

2.3.2. The Determinants of Sustainability of MFIs

To study the sustainability of MFIs, CGAP (2003)introduces some key indicators such as Return on Equity, Return on Asset, Adjusted Return on Equity, Adjusted Return on Asset, Operational Self Sufficiency ratio, Financial Self Sufficiency ratio and Profit margin.

As similar to Islam (2014), Cull et al., (2007), Bhanot and Bapat (2015), and Quayes (2017), this paper intends to use 2 ratios as determinants of sustainability of MFIs in Cambodia such as Return on Asset and Operational Self Sufficiency whereas Financial Self Sufficiency is not used due to the data availability related to the market rate of the debt for calculating the adjusted cost of capital. First, **return on asset** indicates the profitability of MFIs in related to the effectiveness of asset management of MFIs by using asset to generate earning and by managing operating cost. **Operational self-sufficiency ratio** determines the ability of MFIs in covering its cost by operating revenue. OSS should be at all-time more than 100% to reflect

the ability to cover the entire significant costs. The bigger OSS is the more sustainability of MFIs could be.

Table 3: The Determinants of Sustainability of MFIs and Formulas.

Determinants of Sustainability	Formula	Application
Return on Asset (ROA)	(Net income- tax) /Total Asset	Used to analyze the ability of MFIs in using asset to generate income. The benchmark is comparing between the current year and previous year.
Operational Self Sufficiency (OSS)	Operating revenue/ (Financial expense + Loan-loss provision expense + Operating expense)	Used to analyze the ability to cover the significant costs in lending by income earned. The benchmark of this ratio is at least more than 100%.

Source: (CGAP 2003; Z.Islam, M. Porporato 2014; Kathomi and Kariuki 2017).

Ha1: Interest rate cap has the negative impact on the sustainability of MFIs in Cambodia

Chapter 3: Research Methodology

This section will provide the research design for data collection, method and data analysis procedure.

3.1.1. Research design

To answer the research questions, quantitative research design will be used to compare the trend of some critical variables before and after the policy are implemented.

3.1.2. Target Population and Data collection

The total number of MFIs will be studied from 2014 to 2017 and the detail of observation of MFIs are shown in **Appendix 1**.

This research will use the secondary data from the Annual Supervision Report of NBC which published on the official website.

3.2. Data Analysis Techniques

To analyze the data, STATA program is used. This paper will make a comparison of some critical variables to examine the effect of interest rate ceiling on the sustainability of MFIs by drawing the trend of critical variables before and after the policy has been implemented. Thus, descriptive statistic plays very much important roles in this section, following by correlation coefficients analysis.

Chapter 4: Result and Finding

This chapter presents the findings of the study. The main objective of this research is to examine the impact of interest rate ceiling policy on the sustainability of MFIs along with other necessary analysis to answer other research questions.

4.1. Descriptive Statistic

Within this research, the descriptive statistic is the primary method for data analysis. Descriptive statistic is used to analyze and summarize the data (Holcomb 2017).

4.1.1. Total costs of lending

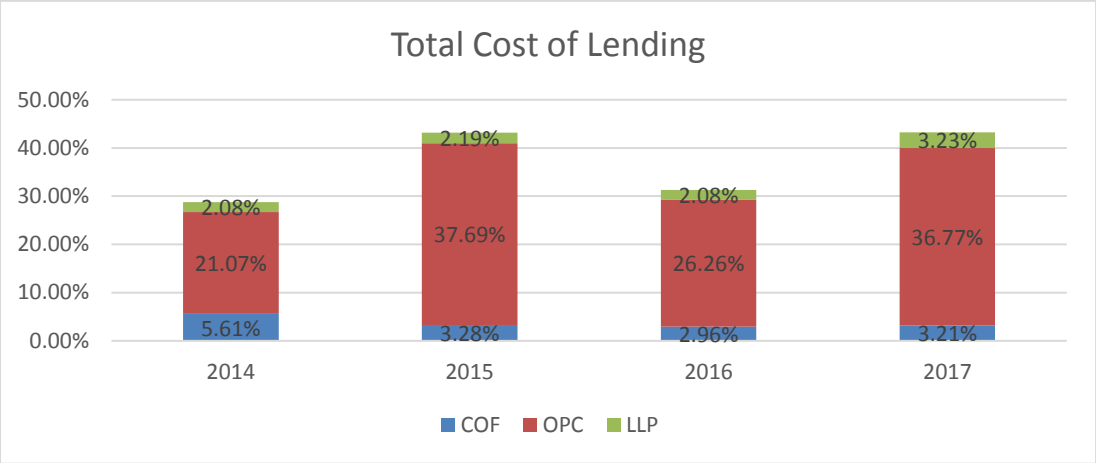
Table 4: Summary of total costs of lending

Year	2014			2015			2016			2017		
Variable	**COF**	**OPC**	**LOAN LOSS**	**COF**	**OPC**	**LOAN LOSS**	**COF**	**OPC**	**LOAN LOSS**	**COF**	**OPC**	**LOAN LOSS**
Obs	32	32	32	45	45	45	62	62	62	69	69	69
Mean	0.05659	0.214	0.021	0.0328	0.3768	0.0219	0.0295	0.2626	0.0207	0.0321	0.3677	0.0323
Std. dev.	0.0443	0.1343	0.04344	0.0332	0.8791	0.0497	0.0315	0.2669	0.0509	0.0324	0.6957	0.0514
Min	0	0.0504	-0.00219	0	0.0256	-0.0093	0	0.0306	-0.0077	-0.0037	0.0426	-0.0094
Max	0.1427	0.6192	0.22811	0.1120	5.6470	0.2345	0.1143	1.2996	0.3666	0.12131	5.0220	0.2946

This section analyzed the total costs of lending which MFIs were supposed to incur during the provision of loan. To recall, the total costs of lending comprises of cost of fund, total operating cost, and loan loss provision. Four-year data revealed that the average total costs of lending of MFIs was 36.61 % per annum as the percentage of average gross loan portfolio and the most significant cost which MFIs incurred for lending was operating cost which in average

was 30.44%. Taking into account the traveling cost and administrative cost, operating cost of MFIs alone was reaching 36.77% in 2017. This meant that if MFIs lend 100 USD loan to customer, they must pay 36.77 USD for operating cost.

Figure 2: Total cost of lending



Source: (General Directorate of Banking Supervision, 2015, 2016, 2014, 2017).

4.1.2. The Level of Sustainability

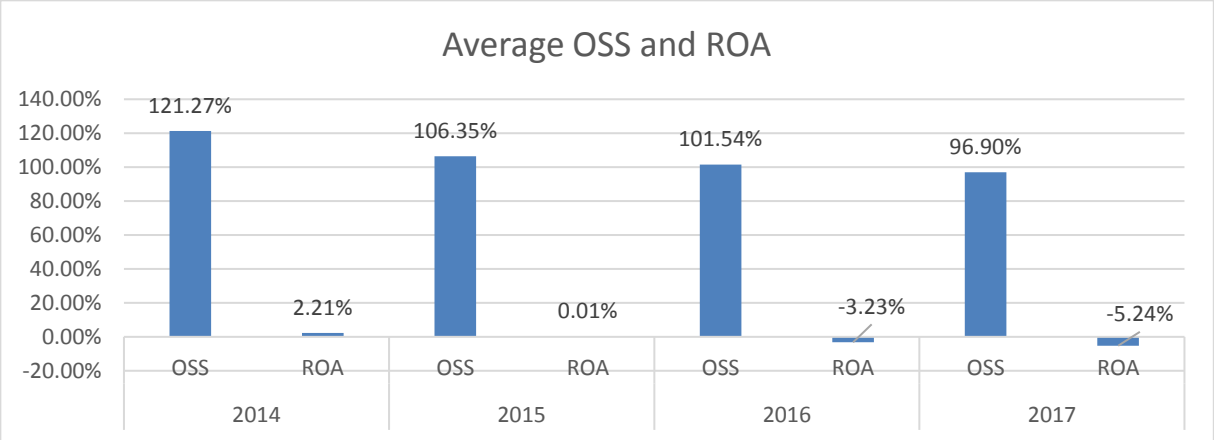
Table 5: Summary of OSS and ROA

Year	2014		2015		2016		2017	
Variable	**OSS**	**ROA**	**OSS**	**ROA**	**OSS**	**ROA**	**OSS**	**ROA**
Obs	32	32	45	45	62	62	69	69
Mean	1.2127	0.0221	1.0635	0.0001	1.0154	-0.0323	0.9690	-0.0524
Std. Dev.	0.3878	0.0403	0.5469	0.0901	0.5379	0.1418	0.4526	0.2005
Min	0.2542	-0.0579	0.0000	-0.4146	0.0527	-0.6384	-0.0110	-1.1254
Max	2.0599	0.1150	1.9536	0.0897	2.2813	0.1439	2.3717	0.1398

OSS and ROA which are considered as determinants of sustainability kept declining from 2014 to 2017. Again, OSS which is the vital ratio for determining the sustainability of

MFIs shall be at least more than 100 % which mean that MFIs are expected to at least cover all the cost and earn some profit so that viability to continue their business is guaranteed. As already mentioned in the above chart, OSS kept declining and in 2017, OSS ratio turned down to only 96.90 % which was below the standard and this also means that MFIs could not even earn enough money from the loan to cover their costs. Moreover, ROA which is the ratio to measure the effectiveness of MFIs in using their asset, mainly loan, to generate income was declining as well.

Figure 3: Average OSS and ROA

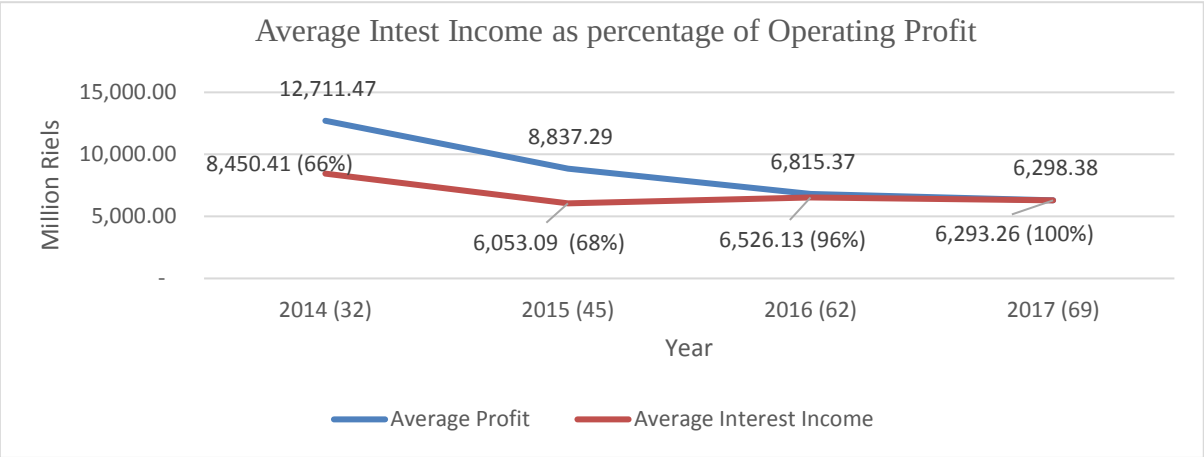


Source: (General Directorate of Banking Supervision, 2015, 2016, 2014, 2017)

4.1.3. Impact of the Interest Rate Ceiling on the Sustainability of MFIs

To purely see the effect of interest rate ceiling on the sustainability of MFIs, the analysis of interest income should be examined. The four-year data showed that, on average, 82.5% of operating revenue was accounted for interest income, thus the further analysis of the trend of components of interest income was worth to be studied.

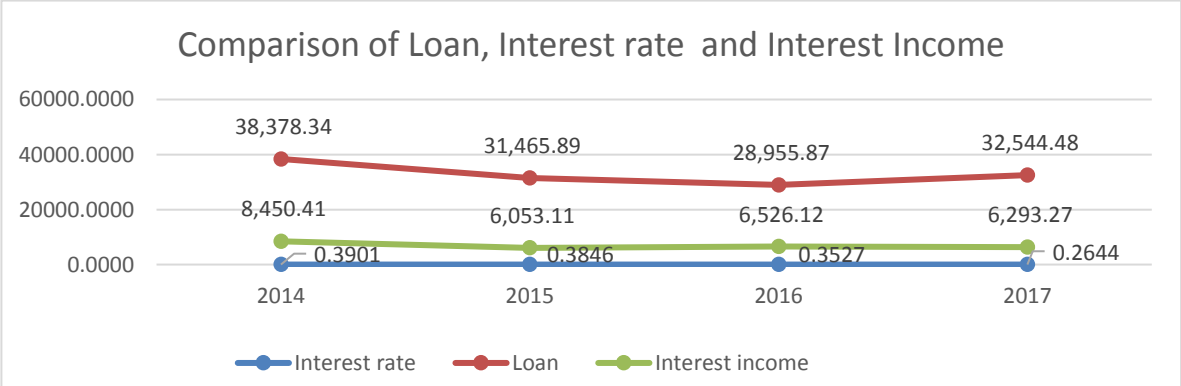
Figure 4: Average Interest Income as the Percentage of Operating Profit



Source: (General Directorate of Banking Supervision, 2015, 2016, 2014, 2017)

This below chart claimed that the average loan and advance to the customer seemed to increase from 2016 to 2017 particularly 12.39%. This was an expected outcome since the policy was introduced in March 2017, thus the number of loans which have already disbursed before implementation of policy could not be called due to the terms and conditions of contract but instead, the existing disbursed loan must follow the cap. However, while the loan increased, but the average interest income decreased 3.56% along with the decrease of average interest rate from 35.26% to 26.44%***, thus declining in average interest income should undeniably be the effect of decreasing in the interest rate.

Figure 5: Trend of Interest Rate, Loan, and Interest Income.



Source: (General Directorate of Banking Supervision, 2015, 2016, 2014, 2017)

*Loan was measured as million riels

**Interest Income was measured as million riels

***Interest rate was measured as the percentage. Due to data availability, interest rest which was used in this analysis were not the average interest rate. Instead, those were average of the highest rate on MFIs for each year.

Without surprises, the decrease in interest income had the effect on the OSS level. The data revealed that the OSS ratio decreased from 101.2% in 2016 to 96.99% in 2017 consistent with the decrease in interest income and operating revenue. Thus, it seemed to appropriate to assume that the decrease in OSS results from the decrease in interest income which caused by the interest rate ceiling policy.

4.1.4. Impact of Total Costs of Lending on the Sustainability of MFIs

This section analyzed whether the level of sustainability of MFIs could also be impacted by the total cost of lending which also took part in the sustainability of MFIs.

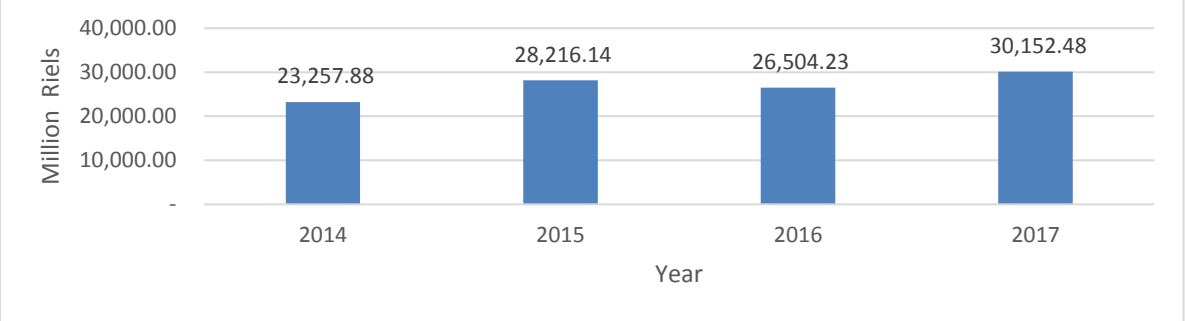
The more MFIs incurred the cost of lending, the low level of sustainability MFIs could achieve by holding constant the level of operating income earned. In 2017, the level of sustainability fell to 96.90 % which was below the standard while the average loan of MFIs industry was 30,152.48 million riels, total costs of lending for MFIs industry was 43.21% as the percentage of the average loan and the inflation rate was 3.7%. This figure revealed that because the average gross loan portfolio of 2017 was higher than any other three years along with the increase of inflation rate, this resulted in the higher total lending cost. This trend of increasing cost of lending was consistent with the increase in average period loan and inflation rate.

However, due to the high cost of lending, it could be assumed that MFIs' cost management in Cambodia was still ineffective. Besides the trend of increasing cost along with the increase in the average period loan and inflation rate, the level of the total cost of lending

including operating cost were deserved to be examined. The average operating cost from 2014-2017 already reached 30.44% % and while in 2017 operating cost rose to 36.77%. According to Holst & Wrohlich (2017), the median operating cost of South Asian MFIs was only 13.1%. a lot lower than the operating cost of MFIs in Cambodia. This high operating cost of MFIs in Cambodia obviously was a good example of the ineffectiveness of cost management.

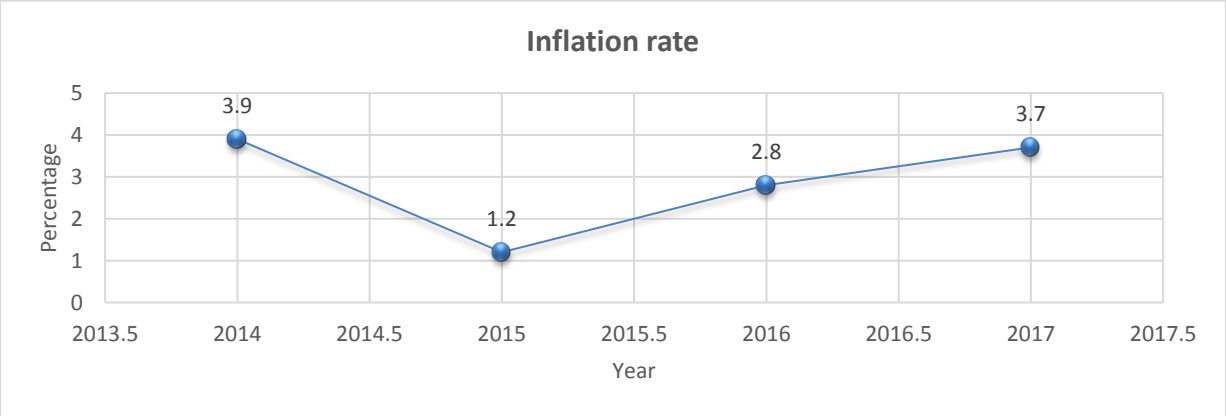
Thus, besides the effect of interest rate ceiling, the sustainability of MFIs also depended greatly on the effectiveness of cost management.

Figure 6: The Average Gross Loan Portfolio



Source: (General Directorate of Banking Supervision, 2015, 2016, 2014, 2017)

Figure 7: Inflation Rate



Source: (National Institute of Statistics, Ministry of Planning, 2016 as cited in MOEF, 2016).

4.2. Correlation Coefficient Analysis

Table 6: Correlation Coefficient Matrix

	(1)					
	NETPROFIT	COF	OPC	LOANLOSS	ROA	OSS
NETPROFIT	1					
COF	0.173*	1				
OPC	-0.681***	-0.213**	1			
LOANLOSS	-0.0196	-0.103	-0.0434	1		
ROA	0.387***	0.261***	-0.424***	-0.142*	1	
OSS	0.433***	0.275***	-0.485***	-0.190**	0.660***	1

* p<0.05, ** p<0.01, *** p<0.001

As mentioned in the correlation coefficient matrix above, the operating cost had the moderate negative relationship (-0.485, p<0.001) to OSS and (-0.4224, P<0.001) ROA while other costs had the weak relationship to OSS and ROA. Thus, the effective management of operating cost was necessarily needed to achieve sustainability.

Chapter 5: Conclusion and Recommendations

The purpose of this paper has been to draw much needed attention to impact of interest rate ceiling policy on the sustainability of MFIs in Cambodia. This paper has established that the interest rate ceiling policy had the negative impact on the sustainability of MFIs. As the matter of fact, interest rate ceiling policy capped the interest rate to be lower (18% per annum) which resulted in the decrease of interest income. Because interest income was already, on average, 82.5% of operating revenue, thus the main ratio of sustainability (OSS) was impacted

by this decrease in interest income. However, since the policy has just been introduced in 2017, one-year data analysis of after-policy is not sufficiently comprehensive to draw the great impact.

Besides the impact of interest rate ceiling policy, the ineffectiveness of cost management of MFIs also tremendously impacted on the sustainability of MFIs in Cambodia. The total cost of lending has reached, in average, 36.77 % of the average gross loan while total operating cost ratio which is a ratio used to evaluate the efficiency of administrative and personnel expense incurred, was 30.44%. this high average operating cost was not incorporated with Holst & Wrohlich (2017) who claimed that the median operating cost in South Asian MFIs was only 13.3%. The detail investigation carried out in this paper has furthered our understanding of total cost of lending of MFIs, level of interest rate that MFIs can cover the total cost of lending, the level, and trend of sustainability of MFIs, the impact of interest rate ceiling on sustainability, the impact of cost management on sustainability of MFIs, and cost that has the significant relation to sustainability.

In light of these findings, this research tends to propose that for the further implementation of policy, the regulator should consider the negative impact of this policy on the sustainability of MFIs, even though the impact could not be seen much due to the policy has just been introduced to MFIs industry. In addition, the findings of this paper suggest that for MFIs which have effective cost management could still achieve sustainability even under the implementation of policy. Future research might focus on the impact of the policy on the other areas of MFIs in Cambodia.

Appendix 1: List of Studied MFIs By Years

No	**Number of MFIs 2014**
1	Active People's Microfinance Institution Plc
2	AEON Microfinance (Cambodia) Co., Ltd
3	Angkor ACE Star Credits Limited
4	AYON Credit Limited
5	BORIBO Microfinance Institution Plc
6	Camma Microfinance Limited
7	Chamroeun Microfinance Limited
8	City Microfinance
9	Delta Microfinance Plc
10	Entean Akpevath Pracheachun Limited
11	Farmer Finance Ltd
12	Farmer Union Development Fund
13	First Finance Plc
14	Green Central Microfinance Ltd
15	Intean Poalroath Rongroeurng
16	KEY Microfinance Institution Plc
17	Khemarak Microfinance Institution Limited
18	LY HOUR Microfinance Institution Plc
19	Malis Finance Plc
20	Maxima Mikroheranhvatho Plc
21	Microfinance Amatak Capital Plc
22	Nirorn Microfinance Plc
23	Oro Microfinance Plc
24	Prime MF Microfinance Institution Ltd
25	Sachak Microfinance Plc
26	SAMIC Microfinance Institution Plc
27	Samrithisak Microfinance Limited
28	Seilanithih Limited
29	Sonatra Microfinance Institution Plc
30	Taca Microfinance Plc
31	Thaneakea Phum (Cambodia) Ltd
32	YCP Microfinance Limited

No	Name of MFIs (2015)	No	Name of MFIs (2015)
1	Active People's Microfinance Institution Plc	23	LY HOUR Microfinance Institution Plc
2	AEON Microfinance (Cambodia) Co., Ltd	24	Maxima Mikroheranhvatho Plc
3	Angkor ACE Star Credits Limited	25	Microfinance Amatak Capital Plc
4	Apple Finance Plc	26	Mohanokor Microfinance Plc
5	Bamboo Finance Plc	27	Nirorn Microfinance Plc
6	AYON Credit Limited	28	Oro Microfinance Plc
7	BORIBO Microfinance Institution Plc	29	Piphup Thmey Microfinance Plc
8	Camma Microfinance Limited	30	Prime MF Microfinance Institution Ltd
9	Cellcard Finance Plc	31	Prine Finance Plc
10	Century Cambo Development Plc	32	Royal Microfinance Plc
11	Chamroeun Microfinance Limited	33	Sachak Microfinance Plc
12	City Microfinance	34	Sahakrunpheap S.T Microfinance Plc
13	Delta Microfinance Plc	35	Sambat Finance Plc
14	Entean Akpevath Pracheachun Limited	36	Samporn Samakum SahaKreas thuntoch Neung Matjum
15	Farmer Finance Ltd	37	SAMIC Microfinance Institution Plc
16	Farmer Union Development Fund	38	Samrithisak Microfinance Limited
17	Fisrt Finance Plc	39	Seilanithih Limited
18	Green Central Microfinance Ltd	40	Sonatra Microfinance Institution Plc
19	Intean Poalroath Rongroeurng	41	Srey Oudom Microfinance Plc
20	KBSC (Cambodia) Microfinance Institution Plc	42	Taca Microfinance Plc
21	KEY Microfinance Institution Plc	43	TBB (Cambodia) Microfinance Institution Plc
22	Khemarak Microfinance Institution Limited	44	Woori Finance Cambodia Plc
		45	YCP Microfinance Limited

No	Name of MFIs (2016)	No	Name of MFIs (2016)
1	Active People's Microfinance Institution Plc	32	LBP Microfinance Plc
2	ANAKUT Microfinance Institute Plc	33	LED Plc
3	Apple Finance Plc	34	LY HOUR Microfinance Institution Plc
4	Asia Pacific Finance Plc	35	Maxima Mikroheranhvatho Plc
5	Atom Capital Microfinance Institution	36	Microfinance Amatak Capital Plc
6	Bamboo Finance Plc	37	Mohanokor Microfinance Plc
7	BAYON Credit Limited	38	Mothers Financial Japan Plc
8	BNKC (Cambodia) Microfinance Institution Plc	39	Nirorn Microfinance Plc
9	BORIBO Microfinance Institution Plc	40	Oro Microfinance Plc
10	Cambodia Labor Care Plc	41	Piphup Thmey Microfinance Plc
11	Camma Microfinance Limited	42	PRASETHPHEAP Finance Plc
12	Cellcard Finance Plc	43	Prime MF Microfinance Institution Ltd
13	Century Cambo Development Plc	44	Prince Finance Plc
14	Chamroeun Microfinance Limited	45	Royal Microfinance Plc
15	Chokchey Plc	46	Sabay Credit Commercial PLC
16	City Microfinance Plc	47	Sachak Microfinance Plc
17	Collective Win Cambodia Plc	48	Sahaka Plc
18	Delta Microfinance Plc	49	Sahakrunpheap S.T Microfinance Plc
19	Entean Akpevath Pracheachun Limited	50	Samaky Microfinance Plc
20	Farmer Finance Ltd	51	Sambat Finance Plc
21	First Finance Plc	52	SAMIC Microfinance Institution Plc
22	Funan Microfinance Plc.	53	Samporn Samakum Sahakreas Thuntoch Neung Matjum Kampuchea
23	Futaba Microfinance Plc.	54	Samrithisak Microfinance Limited
24	Golden Cash Plc	55	Seilanithih Limited
25	Green Central Microfinance Ltd	56	Sonatra Microfinance Institution Plc
26	GROW Plc	57	Srey Oudom Microfinance Plc
27	Idemitsu Saison Microfinance (Cambodia) Plc	58	T&GO Finance Plc
28	Intean Poalroath Rongroeurng Ltd	59	Taca Microfinance Plc
29	JET's Cash Box Finance Plc	60	TBB (Cambodia) Microfinance Institution Plc
30	KEY Microfinance Institution Plc	61	Woori Finance Cambodia Plc
31	Khemarak Microfinance Institution Limited	62	YCP Microfinance Limited

No	Name of MFIs (2017)	No	Name of MFIs (2017)
1	Active People's Microfinance Institution Plc	35	LY HOUR Microfinance Institution Plc
2	ANAKUT Microfinance Institute Plc	36	Maxima Mikroheranhvatho Plc
3	Apple Finance Plc	37	MIA Financial Plc.
4	Asia Pacific Finance Plc	38	Microfinance Amatak Capital Plc
5	Atom Capital Microfinance Institution	39	Mohanokor Microfinance Plc
6	Baitang Microheranhvatho Plc.	40	Mother Financial Japan Plc
7	Bamboo Finance Plc	41	Nirorn Microfinance Plc
8	BAYON Credit Limited	42	Oro Microfinance Plc
9	BNKC (Cambodia) Microfinance Institution Plc	43	PG DEVELOPMENT Plc.
10	BORIBO Microfinance Institution Plc	44	Piphup Thmey Microfinance Plc
11	Cambodia Labor Care Plc	45	Ponleu Chaktomuk Microfinance Institution Plc.
12	Camma Microfinance Limited	46	PRASETHPHEAP Finance Plc
13	Cellcard Finance Plc	47	Prime MF Microfinance Institution Ltd
14	Century Cambo Development Plc	48	Prince Finance Plc
15	Chamroeun Microfinance Limited	49	Royal Microfinance Plc
16	Chokchey Plc	50	Sabay Credit Commercial PLC
17	City Microfinance Plc	51	Sachak Microfinance Plc
18	Collective Win Cambodia Plc	52	Sahaka Plc
19	Delta Microfinance Plc	53	Sahakrunpheap S.T Microfinance Plc
20	Entean Akpevath Pracheachun Limited	54	Samaky Micrifinance Plc
21	Farmer Finance Ltd	55	Sambat Finance Plc
22	First Finance Plc	56	SAMIC Microfinance Institution Plc
23	Funan Microfinance Plc.	57	Samporn Samakum Sahakreas Thuntoch Neung Matjum Kampuchea
24	Futaba Microfinace Plc.	58	Samrithisak Microfinance Limited
25	Golden Cash Plc	59	Seilanithih Limited
26	GROW Plc	60	Sonatra Microfinance Institution Plc
27	Idemitsu Saison Microfinance (Cambodia) Plc	61	Srey Oudom Microfinance Plc
28	Intean Poalroath Rongroeurng Ltd	62	T&GO Finance Plc
29	JET's Cash Box Finance Plc	63	Taca Microfinance Plc
30	KEY Microfinance Institution Plc	64	TBB (Cambodia) Microfinance Institution Plc
31	Khemarak Microfinance Institution Limited	65	Trop Khnhom Microfinance Plc.
32	Khmer Capital Microfinance Institution Plc.	66	Vithey Microfinance Plc.
33	LBP Microfinance Plc	67	Welcome Finance (Cambodia) Plc.
34	LED Plc	68	Woori Finance Cambodia Plc
		69	YCP Microfinance Limited

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