UNDERSTANDING CUSTOMER BEHAVIOR OF MULTIPLE BORROWING THROUGH PROSPECT THEORY: CASE STUDY ON INDIAN MICROFINANCE CLIENTS

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Abstract

The phenomena of multiple borrowing in microfinance clients are widely prevalent so much so that it has become a major cause of concern and challenge for the microfinance industry. The researches have been sparse to create an understanding of why would microfinance clients take out multiple loans. Some of the empirical researches attempted to delve into the potential causes and it includes a mismatch between the size of the loan and the business/personal needs of the clients, a lack of financial sense or the clients' oversight, among many other reasons. The lack of research work to create theoretical understanding on the subject motivates the present research. The present research aims at understanding the client behavior which leads to multiple borrowing through widely applicable theories on behavioral finance "Prospect Theory". To achieve the objective, the research is designed to explain the theory and then inference of the theory is drawn to understand the underlying causes prompting the risk seeking behavior of the person that result into the situation of multiple borrowing. The understanding has important implications to design an appropriate mechanism to control multiple borrowing to the microfinance clients.

INTRODUCTION

Microfinance refers to small ticket size loan to poor people, who have very limited access to credit facilities and other financial services provided by formal financial institutions. This lack of access to financial services from the formal financial system is quite striking, when one considers that in many third world developing countries the poor represent the largest share of the population and that the informal sector is an important part of the economy. To meet unsatisfied demand for financial services, a variety of microfinance institutions (MFIs) has emerged over time and the practice has been institutionalized in a formal framework of Microfinance. Microcredit[2], in the sense of small loans to the poor, is of ancient origins. Traders and moneylenders have traditionally provided credit to the rural poor, usually at exorbitant rates of interest leading to considerable hardship and impoverishment of borrowers, including undesirable and illegal practices like bonded labor. What we refer to as microfinance today does not include such exploitative practices, but rather lending to the poor who are excluded from the traditional financial system on account of no or little collateral, small ticket size loan at reasonable but sustainable rates. The primary differentiators between microfinance and the conventional credit disbursal mechanism lie in the joint liability concept, and that lender does not take a secured interest. The Joint Liability Group (JLG) concepts are based on the solidarity principle wherein five poor women form a group and loans are provided on a joint liability basis. The Centres, which comprise of JLGs have a mandatory weekly meeting at a fixed time and place. The advantages of the JLG Model are reduced information asymmetry between the lenders and the borrower because group members use their local information for screening, monitoring or enforcing repayment resulting in reduced auditing costs for loan supplier and high repayment rate (>95%) as per historical data.

The sector is witnessing a tremendous growth path worldwide and particularly in India. As per the latest Bharat Microfinance Report - Quick Data 2009 the Indian microfinance has reached out to 86.2 million clients with a portfolio outstanding of Rs. 3513.4 Bln including MFI channel (actual data) and SBLP (estimated data) by March 2009. Client outreach though the MFI channel has grown at 60 per cent in 2009 against 41 per cent in

[2] The term Microfinance and Microcredit is used interchangeably, unless otherwise stated.

2008 and the portfolio has grown at 97 per cent during the year as compared to 72 per cent in the previous year (Table 1).

Table 1: Outreach and Portfolio of the two major Microfinance-Supply-Channels in India, 2007-2009

	2007	2008	2009
Outstanding Portfolio (Rs. in Million)			
NABARD (SBLP)	124000	170000	234000
SA-DHAN (>200 MFIs)	34560	59540	117340
Total	**158560**	**229540**	**351340**
Client Outreach (Million Persons)			
NABARD (SBLP)	40.5	50.8	63.6
SA-DHAN (>200 MFIs)	10	14.1	22.6
Total	**50.5**	**64.9**	**86.2**

Source: Sa-dhan Annual Report 2009

The growth of the microcredit market has accelerated the competition and it causes the rivalry amongst firms in the market. The rivalry is a concern in microcredit markets. A growing number of institutions enter the market, motivated by goals spanning from poverty reduction to profit maximization. Economists generally welcome competition as a positive phenomenon, especially in terms of consumer welfare, but some of the special features of microcredit raise some doubts regarding this conventional wisdom. This is so because microcredit intends to serve dual objective of social goal and commercial benefit. The microfinance institution in a bid to attract commercial capital tries to maximize return on investment, and to show significant improvement in growth in terms of clients outreach. The return on investment and the growth pattern play an important parameter for the commercial microfinance institutions to attract capital investment. This thrust on maximizing return propels the microfinance institutions to target clients available at economically lesser cost and effort. The clients being a naïve in comprehending their debt service coverage ability accede to the easy availability of the debt and may turn perverse. Whenever borrowers and lenders are tied in a reciprocal relationship, lending money without incurring important financial losses is relatively easy. Lenders need borrowers to repay their loans in order to avoid losses. Borrowers

need lenders to finance their businesses and their daily activities. When microcredit was still at its origin, this relation was quite balanced since the supply of credit was largely insufficient, and the demand side was still limited, mainly because of distrust toward microfinance institutions. This was enough to discipline the involved parties. But the increase of competition is destabilizing the relation in favor of borrowers: when there are different Micro Finance Institutions (MFI) to which borrowers can apply for credit, the link between borrower-lender becomes weaker. This creates incentive for borrowers to engage in potentially harmful behavior like, for instance, multiple borrowing.

Practitioners report that the presence of competitors in the market weakens MFIs in two respects. First, it reduces the borrowers' incentives for repayment. These incentives, in fact, depend importantly on the threat of being denied access to further credit in case of default. Second, due to the lack of well functioning credit bureaus, borrowers might take multiple loans. In these cases, the level of indebtedness can become so large that it may render repayments extremely unlikely. The literature has proposed mainly two different explanations for multiple borrowing (see, for instance, McIntosh et al. [15], McIntosh and Wydick [16], de Janvry et al [6]). The first is that ex-post, i.e. after the loan is taken and invested, some unexpected negative shocks can hurt borrowers and their businesses. This can make it impossible for them to repay the loan. Thus, borrowers might decide to take a second loan in order to repay the first, increasing dangerously their level of indebtedness. Another explanation for multiple borrowing comes from the fact that micro-loans can be too small to cover the borrowers' needs for a specific investment. In order to obtain the missing capital, they might find it convenient to hide their real level of indebtedness and ask for additional loans from different institutions. The present research aims at analyzing the first instance of negative shocks which lead to the outcome of multiple borrowing. For the purpose, this paper focuses on psychological analysis of lenders' decision making process which may induce them to resort to multiple borrowing.

1.2 PROSPECT THEORY

Developed by Kahneman & Tversky (1979), Prospect Theory is a theory of decision making under conditions of risk. It asserts that decisions are based on judgment, where it is difficult to foresee the consequences or outcomes of events with clarity. Prospect theory directly addresses how choices are framed and evaluated in the decision making process. It describes decision making process between alternatives that involve risk, i.e. alternatives with uncertain outcomes, where the probabilities are known. The model is descriptive: it tries to model real-life choices, rather than optimal decisions. The theory describes such decision processes as consisting of two stages, editing and evaluation. In the first, possible outcomes of the decision are ordered following some heuristic. In particular, people decide which outcomes they see as basically identical and they set a reference point and consider lower outcomes as losses and larger as gains. In the following evaluation phase, people behave as if they would compute a value (utility), based on the potential outcomes and their respective probabilities, and then choose the alternative having a higher utility.

The formula that Kahneman and Tversky assume for the evaluation phase is (in its simplest form) given by $U = w(p_1)v(x_1) + w(p_2)v(x_2) + \cdots$, where $x_1, x_2, \cdots$ are the potential outcomes and $p_1, p_2, \cdots$ their respective probabilities. *v* is a so-called value function that assigns a value to an outcome. The value function (sketched in the Figure) which passes through the reference point is s-shaped and, as its asymmetry implies, given the same variation in absolute value, there is a bigger impact of losses than of gains. The kink at the origin as can be seen from figure 1 is the reference point. Montier (2006) explains that the reference point is determined by the subjective feelings of the individual. This becomes the individual's point of reference like a benchmark (status-quo), against which the individual makes comparisons of the outcomes.

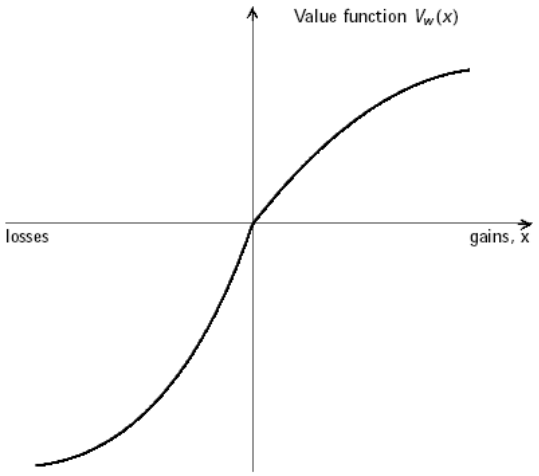

Figure 1: An S- shaped value function

The function *w* is called a probability weighting function and expresses that people tend to overreact to small probability events, but underreact to medium and large probabilities. To illustrate it further, the theory suggest that first, people evaluate decision options relative to some reference point, generally the status quo or current state of affairs. When choosing between options that appear to be gains relative to that reference point, people tend to make risk-averse choices; when choosing between options that appear to be losses relative to that reference point, people tend to make risk-seeking choices.

Chandra (2005) has stated that the value function is concave for gains and convex for losses. Also the value function is steeper for losses than for gains. This means that "people feel more strongly about the pain from a loss than the pleasure from an equal gain". This phenomenon is known as loss aversion. Loss aversion poses some serious issues. It has an impact on the way the outcome is described, as this has an impact on the decision making. Hence the way a problem is constructed has a lot of meaning for the

decision maker. While Chandra (2005) explains that the frame dependence is on account of a mix of cognitive and emotional factors that effect humans. Frames help in creating mental structures that help in making meaning.

1.3 Application of prospect theory in Multiple Borrowing in Microfinance Industry

The value of prospect theory in the understanding of individual decision-making process cannot be dismissed and it can give more insights to help in the credit assessment of borrowers. With this objective in mind in the sequel, the present research describes various scenarios emanating from the applications of prospect theory to explain multiple borrowing, one of the burning issues in microfinance. Then a personal interview was conducted with microfinance clients to understand their risk behavior on these scenarios. The frame of the interview was by describing the scenarios and microfinance clients were asked to take their decisions in the specific scenario. In all one microfinance borrowers attended to all the seven scenarios as explained in the following part.

Scenario 1: A person with no debt at time (t_0) is given the option to borrow `10000 @ 15% per annum for a certain loss of ` 500 without borrowing and to have 50% chance of losing ` 2000 and 50% chance of winning ` 500 with borrowing. The scenario is graphically represented in figure 2.

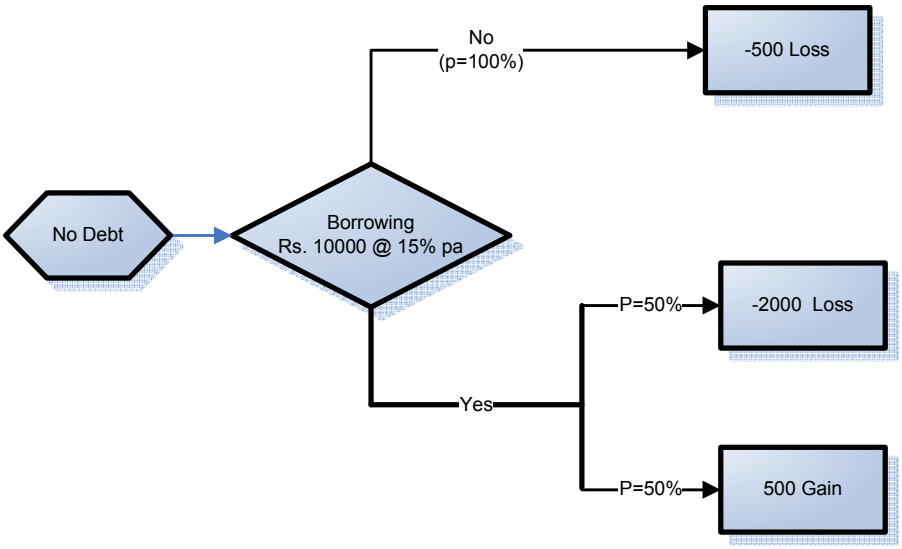

Figure 2: Scenario I

Scenario 2 : A person with existing debt of ` 10000 at time (t_0) is given an option to borrow Rs. 10,000 @15% per annum for a certain loss of Rs. 500 without additional borrowing and to have 50% chance of losing Rs. 2000 and 50% chance of winning Rs. 500 with borrowing. The scenario is graphically represented in figure 3.

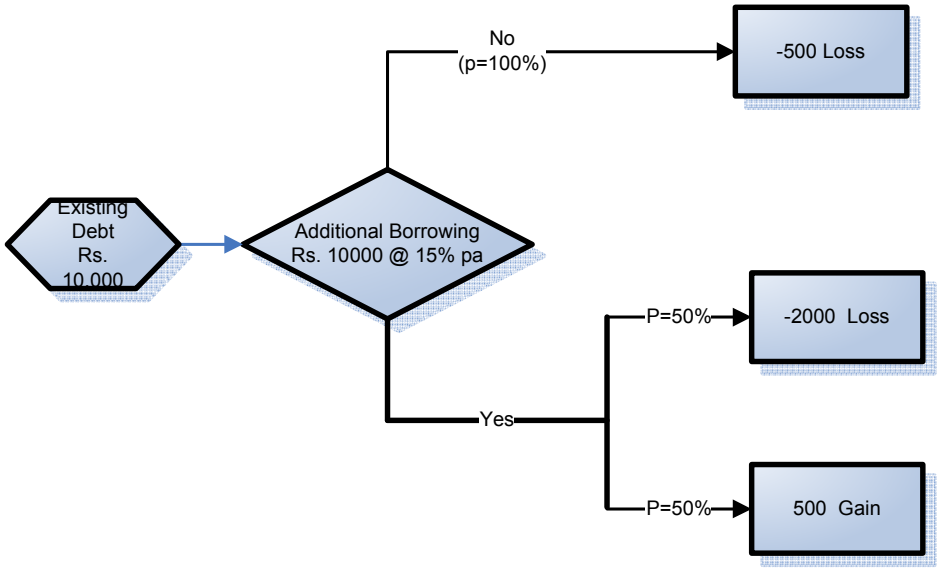

Figure 3: Scenario II

Scenario 3: A person with existing debt of ` 10000 at time ($t_0$) is given an option to borrow additional sum of ` 10,000 @15% per annum for a certain loss of ` 1000 without additional borrowing against 60% chance of losing ` 2500 and 40% chance of winning ` 1000 with additional borrowing. The scenario is graphically represented in figure 4.

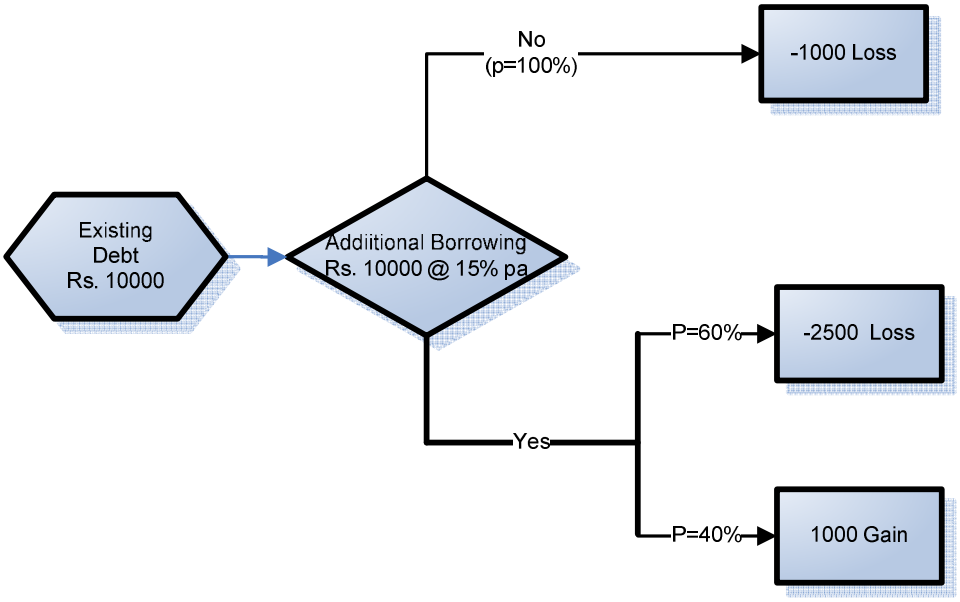

Figure 4: Scenario III

Scenario 4: People overweight outcomes considered certain, relative to outcomes that are merely probable, a situation called the "certainty effect." This effect contributes to risk aversion in choices involving sure gains, and to risk seeking in choices involving sure losses. In choices where gains are replaced by losses, the pattern is called the "reflection effect." Following the same, in this scenario a person is given an option option to borrow

Rs. 10,000 @ 15% per annum, for a certain gain of Rs. 1,000, without borrowing of over a 50% chance at receiving Rs. 3,000 and 50% chance at having to lose Rs. 1500 with borrowing. The scenario is graphically represented in figure 5.

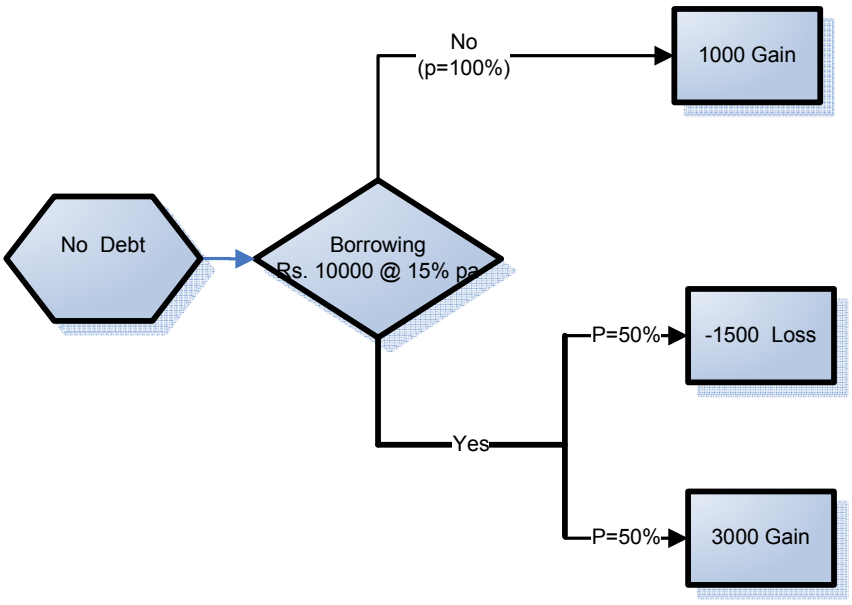

Figure 5: Scenario IV

Scenario 5: A person having an existing debt of Rs. 10000 at time (t_0) is given an option to choose a certain Rs. 1,000 gain, without additional borrowing of Rs. 10,000 @ 15% per annum, over a 50% chance at receiving Rs. 3,000 and 50% chance at having to lose Rs. 500 with borrowing. The scenario is graphically represented in figure 6.

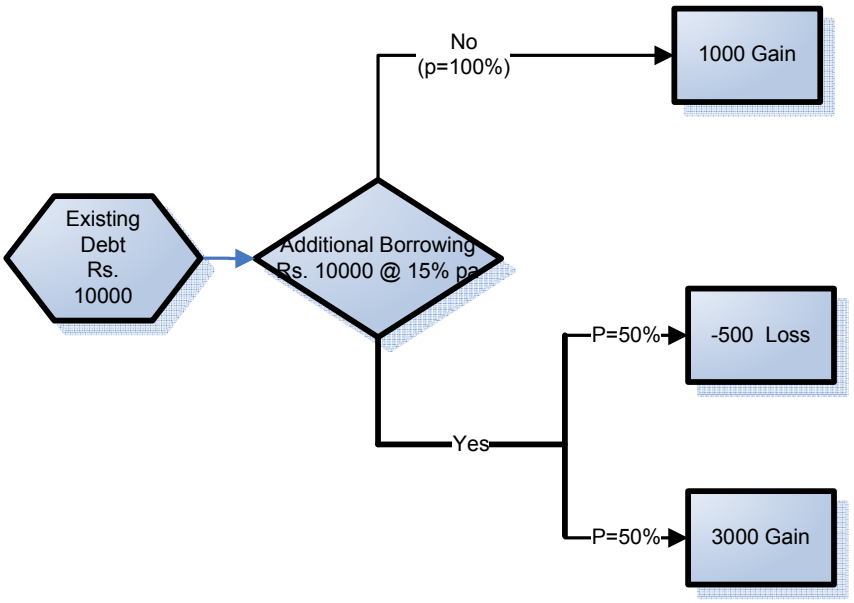

Figure 6: Scenario V

Scenario 6: Peoples' risk preferences tend to reverse when faced with low-probability gains and losses. That is, people tend to make risk-seeking choices when selecting between options that appear to be low-probability gains and risk-averse choices when selecting between options that appear to be low-probability losses. Following this a person having an existing debt of Rs. 10000 at time (t0) is given option to choose between a certain Rs. 600 gains without borrowing of Rs. 10,000 @ 15% per annum, over a 95% chance of losing Rs. 1500 and 5% chance of gaining 25000. The scenario is graphically represented in figure 7.

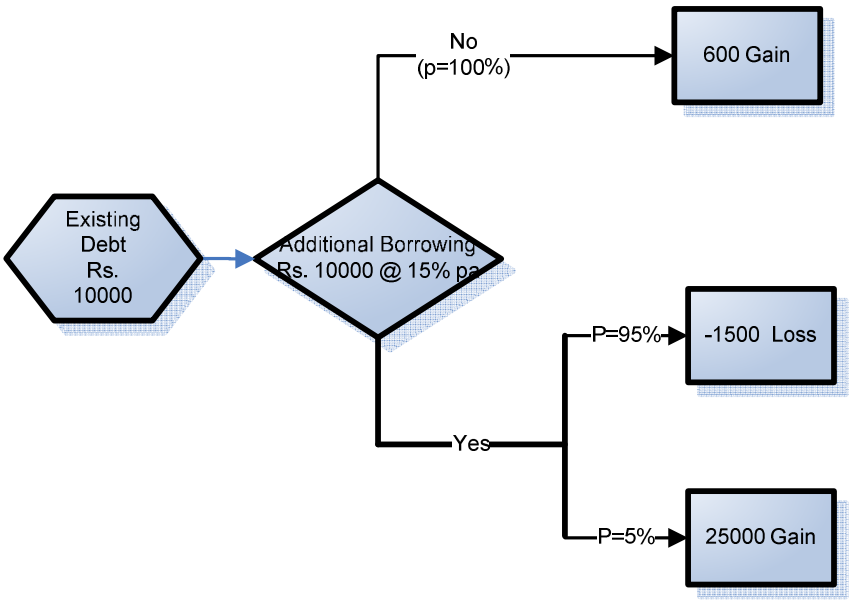

Figure 7: Scenario VI

1.4 Data Analysis

Six scenarios were presented to the existing microfinance borrowers and their decisions are collected against each of the scenarios. Table 2 presents the result of the data collected from the microfinance borrowers against respective scenarios (N= 10).

Table 2 : Data analysis of respondents on all six scenarios

Scenario	Borrowing/Additional Borrowing	No Borrowing	No Answer	Total	Rational choice
(1)	(2)	(3)	(4)	(5)	(6)
Scenario 1	10	0	0	10	No Borrowing
Scenario 2	8	2	0	10	No Borrowing
Scenario 3	9	1	0	10	No Borrowing
Scenario 4	9	0	0	10	No Borrowing
Scenario 5	9	1	0	10	Borrowing
Scenario 6	9	1	0	10	No Borrowing

Table 2 shows the cumulative decision of the respondents against the respective scenarios. Column (1) of table 2 represents the respective scenario number, column (2) represents the number of respondents deciding borrowing or additional borrowing; column (3) represents the number of respondents deciding no borrowing; column (4) represents the number of respondent whose decision is neither borrowing/additional borrowing nor no borrowing; column (5) represents total number of respondents in each of the scenarios. Column (6) is the normative decision against the respective scenarios.

As can be observed from column (6) of table 2 and column (2), it is found that the as against the normative behavior of No Borrowing in 5 out of 6 scenarios, 100% of the respondents decided to borrow in scenario 1, 80% of the respondents decided to borrow in scenario 2, and 90% of the respondents decided to borrow in scenario 3, 4, and 6. The finding supports the behavioral irrationality of the respondents.

1.5 Conclusion and Future Research Directions

The phenomena of multiple borrowing in microfinance clients are widely prevalent so much so that it has become a major cause of concern and challenge for the microfinance industry. The researches have been sparse to create an understanding of why would microfinance clients take out multiple loans. Some of the empirical researches attempted to delve into the potential causes and it includes a mismatch between the size of the loan and the business/personal needs of the clients, a lack of financial sense or the clients' oversight, among many other reasons. The lack of research work to create theoretical understanding on the subject motivates the present research. The present research aims at understanding the client behavior which leads to multiple borrowing through widely applicable theories on behavioral finance "Prospect Theory". To achieve the objective, the research is designed to explain the theory and then inference of the theory is drawn to identify the underlying causes prompting the risk seeking behavior of the person that result into the situation of multiple borrowing. The future research can seek to validate

the findings with the research experiments on the microfinance borrowers. The understanding has important implications to design an appropriate mechanism to control multiple borrowing to the microfinance clients and also to make more reliable assessment of credit risk of the customers. The multiple microfinance agencies are acting as a catalyst in encouraging risk seeking approach of the borrower.

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