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DETERMINANTS OF REPAYMENT PERFORMANCE IN MICROFINANCE PROGRAMS IN MALAYSIA

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Abstract

This paper analyzes the repayment performance in microfinance programs in Malaysia that apply individual lending approach. The research framework of this study is built by four factors namely individual/borrower factors, firm/business factors, loan factors and institutional/lender factors as independent variables and repayment performance either paid on time, delinquent and default as dependent variables. The study used mixed methodology, combining between quantitative and qualitative data through questionnaire survey, in-depth interviews, publish and unpublished reports. The data of this study is gathered from 401 respondents in Peninsular Malaysia through multistage random sampling. The data is analysed by descriptive analysis and multinomial logit model. Meanwhile, for qualitative data, a total of 21 respondents (7 respondents who paid on time, 7 respondents who delinquent and 7 respondents who default) were selected randomly and structured interviews with 6 MFI's State Managers. The results show that in terms of borrower characteristics, only micro entrepreneur's religious education level is statistically significant in the relationship between delinquent and good borrowers and between default and good borrowers. Whereas, in firm/business characteristics, the result shows that distance, business formality and total sales are statistically significant. The finding shows that total loan received, loan type and repayment schedule are the loan characteristics that affect micro entrepreneur's loan repayment. In terms of institutional/lender characteristics, the finding shows that loan monitoring is statistically significant in the relationship between

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delinquent and good borrowers. This study contributes significantly to the knowledge of microfinance program at large, wherein it explains the factors affecting repayment performance and repayment performance plays an important role to ensure that MFIs can continue providing microfinance to the micro entrepreneurs without depending on subsidies.

JEL Classification: *G2, G21*
Keywords: *Repayment Performance, Individual Lending, Microfinance, Malaysia*

1. Introduction

Microfinance has been recognized as an essential socio-economic and financial mechanism for poverty alleviation, promoting entrepreneurial development and increasing the profile of disadvantaged people in numerous countries throughout the world (Hossain et al., 2012). Microfinance serves to promote rural livelihoods and urban poor by the creation of entrepreneurship opportunities that encourage the elimination of unemployment by creating potential business based on their interest and skill. Microfinance targets to poor people because these people usually lack of collateral, no steady employment and verifiable credit history, which therefore, cannot even meet the most minimal qualifications to gain access to normal banking. Besides, it can avoid poor people lend with illegal banking such as moneylender or loan shark that charge unreasonable interest rate.

However repayment problem that because of adverse selection and moral hazard has become an obstacle to the Micro Finance Institutions (MFIs) especially that offer microfinance based on individual lending approach to maintain their funds. This is because most of the MFIs are Non-Governmental Organisations (NGOs) that received funds from donors and government and they are not profit-oriented organisation. In Malaysia, repayment problem faced by many semi- formal financial institutions that offer credit to micro enterprises and Small Medium Enterprises (SMEs) is on the high side (Starbiz, 2 June 2010). For example, in 2008, the Non-Performing Loans (NPLs) for TEKUN Nasional are 29 percent, SME Bank is 8 percent, Suruhanjaya Koperasi Malaysia (SKM) is 13.8 percent and Permodalan Nasional Berhad (PNB) is 11 percent (Utusan Malaysia, 16 December 2008). While, the NPLs for Perbadanan Usahawan Nasional Berhad (PUNB) is 30 percent for Retail PROSPER Scheme and 20 percent for Graduate PROSPER Scheme and PKS Scheme (Berita Harian, 16 February 2009). Until 2012, the NPLs for TEKUN Nasional is still high which is 20 percent (TEKUN Nasional, 2012).

Therefore this paper tries to analyze the repayment performance in microfinance programs in Malaysia that apply individual lending approach. This paper is divided into five sections where section one is the introduction followed by literature review in section two. Section three discusses the methodology used and section four explains the result and discussion. While the last chapter is conclusion and research recommendations.

2. Literature Review

The concept of microfinance has been existed in the early 1700s initiated by Jonathan Swift in Ireland. The organization provides small loans to rural poor with no collateral known as Irish Loan Fund System. The principal purpose was making small loans with interest for short periods (CGAP, 2006). In 1864, the concept of credit union was developed by Friedrich Wilhelm Raiffeisen in Germany to assist the rural population break out of their dependence on moneylenders. The focus of this institution was mostly on savings mobilization in rural areas in an attempt to help poor farmers how to save. The benchmark model for many microcredit programs in the world is Grameen Bank in Bangladesh that was established in 1983 by Mohammad Yunus, a Professor at Chittagong University (Hossain, 1988; Yunus, 1999).

Majority of the literature on repayment performance of MFIs focused on group- based lending or group liability because group based lending is synonym with microfinance activities such as Ghatak and Guinnane (1999), Godquin (2004), Sharma and Zeller (1997), Zeller, (1998), Besley and Coates (1995), and Silwal (2003). Much theorizing has been done to show the advantages of group loan in minimizing the default rate compared to an individual loan (Ghatak, 2000; Ghatak & Guinnane, 1999; Besley & Coate, 1995; Maata, 2004). Much of the studies emphasized the role of joint liability in group lending, such as peer selection (Ghatak, 1999), peer monitoring (Stiglitz, 1990; Varian, 1990; Banerjee et al., 1994), and peer enforcement (Besley & Coates, 1995). It proved that through group lending, it could mitigate moral hazard, adverse selection and information asymmetries faced by the MFIs. Microfinance programs that used peer selection, peer monitoring, dynamic incentives, regular repayment schedules, and social collateral help maintain high repayment rates (Silwal, 2003; Tesfaye, 2009).

However, not all MFIs offer microfinance based on group lending because of many reasons such as the borrowers need larger loans, have difficulty to find group members and difficulty to attend weekly meeting. The literature on repayment performance in individual lending approach is very sparse and limited mainly to microfinance experience in low-income countries (Suraya Hanim Mokhtar, 2011; Derban et al., 2005; Silwal, 2003). Many researchers have emphasized the importance

of loan repayment performance such as Sangoro et al., (2012), Stearns (1995) and Hulme and Mosley (1996). Examining repayment performance is important because if borrowers do not repay, then there may not be sufficient funds to ensure that the liquidity position of the MFI is maintained. When there is a loss in the bank liquidity due to high levels of non-repayment, the cyclical flow of funds between the MFI and the borrowers will be interrupted.

There are various factors including individual/borrower characteristics, borrower's firm characteristics, MFI characteristics and loan characteristics that will affect the willingness and the ability of borrowers to repay their loans. On the other hand, the borrowers may not able to repay their loans due to factors beyond their control such as flood, earthquake and economic recession. The borrowers may default when the return of their business is too small or when the return is just enough to cover the scheduled payment and they decide not to pay their loans by choice (strategic default).

Before the lender grant credit to the borrower, he must predict the probability of the borrower to repay the loan and usually financial institutions use credit scoring model to characterize the repayment behavior of borrowers (Frydman et al., 1985; Boyes et al., 1989; Turvey, 1991). However, the credit scoring used in financial institution is not relevant for most borrowers in MFIs because their business is small and involved in informal activities and some businesses are just start their operation, so the financial information of the business is unavailable. Therefore, MFIs need to construct a relevant probability model mainly rely on the data that observable and can be estimated by loan officer.

4. Data and Methodology

The study applies mixed methodology by combining between quantitative data and qualitative data through questionnaire survey, in-depth interviews with selected MFI's state managers and borrowers. According to Creswell (2002), the mixed methods design can be used to generalize findings to a population and develop detailed views of the meaning of a phenomenon or concept for individuals. Mixed methods research is a combination of quantitative and qualitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study for better understanding of research problems. Some researchers also called mixed methods as triangulation methods (Bryman, 2004; Denzin & Lincoln, 2000; Morse, 1991). However, the quantitative methodology is the main study and the qualitative methodology as explanatory or supporting method.

For questionnaire survey, a total of 401 respondents were selected randomly based on multi stage random sampling from all states in Peninsular Malaysia. The study uses descriptive analysis and multinomial logit analysis to analyse the data. For analysis purpose, the borrowers are classified into three groups as good borrowers who repaid on time, delinquent borrowers who repaid three months from the due date and default borrowers who did not repay in full after six months from the due date. The data is based on their credit status on sampling date. The general approach is intended to explain why a particular population group falls under the three credit repayment categories. Based on past literature, the variables which may significantly affect repayment performance on the basis of the study are determined quantitatively in the model implicitly specified as follows:-

Repayment Performance = f (individual/borrower characteristics, firm/business characteristics, loan characteristics, institutional/lender characteristics)

Or,

Y = f(AGE, SEX, EDU, RELEDU, BUSEXP, MNTHINCM, BUSSTAT, LIFEBUSS, DISTNC, BUSSEC, AREAOPT, BUSFOM, FIRMPFT, AMNTLOAN, LOANTYP, PYMTPER, PYMTSCHD, LOANMON, TRANCOST)

Where,

Y = repayment performance with values reflecting the repayment status of the borrowers either 1 (paid on time), 2 (delinquency) and 3 (default).

To support the data from questionnaire survey, informal interviews with 21 selected borrowers and structured interview with 6 MFI's State Managers were conducted to identify the factors that affect borrower's repayment performance.

5. Empirical Results and Discussions

The aim of descriptive statistics is to summarize large quantities of data by a few numbers and, to highlight the most important numerical features of the data (Antonius, 2003). Based on descriptive analysis, the results show that the mean age of respondents is 42 and most of the respondents are married. 229 respondents are female, and the rests are males who contribute 172 from total respondents. In terms of education level, majority of respondents just finish their secondary school and below. Average of respondents has nine-year business experience and the average of total household income per month is RM4, 149 (USD1,484). In terms of business location, majority of respondents operate their business in rural areas where most of them involved in services and retail activities such as retail shop, hawker stalls, salon and

restaurant. Based on 401 respondents, 208 (51.9%) respondents are categorised as good borrowers, while 123 (30.7%) respondents are delinquent and 70 (17.5%) respondents are default borrowers.

In terms of factors affecting repayment performance, table 1 has shown the multinomial logit estimation model of loan repayment performance. A positive coefficient indicates that an increase in the independent variable score will result in an increase probability of being in the delinquent and default category than that of being in the paid on time category. On the other hand, a negative coefficient indicates that an increase in the independent variable score will result in a decreased probability of being in the delinquent and default category (Pallant, 2011; Hair et al., 2010). In terms of relationship between delinquent borrower with good borrower, table 4.2 has shown that gender, business experience, education level, distance, total loan and transaction cost have positive coefficient while, age, religious education level, total income, business sector, business status, year of establishment, business area, register with SSM, total sales, loan type, repayment schedule, repayment period and loan monitoring have negative coefficient in relationship between delinquent borrowers and good borrowers. However, only religious education level, distance, register with SSM, total sales, repayment schedule and loan monitoring are statistically significant with a significant level 90 percent and 95 percent ($p \leq 0.05$ or $p \leq 0.1$).

While, in terms of relationship between default borrower with good borrower, the findings has shown that gender, age, business sector, year of establishment, distance, business area, total loan, repayment schedule, repayment period, monthly installment and loan monitoring have positive coefficient while, business experience, education level, religious education level, total income, business status, register with SSM, total sales, loan type and transaction cost have negative coefficient. However, only religious education level, distance, total sales, total loan and loan type are statistically significant with a significant level at 1 percent ($p \leq 0.01$), 5 percent ($p \leq 0.05$) and 10 percent ($p \leq 0.1$).

[Table 1]

Based on the findings above, the result shows that only borrower's religious education level is statistically significant at $p \leq 0.1$ level for the relationship between delinquent borrower and good borrower and highly significant at $p \leq 0.01$ in the relationship between default borrower and good borrower. The result has shown that the higher religious education level of the borrowers, the higher probability of the borrowers to repay their loan on time. In Islam, responsible to pay debt is highly important where even the borrowers were dead, they still have

to pay their debt or their soul will be hanging. The result has shown that borrowers who belief in Islam is more responsible to payback their loans even they are in difficult time because they know the consequence of not paying the loans. Such actions could be faith-related and it has been argued that borrowers may be more likely to repay their loans because their religious values dictate the fulfilment of their contracts or repayment of debts (Khan & Thaut, 2010). The result is parallel with the result from interviews with respondents where majority of the good borrowers repay their loans because they know the consequences of not payback the debt in Islam.

In terms of firm characteristics factor that affect loan repayment performance, the result has revealed that distance, register with SSM and total sales are statistically significant. The result has shown that distance to the lender office may influence borrower's repayment status where the farther the borrower's business to the lender office, the higher probability of borrowers to delinquent and default. The result is statistically significant at $p \leq 0.1$ level in the relationship between delinquent borrower and good borrower and highly statistically significant at $p \leq 0.01$ in the relationship between default borrower and good borrower. The result is in line with other previous studies (Oke et al., 2007; Onyenucheya & Ukoha, 2007; Bhatt & Tang, 2002; Arene, 1992) who found that an increase in distance between borrower's business premise and lender office will reduce repayment rate.

The formality of the business is another factor that influences borrower repayment status where the finding has shown that businesses who registered with Company Commission of Malaysia (Suruhanjaya Syarikat Malaysia (SSM)) are more likely to repay the loan on time compared with businesses that did not registered with SSM. A higher degree of business formality demonstrated a better repayment rate (Pisani & Yoskowitz, 2004). The result also shows that total sales is an important factor in determining borrower's loan repayment performance where the finding has revealed a strong effect at $p \leq 0.01$ in the relationship between default borrower and good borrower and at $p \leq 0.1$ in the relationship between delinquent borrower and good borrower. The result shows that borrowers who get higher total sales per month are more creditworthy than borrowers who get less total sales per month. The result is parallel with the result found by Nannyonga (2000); Onyenucheya & Ukoha (2007); Oke et al., (2007); Von Pischke (1991) who found that borrowers who get higher profit, have higher chance of repaying their loans compared to borrowers who declare less profit.

The finding has shown that total loan received, loan type and repayment schedule are the loan characteristics factor that statistically significant at $p \leq 0.1$ and $p \leq 0.01$ level. The result shows a strong effect at $p \leq 0.01$

in the relationship between default borrower and good borrower where the bigger total loan received by the borrowers, the higher probability of the borrowers to default. When the borrowers received more loans, there is the tendency that the excess loan may be diverted to other unproductive, non for business uses such as for personal use, children's school fees and pay other debt (Norell, 2001). Even the Grameen Bank clients used their loans for many different purposes such as food consumption, health, and education (Collins et al., 2009). Based on the interview with respondents, six of them admit that they use some of the loan given for other things such as to renovate house, children education and to buy things such as hand phone.

Besides, the result has revealed that loan type (dynamic incentive) is statistically significant at $p \leq 0.1$ level in the relationship between default borrower and good borrower where the increasing number of time the borrowers received loan from the same MFI, the higher probability of the borrowers to pay on time. Dynamic incentives consist of a threat and an opportunity which is the threat of being cut off from future loans and the opportunity of borrowing larger amounts in the future (Berglind & Karimi, 2007).

The finding also shows a negative effect between delinquent borrowers and good borrowers in terms of repayment schedule where the repayment schedule is statistically significant at $p \leq 0.1$ level. The result shows that the monthly type of repayment schedule is more likely to be a good borrower than a delinquent borrower. The result is contradict with previous study such as Guttman (2007) who found that weekly repayment basis is more suitable because it can identified defaulters early and can be pushed by the bank officer to "keep step" in their loan repayment. However, Field & Pande (2008) found that no significant effect of type of repayment schedule either weekly or monthly on client delinquency and default. They suggest a more flexible schedule to the clients because it can reduce transaction costs.

In terms of institutional factors that affect loan repayment performance, the findings has shown that loan monitoring is statistically significant at $p \leq 0.05$ level in the relationship between delinquent borrowers and good borrowers. The result shows that the more frequent the MFIS officers visit borrowers' business premise, the higher probability of the borrowers to pay on time. The result is parallel with previous studies such as Deininger and Liu (2009); Papias and Ganesan (2009) and Olomola (2000) which found that loan monitoring is an important factor in increasing loan repayment rate among borrowers.

6. Conclusion and Suggestions

The importance of microfinance facilities to the development of micro entrepreneurs in the world have been proven that microfinance can help micro entrepreneurs to get credit to finance their business activities or to get capital to set up the business. This is because majority of them are denied from commercial banking credit because lack of collateral as needed by the banks. However, giving credit to the micro entrepreneurs is high risk because of limited financial capabilities and the business has not been stable. Therefore, to help MFIs especially that using individual-lending approach to mitigate adverse selection and moral hazard problems and to determine factors affecting micro entrepreneur's loan repayment, the study suggests imposing maximum current loan instalment per monthly income like practiced by commercial banks where the current instalment not more than two third of the monthly income. Besides, the MFIs should matching the repayment schedule and the expecting of receiving income such as agriculture borrower that usually receive income after harvesting time, the repayment is based on harvest time not based on regular repayment period.

The MFIs can also differentiate between applying loan for start up the business and for working capital purpose because normally who apply for start up the business are new entrepreneurs and have less experience in business. They not only need credit but more than credit such as business training like how to promote their product, prepare financial statement and the presentable of the product. Therefore, it is suggested to provide related training skills to the new entrepreneurs to enhance their business skills. Moreover, the lower the number of months the business operated, the higher the risk for the business to survive because businesses are more likely to fail within the first year of operation.

While to increase the loan repayment, it is proposed to MFIs to increase the monitoring system by introducing peer monitoring like imposed in the group lending approach. This can be applied through Entrepreneur Club where success borrowers can monitor new or problem borrowers to manage and to solve their business problems like mentor mentee program. Besides that, this can reduce the operational cost of MFIs in monitoring their clients. In addition to the dynamic incentive where on time borrowers and borrowers who finish repay their loan will be offered for bigger loan, the MFIs can also give rebate to those who succeed paying their instalment on time or make full repayment early. This can encourage the borrowers to repay on time and to make full repayment early when they have extra income. Besides that, this can eliminate borrower's perception towards microfinance loans where microfinance loans is not important and can delay the payment.

References:

Antonius, R. (2003). *Interpreting quantitative data with SPSS*. United Kingdom, London: Sage Publications.

Arene, C.J. (1992). Loan repayment and technical assistance among smallholder maize farmers in Nigeria. *African Review of Money and Banking*. *A Supplement of Savings and Development Journal*, 1, 64-72.

Banerjee, A.V., Besley, T., Guinnane, T.W. (1994). Thy neighbor's keeper: the design of a credit cooperative with theory and a test. *The Quarterly Journal of Economics*, 109(2), 491-515.

Berglind, V., & Karimi, A. (2007). Repayment performance in microfinance: A theoretical analysis. Retrieved from Uppsala University Web site: uu.diva portal.org/smash/get/diva2:131739/FULLTEXT01

Berita Harian. (2009, 16 February). PUNB sasar salurkan pinjaman RM164.3 juta.

Besley, T., & Coates, S. (1995). Group lending, repayment incentives and social collateral. *Journal of Development Economics*, 46, 1-18.

Bhatt, N., & Tang, S.Y. (2002). Determinants of repayment in microcredit: evidence from programs in the United States. *International Journal of Urban and Regional Research*, 26(6), 360-376.

Boyes, W.J., Hoffman, D., & Low, S. (1989). An econometric analysis of the bank credit scoring problem. *Journal of Econometrics*, 40, 3-14.

Bryman, A. (2004). *Social Research Methods* (2nd Edition ed.). New York: Oxford University Press.

Consultative Group to Assist the Poor (CGAP).(2006). *The New Vision of Microfinance: Financial Services for the Poor*. Retrieved from http://www. globalvision.org/library/4/1051/.

Creswell, J.W. (2002). *Research design: qualitative, quantitative and mixed method approaches*. 2nd Ed. Sage Publication, Thousand Oaks, California, U.S.A.

Deininger, K., & Liu, Y. (2009). *Determinants of repayment performance in Indian micro-credit groups*. Washington D.C: The World Bank.

Denzin, N., & Lincoln, Y. (2000). *Handbook of Qualitative Research*. London: Sage Publications.

Derban, W., Binner, J., & Mullineux, A. (2005). Loan repayment performance in community development finance institutions in the UK. *Small Business Economics , 25*, 319-332.

Field, E., & Pande, R. (2008). Repayment frequency and default in microfinance: evidence from India. *Journal of the European Economic Association*, 6(2-3), 501-509.

Frydman, H., Altman, E.I., Kao, D.L. (1985). Introducing recursive portioning for financial classification: the case of financial distress. *Journal of Finance*, 40(1), 269-291.

Ghatak, M. (1999). Group lending, local information and peer selection. *Journal of Development Economics*, 60, 27-50.

Ghatak, M. (2000). Screening by the company you keep: joint liability lending and the peer selection effect. *The Economic Journal*, 110, 601- 631.

Ghatak, M., & Guinnane, T.W. (1999). The economics of lending with joint liability: Theory and practice. *Journal of Development Economics*, 60, 195- 228.

Godquin, M. (2004). Microfinance repayment performance in Bangladesh: how to improve the allocation of loans by MFIs. *World Development*, 32(11), 1909-1926.

Guttman, J.E. (2007). *Repayment performance in microcredit programs: theory and evidence*. Working Paper. Networks Financial Institute. Indiana State University. March 2007.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7nd Edition ed.). New Jersey: Pearson Prentice Hall.

Hossain, M. (1988). *Credit for Alleviation of Rural Poverty: the Grameen Bank in Bangladesh*. Research Report; 65. International Food Policy Research Institute in Collaboration with the Bangladesh Institute of Development Studies. February 1988.

Hossain F, Rees C and Millar T.K. (2012). *Success factors of microcredit: What can we learn for international development? in Microcredit and international development: Contexts, achievements and challenges*. Routledge. New York. USA.

Hulme, D., & Mosley. P. (1996). *Finance Against Poverty*, 2, London, UK.

Khan, A.A., & Thaut, L. (2010). The opportunities and challenges of Islamic microfinance in G. ter Heer. Transforming Development.

Maata, D. (2004). *Examining determinants of group loan repayment in the Dominican Republic*. Unpublished Master Dissertation. The Ohio State University. United States.

Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research , 40*, 120-123.

Nannyonga, H. L. (2000). *Determinants of repayment behaviour in the Centenary Rural Development Bank in Uganda*. Unpublished Doctoral Dissertation. The Ohio State University. United States.

Norell, D. (2001). How to reduce arrears in microfinance institutions. *Journal of Microfinance*, 3(1), 115- 130.

Oke, J.T.O., Adeyemo, R., & Agbonlahor, M.U. (2007). An Empirical Analysis of Microcredit Repayment in Southwestern Nigeria. *Humanity & Social Sciences Journal*, 2(1), 63-74.

Olomola, A.S. (2000). Determinants of smallholder loan repayment performance: evidence from the Nigeria micro-finance system. Retrieved from http://www. economics.ox.nc.uk/CSAEadmin/conferences/2000-oiA/pdfpapers/olomola.pdf.

Onyenucheya, F., & Ukoha, O. (2007). Loan Repayment and Credit Worthinessof Farmers under the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB). *Agricultural Journal , 2* (2), 265-270.

Pallant, J. (2010). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS* (4th Edition ed.). United Kingdom, Berkshire: McGraw Hill.

Papias, M.M. & Ganesan, P. (2009). Repayment behaviour in credit and savings cooperative societies. Empirical and theoretical evidence from rural Rwanda. *International Journal of Social Economics*, 36(5), 608-625.

Pisani, M., & Yoskowitz, D. (2004). Microcredit and micro and small enterprise development in Belize, Central America: A qualitative study of the Small Farmers and Business Bank, Ltd. *Latin America Business Review , 5* (1), 45-69.

Sangoro, O., Ochieng, P., & Bureti, P. (2012). *Determinants of loan repayment among women-owned enterprise in Kenya: A case of Eldoret Municipality*. German: Lambart Academic Publishing.

Silwal, A.R. (2003). *Repayment performance of Nepali Village Banks*. Unpublished Master Dissertation. Swarthmore College, Swarthmore.

Sharma, M., & Zeller, M. (1997). Repayment performance in group based credit programmes in Bangladesh. *World Development*, 25(10), 1731-1742.

StarBiz. (2009, 27 March). *Ramon: SMEs in need of comprehensive plan-Nation lacks strategy to help sector weather crisis*. The Star.

Sterns, K. (1995). *The hidden beast: delinquency in micro enterprise credit programme*. ACCION Discussion Thesis Document No.6.

Stiglitz, E.J. (1990). Peer monitoring and credit markets. *The World Bank Economic Review*, 4(3), 351-366.

Suraya Hanim Mokhtar. (2011). *Microfinance performance in Malaysia*. (Unpublished PhD Thesis). Lincoln University, New Zealand.

Tesfaye,G.B. (2009) *Econometric analyses of microfinance credit group formation, contractual risks and welfare in Northern Ethiopia*. PhD thesis Wageningen University, Wageningen, the Netherlands.

Turvey., G.C. (1991). Credit scoring for agricultural loans: a review with applications. *Agricultural Finance Review*, 51, 43-54.

Varian, H.R. (1990). Monitoring agents with other agents. *Journal of Institutional and Theoretical Economics*, 146, 153-174

.

Von Pischke, J.D. (1992). RoSCAs: State of the Art Financial Intermediation, in D. W Adams and D.A. Fitchett. *Informal Finance in Low-Income Countries, Boulder*. Westview.

Yunus, M. (1999). *Banker to the Poor. The autobiography of Muhammad Yunus, founder of Grameen Bank*. Aurum Press Limited, London.

Zeller, M. (1998). Determinant of repayment performance in credit groups: The role of program design, intragroup risk pooling, and social cohesion. *Economic Development and Cultural Change*, 46(3), 599-621.

Table 1
Multinomial Logit Estimation Model of Loan Repayment Performance

	Delinquent			Default		
Variables	Coefficient	Z	p-value	Coefficient	Z	p-value
Gender	0.351567	1.404	0.1604	0.153033	0.4668	0.6406
Age	-0.018921	-1.197	0.2311	0.008383	0.4307	0.6667
Business Experience	0.010103	0.3749	0.7077	-0.013039	-0.3787	0.7049
Education Level	0.131965	0.3865	0.6991	-0.137517	-0.2627	0.7928
Religious Education Level	-0.401959	-1.867	0.0619*	-0.721468	-2.641	0.0083***
Total Income	-0.000030	-0.9512	0.3415	-0.000146	-1.547	0.1218
Business Sector	-0.138629	-0.5111	0.6093	0.041813	0.1253	0.9003
Business Status	-0.043884	-0.1161	0.9076	-0.079565	-0.1702	0.8649
Year of Establishment	-0.000971	-0.03528	0.9719	0.040552	1.192	0.2331
Distance	0.027291	2.05	0.0404**	0.063982	3.698	0.0002***
Business Area	-0.022344	-0.07892	0.9371	0.474397	1.225	0.2206
Register SSM	-1.250172	-2.229	0.0258**	-0.612843	-1.074	0.2827
Total Sales	-0.000122	-1.906	0.0566*	-0.000646	-3.230	0.0012***
Total Loan	0.000034	1.255	0.2093	0.000055	1.791	0.0733*
Loan Type	-0.037775	-0.222	0.8243	-0.495149	-2.032	0.0421**
Repayment Schedule	-0.352202	-1.794	0.0728*	0.087092	0.345	0.7301
Repayment Period	-0.010031	-0.07494	0.9403	0.146832	0.8263	0.4086
Monthly Installment	-0.000397	-0.4738	0.6356	0.000898	0.8842	0.3766
Loan Monitoring	-0.248618	-2.033	0.0420**	0.202647	1.294	0.1958
Transaction Cost	0.120762	0.4755	0.6344	-0.025788	-0.0725	0.9422

Reference category = Paid on-time
*** Significant @ 1% level, ** significant @ 5% level, * significant @ 10% level
Number of cases 'correctly predicted' = 235 (58.6%)
Likelihood ratio test: Chi-square(40) = 111.727 [0.0000]

Appendix 1:
Description for all the Variables

Age	AGE	Age of the respondent in years
Sex	SEX	0 if male and 1 if female
Education Level	EDU	0 if respondent has attend secondary and below and 1 if respondent has professional certificate and above
Religious Education Level	RELEDU	A vector of dummy variables indicating religious education level between borrowers where [dummy 1 = 1 if none and 0 if otherwise, dummy 2 = 1 if respondent attend primary level only and 0 if otherwise and, dummy 3 = 1 if respondent attend until secondary level and 0 if otherwise.]
Business Experience	BUSXEP	Respondent business experience (in years)
Monthly Income	MNTHINCM	Total household income per month (in RM)
Business Status	BUSSTAT	0 if permanent and 1 if temporary
Life of Business	LIFEBUS	Number of years
Distance from Lender Office	DISTNC	In kilometers
Business Sector	BUSSEC	A vector of dummy variables indicating business sector of the borrowers where [dummy 1 = 1 if services and 0 if otherwise, dummy 2 = 1 if manufacturing and 0 if otherwise and dummy 3 = 1 if agriculture and 0 if otherwise.]
Area of Operation	AREAOPT	0 if rural areas and 1 if urban areas
Business Formality	BUSFOM	0 if registered with SSM and 1 if not
Firm's profit	FIRMPFT	Total sales per month (in RM)
Amount of Loan Received	AMNTLOAN	Total amount received (RM)
Loan Type	LOANTYP	A vector of dummy variables indicating loan type between borrowers where [dummy 1 = 1 if first loan and 0 if otherwise, dummy 2 = 1 if second time loan and 0 if otherwise, dummy 3 = 1 if third time loan and 0 if otherwise, dummy 4 = 1 if fourth time loan and 0 if otherwise and, dummy 5 = 1 if fifth time loan and 0 if otherwise.]
Repayment Period	PYMTPER	Repayment period in years
Repayment Schedule	PYMTSCHD	A vector of dummy variables indicating repayment schedule between borrowers where [dummy 1 = 1 if weekly and 0 if otherwise, dummy 2 = 1 if bi-weekly and 0 if otherwise and dummy 3 = 1 if monthly and 0 if otherwise]
Loan Monitoring	LOANMON	number of times borrowers were visited by loan officer in a month.
Transaction Cost	TRANCOST	1 if loan processed and disbursed in time and 0 if otherwise.