Do the financing types from microfinance affect the SMEs' firm performance? Evidence from South Sumatera, Indonesia*

by Abdul Basyith

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ABSTRACT

This research investigates whether types of financing from microfinance have a different impact on firm performance of small business enterprises/firms (SMEs). Using survey methods through questionnaire and interview, this study consists of 2,800 observations throughout South Sumatera; however, only 2,198 observations were used in the analysis. The sampling design involves cluster sampling and purposive sampling. The analyses employed in this research are quantile regression and probit regression. The results reveal that SMEs who have a loan, SMEs who obtained a loan from formal microfinance have a positive and significant impact on firm performance (ROA and ROE) throughout all quantiles. Unlike the type of the industry, the coefficient for firm size is negative and significant for all quantiles. In addition, having their firms registered and receiving a fostering from the financier provide a positive and significant impact on their firm performance (ROA and ROE). The probit regression result for business growth and business survival indicates that for firms (SMEs) who have a loan, it has a negative and significant impact on their business growth and business survival. Similar to the loan status, firms (SMEs) who obtained loans from formal microfinance found a negative and significant impact on their business growth and business survival. Meanwhile, non-formal microfinance provides no significant impact to the business growth and business survival.

Introduction

The growth of SMEs throughout the region is crucial to regional growth. The small business sector has a significant role in enhancing economic growth in Indonesia. Their contribution has increased for three decades, since the deregulation package launched by the Government of Indonesia in 1983, and nowadays the SMEs sector is one of the contributors to the Indonesian economy. In 2011, Indonesian business confidence was positive and high, according to the survey results conducted by Certified Practicing Accounting (CPA) Australia. The respondents of the survey held overwhelmingly positive views about their growth prospects in the next 12 months. This reflects the very positive view the respondents have on the economy and Indonesia's strong economic data.

Moreover, the International Monetary Fund's (IMF) forecast for Indonesia's GDP growth is 6.4 percent for 2011 and 6.3 percent for 2012. The Asian Development Bank's (ADB) forecast is for growth of 6.6 percent in 2011 and 6.8 percent in 2012. Both of these forecasts show that the Indonesian economy is growing strongly, which is reflected in the very positive outlook Indonesian small businesses have for the economy and their businesses. However, the main downside risk to the Indonesian economy comes from inflation. IMF forecasted that inflation would increase from 5.7 percent in 2011 to 6.5 percent in 2012, whereas the ADB forecasted that inflation would remain steady at 5.4 percent on average. If core inflation continues its upward trend, then Bank Indonesia may need to increase interest rates (even though it has been cutting rates recently). If global credit conditions worsen, Indonesia may also experience sudden foreign capital outflows as foreign investors repatriate their funds to their home markets.

SMEs play a critical role in providing job opportunities, enhancing the quality of human resources, nurturing a culture of entrepreneurship, fostering creativity and opening up new business opportunities. Flexibility, as well as low start-up and operating costs, has enabled SMEs to spring up, to reposition and adjust themselves quickly in response to market and economic

changes. Moreover, they easily expand or contract in a short space of time. Furthermore, SMEs tend to produce similar products that form a cluster. Clusters of SMEs are common in Indonesia, particularly in the processing industry and manufacturing industry. This clustering tends to emerge in small towns and villages or in confined parts of larger cities. For example, in the capital city of South Sumatera, Palembang, the center of Rotan handicraft, is located in 3 ilir region. In this area, you may see along the road a number of Rotan producers and sellers.

Another example is the tenun songket handicraft, which located in seberang ulu in Palembang, ukiran Palembang, which is located behind holy mosque area. This clustering phenomenon also exists in other cities and regencies of South Sumatera. For example, in Ogan Komering Ilir Regency (OKI), the songket tenun is located in Pematang Kijang and Pematang Buluran, Pempek is located in Paku, Anyaman is located in Pedamaran, and many other centers of SMEs.

SMEs have not only survived the impact of big enterprises and the law of economies of scale but have carved out niches for themselves, which enable them to coexist with big enterprises. However, the most common problems for SMEs are the lack of access to market information and technology, the low quality of human resources and the lack of access to capital.

Despite efforts by financial institutions and public-sector bodies to narrow funding gaps, SMEs continue to experience difficulties in obtaining risk capital. SME borrowing requirements are small and frequently do not appeal to financial institutions. More collateral may be required than SMEs can pledge. Financial institutions may lack expertise in understanding small and medium knowledge-based business. The flexibility in the terms and conditions of financing that SMEs require may not be available. However, the Indonesian government implemented policy to encourage banks to have at least 20% of its portfolio in SMEs. Furthermore, the Indonesian Government, particularly Cooperative and Small-Medium Enterprises Affairs, has significantly contributed to the development of SME sectors through various programs, such as SME training and development programs,

bank and financial institution linkages, and partnership programs between small business and big firms.

Financial institutions play a significant role in providing fund to the business. However as mentioned previously that SME has lack of access to financing in particular large financial institutions, hence microfinance institutions are able to fill this gap. Microfinance in Indonesia is categorized into two groups: formal and non-formal. Formal microfinance is divided into banks (common bank and rural bank) and non-banks (funding from state owned enterprises). Non-formal microfinance is divided into Baitul Maal wa Tanwil (BMT or syariah cooperation), cooperation (koperasi) and other forms of non-formal microfinance.

The existence of microfinance has been a help for SME in needs of additional funding, therefore SME can survive and enhance their business growth. At the end the survival and the growth of SME may also affect the society welfare. This study attempts to investigate whether types of financing from microfinance have a different impact on firm performance of small business enterprises/firms (SMEs).

In conclusion, this study is considered as novel due to the fact that there is little of no prior research conducted to investigate the impact of microfinance types on SMEs. In addition, the broad sample used, the robust method which combined the employment of primary and secondary data, and the robust statistical testing employed all add value to this research.

Literature Review

A large body of literature has shown that small firms experience difficulties in accessing the credit market. This may be due to the fact that small businesses are likely to suffer most from information and incentive problems, limiting their ability to obtain external finance. Two strands of literature can be distinguished. One is on investment and finance, and it shows that investment is sensitive to cash flow, with investment-cash flow sensitivity typically limited to small businesses - a result suggesting that smaller firms suffer from financial constraints while larger firms do not (Bond & Meghir, 1994; Fazzari, Hubbard, & Petersen, 1988; Hoshi,

Kashyap, & Scharfstein, 1991; Hubbard, 1998). A variant of this literature examines the link between firm growth and finance, and it seems that small companies have higher growth-cash flow sensitivities than large ones, indicating that external finance constraints may prevent small and medium-sized firms from fully exploiting their growth potential.

The other strand is on the transmission channel of monetary policy and the relevance of the credit channel. According to experience of economic conditions, most of the empirical evidence is consistent with the idea that monetary policy contractions and banking crises adversely affect small businesses, in particular because they have no access to sources of finance other than bank loans (Gertler & Gilchrist, 1994). A final reason, which relates to the previous one, is that small businesses appear to have a limited geographical access to finance. A growing literature argues that distance matters in the provision of funds, especially for small firms. Petersen and Rajan (2002), for instance, provide evidence for the importance of distance in the provision of bank credit to small firms. Likewise, Lerner (1995) documents the importance of distance in the venture capital market. The immediate impact of distance on small firms is that their capital structure and debt capacity are determined by the conditions offered on local financial markets, given that they can only borrow locally. Developments in local markets - such as those experienced in many countries over the 1990s with waves of bank consolidation – may have strong effects on the supply of finance to small firms. Against this background, this paper provides a thorough analysis of small business finance in Indonesia.

Informational asymmetries between small firms and banks may be so pronounced that profitable investment opportunities are not financed (Berger & Udell, 2006; Petersen & Rajan, 1994). Small enterprises may mitigate this problem by posting collateral or building close relationships with lenders. Nevertheless, these solutions are of little help to firms which lack collateral or credit history. The consequences of guarantee requirements for the cost and availability of bank financing have been examined in numerous theoretical and empirical studies (Smith & Warner, 1979; Stulz & Johnson, 1985).

Furthermore, banks can overcome these asymmetries through relationship lending, or at least mitigate their effects by asking for collateral. Small firms, especially if they are young, have little collateral and short credit histories, and thus may find it difficult to raise funds from banks.

The private equity and debt markets that fund SMEs are different from the public markets that provide funding to transparent and well-known large businesses. In contrast to the public markets, the private markets are characterized by relationships, tailored financing solutions, combinations of explicit and implicit contracts and private information production and monitoring. These are market responses to the informational opacity and to asymmetric information that arises, because the insiders of a firm typically know more than outside investors about the likelihood of the firm making a breakthrough or going bankrupt (adverse selection). They also are market responses to the frictions that arise, because neither firms nor financiers can commit not to behaving opportunistically (moral hazard).

Financial intermediaries (FIs), such as banks, finance companies, insurance companies and venture capital firms, play a special role as information producers in the private markets. Their specialized information production and monitoring are an important means of addressing the problems of adverse selection and moral hazard and to assessing the quality of SMEs. How efficiently they perform the tasks determines FIs' ability to channel external finance to firms, be it equity or debt. Other sources of external finance, such as trade credit, private persons and family finance, are also important, as they may have a comparative advantage in providing finance to some of the most opaque SMEs. The comparative advantage of these other sources of external finance is, however, based on their natural relationships and interaction with the SMEs rather than on specialization. Trade credit, for example, is a funding mechanism in which some firms act as intermediaries channeling funds from the financial institutions to their peers (Demirgüç-Kunt & Maksimovic, 2001).

Blackburn, Hart and Wainwright (2013) investigate factors that influence SMEs' perfor-

mance, in particular growth in the United Kingdom, using logit regression over 360 observations. They suggest that size and age of enterprise dominate the performance and are more important than strategy and the entrepreneurial characteristics of the owner. Moreover, there is substantial evidence that small firms have less access to formal sources of external finance (Beck & Demirguc-Kunt, 2006; Kuntchev, Ramalho, Rodrigues-Meza & Yang, 2012).Access to finance becomes increasingly problematic as the scale of the business decreases and iIt is also similar to what is observed in developed and other developing countries (Beck, Demirguc-Kunt, Laeven & Maksimovic, 2006).In Indonesia, there has been considerable effort in investigating the SME sector, including their financing sources. The majority of the previous studies conducted only describe the data they obtained from the survey (both questionnaire and interview). Anonymous (2006) conducted a study of SMEs in four provinces in Indonesia, which are West Sumatera, South Sumatera, East Java, West Nusa Tenggara, West Kalimantan and South Sulawesi. Though the scope of the study is wider, they give no number of samples used as the observation. The result of this study only reveals the problem encountered by the SMEs and the possible solutions based on the problem found.

In conclusion, there are a number of common problems revealed by previous studies in Indonesia. These common problems are lack of capital, human resources, technology and information, difficulties in procuring raw material, weak marketing and distribution capacity, high transportation costs, and complicated and costly bureaucratic procedures (particularly in obtaining licenses to operate). These common problems are often referred to as external constrains to the SME's growth. This study attempts not only to investigate these common problems but also to examine to what extent these commons problems impact on the SMEs. Overall, the majority of the empirical studies conducted in Indonesia so far provide only a description of the problem encountered by the SMEs, without exploring to what extent all variables investigated contribute/impact on the SMEs.

Methodology

Data and questionnaire design

This research employs a survey method used (1) a structured and semi-structured questionnaire, (2) in-depth interviews. Questionnaire surveys have been the preferred choice for the collection of data in studies involving the investigation of the capital structure of both large and small firms. Graham and Harvey (2001) used a questionnaire in the collection of data to test several aspects of corporate finance, including the capital structure issue. Tucker and Lean (2003) undertook a questionnaire survey to collect data concerning small business awareness and use of informal finance and to identify issues concerning difficulties encountered in gaining access to finance. Moreover, Houssain, Rillman and Matlay (2006) conducted a survey using a semi-structured questionnaire to analyze differences in the choice of funds employed between the UK and Chinese small firms.

Additional data are obtained through government publications from Indonesian Statistics Office, Indonesian Bank, Cooperative and Small Business Enterprises Department, Planning and Development Affairs Office.

Variables

The dependent variables are SME firms' performance, which is measured by:
- Financial ratio such as Return on Assets (ROA) estimated and Return on Equity (ROE) estimated.
- Business growth. Business growth is obtained from the difference between initial capital and current capital employed. If initial capital is lower than the current capital, then it can be said that there is a positive growth and otherwise. Two categories are set: SME has a positive growth and SMEs has a negative growth. The first category is coded as "0" if SME has a positive growth; the second category is coded as "1" if SME has a negative growth, otherwise it is coded equal to "0". The baseline category is used for this dummy if SME has a positive growth.
- Business survival. Business survival is obtained from the firm age. If firm has been es-

tablished for 5 years or more, then it can be said that the firm has survived and otherwise. Two categories are set: SME has survived for ≥ 5 years and SME has survived less than 5 years. The first category is coded as "0" if SME has survived 32 5 years or more; the second category is coded as "1" if SME has survived less than 5 years, otherwise it is coded equal to "0". The baseline category is used for this dummy if SME has survived for 5 years of more.

The explanatory variables used for the first and the second questions are:

- Loan status. Two categories are set: SME has a loan and SME has no loan. The first category is coded as "0" if SME is currently/previously having a loan; the second category is coded as "1" if SME have no loan, otherwise it is coded equal to "0". The baseline category is used for this dummy if SME has is currently/previously having a loan.
- Types of microfinance obtained. Two categories are set: SMEs obtained loan from formal microfinance and SMEs obtained loan from non-formal microfinance. The first category is coded as "0" if SMEs obtained loan from formal microfinance; the second category is coded as "1" if SMEs obtained loan from non-formal microfinance, otherwise it is coded equal to "0". The baseline category is used for this dummy if SMEs obtained loan from formal microfinance.
- Formal microfinance. Two categories are set: SMEs obtained loan from bank and SMEs obtained loan from rural bank. The first category is coded as "0" if SMEs obtained loan from bank; the second category is coded as "1" if SMEs obtained loan from rural bank, otherwise it is coded equal to "0". The baseline category is used for this dummy if SMEs obtained loan from bank.
- Non-formal microfinance. Three categories are set: SMEs obtained loan from co-operative (koperasi), SMEs obtained loan from BMT and SMEs obtained loan from other. The first category is coded as "0" if SMEs obtained loan from co-operative (koperasi); the second category is coded as "1" if SMEs obtained loan from BMT, otherwise it is coded equal to "0"; the third category is coded as "1" if SMEs obtained loan from other, otherwise it is coded equal to

"0". The baseline category is used for this dummy if SMEs obtained loan from co-operative (koperasi).
- Legal status of the SMEs. Two categories are set: registered and unregistered. The first category is coded as "0" if it is registered; the second category is coded as "1" if it is unregistered, otherwise it is coded equal to "0". The baseline category is used for this dummy if it is registered.
- Fostering provided by the financier. Two categories are set, fostering and non-fostering. The first category is coded as "0" if SMEs received fostering; the second category is coded as "1" if SMEs received no fostering, otherwise it is coded equal to "0". The baseline category is used for this dummy if SMEs received fostering.

The control variables used are:

- Dummy industry types. Six categories of SMEs' industry types, namely (1) Agriculture, Stockbreeding, Forestry and Fishery, (2) Processing, Home and Handicraft Industry, (3) Construction and Construction Tools Industry, (4) Trade and Restaurant Industry, (5) Finance and Other Services Industry, (6) Etc. The first category is coded as "1" if SME belongs to this industry, otherwise it is coded equal to "0"; The second category is coded as "1" if SME belongs to this industry, otherwise it is coded equal to "0"; The third category is coded as "1" if SME belongs to this industry, otherwise it is coded equal to "0"; The fourth category is coded as "1" if SME belongs to this industry, otherwise it is coded equal to "0"; The fifth category is coded as "1" if SME belongs to this industry, otherwise it is coded equal to "0"; The sixth category is coded as "1" if SME belongs to this industry, otherwise it is coded equal to "0".
- Firm size. Log of total assets is used to represent the firm size.

Sampling Design

To capture all SMEs that can represent each region in the Province of South Sumatera and some location of the sub-district in each city/regents, a combination of random (cluster sampling) and non-random (judgmental and

incidental sampling) sampling is used in this study.

To specify the respondents used in this study, this study uses the SME definition promulgated by the Indonesian Government (the Ministry of SMEs and Co-operatives and Bank Indonesia according to 2008 law).

- Micro firms are defined as enterprises with net assets less than IDR 50 million (land and building excluded) or enterprises which have less than IDR 300 million total annual sales.
- Small firms are defined as enterprises with net assets less from IDR 50 million to IDR 500 million (land and building excluded) or enterprises which have total annual sales from IDR 300 million to 2.5 billion.
- Medium-sized firms are defined as enterprises with net assets from IDR 500 million to IDR 10 billion (land and building excluded) or enterprises which have total annual sales from IDR 2.5 billion to 50 billion.

Population and Sample

The population in this study is all small business enterprises in the Province of South Sumatera, Indonesia. The Province of South Sumatera consists of 4 autonomous cities and 11 regencies. This study collects 2,800 SMEs over South Sumatera Province. However, from 2,800 SMEs, only 2,198 SMEs used debt to finance their business and there were 25 missing responses; therefore, only 2,198 are used in the regression analysis. The 25 missing responses were due to the incomplete answers provided. The people interviewed were mostly the SME owners.

Model analysis

Model analysis used is quantitative analysis, and the analysis is primarily directed toward investigating explanatory variables related to the performance of various dependent variables. Maddala and Lahiri (2009) specify problems that might be present in the regression model, such as heteroskedasticity and multicollinearity. Therefore, for quantitative analysis, series of diagnostic testing are conducted prior to model specification, including normality test (IM-test), heteroskedasticity test (Breusch-

Pagan test) and multicollinearity test (VIF test). The diagnostic testing is employed to specify which appropriate regression models fits the data. A regression analysis is employed.

The equation below is a starting point for this study to establish if types of financing from microfinance and types of owners in terms of gender have a different impact on firm performance (ROA, ROE, business growth and business survival).

$$Y_i = \alpha + \beta_{i1}X_{i1} + \beta_{i2}J_{i1} + \beta_{i3}K_{i1} + \beta_{i4}L_{i1} + \beta_{i11}C_{i1} + \beta_{i12}C_{i1} + u_i$$
$$u_{it} = \mu_i + \lambda_t + v_{it}$$
$$i = 1, \dots, N; t = 1, \dots, T$$

where y_i is firm's performance (ROA, ROE, business growth and business survival). X_{i1} is the dummy for loan status, J_{i1} is the dummy for types of microfinance and, K_{i1} is the dummy for SMEs' legal status, L_{i1} is the dummy for fostering by financier, C_{i1} is the SMEs' type (industry), C_{i2} is the firm size. μ_i denotes the unobservable individual effect, λ_t denotes the unobservable time effect, and v_{it} is the remainder stochastic disturbance term.

The overall joint IM test rejects the model assumption that $y \sim N(x'\beta, \sigma^2 I)$, because $p=0.000$ and $p=0.0013$ in the total raw for both ROA and ROE model respectively. The decomposition indicates that all three assumptions of homoscedasticity, symmetry and normal kurtosis are rejected.

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	21.91	20	0.3456
Skewness	85.17	6	0.0000
Kurtosis	0.07	1	0.7903
Total	107.15	27	0.0000

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	93.50	97	0.5816
Skewness	67.57	16	0.0000
Kurtosis	3.81	1	0.0509
Total	164.89	114	0.0013

Quantile Regression

Quantile regression is gradually emerging as a unified statistical methodology for estimating models of conditional quantile functions. By complementing the exclusive focus of classical least-squares regression on the conditional mean, quantile regression offers a systematic strategy for examining how covariates influence the location, scale, and shape of the entire response distribution (Koenker & Bassett Jr, 1978).Quantile regression essentially transforms a conditional distribution function into a conditional quantile function by splitting it into segments. In OLS, modelling a conditional distribution function of a random sample (y1,......yn) with a parametric function μ(xi,β) where xi represents the independent variables, β the corresponding estimates and μ the conditional mean, can present the following minimization problem (Cameron & Trivedi, 2010):

$$\min \beta \in R \sum_{i=1}^{n} (y_i - \mu(x_i,\beta))2$$

Obtains the conditional expectation function E[Y | xi] can proceed in quantile regression. The central feature thereby becomes $\rho\tau$, which serves as a check functions ρ_τ

$$\rho_\tau = \begin{cases} \tau * x, & if\ x \geq 0 \\ (\tau - 1) * x, & if\ x < 0 \end{cases}$$

In quantile regression one now minimizes the following function:

$$\min \beta \in R \sum_{i=1}^{n} \rho_\tau (y_i - \epsilon(x_i,\beta))$$

In contrast to OLS, the minimization is done for each subsequent defined by ρ_τ, where the estimates of the τth-quantile function is achieved with the parametric function $\xi(x_i\beta)$(Koenker & hillock, 2001).Quantile regression analysis estimates five quantile regressions at the 25, 50 and 75th quantiles with standard errors to examine the relationship between the dependent variable and explanatory variables. Ordinary Least Square (OLS) regression was estimated for the comparison of these results.

Probit Regression

Since the aim of this study is to identify the main factors which determine the probability of business growth and business survival, a probit regression model is employed. The probit model is one of the binary outcome models. The dependent variable, y_i, takes only two values, so its distribution is unambiguously the Bernoulli, or binomial with one tail, with a probability of p_i (Cameron & Trivedi, 2010).

Suppose the outcome variable, y, takes one of two values:

$$y = \begin{cases} 1 & with\ probability\ p \\ 0 & with\ probability\ 1-p \end{cases}$$

Given p as a function of regressors x in the model, there is no loss of generality in setting the outcome values to 1 and 0. The probability mass function for the observed outcome, y, is $p^y(1-p)^{1-y}$, with $E(y)=p$ and $Var(y)=p(1-p)$.

A regression model is formed by parameterizing p to depend on an index function $x'\beta$, where x is a K x 1 regressor vector and β is a vector of unkwon parameters. In standard binary outcome models, the conditional probability has the form

$$p_i \equiv Pr(y_i = 1|x) = F(x_i'\beta)$$

Where $F(.)$ is a specified parametric function of $x'\beta$, usually a cumulative distribution function (s.d.f) on $(-\infty, \infty)$ because this ensures that the bounds $0 \leq p \leq 1$ are satisfied.

In this study the business growth is considered to be poor if the value of initial capital is larger than the current capital employed and otherwise. The business survival is considered to be low if the firms have survived for less than 5 years and otherwise.

Findings

This section is divided into two parts. The first section provides the descriptive statistics; the second section provides the regression result using quantile and probit regression.

Descriptive statistics

Table 4.1: *Descriptive Statistics*

Variables	Obs.	Mean	Std.Dev.	Min	Max
Dependent					
ROA	2198	0.3014	0.2380	0.0100	0.6158
ROE	2198	0.3023	0.2417	0.0021	1.7258
Business Growth	2198	0.2498	0.2330	0.0000	1.0000
Business Survival	2198	0.2127	0.2094	0.0000	1.0000
Independent					
Have a loan	2775	0.0000	0.0000	0.0000	0.0000
Have no loan	2775	0.2079	0.2437	0.0000	1.0000
Formal microfinance	2198	0.0000	0.0000	0.0000	0.0000
Non-formal microfinance	2198	0.4700	0.3698	0.0000	1.0000
Bank	1165	0.0000	0.0000	0.0000	0.0000
Rural bank	1165	0.1296	0.1650	0.0000	1.0000
Cooperative (Koperasi)	1033	0.0000	0.0000	0.0000	0.0000
BMT	1033	0.1439	0.0697	0.0000	1.0000
Other	1033	0.2352	0.1927	0.0000	1.0000
Registered	2198	0.0000	0.0000	0.0000	0.0000
Unregistered	2198	0.4966	0.3002	0.0000	1.0000
Fostering	2198	0.0000	0.0000	0.0000	0.0000
No-Fostering	2198	0.8320	0.4757	0.0000	1.0000
Industry one	2198	0.0464	0.1630	0.0000	1.0000
Industry two	2198	0.3207	0.3785	0.0000	1.0000
Industry three	2198	0.0732	0.1660	0.0000	1.0000
Industry four	2198	0.3926	0.2985	0.0000	1.0000
Industry five	2198	0.1051	0.3071	0.0000	1.0000
Industry six	2198	0.0619	0.1417	0.0000	1.0000
Firm size	2198	1.7419	0.7490	0.3480	4.4000

- ROA: The mean value for ROA is 0.3014 with a range of 0.0100 to 0.6158. This mean value indicates that the majority of SMEs are relatively showing the same profit return over their assets. This positive value indicates an effective utilization of firm assets in generating an operating surplus in the business.
- ROE: The mean value for ROE is 0.3023, with a range of 0.0021 to 1.7258, suggesting that most of the firms experienced relatively average firm performance based on this accounting measurement. The positive value indicates that the firms in the sample create value for the SMEs' owners and operating efficiency is positively translated into benefits for the owners.
- Business growth: The mean value for business growth is 0.2498 with a range of 0.0000 to 1.0000, suggesting that only 24.98 percent of the firms have a negative growth.
- Business survival: The mean value for business survival is 0.4094, with a range of 0.0000 to 1.0000, suggesting that most of the firms have survived for five years or more.
- Have a loan: Have a loan is used as a baseline category for the loan status, and it takes value of zero.
- Have no loan: The mean value for have no loan 0.4195 with a range of 0.0000 to 1.0000.
- Formal microfinance: Formal microfinance is used as a baseline category for a loan obtained from formal microfinance and it takes value of zero.

- Non-formal microfinance: The mean value for non-formal microfinance is 0.4700 with a range of 0.000 to 1.0000, suggesting that 47percent of the respondents obtained loan from non-formal microfinance.
- Bank: Bank is used as a baseline category for a loan obtained through formal microfinance and it takes value of zero.
- Rural bank: The mean value of rural bank is 0.1296 with a range of 0.0000 to 1.0000, suggesting that 12.96 percent from the respondents obtained loan from rural bank.
- Co-operative: Co-operative is used as a baseline category for a loan obtained through non-formal microfinance and it takes value of zero.
- BMT: The mean value of BMT is 0.1439 with a range of 0.0000 to 1.0000, suggesting that 14.39 percent from the respondents obtained loan from BMT.
- Other: The mean value of other is 0.2352 with a range of 0.0000 to 1.0000, suggesting that 23.52 percent from the respondents obtained loan from other sources of non-formal microfinance such as SOEs.
- Registered: Registered status is used as a baseline category and it takes value of zero.
- Unregistered: The mean value of unregistered status is 0.4966 with a range of 0.0000 to 1.0000, suggesting that 49.66 percent from the respondents have not registered their firms.
- Fostering: Fostering is used as a baseline category for fostering activity from the financier, and it takes value of zero.
- No-fostering: The mean value of no-fostering is 0.8320 with a range of 0.0000 to 1.0000, suggesting that 83.20 percent from respondents received no fostering from the financier.
- For industry types: The mean value of industry one, two, three, four, five and six are 0.0464, 0.3207, 0.0732, 0.3926, 0.1051 and 0.0619 respectively. The types of industry that dominate in the survey are industry two and industry four.
- Firm size: The mean value of firm size is 1.7419 with a range of 0.3480 to 4.4000, suggesting that the majority of the firms are relatively have small assets.

Regression results

This section provides the regression results. For comparison purposes, column 2 in Table shows OLS regression result. Column 3 to 6 show quantile regression results for $\theta = 0.25$, $\theta = 0.50$, $\theta = 0.75$, $\theta = BSQR0.50$ respectively. The different results from the OLS, vis-à-vis the quantile regression, indicate that estimating only the conditional mean regression can be biased and inconsistent when the data fail to meet the assumptions required to perform an OLS regression. Considering OLS estimates, though the OLS regression results are relatively similar to the quantile regression results, however, applying the OLS on non-normal data is inappropriate.

In order to explore the types of loan obtained and firm performance, this study examines entire distribution using quantile regression. Using a cross-sectional data acquired through questionnaire, this study has 2,198 observations. Stata statistical software package is used. The * (asterisk) provide an indication of significance level. The expected difference effects of the explanatory variables for different quantile of the distribution are reflected in the size and sign of the coefficients and their respective significance level differences. The high coefficient of determination (R^2) indicates that selected explanatory variables highly predict the value of the firm performance variable. The quantile regression results indicate that the effects of loan, microfinance types and other variables differ across quantile. To further illustrate, quantiles are depicted in Figure 4.1 and Figure 4.2.

As can be seen in Table 4.2, SMEs who have a loan, SMEs who obtained a loan from formal microfinance, SMEs who have registered their firms and SMEs who received fostering from financiers have a positive and significant impact on firm performance (ROA) throughout all quantiles. This suggests that the debt may encourage the SMEs to manage their business efficiently, as they have to achieve the desired profit, and therefore the monthly payment of debt can be paid on time. Formal microfinance, in this study banks and rural banks, provides a controlling function to assure that their debtor can pay off their monthly payment on time. Moreover, the fostering function from the finan-

cier may encourage the SMEs to be able to develop their business. This indicates that there is a mutual benefit from the creditor and debtor.

Table 4.2: *Quantile regression result*

ROA	OLS	QR_25	QR_50	QR_75	BSQR_50
Cons.	0.5540	0.3110	0.5100	0.8370	0.5100
	(0.0430)***	(0.0380)***	(0.0560)***	(0.0810)***	(0.0570)***
Have no loan	0.1090	0.2690	0.0930	-0.0170	0.0930
	(0.0950)	(0.0840)***	(0.1240)	(0.1790)	(0.1080)
Non-formal microfinance	0.0070	-0.0140	0.0020	0.0260	0.0020
	(0.0200)	(0.0180)	(0.026)	(0.0380)	(0.0150)
Unregistered	0.0070	0.0140	0.0190	-0.0350	0.0190
	(0.0210)	(0.0180)	(0.0270)	(0.0390)	(0.0220)
No-Fostering	0.0100	-0.0110	0.0200	0.0150	0.0200
	(0.0190)	(0.0170)	(0.0250)	(0.0360)	(0.0180)
Industry one	-0.0670	-0.0560	-0.0550	-0.0340	-0.0550
	(0.0650)	(0.0580)	(0.0850)	(0.1230)	(0.0830)
Industry two	-0.0450	0.0070	-0.0040	-0.0270	-0.0370
	(0.0550)	(0.0510)	(0.0687)	(0.1158)	(0.0760)
Industry three	-0.0780	0.0068	-0.0130	0.0250	-0.0130
	(0.0580)***	(0.0570)	(0.0760)	(0.1100)	(0.0680)
Industry four	-0.0780	-0.0030	-0.0050	0.0160	-0.0050
	(0.0200)***	(0.0170)	(0.0260)	(0.0370)	(0.0240)
Industry five	-0.1060	-0.0570	-0.0810	-0.1150	-0.0810
	(0.0330)***	(0.0290)***	(0.0430)***	(0.0620)***	(0.0490)***
Industry six	-0.0210	-0.0140	0.0100	-0.0300	0.0100
	(0.0560)	(0.0500)	(0.0740)	(0.1070)	(0.0470)
Firm size	-0.1550	-0.0990	-0.1570	-0.2300	-0.1570
	(0.0130)***	(0.0120)***	(0.0170)***	(0.0250)***	(0.0200)***

*t-value. *** Sig at 1% significance level, **Sig at 5% level, *Sig at 10% level. Standard Error is in parentheses.*

For the control variables, the type of industry has no significant impact on firm performance, suggesting that industry type does not matter to the improvement of the firm performance as a consequence having a debt. Unlike the type of the industry, the coefficient for firm size is negative and significant for all quantiles, suggesting that big firms (SMEs) who have a loan have a negative significant impact on firm performance. This may due to the fact that bigger firms (SMEs) probably have stable capital and earnings. The additional loan only becomes a burden to those firms. Moreover, the majority of big firms do not account for their income from only one source. Usually, big firms (SMEs) have some of business centers.

In Figure 4.1, it can be seen that firms (SMEs) who have a loan, who obtained loan from formal microfinance, who have registered their firms and who have received fostering from the financier have an increase in firm performance (ROA) at higher quantile. It can be concluded that there is an increase trend from lower quantile to higher quantile.

The firms (SMEs) who have no loan have moderate impact on firm performance over quantile. Furthermore, the firms (SMEs) who obtained a loan from non-formal microfinance, who have not register their firms and who received no fostering have a high impact on firm performance at higher quantile.
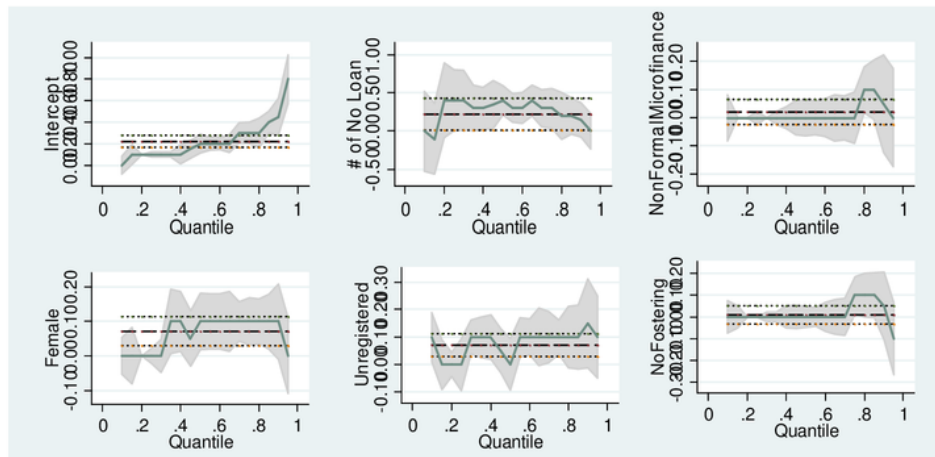
Figure 4.1: Quantile regression (ROA)

Table 4.3: *Quantile regression result*

ROE	OLS	QR_25	QR_50	QR_75	BSQR_50
Cons.	0.5750	0.2370	0.5380	0.9390	0.5380
	(0.0980)***	(0.0610)***	(0.0950)***	(0.1440)***	(0.1440)***
Have no loan	0.1110	0.2750	0.1110	-0.0190	0.1110
	(0.0980)	(0.0600)***	(0.0920)**	(0.1450)	(0.1190)
Non-formal microfinance	0.0130	-0.0190	0.0040	0.0180	0.0040
	(0.0210)	(0.0140)**	(0.0210)	(0.0330)	(0.0200)
Unregistered	0.0090	0.0110	0.0180	-0.0360	0.0180
	(0.0210)	(0.0150)	(0.0220)	(0.0330)	(0.0220)
No-Fostering	0.0150	-0.0010	0.0180	0.0140	0.0180
	(0.0200)	(0.0140)	(0.0210)	(0.0320)	(0.0220)
Industry one	-0.1040	-0.0280	-0.0870	-0.1240	-0.0870
	(0.0109)	(0.0690)	(0.1060)	(0.1570)	(0.1620)
Industry two	-0.0320	0.0480	-0.0450	-0.0900	-0.0450
	(0.0890)	(0.0550)	(0.0850)	(0.1280)	(0.1430)
Industry three	-0.1120	0.0310	-0.0620	-0.0890	-0.0620
	(0.0105)***	(0.0660)	(0.1020)	(0.1550)	(0.1500)
Industry four	-0.0340	0.0350	-0.0520	-0.0750	-0.0520
	(0.0890)	(0.0550)	(0.0850)	(0.1280)	(0.144)
Industry five	-0.1420	-0.0280	-0.1150	-0.2090	-0.1150
	(0.0930)***	(0.0580)	(0.0890)**	(0.1350)***	(0.1420)
Industry six	-0.0540	0.0530	-0.0350	-0.1280	-0.0350
	(0.1040)	(0.0650)	(0.1010)	(0.1520)	(0.1470)
Firm size	-0.1600	-0.1060	-0.1560	0.2320	-0.1560
	(0.0140)***	(0.0100)***	(0.0140)***	(0.0210)***	(0.0190)***

*t-value. *** Sig at 1% significance level, **Sig at 5% level, *Sig at 10% level. Standard Error is in parentheses.*

As can be seen in Table 4.3, SMEs who have a loan, SMEs who obtained a loan from formal microfinance, SMEs who have registered their firms and SMEs who received fostering from financiers have a positive and significant impact on firm performance (ROE) throughout all quantiles.

For control variables, the type of industry has no significant impact on firm performance. Further, the coefficient for firm size is negative and significant for all quantiles, suggesting that big firms (SMEs) who have a loan have a negative significant impact on firm performance. This may due to the fact that bigger firms (SMEs) probably have stable capital and earnings. The additional loan only becomes a burden to those firms. The result for control variables is also similar to the result obtained for ROA.

Figure 4.2 exhibits the impact of explanatory variables over the quantiles. It can be seen that the firms (SMEs) who have a loan, who obtained loan from formal microfinance, who have register their firms, and who received a fostering also have an increase firm performance at higher quantile. It can be concluded that there is an increase trend from lower quantile to higher quantile.
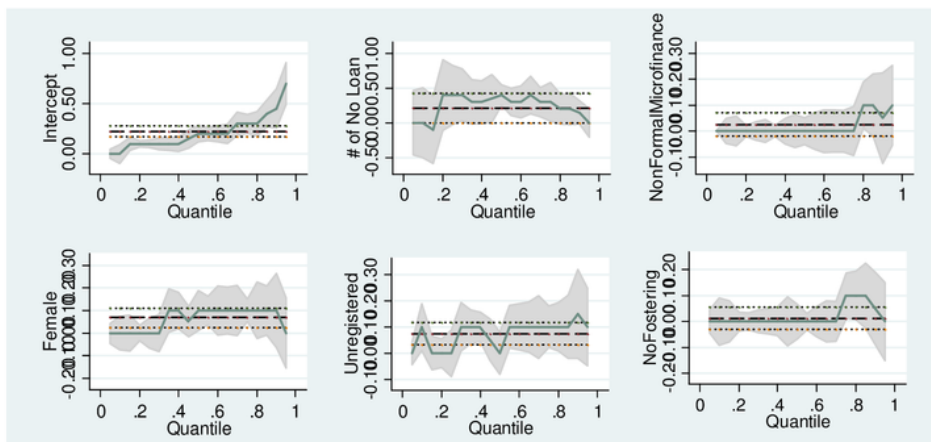

Figure 4.2: Quantile regression (ROE)

The firms (SMEs) who have no loan and who have not registered their firms have moderate impact on firm performance over quantiles. Furthermore, the firms (SMEs) who obtained loans from non-formal microfinance and who received no fostering have a high impact on firm performance at higher quantiles. In conclusion, the graph's result obtained for ROE also exhibits the same pattern as obtained for ROA.

As can be seen in Table 4.4, the probit regression result for business growth indicates that firms (SMEs) who have a loan have a negative and significant impact on their business growth. This may indicate that the additional funding (loan) injected into the firm lowers the business growth. Though one of the reasons provided by the SMEs is for business growth, in fact not all SMEs use the debt in line what they stated in their purpose to the financier. This is also one of the common problems found in reality that some people or firms tend to misuse the debt they obtained for personal purposes, such as buying a car, buying a house, paying their children's education fees, etc.

Similar to the loan status, firms (SMEs) who obtained a loan from formal microfinance have a negative and significant impact on their business growth. Meanwhile, non-formal microfinance provides no significant impact on the business growth. This may indicate that the SMEs who obtained loan from formal microfinance should adhere to the terms and condi-

tions imposed. If the SMEs are not able to pay their debt, there are at least two consequences they had. First, their mortgage will be seized by the financier; second, they will have bad credibility in the bank systems in their area.

The coefficient for registered firms is a negative and significant on the business growth, suggesting that the firms who have registered their business tend to lower their performance. Furthermore, the coefficients for fostering and non-fostering are negative and significant suggesting that both fostering and no-fostering provide no difference in impact on performance (business growth). Finally, the coefficient for firm size is negative but not significant.

For business survival, firms (SMEs) who have a loan have a negative and significant impact on their business survival while the firms (SMEs) who have no loan have a positive and significant impact on their business survival. This may indicate that the debt provides a negative impact on the business survival. Two possible reasons are that the SMEs have lack of management and are illiterate in terms of accounting (bookkeeping activity, income statement, balance sheet statement), and therefore when the SMEs obtained the loan, they have difficulties in managing their total assets.

The coefficient for formal-microfinance is a negative and significant suggesting that firms (SMEs) who obtained a loan from formal microfinance have a negative and significant impact on their business survival. Formal microfinance, in this study banks and rural banks, provide a controlling function to assure that their debtor can pay off their monthly payment on time. Moreover, the fostering function from the financier may encourage the SMEs to be able to develop their business. This indicates that there is a mutual benefit for the creditor and debtor.

Unlike formal microfinance, firms (SMEs) who obtained a loan from non-formal microfinance exhibit positively and significantly on their business survival. This is quite surprising, as it opposed the formal microfinance's result; this result may be due to the fact that the loan obtained from non-formal microfinance is more lenient compared to formal microfinance. Therefore, the approach used by the non-formal microfinance is different. As an example, in co-operatives (koperasi), the debtor is the member of koperasi; therefore, the debtors are not afraid that they can pay off the debt, as there is no mortgage.

Table 4.4: *Probit regression result*

Variables	Business Growth	Business Survival
Cons.	-0.0678	-0.8699
	(0.3972)***	(0.1692)***
Have no loan	0.1184	0.3214
	(0.0863)	(0.0888)***
Non-formal microfinance	0.1097	0.3860
	(0.1216)	(0.1268)***
Unregistered	0.0292	0.2287
	(0.1264)	(0.1369)*
No-Fostering	-0.3760	0.0950
	(0.1241)***	(0.1416)
Firm size	-0.1639	-0.2350
	(0.1010)	(0.1052)**

*t-value. *** Sig at 1% significance level, **Sig at 5% level, *Sig at 10% level. Standard Error is in parentheses.*

The coefficient for registered firms is a negative and significant on the business survival, suggesting that firms who registered their firms tend to not survive for more than 5 years. Unlike registered firms, unregistered firms tend to exhibit a positive and significant impact on the business survival. The coefficient for fostering is a negative and significant, suggesting that firms

who have fostering have a lower chance of survival. Though this result seems a bit odd, it is relatively similar to the previous result for business growth, in which either fostering or no-fostering have no significant impact. The coefficient for firm size is also a negative and significant, which is similar to the result for business growth. In conclusion, the results for business growth are relatively similar to the business survival results.

Conclusions

Small firms' financing is the most binding obstacle to investment by far. Access to credit is particularly stringent for small firms operating in the informal sector. The lack of collateral is often reported to be the binding constraint to credit access and results in harsher bank lending terms and conditions for small firms than for large firms. In addition, SME managers sometimes lack the skills needed to apply for a loan and meet bank standards. The use of SME assets as collateral entails so much effort that in the end small firms would have to provide collateral with a higher value than that of the loan received. All those problems seem to be common problems encountered by the SMEs in accessing financing sources. An attempt of various methods by the government has been made so far to solve those problems, but the result seems to be unfruitful as the implementation of the rules and regulations made are not similar to what it should be.

In conclusion, the results of this study reveal that there is a significant positive impact on firm performance as a result of having a loan, of obtaining loan from formal microfinance, of registering the firm, and of receiving the fostering from financier. However, having loan in longer term provides a negative signifant impact on business growth and business survival.

Limitations

Notwithstanding the findings, the current study does have limitations, which point to potentially fruitful further research opportunities. First, the current study used only a few aspects of SMEs. Further studies could consider other aspects of SMEs, such as demographic factors. Second the findings are based on research in a single province and may not be generalizable. Further, the findings of this study are restricted to the limitation of the data, which was collected through survey method and publicly available data sources. If there were any problems relating to the responses acquired and the data disclosures, then that would limit the validity of the findings. In addition, the entire sample comprises only 2,800 respondents, with the survey being conducted in the beginning of 2013.

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