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Financing of small and medium enterprises (SMEs): Determinants of bank loan application

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The main focus of this paper is to answer the question, 'what are the factors that determine a SME to apply for a bank loan?' Four elements namely human capital, firm, business strategy and information asymmetry underlie this study's theoretical framework. The main objective of the paper is to develop a bank loan model based on applicability. The model was developed using quantitative method coupled with a hypothetical-deductive testing approach, applied on primary data on loan applications gathered from the questionnaires. The logistic regression tests indicate that the business experience of a firm's owner does not have a significant relation with the firm's tendency to apply for a bank loan. The educational background of the firm's owner, the firm's size, collaterals and loans with interest were found to be negatively related to its tendency to apply for bank loans. However, the firm's business plans and start-up relationship with bankers were found to be positively related to the firm's applying bank loans.

Key words: SME bank loan application, education and experiences, firm size, business plan, collaterals, loan with interest, Libya.

INTRODUCTION

The Libyan economy is currently heading to an economic structural development and an expanded privatization of areas that are commonly controlled by the government. This direction has urgently necessitated the alleviation, assessment, and motivation of the condition of SMEs while supporting the existing enterprises, rather than merely relying on large companies .Thus, in 2011, the new Libyan regime was forced to lay down a long-term economic plan with the objectives of sustaining the economic development and diversifying the production base by reducing the country's over whelming dependence on the oil industry, which is a deflationary source of income. The plan also aims at creating and developing viable private sectors capable of sustaining the economic growth.

In most developing countries, banks are often unable or unwilling to give term loans to SMEs. They prefer to lend to large, established businesses with well-developed balance sheets and credit histories of additional assets for the collateral required in conventional bank financing

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(Gallardo, 1997), which obstructs the access to external formal finance of SMEs. This situation can be attributed to firms' size, age, lack of business strategy, collateral, financial information, and bank requirements as well as the owner's or manager's educational background and business experience.

Badri (2006) finds that 73% of small firms in Libya depend on informal financial sources, and only 11% of the firms are applying for bank loans. The imposed interests on loans by banks may further limit apply for formal loans of SMEs. Religious and cultural factors can have a major impact on this issue. These obstacles cannot be better understood without highlighting the religious and cultural implications in the process of obtaining loans.

According to the National Program for the Development of Small and Medium Enterprises annual report (2010), the lack of Islamic finance makes some entrepreneurs reluctant to complete the procedures after the approval of conventional banks. Other relevant studies have a similar conclusion. World Bank (2008) Almhrog (2003), Abd-wahab (1996), Metwally (1996), and Hasan (1990) find that most owners of SMEs do not want to obtain loans from conventional banks, such as commercial banks, because they believe that commercial bank loans come with interest, which is prohibited in Islamic law. Therefore, religion has an important role in the search for external financing.

Despite an agreement between certain researchers on the existence of financial obstacles in obtaining loans, no comprehensive studies have been conducted on the matter, and no solutions on these obstacles have been recommended. Al-Hwuty (2007) points out that only a few studies have been carried out on Libyan SMEs, their sizes, and the obstacles they face.

This finding clearly shows that funding problems impede the owners of SMEs in Libya in their search for external formal finance. It also raises concern on the following main question "Which SMEs have applied for external formal finance, and which firms have not done so?" The researchers framed the research question to solve this issue: what factors determine the bank loan application of SMEs? Therefore, the main objective of this paper is to develop a model of bank loan application.

Theory and hypotheses

No specific theory describes how firms access external formal financing. Romano et al. (2001, p. 287) mention that "financial theories do not adequately explain financial behavior." Thus, researchers have used different theories to explain how small firms access external financing. Various theories have been developed based on this information. These theories investigate factors that influence the application of SMEs for external formal

financing.

Four theories are chosen as theoretical research frameworks to achieve the objective of the study. These theories include information asymmetry theory, human capital theory; firm and strategy theories.

Some owner-manager and firm characteristics, business strategies, and bank conditions are selected based on the four theories to identify the relationship between these variables and SMEs in the application to bank loans. Thus, this study combines different theories to understand firms apply for bank loan.

Banks in SME financing and information asymmetry problems

The main formal financing source for SMEs is the bank. According to the European Central Bank (2011), 40% of respondent firms use their overdraft facilities or credit lines, and more than one-third of firms have used bank loans. Longenecker et al. (2012) mentions that commercial banks are the primary providers of debt capital to firms. Commercial banks prefer firms with proven track records and sufficient collateral in the form of hard assets. Proven track records and collaterals are difficult to obtain for small businesses.

The lack of access to bank loans of SMEs is attributed to information asymmetry. Finance gap hypothesis suggests that SMEs suffer from a shortage of financing, which is caused by information asymmetry (Ed Vos et al., 2007; Berger and Udll, 1998). Behr et al. (2011) mention that lending in developing economies, specifically lending to micro and small enterprises, is particularly affected by information asymmetries between borrowers and lenders. Thus, startups and expansion potentials cause difficulties in obtaining intermediate external financing, which depend mainly on internal financing or informal external financing such as friends and family. Constraints on external financing are significant issues, and SMEs use internal financing as a fallback option (Pissarides et al., 2003).

Considerable progress has been attained in the last two decades in advancing theoretical knowledge on the influence of information asymmetry on optimal loans (Peltoniemi and Vieru, 2013; Nofsinger and Weicheng, 2011; Ed Vos et al., 2007; Bester, 1985; and Stiglitz and Weiss, 1981). Information asymmetry refers to a situation where owner-managers possess more knowledge about the prospects and risks facing their business than lenders. Verrecchia (2001, p. 171) defines information asymmetry as "the difference in the cost of capital in the presence/absence of an adverse selection problem that arises from information asymmetry."

Banks require certain information on firm performance before approving loans to ensure that the project is commercially viable. However, this information is not

always readily available from SMEs, and owners of small businesses possess more and better information about the performance of their businesses than banks. Storey (1994, p. 205) notes that "the small business owner is likely to be significantly better informed about the business than an outsider such as a bank." Thus, banks do not have ample management information on SMEs. The high costs of resolving information asymmetry can increase the difficulty of small firms to obtain loans (Riding et al., 2010). This phenomenon results in small firms being offered with less capital or capital at higher rates compared with large firms. Inadequate information affects the willingness of banks to supply debt financing to small firms because of uncertainty. These problems lead to the existence of a "debt gap," wherein commercially viable projects do not obtain funding (Binks et al., 1992).

Bank conditions may also aggravate financial constraints that stem from information asymmetry, incentive problems, and limited collateral. Financial intermediaries may restrict the supply of loans to some businesses, thus precluding the financing of valuable investment and production opportunities. Lehmann and Neuberger (2001) explain that when banks obtain more information about borrowers, fewer opportunities will be generated to improve borrower motivation by setting loan contract terms, which include interest rates and collateral requirements. Therefore, banks may focus more on the value of the available collateral during financial distress when information is incomplete. Chan and Kanatas (1985) show that collateral improves the estimated expected returns of lenders when lenders and borrowers possess varying information; that is, collateral can serve as a source of additional indirect information in rational expectations that signal contexts.

The following are the roles of collaterals when the owner possesses more information on the probability of success of a firm than a bank (Storey, 1994, p. 210): (i) collaterals limit downside losses by providing assets to banks in the event of project failure; (ii) collaterals provide incentives to entrepreneurs to commit him or herself to the project; (iii) collaterals provide signals to the bank that the entrepreneur believes the project is likely to succeed because the owner will not commit their personal resources to the project if otherwise.

Collateral creates a problem for small firms because they often have no significant fixed assets to use as collateral in their early years of establishment. Therefore, the lack of collateral is often one of the main reasons that prevent small businesses from applying for bank loans. The World Business Environment Survey is a cross-sectional survey on investment climates and business environments that covers 10,000 firms in 80 countries from 1999 to 2000. The Business Environment and Enterprise Performance Survey (BEEPS) is a joint effort of the World Bank and the European Bank for Reconstruction

and Development. BEEPS collect data on ease of access to financing. Two rounds of surveys that cover firms in Eastern European countries, the former Soviet Union, and Turkey have been conducted in 1999 and 2002. The Investment Climate Assessment (ICA) has recently reviewed the investment climates of 58 countries based on the surveys of more than 32,000 firms. ICA surveys primarily involve the business perceptions of investment climates in different countries. These surveys also contain questions regarding the fund sources of new investments and collateral requirements to reveal substantial variations in financing practices across countries (Claessens and Tzioumis, 2006). Results show the five top and bottom countries in financing and the major obstacles and collaterals needed in availing a bank loans. Moroccan banks require 98.9% collateral for loans. Morocco has the highest collateral requirement next to Libya. Eltaweel (2012) finds that several businesses do not borrow from banks because of various reasons such as the absence of reliable information on the financial conditions of borrowers and difficulties in evaluating the risk of lending to small business. This finding increases the percentage of required collateral by as much as 125% of the sum of the loan in some cases. Hasan (1990) and Rozali et al. (2006) indicate that SMEs find difficulties in borrowing from commercial banks because of inadequate collateral requirements.

The ability and desire of SMEs to borrow from formal financing is often restricted, thus forcing SMEs to borrow from informal financing sources (non-banks). This type of financing does not require collateral and comprehensive business information. Bhaird and Lucey (2010) confirm that the personal funds of firm owners and funds from friends and family are extremely important in firms with low turnovers. This situation suggests that the collaterals required by banks may act as an indicator of owner-manager decisions to apply for bank loans. Hence, this study hypothesizes the following:

H1: Collaterals required by banks will likely influence owner-manager decisions to apply for bank loans.

Asymmetry information problem between collaterals requirement and firm- bank relationship

Banks are the main providers of financing to firms and have the capacity to generate higher and better information than other financial intermediaries. Therefore, firm-bank relationship is a useful tool in resolving problems associated with asymmetric information in business and lending. Voordeckers and Steijvers (2006) Degryse and Cayseele (2000) and Harhoff and Korting (1998) find that collateral requirements decrease with increasing bank–borrower relationships. Borrowers with more concentrated and long-lasting bank relationships have less

stringent collateral requirements.

Therefore, a strong firm–bank relationship will increase the willingness of owner-manager to apply for bank loans. Bonfim and Daniel (2012) indicate that firms with previous relationships with banks can regain access to such banks. Daskalakis et al. (2013) mention that "firms that use short-term debt also employ long-term debt, and firms that do not use short-term debt do not use long-term debt. Firms that have relationships with banks are able to apply both short- and long-term debt, whereas firms that do not have such a relationship are not capable of applying and accessing any form of funds from banks.

The following hypothesis on firm–bank relationships and bank loan applications is proposed on the basis of the arguments between asymmetry information and collaterals:

H2: The source of financing for startups (bank–firm relationship) will influence the firm to apply for a bank loan.

Human capital theory and SME financing

Human capital includes knowledge, skills, competencies, abilities, attitude, talents, and experiences that are used by an individual to provide value to a firm, achieve the goals of a firm, and support the success of a firm (Davenport, 1999; Becker, 1975). Human capital is defined as a key element in improving firm assets and employees, increasing productivity, and sustaining competitive advantage. Florin et al. (2003) finds that human capital is a significant source of success in entrepreneurial firms. The human resources of a business venture act as a surrogate indicator of the competence and credibility of a firm and confidence level of external and internal stakeholders.

The owner-manager is one of the most common components of SMEs. The majority of SMEs are owned and managed by the same individuals. By contrast, large firms are normally managed by a team of professionals appointed by the shareholders of the firms. Therefore, the characteristics of owner-managers such as level of education and experience affect firm survival and access to external financing. Thus, highly educated entrepreneurs will choose to dissolve their firms and seek lucrative employment opportunities (Gimeno et al., 1997). Nofsinger and Weicheng (2011) suggest that owner-manager experiences play an important role in explaining differences in external financing.

Coleman (2000) examines education, years of experience, and access to external finance. He finds some evidence that education is positively related to access to external loans. Irwin and Scott (2010) explore some of the barriers that increase the bank finance problems faced by SMEs. They found that educational level does

not have a significant impact to finance sources, except those with A-level education who frequently used friends and family and remortgaged their homes. Ed Vos et al. (2007) find that the amount of experience determines the propensity to apply for loans.

Therefore, education and experience are significant in applying for external formal financing.

However, some studies suggest that the benefits of this knowledge are limited to the managerial roles and not the operational roles of business owners (Dobbs & Hamilton, 2007). Sonnentag (1998) mentions that experience should not be equated with knowledge because experience may or may not lead to increased knowledge. Dabo (2006) and Al-kharusi (2003) use Spearman's correlation analysis fail to find any association between the level of education of owner-managers and application for financing.

Earlier studies find that the influence of human capital to firm performance and the education of owner-manager are not related to the success of a firm. Cassar (2004) discovers a negative relationship between bank financing and owner experience.

However, SME owners and workers in developing countries often have relatively low levels of education than employees in large firms (Nichter and Goldmark, 2009). Human capital theory states that the education and experience of owner-manager influence the access of firms to external financing. Thus, the present study formulates the following hypotheses:

H3: The education level of owner-managers will likely influence the application of firms for bank loans.
H4: An experienced owner-manager will likely influence the firm to apply for a bank loan.

Theory of the firm and SME financing

The determination of firm size may be based on the value of capital investments or the number of employees, which are input measures of firm size because they are the internal factors of the firm (Alam, 2003). Firm size has received limited attention in the empirical tests of symmetry and simultaneity hypotheses because differences in size reflect differences in other variables such as age (Miguel, 2010).

You (1995) cites that size theories on firm size can be classified into four approaches, namely, the conventional microeconomic approach (or the technological approach), transaction cost approach (or the institutional approach), industrial organization approach, and dynamic model of size distribution approach.

The dynamic model of firm size and distribution includes stochastic, life cycle, and evolutionary models. The primary source of innovation in this approach is research and development. In pursuing this activity, larger and more established firms have an advantage than

smaller and newer firms. These models correlate the size of the firm to its age and growth (Di Tommaso and Dubbini, 2000; You, 1995). Di Tommaso and Dubbini (2000) suggest that firms enter the market as small firms and grow through learning. A small and young firm faces greater risks and turbulence than a big firm. Small firms also encounter difficulties in obtaining credit. Thus, Cassar (2004) indicates that the interactions between outside/inside financing and firm size are important and should be controlled when examining such financing relationships. Firms that seek growth are more likely to apply for external equity and debt capital than firms that do not exhibit growth (Riding et al., 2010). Du and Girma (2012) find that firm size plays an important role in the way financial structure affects the growth process. Riding et al. (2010) and Bhaird and Lucey (2010) state that firm size is positively related to external financing application. Romano et al. (2001) discover that firm size is significantly associated with debt. New and younger firms use fewer banks and other finance institutions than older firms (Nichter and Goldmrk, 2009; Longenecker et al., 2008; Cassar, 2004; Romano et al., 2001).

On the other hand, Pickernell et al. (2013) find that new and young firms are more likely to apply for external resources than older firms. Zhang (2008) studies the choice of formal or informal financing in China and finds that firm size has a significant negative correlation with formal financing. Daskalakis et al. (2013) find that younger firms usually lack sufficient internal funds and do not have easy access to external equity. Thus, these firms are more reliant on external debt sources. Ed Vos et al. (2007) find that older firms have less loan applications than younger firms. They also indicate that firm size is not a determinant of the propensity to apply for loans. Larger firms are more likely to receive approval but do not apply more or less often. The following hypotheses are formulated based on the above statements:

H5: Firm size will likely influence the firm to apply for a bank loan.

Business plan and SME financing

A strategy is a plan designed to achieve a particular objective. When applied to business activities, a strategy is defined as the overall plan of a firm in coordinating the separate functional areas of a business, achieving business objectives, analyzing external and internal environments, and determining the strategic direction of the firm. These premises suggest that a business plan is contextual and dynamic in nature and is deployed by owner-managers as tools to achieve short and long-term objectives.

Small businesses do not normally prepare plans to operate the business or achieve external financing,

particularly during the startup stage. However, small businesses tend to operate gearing ratios similar to or higher than large firms, with a proportion of short-term debt that is higher than large firms, once a business plan is established. Romano et al. (2001) show that SME owners do not usually use formal business plans as sales documents during the startup stage to obtain debt or other external financing. However, once SME owners start using a business plan, they tend to apply for and use more financing than large firms.

A business plan is an important tool for applying for and obtaining external formal financing. Business owners can provide their business plans to investors who may be willing to serve as partial owners or to various credit institutions such as commercial banks that may be willing to provide business loans. The business plan should be clear and convincing. Romano et al. (2001) indicate the significance of business plans and its relation to debt. Small businesses and owners without established formal planning processes tend to rely on family loans as financing sources. They also find that business plans are less likely to be considered by older family owners who have control of the family. Al arusi (2003), Dabo (2006), and Abdul Wahab (1996) find that written business plans are significantly related to debt applications.

This discussion tests the influence of business strategy attributes (business plan) on applying to bank loans. The following hypotheses will be tested:

H6: A written business plan will likely influence the firm to apply for a bank loan.

Financing of SMEs and Loan with interest (religion factor riba)

The ideology that governs the current economic system of the word is interest oriented, thus resulting in economic disparities, concentration of wealth in the hands of the few, monopolies, and widening gaps between the rich and the poor. However, Islam prohibits riba -usury- in business transactions. The verses of the Qur'an state the following. "That which you give as interest to increase the people wealth increase not with God; but that which you give in charity, seeking the Goodwill of God, multiplies manifold" (Surah Al-Rum, verse 39). "O believers, take not doubled and redoubled interest, and fear God so that you may prosper. Fear the fire which has been prepared for those who reject faith, and obey God and the prophet so that you may receive mercy" (Surah Al-Imran, verses 130-2). In this context, Islamic financing is the act of providing financial products or services that conforms to Islamic law. Thus, business partners under Islamic law share both profits and losses compared with business partners in the conventional financial system, which relies on the lender–borrower concept.

Islamic banking has emerged as an alternative to conventional banking. Islamic banking aims to cater to the needs of Muslims, who believe that the activities of conventional banks and their religious and moral tenets are incongruent. A study by the World Bank (2008) suggests that religion is one of the internal reasons of SME owners in seeking external formal financing.

Almhrog (2003) finds that most SME owners do not want to obtain a loan from commercial banks because such loans from come with interests, which is prohibited in Islam. Abdul Wahab (1994) cites a case study on the influence of religious beliefs, specifically Islam: a Malaysian owner-manager in the United Kingdom refused to borrow from banks because interest is prohibited under Islamic law. Moreover, Hasan (1990) discovers that the owners-managers of SMEs do not employ bank credits because of their negative attitudes toward conventional. Banking in Libya has no Islamic banks thus far. This may be one of the underlying reasons behind the reluctance of SME owners in Libya to apply for bank loans. The hypothesis regarding this issue is stated in the following:

H7: Loan interests (riba) from conventional banks will likely influence the decision of the owner-manager decision in applying for a bank loan.

METHODOLOGY

What factors determine the bank loan application of SMEs? To answer this question, small firms are divided into dimension of probability to apply for a bank loan. The data for this paper were taken from the results of a survey that the authors undertook in Libya. The selected 530 SMEs based on the firm size (1 to 50 employees) belong to different sectors of the economy. The survey yielded 364 valid questionnaires were deemed useable responses. During the survey, the respondents had provided some attributes of the characteristics of SMEs owner-manager such as their level of education and experiences also size and age of the firm, businesses strategy which include business plan. Moreover, sources of financing startup, whether apply bank loan after started or not.

Econometric model of probability for bank loan application

Our empirical investigation aims to study the probability and influence of human capital, firm and business strategy, and bank conditions on the bank loan application of a firm after the startup stage as dependent variables. To test these interactions, we considered the following model:

Bank loan application = constant + owner-manager characteristics + firm characteristics + business strategy + bank conditions + εi

To investigate this model, the logistic regression model is used. When measuring Y, data are taken from the survey question "whether his/her business has ever applied for a bank loan for additional financing after the startup stage."

If the answer is "yes," the financing practices employed are considered a case of "bank loan," and the response is coded with "1"; otherwise, is the response is coded with "0". We estimate the coefficients (Y) by using the following model:

where Y denotes the bank loan application. Therefore, Y for additional financing after the startup stage is equal to $\beta 0 + \beta 1$ Education level + $\beta 2$ Previous business Experience + $\beta 3$ Business Plan + $\beta 4$ SME startup size + $\beta 5$ Firm startup financing (firm–bank relationship) + $\beta 6$ collateral required by bank + $\beta 7$ loan with riba (religion factor) + εi

The independent variables represented by X_i in equations are expressed on proxies of the conceptualized theories as shown in Table 1.

RESULTS AND DISCUSSION

Hypotheses testing for the bank loan-application model

To understand better the determinants of SMEs in Libya in the loan-application model, logistic regression is performed to assess the effect of the number of factors on the reporting probability of respondents regarding their bank. The loan-application model contains seven in-dependent variables: firm characteristics (size, business plan, and firm startup financing sources), owner-manager characteristics (education level and experience), and bank conditions (required collateral and interest with loan (riba)). The dependent variable is the question on whether the owner-managers have ever applied for bank loan after the startup stage (Yes = 1, No = 0). However, before testing the hypotheses by logistic regression, a multicollinearity test is conducted necessary. Multi-collinearity can affect the parameters of a regression model. To test the multicollinearity, which refers to the relationship among independent variables, correlation analysis is performed as a preliminary test on the seven independent variables. The correlations among the independent variables are shown in Table 2.

Table 2 shows that most of the correlations are relatively low. Although some of the correlations are significant, the highest and lowest correlation values are 0.489 and 0.038, respectively. Therefore, based on Spearman's correlation, the degree of multicollinearity is very low. Pallant (2010, p. 151) observes that, "multicollinearity exists when independent variables are highly correlated ($r = 0.9$ and above)." Zhang (2008) also indicates that a correlation coefficient of 0.6 or more suggests potential multicollinearity. To confirm the result of the current study, the collinearity statistics test is employed to test the multicollinearity. Result shows that variance inflation factor (VIF) for all independent variables is within 1.059 to 1.952. In this context, Myers (1990) suggests that a VIF value greater than 10 is a cause for concern. No colli-nearity issue is found between the predictor variables. Tolerance value is another test for multicollinearity. Menard (1995) and Field (2003) suggest that a tolerance value less than 0.1 indicates a serious collinearity

Table 1. Independent variables measurements.

Highest Education	1= university graduate, otherwise= 0
Previous business experience	1= Yes, 0= otherwise
Written Business Plan	1= Use 0 = otherwise
SME Size start-up (number of employees)	
SME size start-up number 1-3 workers	= 1, 0= otherwise
SME size start-up number 4-10 workers	= 1, 0= otherwise
SME size start-up number 11-17 workers	= 1, 0= otherwise
SME size start-up number 18-25 workers	= 1, 0= otherwise
SME size start-up number 26-above workers	= 1, 0= otherwise
Firm start ups financing option	1 = firm start up with bank loan (firm – bank relationship),0 = otherwise
Collateral required by bank, no problem	= 1, otherwise =0
Loan with interest –Riba-, no problem	= 1, otherwise =0

Table 2. Correlation of independent variables for the bank loan-application model.

Variables	1	2	3	4	5	6	7
Size	1.000						
Business plan	.442**	1.000					
Start-up financing	.350**	.489**	1.000				
Education	.182**	.212**	.074	1.000			
Experience	.168**	.066	.049	-.063	1.000		
Loan with interest	-.334**	-.282**	-.185**	-.047	-.068	1.000	
Collateral	-.064	-.100	-.074	-.038	-.058	-.256**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

problem. The tolerance values in the current study are from 0.512 to 0.948, which is far above the critical tolerance value of 0.1. The results of the three tests indicate the absence of multicollinearity issues. Therefore, no serious multicollinearity is found among the variables. Consequently, all independent variables are included in the following empirical models.

Based on the results of the model, (Table 3) it could be found the results of the model are satisfactory.

Table 3 gives the results of the logistic Regression analysis for the determinants of loan- application with included the results of variables in the equation which are the most an important to find out the results of testing hypotheses and contribution of each of predictor variables. The direction and relationship significance among the variables are shown in Table 3

Results in Table 3 shows that the model is highly significant. Six explanatory variables are statistically significant at the 0.1 level (firm size, business plan, firm startup financing, required collateral, loan with interest (riba), and education level), whereas experience was statistically insignificant in the model.

X1 Firm size: Bank financing is the most important source of external financing for small firms. However, many small

Table 3. Results of the logistic regression analysis for the determinants of bank loan- application.

Variables	B	S.E.	Wald	Sig.
Size (X1)	-.469	.218	4.633	.031**
Business plan (X2)	1.321	.390	11.443	.001***
Start-up financing(X3)	2.989	.423	49.868	.000***
Education(X4)	-.613	.364	2.843	.092*
Experience(X5)	.028	.322	.008	.930
Collaterals(X6)	-1.783	.402	19.639	.000***
Loan with interest (X7)	-2.558	.414	38.201	.000***
Constant	1.323	.530	6.227	.013

Number of observation, 362; d.f. of Regression, 7; Chi-square statistic, 182.070 at significance level, 0.000; p-value, 0 .000; Cox and Snell R², 0.395; Nagelkerke R², 0.553;-2 Log Likelihood, 272.025; Hosmer and Lemeshow chi-square, 4.349 at significance level, 0.824; Predicted Correct at Block 0, 68%; Predicted Correct at Black 1, 85.4%; -2Log likelihood at Block 0, 454.094; -2 Log likelihood at Block1, 272.025; (-2Log Block 0) – (-2Log block 1) = Chi-square;454.094 – 272.025 = 182.070; ∗Significant at 10% level; ∗∗Significant at 5% level; ∗∗∗Significant at 1% level.

firms are often reluctant to borrow from banks because loan approval depends on the size and credit risk of a

firm (Neuberger and Ra¨thke, 2009). On the contrary, some studies have indicated that SMEs rely heavily on internally generated funds. SMEs tend to operate gearing ratios that are similar to or higher than large firms, with a proportion of short-term debt that is higher than large firms. Theoretically, firm size will positively affect the decision of the owner-manager to apply for a bank loan. Therefore, larger SMEs apply for bank loans more often than smaller SMEs because of the availability of collateral. In terms of loan requirement, smaller SMEs may have more demands and needs for financing after the startup stage than larger SMEs for growth, whereas larger SMEs require internal financing. Statistical tests are conducted to determine if the employment size of small businesses affect the decision of the firm to apply for a bank loan after the startup stage. The results indicate a significant negative effect between employment size and bank loan application. Thus, smaller SMEs are more likely to apply for bank loans after the startup stage than large SMEs. The firm size beta value of this study is -0.0469, which is statistically significant at 0.05 (5%) (Table 3). This result implies that larger SMEs have lower beta values when applying for loans because these SMEs can use internal financing. Another reason for this result is that a bank loan may not be needed at the moment. The European Central Bank (2011) confirms this result, thus proving that 23 and 8% of large SMEs expect improvements in their internal funds and bank loans, respectively. Large SMEs rely more on internal financing than bank loans. This result may also suggest that the startup sizes of most SMEs in this study are smaller because 66.8% have only three employees. Nevertheless, this result concurs with the findings of Daskalakis et al. (2013), Pickernell et al. (2013), Bhaird and Lucey (2010), and Zhang (2008). However, the hypothesis is supported.

X2 Business plan: A business plan is an important tool in obtaining external financing. Romano et al. (2001) find that small family business owners who do not have formal planning processes tend to rely on their families for loans. A firm that plans to apply for a bank loan will likely have a business plan before applying. A business plan positively affects SMEs that apply for bank loans. The result in Table 3 shows that the business plan has a significant effect on the loan applications of SMEs. The beta value is 1.321 and is significant at 0.01 (1%). Therefore, the study proves that a business plan has a positive influence on bank loan applications. Thus, the hypothesis is supported.

X3 SME startup financing (firm–bank relationship): This study and other studies have confirmed that most SME startup financing originate from informal financing sources. Only a few SMEs can start up with a bank loan because lending to small enterprises is affected by

information asymmetries. Therefore, SMEs that finance their startups with bank loans are perceived to have a good rapport and relationship with their banks. These SMEs also tend to reapply for another loan. By contrast, firms that finance their startups with informal financing will be reluctant to apply for bank loans because of fear of rejection or other reasons such as loans with interest (riba). Based on this assumption, the availability of startup financing sources influences the firm to apply for a bank loan. In this study, the beta value for firm startup financing is 2.989 and is significant at 0.01 (1%). This finding concurs with the result of Daskalakis et al. (2013). The hypothesis is also supported.

X4 Education: Human capital is important for organizations, particularly for the continuous improvement of the firm in terms of knowledge, skills, and abilities. Furthermore, the owner-manager is one of the most common SME ownership characteristics because the majority of SMEs are owned and managed by the same person. Therefore, the level of education of the owner-manager influences and affects the decision to apply for external financing. In this study, the proxy of the education level is measured by the variable university and above ("1") and otherwise ("0"). We hypothesize that the education level of the owner-manager affects the decision to apply for a bank loan. Logistic regression analysis reveals that the levels of education of owner-managers in Libya influence their decisions to apply for bank loans after the startup stage. The education level of the owner-manager is negatively related to loan application. A negative link between the education of the owner-manager and bank loan-application probability suggests that 66.5 % of respondents in this study have completed education below the university level. Nichter and Goldmark, (2009) cites that SME owners in developing countries often have relatively low levels of education than large firms. This finding is consistent with the findings of Ed Vos et al. (2007) and Irwin and Scott (2010). In the current study, the beta value for education is -0.613 and is significant at 10% level (Table 2). Therefore, the hypothesis is supported.

X5 Business Experiences: Experience is one of the most important human capital components toexplain the role of input resources in a firm. Experience, along with education, enhances the human capital volume of the firm. Furthermore, financial investment will be required for business growth. However, obtaining the necessary amount of financing often depends on the skills of the owner-manager. Ed Vos et al. (2007) find that experience is positively related to loan application. Therefore, the experiences of owner-managers affect the decision to apply for a bank loan. In the current study, experience is used as a proxy for human capital. The proxy is coded "1" if the owner-manager has previous business experiences

and "0" if otherwise. Experience is an insignificant factor in this study. Bank loan-application probability has a beta value of 0.31 and is insignificant at 0.925. Zhang (2008) also obtains a similar result. He finds that experience is statistically insignificant and is a negative predictor of the dependent variable choice of financing sources. However, the result may suggest that experienced owner-managers use internal financing sources for business expansion. This condition also suggests that the majority of respondents in this study (60.4%) are inexperienced. This finding indicates that experienced owner-managers do not necessarily employ more or less bank loan financing practices in Libya because significant factors exist that affect the financing choices of Libyan SMEs. Consequently, experience is irrelevant. This result does not support the hypothesis.

X6 Collaterals: Larger firms show higher probabilities of loan-application success than smaller firms (Freel, 2007), which exhibit higher risks than larger firms. Banks require collaterals for loans (Berger et al., 2011). Thus, larger and older SMEs have more assets as collateral than smaller and younger SMEs and have technical sophistication in reducing information opacity to access external formal financing. Small and young firms have few collaterals and short credit histories. Therefore, small firms have difficulty obtaining funds from banks. The ability and preference of SMEs to borrow from the bank are also often restricted. Thus, SMEs may borrow from informal financing sources (non-bank), which require no collateral. Therefore, the required collaterals of banks affect the decision of SMEs to apply for bank loans. In this study, the beta value of collateral requirement is −1.783 and is significant at 0.01 (1%). This finding agrees with the finding of Etaweel (2012). Therefore, the hypothesis is supported.

X7 Loan with interest: Loans from commercial banks involve interests. However, interests (riba) are prohibited in all affairs in Islam including business transactions. The verses of the Qur'an state the following: " *that which you give as interest to increase the people wealth increase not with God; but that which you give in charity, seeking the Goodwill of God, multiplies manifold*"(Surah Al-Rum, verse 39) (30:39). "*O believers, take not doubled and redoubled interest, and fear God so that you may prosper. Fear the fire which has been prepared for those who reject faith, and obey God and the prophet so that you may receive mercy*"(Surah Al-Imran, verses 130-2). The World Bank (2008) suggests that the religious factor is one of the internal reasons of SME owners in seeking external formal financing. Therefore, loans with interests affect the decision of owner-managers in applying for a bank loan. The current study finds that the X7 beta value is −2.558, negatively related to the decision to apply for a bank loan, and significant at 0.01 (1%) (Table 3). There-fore, the hypothesis is supported, which implied that a loan with interest would negatively affect the decision of the owner-manager to apply for bank loan in Libya. This finding confirmed the 2010 annual report of the national program for SMEs in Libya.

Six hypothesizes, namely, firm startup financing sources (firm–bank relationship), firm size, business plan, colla-teral, loan with interest, and owner-manager education level, are supported. The hypothesis on owner-manager experience is not supported.

Conclusion

This study examines the determinants of bank loan applications. Thus, this study aims to identify the major influences on the decisions of small firms in applying of bank loan, Logistic regression model, namely, the loan application is generated to explain the determinants of bank loan application of SMEs in Libya . The results show that firm characteristics, such as business size (a smaller firm has a higher probability to apply for a bank loan), business plan (a firm with a business plan has a higher probability to apply for bank loan), and firm startup financing sources, such as bank loan or informal financing (a startup firm with a bank loan has a higher probability to apply for a loan after startup), are characteristics asso-ciated with bank loan applications after the startup stage in Libya. Conditions of banks, such as required collaterals and loan with interest (riba), are significant negatively associated with bank loan applications in Libya. Owner-manager characteristics, such as education level and experience (an owner-manager with a lower education level has a higher probability to apply for a bank loan), is factor associated with bank loan applications after the startup stage in Libya. However, experience is not likely to influence bank loan applications.

In summary, SMEs that started with bank loans, have prepared business plans, are smaller, and are under owner-managers with less education are more likely to apply for bank loans after the startup stage. However, SMEs face collateral requirements and loan with interest (riba) when applying for bank loans.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES

Abdul wahab, I (1996).Financing the growth of small manufacturing firms in developed and developing countries: A comparative study of United Kingdom and Malaysia. (PhD) Thesis.
Al-Hwuty A (2007). Small enterprises and Development: experience of Libya. Working paper in colloquium about Small and medium enterprises in Arabic countries. 3 to 5 September. Tunisia.

Alam MN (2003). Micro Credit through 'Bai-Muajjal Mode of Islamic Banking Financing System. Working Paper to present at the First Annual Conference of SANABEL, Islamic Microfinance in the Arab World: Shapint the Industries Future" Amman, Jordan, on December 15, 16, 17.

Al-Kharusi A (2003). Financing small business in Oman" (PhD) Thesis. Loughborough University.

Almhrog MH (2003). The Small Firm Lone Guarantee Scheme in Jordan: An Empirical Investigation (PhD) Thesis. University Of Newcastle.

Annual report of the National Programmer for small and medium enterprises in Libya (2010).

Badri AE (2006). The Reality of small and medium-sized projects in Libya, a symposium on growth and development of small and medium-sized projects in Libya, Center for Economic Research, Benghazi.

Becker GS (1975). Human capital. New York: Columbia University Press.

Berger AN, Adrian MC, Frame WS (2011). The Surprising Use of Credit Scoring in Small Business Lending by Community Banks and the Attendant Effects on Credit Availability, Risk, and Profitability. J. Financ. Serv. Res. 39:1–17. DOI 10.1007/s10693-010-0088-1.

Berger AN, Gregory FU (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. J. Bank. Financ.22: 613-673.

Bhaird CM, Brian L (2010). Determinants of capital structure in Irish SMEs. J. Small Bus. Econ.35:357–375.

Binks M, Ennew C, Reed G (1992). Information Asymmetries and the Provision of Finance to Small Firms. Int. Small Bus. J.11:35-46.

Bonfim DB, Daniel A, Dias B, Christine RC. (2012). What happens after corporate default? Stylized facts on access to credit. J. Bank. Financ. 36:2007-2025.

Cassar G (2004). The financing of business start-ups. J. Bus. Venturing 19:261-283.

Claessens S, Tzioumis K (2006). Measuring firms' access to finance. World Bank, Paper prepared for Conference: Access to Finance: Building Inclusive Financial Systems, organized by the Brooking Institution and the World Bank in Washington, D.C., May 30-31.

Coleman S (2000). Small firms' use of financial leverage: evidence from the 1993 national survey of small business finances. J. Bus. Entrep. 3:81-98.

DaboDD (2006). Financing small and medium sized enterprises in Nigeria. (PhD) thesis, Loughborough University.

Daskalakis N, Robin J, Emmanouil S (2013). Financing practices and preferences for micro and small firms. J. Small Bus. Enterprise Dev. 20:80-101.

Davenport TO (1999). Human capital: What is it and why people invest it? San Francisco, CA: Jossey-Bass.

Degryse HD, Cayseele PV (2000). Relationship Lending within a Bank-Based System: Evidence from European Small Business Data. J. Financ. Intermed. 9: 90-109.

Di Tommaso M, Dubbini S (2000). Towards a theory of the small firm: Theoretical aspects and some policy implications. CEPAL: Serie Desarrollo Productivo (87). http://www.cepal.org/publicaciones/xml/7/4887/lcl1415i.pdf

Dobbs M, Hamilton R (2007). Small business growth: recent evidence and new directions. Int. J. Entrepreneurial Behav. Res. 12: 296-322.

Du JA, Girma SB (2012). Firm Size, Source of Finance, and Growth - Evidence from China. Int. J. Econ. Bus. 19:397-419.

Ed V, Andy JYY, Sara C, Stephen T. (2007) .The happy story of small business financing. J. Bank. Financ. 31:2648-2672.

Eltaweel ME (2012). How are small businesses in Libya financed?. International Conference on Business, Finance and Geography (ICBFG'2012) December 18-19, 2012 Phuket (Thailand).

European central bank .(2011). Survey on the access to finance of SMEs in the euro area. [Online] Available: https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html

Field A (2003). Discovering statistics using SPSS for windows advanced techniques for the beginner".London Sage thousand Oake. New

Delhi.

Florin J, Lubatkin M, Schulze W (2003). A social capital model of high growth ventures. Acad. Manage. J. 46:374-384.

Freel MS (2007). Are Small Innovators Credit Rationed. J. Small Bus. Econ.28:23-35.

Gallardo J (1997). Leasing to Support Micro and Small Enterprises Financial. Sector Development Department, the World Bank.

Gimeno J, Folta T, Cooper A Woo C (1997). Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. Adm. Sci. Quart. 42:750-783.

Harhoff D, Korting T (1998). Lending relationship in Germany-Empirical evidence from survey data. J. Bank. Financ. 22:1317-1353.

Hasan MA (1990). The Problems of Financing Small Business in Egypt. (PhD Thesis), University of Durham.

Irwin D, Scott M (2010). Barriers to rising bank finance faced by SMEs. Int. J. Entrep. Behav. Res. 16:245-259.

Lehmann E, Neuberger D (2001). Do lending relationships matter? Evidence from bank survey data in Germany. J. Econ. Behav. Organ. 45:339-359.

Longenecker JG, Carlos W, Moore J, William P, Leslie EP (2008). Small Business Management: Launching and Growing Entrepreneurial ventures. South Western.

Longenecker JG, Petty JW, Leslie P, Francis H (2012). Small business management: launching and growing entrepreneurial ventures. (16th) edition south western united states.

Menard S (1995). Applied logistic regression analysis. sage university paper on quantitative applications in the social sciences.

Metwally M (1996). Attitudes of Muslims towards Islamic banks in a dual-banking System. Am. J. Islamic Financ. 6:11-17.

Miguel CMA (2010). Firm size and short-term dynamics in aggregate entry and exit. Int. J. Ind. Organ. 28:464-476.

Myers R (1990). Classical and modern regression with applications. (2nd) edition. Boston.

Neuberger D, Ra¨thke S (2009). Microenterprises and multiple bank relationships: The case of professionals. J. Small Bus. Econ. 32:207-229.

Nichter S, Goldmark L (2009). Small firm growth in developing countries. J. World Dev. 37:1453-1464.

Nofsinger JR, Weicheng W (2011). Determinants of start-up firm external financing worldwide. J. Bank. Financ. 35:2282-2294.

Pallant J (2010). SPSS survival manual a step by step guide to data analysis using Spss. (4th) edition, Open University press London.

Peltoniemi J, Vieru M (2013). Personal Guarantees, Loan Pricing, and Lending Structure in Finnish Small Business Loans. J. Small Bus. Manage. 51:235-255.

Pickernell D, Julienne S, Paul J Gary P and Elaine R (2013). New and young firms Entrepreneurship policy and the role of government – evidence from the Federation of Small Businesses survey. J. Small Bus. Enterprise Dev. 20:358-382.

Pissarides F, Miroslav S, Jan S (2003). Objectives and Constraints of Entrepreneurs: Evidence from Small and Medium Size Enterprises in Russia and Bulgaria. J. Comp. Econ. 31:503-531.

Riding A, Barbara J, Orser MS, Brad B (2010). Financing new venture exporters. J. Small Bus. Econ. 38:147–163.

Romano CA, George AT, Kosmas XS (2001). Capital structure decision making: A model for family business. J. Bus. Vent. 16:285-310.

Rozali MB, Hasniza MT, Fauziah AL, Mahfuzah S (2006). Small firms demand for finance in Malaysia. Universiti Utara Malaysia.

Shee C, Yuk-Shee C, George K (1985). Asymmetric Valuations and the Role of Collateral in Loan Agreements. J. Money, Credit Bank. 17: 84-95.

Sonnentag S (1998). Expertise in professional software design: a process study. J. Appl. Psychol. 83: 703–715.

Storey DJ (1994). Understanding the small business sector. London, USA and Canada: Routledge.

Verrecchia R (2001). Essays on disclosure. J. Account. Econ. 32: 97-180.

Voordeckers W, Steijvers T (2006). Business collateral and personal commitments in SME lending. J. Bank. Financ. 30: 3067-3086.

World Bank (2008). Finance for all? Policies and Pitfalls in Expanding

Access .World bank Policy Research Report.

You J (1995). Small Firms in Economic Theory. Camb. J. Econ. 19: 441-462.

Zhang G (2008).The choice of formal or informal finance: Evidence from Chengdu, China J. China Econ. Rev.19:659-678.