

# DETERMINANTS OF SME ACCESS TO BANK FINANCE

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**Abstract** - In this paper, we model the determinants of successful bank loan applications to Bank Al Tanmeyaby small and medium-sized enterprises (SMEs) in Libya. The posited determinants of successful bank finance include firm size (in terms of employment), the business sector of operation, the age of the business, and the age and level of education of the owner–manager. All other things being equal, we find that older firms, more educated managers, and firms with a strong banking relationship are more like to be granted loans, while older owner–managers, larger firms, and firms in the services industry are less likely to be granted loans. The presence of business plans and attendance at training workshops appears to have little influence on whether loans are granted. These findings suggest that banks loans in Libya are largely made on the strength of the relationship between the bank and the SME rather than the financial statement-, asset-, or credit scoring-based approaches to bank lending found in more developed economies with stronger banking sectors.

**Index terms** - Bank finance, Small and medium-sized enterprises, Firm factors, Owner–manager factors.

## I. INTRODUCTION

In developed and developing economies alike, small and medium-sized enterprises (SMEs) play a fundamental role in promoting economic prosperity through their significant contributions to income creation, the absorption of labor, and the alleviation of poverty. According to the OECD, SMEs contribute about 70 percent to employment and 55 percent to GDP in high-income economies, 95 percent to employment and 70 percent to GDP in middle-income countries, and 70 to employment and 60 percent to GDP in low-income countries. SMEs also create valuable exporting opportunities and increased possibilities for generating innovation. Other positive aspects of SMEs include the fostering of entrepreneurship, the opportunity for quick returns on investment owing to their relatively rapid establishment, assisting inter- and intra-regional decentralization, and their ability to act as a countervailing force against the economic power of larger enterprises. Consequently, SMEs have been the focus of research in a number of areas, including financing [1-3], innovation [4-5], and management [6-7]. Within this, there is no doubt that access to finance is crucial for SME survival, growth, and development. However, while it is well known that banks are very often the main providers of external finance to SMEs, bank finance is often not readily accessible for SMEs given strong information asymmetry. This is no different in Libya, a developing country in transition and recovery from civil war attempting to restructure its national economy and reduce its reliance on oil. In evidence, [8] found that SMEs in Libya face a financing gap, while [9] argued that because of the absence of effective financial markets and a poorly diversified credit structure in the country, SMEs in Libya often find themselves compelled to resort to banks to obtain loans necessary to finance their operations. [10]

argued that the majority of SMEs in Libya are dependent on internal funding sources and only a small percentage can actually access finance from banks. [11] and Saleh [12] reached a similar conclusion. Elsewhere, [13] underlined the lack of credit information is a major barrier for banks in Libya disbursing loans to SMEs. The OECD report also highlighted that Libyan banks lack the capacity to assess the creditworthiness of SMEs. While some existing SMEs receive some financing from banks, start-ups remain neglected. In addition, a lack of collateral poses additional barrier to SME lending and borrowing.

Unfortunately, few studies have explored the determinants of successful access to bank finance by SMEs, let alone in Libya. This is unfortunate in that it would be extraordinarily valuable in enhancing our understanding of factors affecting finance access and how industry practice and government policy could possibly assist. Accordingly, the purpose of this paper is to examine those SME characteristics associated with successful access to bank finance using loan applications (both successful and unsuccessful) to Bank Al Tanmeyya, one of a Libya's largest banks, as a case. The paper itself is divided into four main areas. Section II describes the bank sector in Libya and Section III the main bank lending theories. Section IV provides a brief review of the literature and Section V presents the results. The paper ends with some concluding remarks in Section VI.

## II. BANK FINANCE IN LIBYA

Banks are by far the major player in the Libyan financial system, with Libya's banking system traditionally dominated by four big banks, each of which is partially or fully owned by the state. There are also four specialised state-owned banks and four larger private banks. Further, there are a number of

regional banks that are coordinated by the National Banking Corporation. In addition, a number of foreign banks have established representative offices in Libya.

In general, the Libyan economy is characterised by low levels of financial intermediation. As a result, banks mostly lend on a short-term basis and mainly for low-risk activities such as trade financing. In addition, the level of nonperforming loans in the economy is high, and so banks limit their activities to short-term collateral-backed loans. According to [14] the Libyan banking sector does not work well for SMEs. This is because the sector is highly concentrated, rudimentary and shallow. Moreover, the financial conditions set by banks to finance business are demanding. Several factors contributing to this include inflexibility, bureaucracy, and centralisation [15].

[16] suggested that apart from privately owned companies in the energy sector which have better access to formal capital from banks thanks to their relative sophistication and profitability, other businesses, especially SMEs, lack access to banking capital. Another reason for the difficulty of Libyan SMEs in accessing bank finance includes the lack of standardized and reliable information, the result being that Libyan banks disburse loans primarily to clients personally known by bank staff. Otherwise, substantial collateral is required. There is also less availability of privately owned land with clear undisputed titles of ownership that can be offered as collateral. Lastly, bank managers are not rewarded for disbursing good loans but do tend to face severe penalties in case of bad debts. Accordingly, Libyan banks tend to follow a defensive lending policy and avoid lending to SMEs perceived as been even moderately risky.

### III. THEORY OF BANK LENDING

The literature categorises the lending techniques adopted by banks to serve SMEs into four main categories, namely, financial statement lending, asset-based lending, credit-scoring lending, and relationship lending.

In financial statement lending, the focus is primarily on the strength of the borrower's financial statements. Two requirements based on hard information are essential. First, the borrower firm must have certified audited financial statements prepared by a reputable accounting firm according to widely accepted accounting standards such as GAAP. Second, the financial ratios calculated from these statements must reflect a strong financial condition. The expected future cash flows of the firm to be perceived as the primary source of repayment. This is best suited for relatively transparent firms in countries with strong accounting standards.

Asset-based lending is the most secured form of lending to SMEs. Under such transactions financial institutions especially banks base their decision to lend to SMEs on the quality of the firm's assets to be pledged as collateral. The collateral may be accounts receivable and inventory, among others. It is essential that the liquidation value of the collateral always exceeds the credit exposure. In contrast to financial statement lending, in asset-based lending the extension of credit is primarily based on the value of the collateral rather than the overall creditworthiness of the firm. Collateral is often difficult for SMEs, especially those in the start-up stage, to provide.

Credit scoring lending is a lending technology used by banks to evaluate informationally opaque loan applicants. Unlike the information in relationship lending which needs time to be acquired, the hard data required by credit scoring is readily gathered from consumer and commercial credit bureaus. The use of a credit scoring method is based on attaching certain statistical weights to the expected future loan performance and the borrowers' history given that the credit worthiness of the owner-manager and that of the SME are closely related. The assumption here is that ultimately the credit analysis involved in credit scoring determines that the personal credit history of SMEs owner-manager is highly predictive of the loan repayment. Typically, the credit scoring method increases credit availability for SMEs.

Finally, relationship lending is a powerful mechanism used to reduce problems related to opaqueness in SMEs. With relationship lending, "soft" information is gathered (usually by a small local bank) through continuous contact with SMEs in the provision of financial services. The bank uses this information to evaluate the creditworthiness of the entrepreneur as part of the loan process to ensure that the potential loan will be repaid. Typically, strong ongoing bank-SME relationships are associated with better credit availability e.g. a higher loan application acceptance rate and/or fewer collateral requirements.

### IV. LITERATURE REVIEW

In general, the characteristics of SMEs and banks affect their financial decisions and the outcomes of these decisions, including that by the bank to extend finance. On both the demand and supply side, these include firm size and age, ownership type and legal form, geographical location, industry sector and asset structure.

Size is one of the variables that has been traditionally been considered in financial decisions and the capital structure choices. For example, firm size is used as a proxy of both the theory of optimal capital structure and the pecking order theory. Generally, in finance, size matters. [17-19] all concluded that larger SMEs

rely more on long-term debt especially from banks, while [20] found a similar preference on the supply side when banks are lending. A major part of the reason for that is smaller firms have less assets to offer as collateral given the provision of collateral plays an indispensable role in easing SMEs access to debt finance

The age of a firm is also an important factor in the study of SME financing decisions and could act for or against the demand for finance [21-22]. On one hand, the demand for funds of younger firms with growth potential is likely to be higher. However, the supply of finance for such firms may be limited due to a lack of collateral, track record and a borrowing relationship. From the supply-side, [23] observed that SMEs established more than five years have a far better chance to be successful in their credit applications.

The lack of separation between the firm and its owner–manager may also affect the financing preferences of SMEs, with positive relationship found by [24-25] between leverage and the type of organisational structure, while [26] concluded that ownership structure and the type of firm have a significant impact on SMEs using bootstrap financing.

A number of studies evidenced that industry sector-related factors also affect SMEs financial decisions [27]. Firms in the services, for example, can differ from those in manufacturing or construction in terms of financial needs and choices. [25] concluded that short-term credit from banks is more used in wholesale and retail trade sectors compared with manufacturing SMEs whereas construction, hotel and hospitality and mining industries appear to depend more on long-term bank finance. [28] suggested that banks may be more willing to extend credit facilities to SMEs in the services or services support sector than to the agricultural sector due to the high level of risk associated with the latter.

A business plan is a formal document that submitted by entrepreneurs to a bank to gain financial support. In addition, a business plan can be a growth plan or a start-up plan. Besides serving as a roadmap for the improvement in the management of SMEs business plan can also serve as a means to assure better channels of communication between SMEs and external finance providers. This, in turn, will improve credit accessibility for SMEs that lack tangible assets to be pledged as collateral and also for those do not have a credit history.

Having an appropriate business plan could affect the chance of accessing external finance especially from banks. [29] found that many firms that unsuccessfully apply for external financing lack realistic and

workable business plans. Likewise, [30] argued that as they usually lack formal business plans family businesses rely more on informal finance especially at the early stages of their businesses' lifecycle.

The personal characteristics of SMEs owner–manager also make a difference to their firms' ability and likelihood of accessing external finance [31]. The reason is that the owner–manager in SMEs has the dominant position in the firm as the primary decision maker. For example, [30] found older entrepreneurs are less likely to invest additional finance into their firms. From a supply-side perspective, bankers' perceptions of different age group are also important. For example, old owner–managers are generally perceived by bankers as less innovative and dynamic and therefore less attractive for loans, but also wiser and more responsible than younger entrepreneurs who might be perceived as more risky.

The educational background of SMEowner–managers is often positively related to the firm's usage of leverage, with less educated owner–managers rely more on internal sources while more educated ones are more willing to use external finance [32]. Educated owner–managers are likely to have better managerial skills and are better equipped to go through difficult administrative procedures in the credit system increasing their standing in the eyes of bankers

Turning to training, training is related to the owner–manager's level of training in the field of business management. [33] Emphasised the importance of management training in explaining the financing practices of SMEowner–managers suggesting that researching the role of finance-related training could help in understanding the financing practices of SMEs. Another study by [34] found that SMEowner–managers with some management training are more favoured by financial institutions especially banks. Lastly, experience is an indication of the firm's human capital. Business experience is simply the number of years that the owner–manager has been managing or owning the business, with long experience found to have an impact on the willingness of SMEs owner–managers to seek external funding [35-36]. Based on this review, Table 1 lists the variables used to model the determinants of success acquiring SME bank loans.

**Table 1: Variable descriptions**

BF	Access to bank finance {1 if the firm has been granted bank finance, 0 if denied}
SZE	The staff strength of the firm {1 if $\leq 25$ (small), 0 if $\geq 26$ and $\leq 50$ (medium)}
TR	1 if the firm is in the trade sector, 0 otherwise
SR	1 if the firm is in the services sector, 0 otherwise
MN	1 if the firm is in the manufacturing sector,

F	0 otherwise
OWN	Ownership type of the firm {1 if the firm is sole ownership, 0 otherwise}
EST	How long the firm has been established in years {1 (1–5), 2 (6–10), 3 (11–15), 4 (16–20), 5 (over 20)}
PLN	The use of a business plan {1 if yes, 0 otherwise}
AGE	Owner–manager’s age {1 (under 21), 2 (21–30), 3 (31–40), 4 (41–50), 5 (over 50)}
EDU	Owner–manager level of education {1 at least university degree or equivalent (diploma), 0 otherwise}
EXP	Owner–manager’s years of experience {1 (less than 5), 2 (5–10), 3 (11–15), 4 (over 15)}
TRN	Attending any SME management seminars/workshops {1 if yes, 0 otherwise}
BAT	Having Bank Al Tanmeya as the main business partner {1 if yes, 0 otherwise}

In a similar way, we specify only the characteristics of owner–managers as independent variables. The results for this are shown in Table 3. The figures provide no evidence of a significant relationship between the owner–manager related variables and success in obtaining bank finance ( $p > 0.05$ ), with the exception of owner–manager age group (21–30 years) and level of education ( $p \leq 0.05$ ). This is an indication that SMEs with young and more educated owner–managers are more likely to obtain bank finance, presumably due to their better knowledge of the bank finance application process and financial management. This could also relate to preparing a proposal for bank finance and convincing the banker during the client interview.

## V. RESULTS

We specify our logit regression model as follows  $BF = \alpha_i + \beta_0 SZE_i + \beta_1 TRD_i + \beta_2 SRV_i + \beta_3 MNF_i + \beta_4 OWN_i + \beta_5 EST_i + \beta_6 PLN_i + \beta_7 AGE_i + \beta_8 EDU_i + \beta_9 EXP_i + \beta_{10} TRN_i + \beta_{11} BAT_i + \epsilon_i$ , where  $\alpha$  is the constant,  $\beta_s$  are the regression coefficients,  $\epsilon$  is the error term and the other variables are as previously defined in Table 1.

**Table 2: Logistic regression results, firm characteristics**

Variables	B	S. E.	Wald	Sig.	Exp (B)
SZE	– 1.888	.546	11.940	.001	.151
TRD	1.499	.772	3.774	.052	4.478
SRV	– 1.305	.624	4.372	.037	.271
OWN	.034	.455	.006	.940	1.035
EST1	1.107	1.438	.593	.441	3.027
EST2	.553	1.332	.173	.678	1.739
EST3	.542	1.341	.164	.686	1.720
EST4	–.096	1.393	.005	.945	.908
PLN	.687	.650	1.116	.291	1.987
Constant	.929	2.146	.187	.665	2.532

We first perform a regression using only the firm characteristics as explanatory variables. The results in Table 2 indicate a significant association between employment size and access to bank finance ( $p \leq 0.05$ ) suggesting that smaller SMEs tend to have significantly lower probability of bank finance approval. This means that the smaller the firm, the less likely it is to be granted bank finance. In addition, SMEs operating in services are more likely to be successful when applying for bank finance ( $p \leq 0.05$ ). However, the statistics in the table do not support any association between TRD, OWN, EST1, EST2, EST3, EST4 and PLN and successful SME bank finance applications ( $p > 0.05$ ).

**Table 3: Logistic regression results, owner–manager characteristics**

Variable	B	S. E.	Wald	Sig.	Exp (B)
AGE1	17.46 5	401.97 0	.000	1.0 0	384.4 43
AGE2	– 1.817	.898	4.095	.04 3	.163
AGE3	– 1.025	.785	1.704	.19 2	.359
AGE4	–.201	.795	.064	.80 0	.818
EDU	– 2.317	.544	18.14 6	.00 0	.099
EXP1	1.381	1.544	.801	.37 1	3.980
EXP2	.949	.632	2.257	.13 3	2.582
EXP3	–.213	.526	.164	.68 5	.808
TRN	.985	.583	2.854	.09 1	2.677
Constant	.387	1.439	.072	.78 8	1.472

We now combine both groups of variables (firm and owner–manager characteristics) into one model as predictors of SME access to bank finance. In addition, we include the variable BAT (results not shown). The results are generally consistent with the two earlier models, except that BAT is now significant explanatory ( $p \leq 0.05$ ). In the final step, we use forward likelihood stepwise regression, the likelihood-ratio statistic, and the maximum partial-likelihood estimates to refine the model.

**Table 4: Model fit**

Step	Cox & Snell R <sup>2</sup>	Nagelkerke R <sup>2</sup>	Pseudo R <sup>2</sup>
1	.465	.624	.457
2	.531	.713	.554
3	.554	.744	.591
4	.583	.783	.641
5	.620	.833	.709
6	.632	.848	.732

Table 4 details the goodness-of-fit for the six steps required to select the best model. The variables entered in each step are having Bank Al Tanmeya as the main bank (BAT), owner–manager education (EDU), owner–manager age group over 50 years (AGE5), whether the firm is operating in the services sector (SRV), the size of the firm (SZE), and the firm has been established for more than 20 years (EST5). The figures show that the last step with the six independent variables explains between 63.2 and 84.8 percent of the variation in whether the firm is successful in gaining bank finance. Table 5 details the refined logistic regression model for the six independent variables and the intercept.

**Table 5: Final regression model**

Variables	B	S. E.	Wald	Sig.	Exp (B)
SZE	-3.536	1.311	7.281	.007	.029
SRV	4.812	1.456	10.926	.001	.008
EST5	1.988	1.423	5.580	.018	7.298
AGE5	-1.028	.582	3.121	.025	.358
EDU	3.457	1.290	7.188	.007	31.513
BAT	5.535	1.083	26.099	.000	253.357
Constant	4.270	1.144	13.934	.000	71.539

Accordingly, the mathematical model constructed from the analysis can be formulated as the predicted logit of: Bank finance application status (successful/unsuccessful) = 4.270 – 3.536 SZE – 4.812 SRV + 1.988 EST5 – 1.028 AGE5 + 3.457 EDU + 5.535 BAT. The significance of the independent variables is assessed using Wald statistics. All six variables are significant at the 0.05 level. The prediction results of the logistic analysis indicate that the six-variable model provides a statistically significant improvement over the constant-only model,  $\chi^2(6, N=147) = 140.786, p < .001$ . The Nagelkerke Pseudo R<sup>2</sup> indicates that the model accounts for approximately 85 percent of the total variance, suggesting that the models successfully discriminates between successful and unsuccessful bank finance applications.

The coefficients of the logistic model are examined to assess the direction and the impact that each independent variable has on the predicted probability and the dependent. The direction of the relationship can be interpreted directly from the sign of logistic coefficients in Table 5. The independent variables SZE, SRV and AGE5 have negative signs indicating a negative relationship with the predicted probability of bank loan granting, therefore increasing the likelihood that the finance application is more likely to be declined and vice versa. On the other hand, the independent variables EST5, EDU and BAT have positive signs which indicates positive relationships

with predicted probability of the application and hence increasing the likelihood that the application will be successful and vice versa. Similarly, the same conclusion can be reached using the exponentiated coefficients to identify the directions of the relationships between the variables in the model. Accordingly, variables with Exp (B) values above 1.0 refer to a positive relationship and those below 1.0 refer to a negative relationship.

## CONCLUSION

We model the determinants of successful bank finance applications in light of bank lending theory and existing empirical analysis. We find that older firms, more educated managers, and firms with a strong banking relationship are more like to be granted loans, while older owner–managers, larger firms, and firms in the services industry are less likely to be granted loans. The presence of business plans and attendance at training workshops appears to have little influence on whether loans are granted.

Together, these findings suggest that bank loans in Libya are largely made on the strength of the relationship between the bank and the SME rather than the financial statement-, asset-, or credit scoring-based approaches to bank lending found in more developed economies with stronger banking sectors. In general, this suggests that more work needs to be done in developing expertise in the Libyan banking industry, particularly in relation to loan approvals, given the possibility this may serve as constraint on the capital requirements of SMEs.

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