



Determinants of Access to Finance for Small and Medium-Sized Enterprises in Libya: An Analytical Study of Influencing Factors and Credit Constraints

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Abstract

This study aims to identify the main factors that hinder small and medium-sized enterprises (SMEs) in Libya from accessing finance amid the economic, political, and security challenges affecting the business environment. The study is based on data collected from 264 companies and employs statistical methods to analyze the factors associated with access to finance.

The findings indicate that financial constraints are primarily associated with two dimensions: entrepreneurs' characteristics, including managerial capabilities and institutional relationships, and firms' financial characteristics, such as collateral and financial performance. The results also highlight the importance of entrepreneurs' characteristics in explaining financing difficulties faced by enterprises experiencing greater credit constraints.

The study recommends developing human resources and managerial capabilities, strengthening financial management knowledge, improving relationships with financing institutions, and preparing clear and effective business plans. It also emphasizes the need for future research involving financing institutions and relying on objective data to develop a more comprehensive understanding of the determinants of SME financing in Libya.

Keywords: Small and medium-sized enterprises, access to finance, financing constraints, credit constraints, entrepreneurs' characteristics, Libya.

الملخص

تهدف هذه الدراسة إلى تحديد أبرز العوامل التي تعوق حصول المؤسسات الصغيرة والمتوسطة في ليبيا على التمويل، في ظل التحديات الاقتصادية والسياسية والأمنية التي تؤثر في بيئة الأعمال. واعتمدت الدراسة على بيانات جمعت من 264 شركة، واستخدمت أساليب إحصائية لتحليل المحددات المرتبطة بفرص الحصول على التمويل.

كما أظهرت النتائج أن معوقات التمويل ترتبط أساساً بجانبين: خصائص رواد الأعمال، بما يشمل القدرات الإدارية والعلاقات المؤسسية، والخصائص المالية للمؤسسات، مثل الضمانات والأداء المالي. كما كشفت النتائج عن أهمية الجوانب المرتبطة برواد الأعمال في تفسير الصعوبات التمويلية التي تواجه المؤسسات الأكثر تعرضاً للقيود الائتمانية.

وتوصي الدراسة بتطوير الكفاءات البشرية والإدارية، وتعزيز المعرفة بالإدارة المالية، وتحسين العلاقات مع الجهات التمويلية، والاهتمام بإعداد خطط أعمال واضحة وفعالة. كما تؤكد أهمية إجراء دراسات مستقبلية تشمل الجهات الممولة وتعتمد على بيانات موضوعية، للوصول إلى فهم أشمل لمحددات التمويل في ليبيا.

الكلمات المفتاحية: المؤسسات الصغيرة والمتوسطة، التمويل، معوقات التمويل، القيود الائتمانية، رواد الأعمال، ليبيا.

Introduction

Small and medium-sized enterprises (SMEs) play an important role in any economy in developing and development countries. As well as small and medium-sized enterprises (SMEs) make contribute to solving the unemployment rate. According to Pang (2009) indicate that SMEs contribute form the potential economic back bone of and make a greater contribution to employment than large firms. A similar trend also exists in Libya, where SMEs constitute 97.3% of businesses and have the potential to be a powerful engine for growth and innovation further more in Libya; they contribute between 65% and 70% of the gross national product (GNP). In addition, Small and medium enterprises account for a large share of enterprises and

large share of overall employment in the private sector of most of Libyan's economy. Their role in employment generation is also widely recognised.

According to Hashim (2007) noted that Libyan SMEs are distributed in four broad economic segments: services, manufacturing, basic raw material producers and agriculture (Hashim, 2007). In terms of gross domestic product (GDP), SMEs contributed 32.5% of the GDP in 2011 and recorded a relatively strong GDP (6.8%) compared with the overall economy (5.1%). The manufacturing sector achieved the highest growth (7.6%), followed by both the agriculture and services sectors (both 6.4%) (SME Annual Report, 2017/18).

However, if compared with industrial and other developing countries, the contribution of SMEs to the Libyan economy is relatively low. Developed countries such as Japan and Germany have a contribution of more than 50% GDP. Even in developing country such as Thailand, SMEs play a significant role in the economy with 38% of GDP (SME Annual Report, 2018/19). Since SMEs are important growth engines in many countries, there is a great potential for Libyan SMEs to develop into the most significant domestic source of growth through supply chain integration. In Libya, they contribute between 65% and 70% of the gross national product (GNP). In addition, Small and medium enterprises account for a large share of enterprises and a large share of overall employment in the private sector of most of Libyan's economy. Their role in employment generation is also widely recognised.

The definition of SMEs differs from country to country. The classification of businesses by number of employees/ workers is also used in Libyan SMEs, with businesses employing between 1 and 300 workers being classified as SMEs. Table (1) shows classification of SMEs in Libya

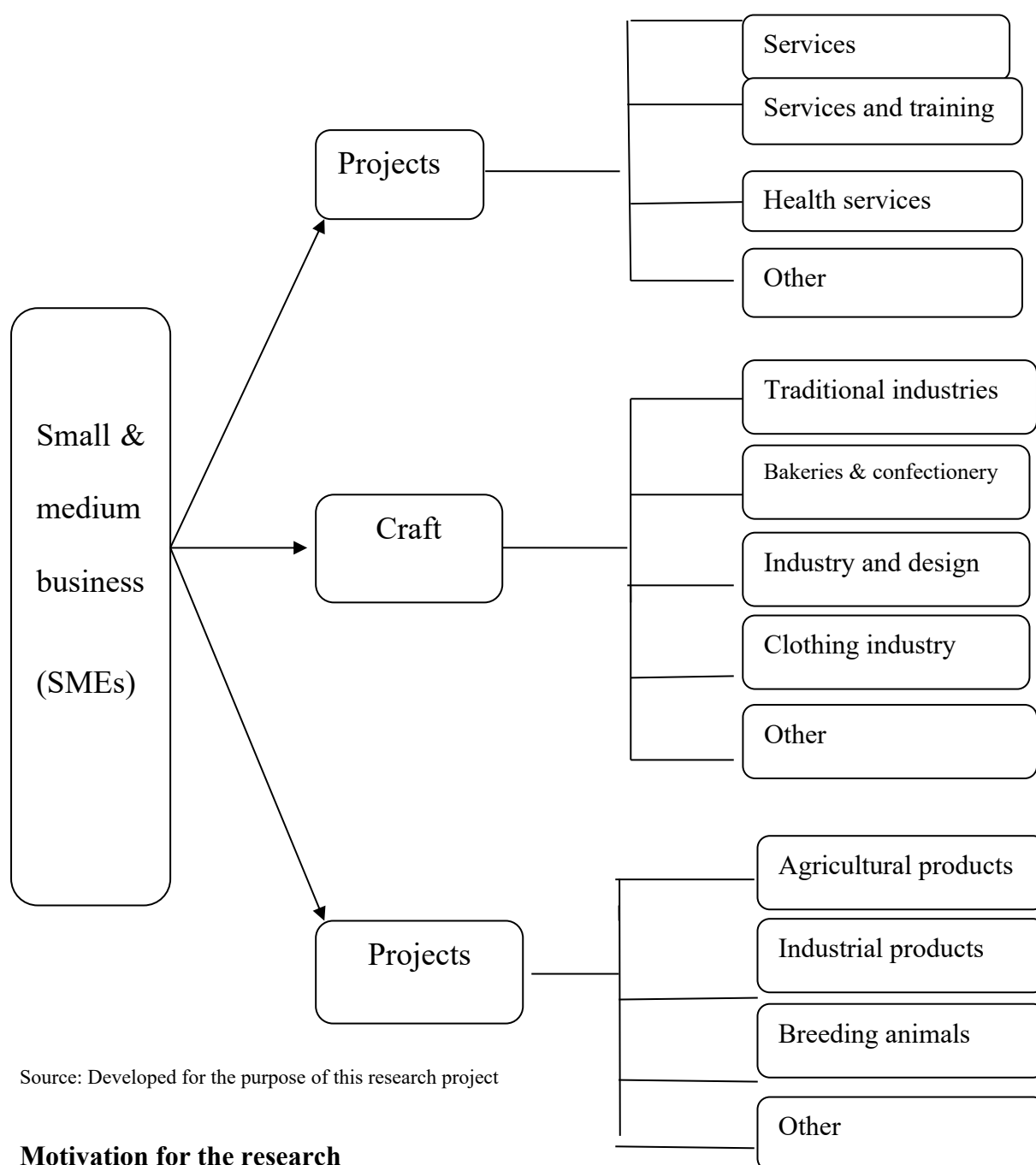
Table 1: Classification of SMEs in Libya

Size of employee	Classification project
1-50 employees	small business
51 – 100 employees	Medium business
101 - 300 employees	Large business

Source: Prepared by the researcher according to Libyan Minister.

The Libyan Minister has classification of small & medium business enterprises by activity in Libya in various sectors, such as services and–training, health services, craft and cultural services, industry and light industry design, clothing, agricultural products, animal breeding, and tourism and etc. The next figure shows the classification of small and medium business by activity in Libya.

Figure 1. Classification of small & medium business enterprises by activity in Libya



Motivation for the research

The motivation for this research is to explore not only access to financing by SMEs, but also the risks associated with funding. Therefore, this study must explore the constraints and obstacles regarding access to financing for Libyan's by SMEs, while also examining the

challenges and merits of different funding sources for SMEs and their correlation to firm performance and examining of the factors may be impact of access to finance in SMEs in Libya.

Not only is the motivation for this research topic to identify sources of finance for the growth of SMEs, but also to explore the risks associated with the process of funding. The need to explore the determining factors in successfully seeking or accessing existing financial sources by SMEs cannot be overstated. At the same time, it will be vital to look into challenges and merits of different SME funding sources and their correlation to a firm's performance.

Study Scope and research objectives

The main objective of this research is to study the constraints and obstacles regarding access to financing for Libyan's SMEs, the implications of those factors and ways in which Libya SMEs can obtain suitable financing to start and grow investment activities. To achieve this aim, the present study will focus on SMEs in various sectors of Libyan economy such as industry, agriculture and services sectors.

Therefore, this study will identify the effects of constraints and obstacles regarding access to financing such as cost of finance, financial performance, collaterals and management and associations factors of SMEs to access to finance, also, this study will identify the effects of role of the Libyan's government to find solutions of problems to obtain access to finance for SMEs.

The importance of this study

The importance of this study can be viewed from several perspectives; Firstly, in the Libyan context, Libya is lacking research in this area and this is one of the first studies at the academic level to investigate the problems SMEs face in gaining access to finance. Secondly, it adds to previous studies regarding the analysis of studies of SMEs owners/managers and lending officers, and provides a more complete picture and offers some solutions to the funding dilemma of Libya's SMEs. Thirdly, this study provides strategies and guidelines for further research regarding the issue of SMEs' access to finance and the subsequent growth of projects. Finally, this study will contribute to the understanding of owners/managers of SMEs and interested sectors in relation to access to finance and the strategies and policies of the present situation regarding access to finance by SMEs in Libya.

Geographical location and Libya's population

Libya is an expansive country with an area of 679,363 square miles. Much of the area (around 90%) is covered by the extensive Sahara Desert of North Africa. It borders the Mediterranean Sea to its north, with its coast along the sea being close to 1,770 km long. The shortest distance between the country's dry land and Italy's dry land is only 300 km. Libya shares international borders measuring 1,150 km with Egypt, 1,055 km with Chad, 982 km with Algeria, 459 km with Tunisia, 383 km with Sudan and 354 km with Nigeria. Notably, where the borders run across the hot desert they are not appreciably marked (Watch 2006). In terms of geographical coordinates, it is located between longitudes 9°E and 25°E, and latitudes 18°N and 33°N. Just like other North African countries, Libya has seen the aggravation of desertification processes by unfavourable weather conditions and anthropogenic activities (Saad et al., 2011).



Source: www.mapsnword.com **Figure 2: Map of Libya**

Owing to the geographical location of the country, its weather patterns and climate are principally influenced by contrasts between the Sahara and the Mediterranean climates (Saad et al., 2011). Libya's extensive area, as well as its difficult environment, impedes the development of much of the area. The conditions linked to the desert and scarcity of water are barriers that impede expansion of development and related human activities. Accordingly, the populated and cultivated areas are both limited and small when compared to the country's whole area. During winter, the country's coast is fairly cold, as well as rainy. For much of the year, a significant part of the country experiences hot and quite dry weather according to (Saad et al., 2011).

There is limited information on the composition and size of Libya's population. Its rate of growth is fairly high as the country is rich in resources, especially crude oil. Indications are that the country may be overpopulated in the near future (Pan 2011). From 1973 to 2006, four country-wide censuses were conducted in Libya. In 1973, the population was 2,249,237. In 2016 the population was determined to be 5,657,692. This means that the mean annual growth rate of the population between the times of the two censuses was 2.85%.

However, of the total population, 31% is comprised of those below the age of 15. Those under 20 years of age comprise 42% of the total population; while those between 20 and 40 comprise 38% of the total population. About 52% of all Libyans are aged between 20 and 60, while about 6% are over 60 therefore, St. John (2008) describes the country as a society that is youthful, as about a third of its population is below 14 years of age and 64% of the population is aged between 15 and 64 (p. 90). The population's distribution is principally affected by natural geographical and climatic conditions. Given that the Sahara Desert sits on close to 90% of the country, most people live along the coastal strip. Tripoli and the surrounding area hold the largest city-based population. Over time, the city has posted high birth rates, low rates of mortality, and high immigration levels (Osama et al., 2011).

Importance and role of SMEs in Libya

SMEs have a fundamental role in further stimulating the key macroeconomic indicators. Such macroeconomic indicators consist of GDP, exports and rate of employment. Therefore, SMEs are very important to the Libyan economy because of the fact that the economy of Libya suffers from lack of economic diversification in her activities. The economic activities generally

specialize in the oil and gas and construction sectors. For example, the oil and gas industry constitutes approximately 70% of the country's GDP. It also constitutes more than 90% of government income and the majority of the country's exports, apart from a small amount of other products like fisheries and dates (Heitmann, 1969). Hence, building a tough SMEs setting will offer Libya a more broad economy, sustaining both oil and non-oil sectors.

SMEs, according to various researchers, also offer a crucial source of employment, which can cover up to 70% of the labour force in high-income nations and about 35% in low-income countries. Additionally, SMEs are also vital for an efficient and competitive market. For example, SMEs with high adaptability and turnover play a key role in removing sector and regional imbalances. At the same time, easy exit and entry of SMEs helps the economy to be more competitive and flexible. It is also evident in the Libyan economy that SMEs play an essential role in the downsizing, restructuring, and privatization of large firms.

The SME industry has promising prospects in Libya because it is still an open market with great economic rewards. Therefore, with the innovative development outlook of economic building by the new government, the industry will achieve more and more consideration due to its importance in offering gains to the economy as a key employment source.

Types of finance available to SMEs

Several types of financing are available to SMEs. Such financing includes equity and debt finance, family finance and bank loans. While access to funding is important, approximately half of SMEs firms do not utilize formal types of external finance. Instead, they depend on trade advances from their merchants or retained earnings. About half of SMEs utilizing external finance commonly utilize bank funding. Such financing includes loans, overdrafts or credit cards (IFC, 2010). Some SMEs also utilize equity finance. Equity is financing raised from shareholders and invested in a business. On the other hand, a debt is what is loaned from others to put into the business (Alarape, 2007). Because SMEs are not normally large enough to achieve public consideration or private venture, the majority of their external finance sources relate to a debt.

The broad variety of accessible types of finance reflects the assortment of SME distinctiveness and their definite finance requirements. In this case, a financial support escalator is usually presented with various types of funding that correspond to various stages of industry development (Kaufmann, 2005). For example, a new firm start-up with elevated growth prospective might utilize grant support to increase a product prior to moving onto financing from business angels, banks or venture capitalists once the merchandise is developed (Goodman, 2005). Hence, the SME might then consequently move onto private industry venture capital, depending on its stage of development. Nonetheless, a financing escalator might be too crude, as firms do not automatically go through every phase in turn (Okpara & Wynn, 2007).

Therefore, most SMEs in Libya prefer debt finance because it is normally one of the cheapest methods of raising finance. This financing type is also appropriate for established SME businesses with a steady cash flow for repaying the debt. Alternatively, equity funding is suitable for higher risk SMEs which have high potential for expansion.

Sources of access to financing by SMEs

It is evident from various studies that SMEs have obtained billions from alternative sources of funding. Most SME managers and owners in Libya have been obliged to sell private properties or rely on family and friends for emergency funding. This is contrary to the expected funding from usual financial institutions via bank loans or overdraft facilities. More SMEs are opting for alternative sources of funding than in previous years to finance their businesses by applying for a bank or overdrafts and building society loans. This trend might be seen as SMEs being exceedingly fearful of being rejected for credit and inhibits them from applying for loans (Rocha et al., 2010).

Keeping a small firm viable in the recession has obliged entrepreneurs to generate even greater individual sacrifices than in the past. Therefore, most SME owners and managers in Libya have forfeited family expenditure to assist in keeping their businesses afloat in these competitive economic periods. For example, most Libyan families have sacrificed their holidays by giving some percentage of their funds as an alternative source of finance. Sale of private assets, in the long term, is not maintainable and relying on family and friends for financing can prove a fiscal and emotional threat if there are troubles with repayments (Brack, 2011).

To increase funds, some SMEs also outsource funding from private lenders such as loan sharks, who charge penalizing interest rates. Therefore, SME firm vendors have been obliged to sacrifice or dilute equity pledges in their firms to source extra funding. Some SMEs owners have been pressurized to sell privately-owned assets such as cars to finance their businesses.

There are also internal funds as a source of financing for SMEs in Libya. Such sources comprise using retained earnings and sale of assets to fund business activities. This source of financing is used for various reasons. For instance, in recent years SMEs have realised that there is an increasing demand to generate earnings. This is because of the wider macroeconomic circumstances such as the push factor. Secondly, SMEs have been more successful in accessing external financing sources. The most universal external finance sources are bank overdrafts, trade credit, leasing, hire purchase or factoring, and bank loans.

Banking finance for SMEs

Banking finance for SMEs comprising of bank loans, overdrafts and term financing is also very important. Access to bank loans by SMEs is usually subject to a consistent economic and technical feasibility study and the presentation of genuine collateral or guarantees as needed by the banks. An SME with inadequate financial means might face actual difficulty in obtaining money for a viability study (Djankov et al., 2007). This mainly occurs if it plans to use a professional consultant in its preliminary creation stage. The amount accessible to the SME investors is restricted by the security they are capable of providing against the loan. This normally takes the form of property, insurance policies and fixed assets. In addition, when employing these financing forms, the credit institution concerned has no vested interest in the firms' ultimate accomplishment or collapse and offer no on-going firm support. The deposit and collateral requirements usually determine this choice, which may be out of reach of several aspiring SME entrepreneurs (Berger et al., 1990).

Although Libya is endowed with noteworthy savings and capital surplus, it has not utilized bank lending services well in the SME sector. However, there is recent enhanced cooperation between Libya and other international bodies that has renewed engagement in financing this sector. This has consolidated the banks' commitment to SME financing and in delivering

capacity-building which is demand-driven. It has also incorporated technical assistance services in the banks apart from sustainable financial support. To further advance SMEs' access to customized financing, tailored SME products in various banks have been introduced to enhance the existing institutions. The specialized products in these financial institutions cover different advisory services, examinations and financing for SMEs.

Family finance for SMEs

Family finance for SMEs is a financing method whereby the entrepreneurs obtain private loans from their family members or friends. This is usually the case whenever SMEs owners find themselves restricted by the amount of funds available. These finances are also normally unstructured, making the entrepreneur exposed to uncertainty, as well as abuse. There is also anticipation that these lenders are repaid within a very narrow period of time, as well as with a higher interest rate than that accessible through a banking institution (De la Torre et al., 2010).

This source of finance is important because a number of SME businesses are in the start-up stage. However, a major obstacle for this financing source might be the obligation by the friend or family member providing the finances to have 'hands-in' and 'hands-on' involvement in the firm operation. There is also a financing gap associated with family finances (Bertrand et al., 2006). This implies a lack of expansion finance for SMEs, which afflicts most developing nations including Libya. The anticipation that microfinance might seal this gap has diminished, though new programs have recently appeared to address this predicament. Besides this condition, it is vital to reflect on family finance to appreciate its mechanism and, significantly, its limitations (Besley et al., 1995).

It is evident that it is not necessary to have family finance in a frictionless economy. Hence, hypotheses of informal finance believe there is some friction, moral hazard or adverse selection, and some technological improvement on the component of the informal investor such as better monitoring, advanced information or a greater capacity to implement repayment (De Meza et al., 1996). Therefore, this type of financing is only appropriate for funding SMEs at a particular stage. This is because with the expansion of the SME business the funding might become irrelevant and will not meet the demands of the business. Family members are perhaps normally less capable of appraising an investment compared with a specialized bank, however, they still invest.

Islamic finance for SMEs

This is a financing form intended to develop SMEs in Libya by the ICD, Islamic Corporation for the Development of the Private Sector. This is supported by ICD under the umbrella of IDB, Islamic Development Bank Group. The program had been restricted to financing large and medium projects, but it will boost the SME sector in its full implementation. The anticipated fund is to be carried out by incubators. These are premises with personnel and equipment made accessible at affordable rent to new, small enterprises. The incubators would be accountable for generating micro-enterprises and assisting entrepreneurs to own and develop feasible projects, which will be funded by banks (Brack, 2012).

The finances would offer finance prospects for projects aligned with the objectives of their financiers. Therefore, the potential economic benefits to Libya would facilitate ICD using this fund. This is an effort to support SMEs technically and financially, as well as promoting their development to qualify for direct funding from ICD or domestic financial institutions at a later

phase. At the same time, the purpose of this plan is not restricted to funding, but also reflects on the potential for accomplishment by SMEs and encouraging them to gain from this prospect.

In this case, there is a prediction of various choices for Islamic banking undertakings. One would be to allocate traditional banks to open windows or branches for Islamic finance. The other option would be to authorize the traditional banks to be Islamic in the country of Libya (Brandsma & Burjorjee, 2004). Likewise, the Libyan government is also exploring setting up a special Islamic banking licensing system. In this regard, the licensing alternative is still underway since authorities are in the process of settling on capital obligations (Maxwell, 2011).

Government support for SMEs in obtaining access to finance

Governments play a crucial role in supporting accessibility of finance by the SME sector. This is especially the situation where market failure exists or where imperfect markets hinder adequate financing provision on terms appropriate for the SME's phase of development. The government also promotes SMEs by providing measures to allow markets to operate efficiently. This is through incentives provision for the private segment to presume an active task in SME finance. This implies that the government ensures that appropriate banking systems are reformed to follow market-based standards.

A government also plays a bigger role in ensuring awareness among SMEs owners on the range of funding options available in the economy. Similarly, micro-credit and micro-finance systems from the government play a significant role in boosting efficiency and diffusion in the SME sector (Saadani et al., 2010). The government also ensures that the technical support of the sector operates efficiently and effectively to optimize the revenue in the sector.

Government policymakers also guarantee that the tax scheme does not involuntarily put SMEs in difficulty. They review the tax, legal and regulatory agenda to guarantee that it promotes the expansion of venture capital. Additionally, national policies also encourage various institutional investors; and institutional savings are regulated flexibly (Khwaja et al. 2005). Therefore, the government plays a significant role in reviewing strengths and threats of the sector in an attempt to manage the SME financing gap. It also participates in evaluations of global benchmarks to aid comparisons of the comparative performance of funding to SMEs.

There are also deliberate national programs by the government geared towards improving accessibility of finance by SMEs. For instance, in Libya, a National People's Committee was launched by the government in 2007, responsible for integrating various public and private firms (Solomon & Swart, 2005). This was aimed at creating an appropriate environment for SMEs to thrive. Such programs are very important in capacity building of nominal staff, and utilizing international skills in the field (Minai & Lucky, 2011). Hence, this would promote the SMEs through appropriate dissemination of information concerning finances and overall profit optimization of the sector.

Statement of Hypotheses

This study has two general hypotheses to answer whether the assumed conceptual model determinants that have an effect on access to finance is the five-factor structure and whether and which determinants are distinctive factors between the companies in relation to the access to finance.

Hypothesis 1:

The conceptual model of determinants that affect access to finance is a five-factor structure and consists of the following factors: financial performance, cost of finance, collateral, management factors and association factor.

Hypothesis 2:

There is a significant difference between four group of firms (Full Credit Constrained (FCC), Partially Credit Constrained (PCC), Maybe Credit Constrained (MCC) and Non Credit Constrained (NCC)) in relation to the level of presence determinants that affect access to finance SMEs.

The research sample

The survey was conducted in the period from February to August 2021 on sample of 264 SMEs. When selecting the company for the sample, it was taken into account only those companies that exist and have been operating for more than five years. Therefore, companies that operate less than 5 years are not involved in the research. Also, only domestic-owned companies were included in final simple.

The requested information about the SMEs was provided by one person from each company. The data providers were the owners of companies or persons who operate or know the financial and organizational functioning of the company (e.g. Managers, chief financial manager, etc.).

The research includes companies that perform their business in industrial and service activities (production and sale of food, carpentry, car wash and similar).

Some characteristics about sample SMEs are displayed in following table.

Table 2. The number of small and medium enterprises involved in the research.

	Small enterprise (until 50 employees)	Medium enterprise (between 51 and 100 employees)
Total number of companies	158	106

In the table, it has been represented the number of small and medium enterprises involved in the research. As can be seen, a larger number of small and medium-sized enterprises is involved in the research. Expressed in percentages, sample of SMEs comprise about 60% of small and 40% medium-sized enterprises.

Variables and measure instruments

For the purpose of this study a questionnaire was constructed. The constructed questionnaire was developed in three segments. The first segment is used to collect general company data: respondent's position in the firm (owner, manager, chief financial officer or other position), years of the company's business, the origin of the company (domestic or foreign), the type of business the firm is dealing with (manufacturing, agriculture, trade, service or other business) and number of employees in the company. This part of the questionnaire was intended to provide basic data (characteristics) about the sample survey.

The second segment of questionnaire contains questions about firm constrained credit. These questions serve to classify firms into one of 4 categories (Full Credit Constrained (FCC), Partially Credit Constrained (PCC), Maybe Credit Constrained (MCC) and Non Credit Constrained (NCC)). In this study, the classification of firms according to credit constrain criterion is used to determine the accuracy of the second hypothesis. Therefore, variable „access on finance” is categorical and contains four category.

In order to check the accuracy of the first hypothesis, a third part of questionnaire was constructed in the form of Likert's five-level scale. The questionnaire contains 17 items which describe the determinants that affect access to finances in the following way:

- The items under the ordinal number from the first to the fourth item describe financial performance;
- The fifth and the sixth item describe collateral;
- The items under the ordinal number of items from the seventh to the ninth describe variable „cost of finance“.
- In items under the ordinal number from the tenth to the fourth item, an organizational factor is described.
- The last three items describe association factor.

Therefore, the questionnaire is intended to obtain data on the following variables: financial performance, collateral, cost of finance, organizational and association factor. All variables are quantitative.

DATA ANALYSIS AND RESULTS OF SURVEY

According to two survey's hypothesis, it has been conducted statistical methods that can verify hypothesis accuracy. Statistical methods that were used in this study are: factorial methods (confirmatory factorial analysis and exploratory factorial analysis) and Analysis of variance (ANOVA). For the purpose of matching questionnaire's metric characteristics, reliability coefficient has been calculated and descriptive statistics has been considered.

It was assumed that the conceptual model consists of 5 determinants: financial performance, cost of finance, collateral, management and association factors. The assumed hypothesis about the five-factor structure of the determinants will be verified using the confirmatory factor analysis (CFA) in the statistical program SPSS AMOS version 22.0. For the purposes of evaluating the assumed model fit, the following fit indices will be used: X^2 ($p\text{-value} > 0.05$), CFI ($CFI \geq .90$), RMSEA ($RMSEA < 0.08$) and TLI ($TLI \geq .90$) (Whittaker, 2016). If the conceptual model will not appear to be fit using CFA, it will be apply the exploratory factor analysis (EFA). The EFA will be implemented in the SPSS program version 22.0.

Prior to the application of the factor analysis method, the reliability of a measure instrument will be checked by using Cronbach's alpha - a measure of internal consistency. Also, it will be presented descriptive statistics of items (M, S).

After establishing the factor structure of the determinants that are affecting on access to finance SMEs, ANOVA will be applied to confirm the accuracy of another general research hypothesis.

Analysis of the questionnaire – reliability and descriptive statistics

The research's questionnaire has been divided in three parts. One part of response scale has been made in five-point form of Likert's ratings (1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree or 5 = strongly agree). The mentioned scale consists of five subscales that measure determinants of access to finance. Therefore, the aim of every subscale to obtain data for five factors (financial performance, collateral, cost of finance, management and association factors).

The most common statistical way to assess reliability is to calculate Cronbach's alpha coefficient (Mooi & Sarstedet, 2011). In that spirit, the following table presents Cronbach's alpha for all five subscale and for summed score of all seventeen items.

Table 3. Review of Cronbach's alpha coefficient for subscale and total score of measure instruments.

Subscale / Total score	Cronbach's alpha coefficient
Financial performance	.897
Collaterals	.856
Cost of finance	.911
Management factor	.902
Association factor	.845
Total score	.887

According to value of alpha coefficient, it can be concluded that the reliability of the subscales and the total score is acceptable, due the fact that reliability value is greater than 0.8 indicate a very good level (Ursachi et al., 2015). In the following table, it has been presented descriptive statistics (M, S) for all items.

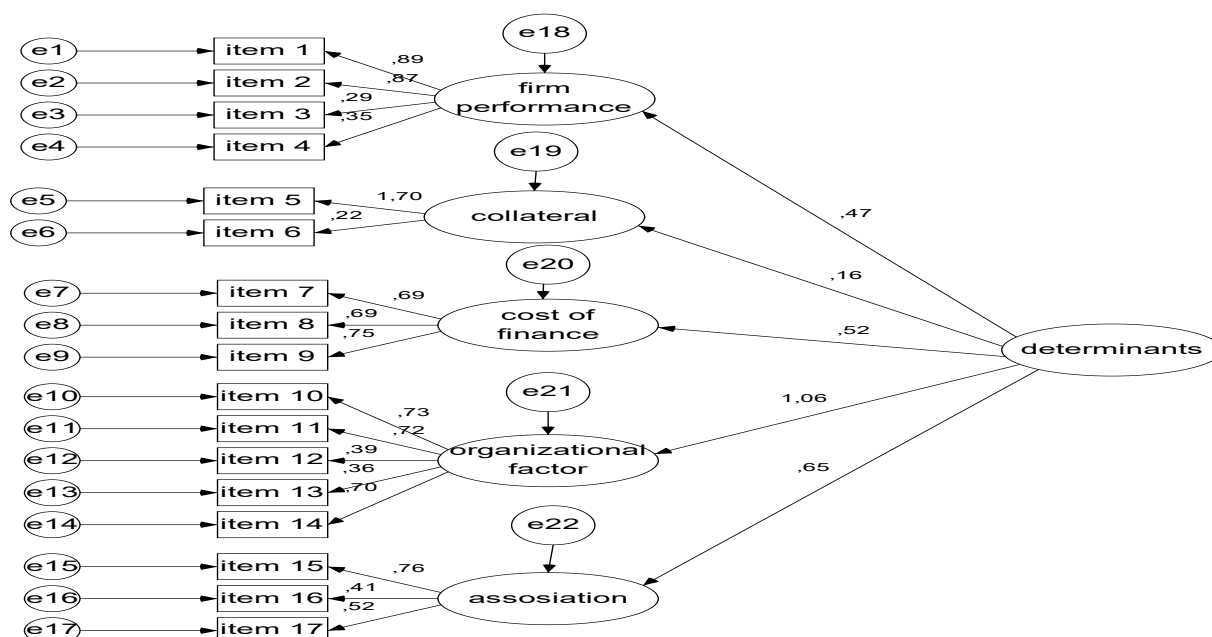
Table 4. Descriptive statistics of items (mean and standard deviation)¹

Item	Mean (M)	Standard deviation (S)
1. During the last year the liability to assets ratio of my firm has been substantially better.	2.93	1.13
2. During the last year the return on assets of my firm has been substantially better.	3.15	1.16
3. During the last year the profit growth of my firm has been substantially better.	3.07	1.18
4. During the last year the revenue growth of your firm has been substantially better.	3.10	1.23
5. My company faces a lack of collateral or a guarantee.	2.82	1.02
6. My firm does not want to provide collateral for obtaining financial resources.	2.76	1.17
7. When attempting to raise level of finance my firm is facing with higher interest of cost finance rate.	2.89	1.15
8. When attempting to raise level of finance my firm is facing insufficient amount of cost of finance.	3.03	1.14

¹ Items with a negative meaning are transformed in a positive form and these are the items with following ordinal numbers: 5, 6, 7, 8, 9, 10, 12. and 15.

Item	Mean (M)	Standard deviation (S)
9. When attempting to raise level of finance my firm is facing with shorter loan durations of cost of finance.	3.10	.98
10. My company's business plan is clear and visible to other financial institutions.	3.27	1.01
11. Managers in my firm have enough knowledge in the field of financial management.	3.43	1.34
12. I think the company's business plan is weak and needs to be upgraded or changed.	3.17	1.15
13. The company has enough experts in the area of financial operations.	3.42	1.17
14. Top management in my company has enough experience in the area in which we operate.	3.15	1.25
15. My company does not have close relationships with financial institutions and other sources of finance.	2.76	1.02
16. My company has good relations with the politicians in the country.	2.73	1.12
17. My company has good connections with other companies and associations.	3.24	1.24

On the following graph, it has been presented CFA results.



Graph 1. Review of CFA five-model structure determinants with standardized regression coefficients.

Fit indices for showed models are: $X^2 = 672.9$ ($p = .000$; $df = 115$), CFI = .69, RMSEA = .116 and TLI = .587. According to value of fit indices, the assumed five-factor model of determinants can be rejected.

Exploratory factor analysis – the structure of determinants that have an effect on access to finance

Since CFA did not confirm the assumed five-factor conceptual model of determinants that affect access to finance, EFA (exploratory factor analysis) was conducted to determine the final structure. Field (2009) noticed that there are three purpose of using EFA: to understand structure of some latent variable (concept), to design the questionnaire which measure an underlying variables and to reduce data but under condition to retain original information as much as can from primary set of data. Unlike of CFA models which are *a priori* (meaning that the number of factors must be specified by researcher) (Whittaker, 2016), EFA doesn't require hypothetical structures of some latent concept (Yanai & Ichikawa, 2006).

The justification of the application of factor analysis has been confirmed by two tests - Bartlett's spherical test and Kajzer-Meyer-Olkin measure (KMO) of sampling adequacy (Pallant, 2007). The value of Bartlett's spherical test must be significance ($p < 0.05$) (Pallant, 2007) and KMO value have to be grater then 0.6 (Tabachnick & Fidell, 2007) in order to justify the application of factor analysis. Both values are acceptable ($\chi^2 = 1599.78$, $df = 136$, $p < .001$ and $KMO = .848$). The values of these measures are shown in the following table.

Table 5. The review the value of Bartlett's Test of Sphericity and KMO of sampling adequacy.

Bartlett's Test of Sphericity	.848
KMO - Approx. Chi-Square	1599.78
df	136
Sig.	.000

After the justification of the application of factor analysis was established, the factor method was applied – Principal Axis Factoring (PAF) with promax oblique rotation. Except PCA (Principal Components Analysis), most authors suggest the application PAF (Howard, 2016), due PAF produce a set of factor loading estimates which are closed to common variance within a correlation matrix (De Winter & Dodou, 2012).

Promax oblique rotation has been selected because oblique rotation allows correlation between factors (Costelo & Osborne, 2005). Therefore, it is believed that the factors (determinants that affect on access to finance) are correlated. Fabrigar and Wegener (2012) state that forcing related factors to be in uncorrelated relationship is more harmful than forcing unrelated factors to be in correlated relationship.

To determine the number of factors (determinants) of access to finance, Katel's criterion and Horn's parallel analysis were used. The data is shown in the following graph and table.

Graph 2. Review of scree plot obtained by application the Katel's scree test.

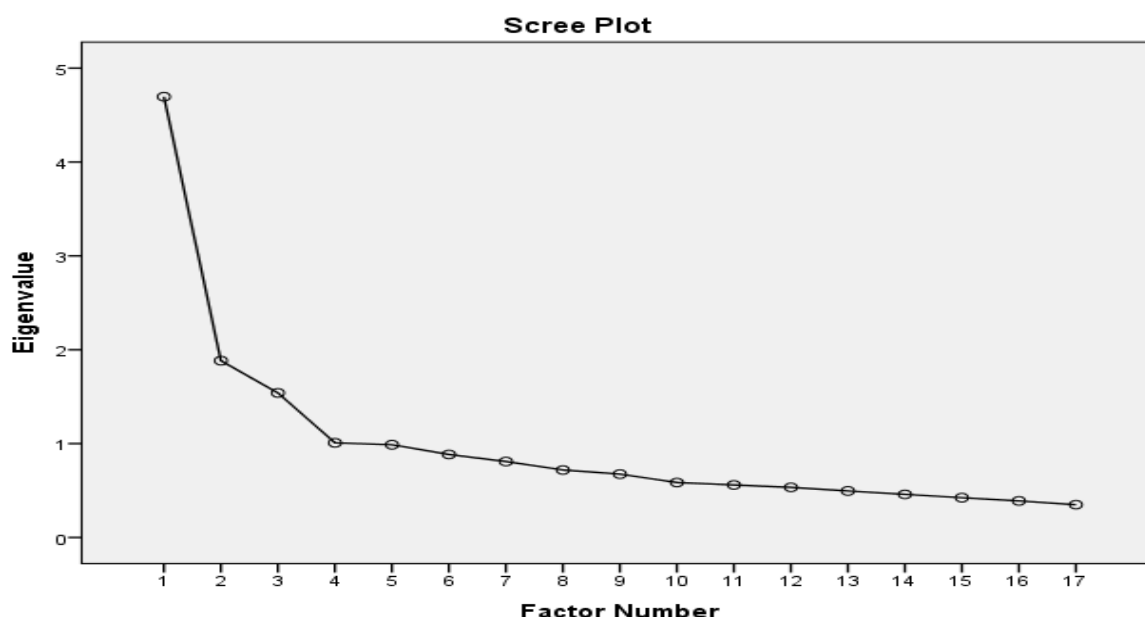


Table 6. View parallel analysis with data permutation (number of parallel sets $K = 300$).²

Ordinal number factors	Eigenvalues of real data set	Eigenvalues mean of random data set	95 th percentile eigenvalues of random data set
1.	4,69	1,53	1,61
2.	1,88	1,43	1,46
3.	1,54	1,39	1,42
4.	1,00	1,25	1,29
5.	0,98	1,16	1,21
6.	0,88	1,01	1,04

While Katel's criterion points to three factors, Horn's parallel analysis³ shows that the items that describe the determinants of access to finance SMEs are grouped into two factors. Bearing in mind the fact that the Katel's test can be subjective because it is based on the perception of researchers in the identification of factors (O'Conner, 2000) and the fact that parallel analysis is the only method that formally tests the probability that the factor is a coincidence, which further means a parallel analysis can minimize the excessive identification of factors based on sampling errors (Wood, Gnonhosou Akloubou, & Bowling, 2015), it can be concluded that it is possible to speak about a two-factors rather than a three-factors structure of the questionnaire that evaluates determinants of access to finance for SMEs.

In the following table, it has been displayed factor structure matrix which contains correlations between items and extracted factors.

Table 7. The factor structure matrix - the correlations between items and the factors

² The tabular display is not shown in its entirety but in a shortened form.

³ SPSS syntax for parallel analysis (O'Connor, 2000) was used to determine the number of factors through parallel analysis.

	Item	Correlation between item and first factor	Correlation between item and second factor
14.	Top management in my company has enough experience in the area in which we operate.	.705	
11.	Managers in my firm have enough knowledge in the field of financial management.	.643	
10.	My company's business plan is clear and visible to other financial institutions.	.604	
12.	I think the company's business plan is weak and needs to be upgraded or changed.	.590	
13.	The company has enough experts in the area of financial operations.	.555	
16.	My company has good relations with the politicians in the country.	.551	
17.	My company has good connections with other companies and associations.	.535	
15.	My company does not have close relationships with financial institutions and other sources of finance.	.527	
4.	During the last year the revenue growth of your firm has been substantially better.		.545
1.	During the last year the liability to assets ratio of my firm has been substantially better.		.508
3.	During the last year the profit growth of my firm has been substantially better.		.427
2.	During the last year the return on assets of my firm has been substantially better.		.400
6.	My firm does not want to provide collateral for obtaining financial resources.		.323
5.	My company faces a lack of collateral or a guarantee.		.315

It should be kept in mind that there are no rules for naming the factors and that their definition is the art of the researcher itself (Yong & Pearce, 2013). By examining the structural matrix, it can be concluded that the first factor consists of items that are presumed to describe the management factor and the association of the company with political and other institutions and associations important for the business of the company. On the other hand, the second factor includes items that describe the company's financial performance and the ability to provide collateral. A further analysis of the factors will be considered in the next chapter of the paper.

ANOVA – difference between groups of firms

Based on factor analysis, it has been established that factors are grouped into two categories, which for further statistical analysis can be termed as management and association factors (first determinant) and financial performance and collateral (second determinant). Before carrying

out further statistical analysis, it is a necessary to determine (calculate) factor scores. According to credit constrain criteria there are four groups SMEs: Full Credit Constrained (FCC), Partially Credit Constrained (PCC), Maybe Credit Constrained (MCC) and Non Credit Constrained (NCC) (Kuntchev et al., 2013). Further analysis of data should confirm are there differences between credit constrained groups in regard of two factors (determinants) that affect access to finance.

Namely, in most researches, multiple regression analysis was used as a method that considered access to finances as a dependent variable, and determinants as an independent variable, and all the determinants that influence on access to finances are labelled as a limitation factor. However, the determinant can also have an improving character and not only a limiting one. For example, in the context of this research, if a firm has a good connection with other financial organizations, a clear business plan, the ability to provide collateral, and so on, then the above factors cannot be said that limiting, already accelerating or otherwise said the determinant has two half positive (improving) and negative (limiting). Therefore, determine what is the limitation for firms that have a worse access to finance than those with better access to finance is based on determining whether companies with limited access to finance differ from companies that have more access to finance for two particular groups of determinants - management and association factor, on one side, and collateral and financial performance on another side.

For mentioned purpose, difference between groups will be tested by univariate ANOVA. ANOVA will be applied firstly by considering the differences between the groups according to the first determinants, and then by the second determinants. At the beginning of the ANOVA application, the significance of Levine's test was checked and the significance values was .498 for the first determinant, which is higher than .05, and it could be said that the assumption of homogeneity of variance has not been violated. ANOVA produce F-ratio which gives information about significance of difference between mean of sample (Field, 2009). If F-ratio is statistically significance then it means that there are differences between means of sample, but it doesn't mean that mentioned indicator gives information where difference between groups lie (Field, 2009). Then, if F-ratio is significance, it have to conduct further analysis, more precisely post hoc test, to find out where difference lie (Field, 2009). In context of first determinant, $F(3,260) = 7.841$, $p < .01$ and it means that there are differences between four groups SMEs (NCC, MCC, PCC and FCC) in terms of first determinant.

The following table shows the descriptive results of the univariate ANOVA.

Table 8. Descriptive measure groups of SMEs according to first determinant.

	N	M	S	SE
Determinant 1 FCC	74	2.53	1.01	.51
PCC	73	2.60	1.17	.38
MCC	62	3.60	.98	.87
NCC	55	3.78	.84	1.12
Total	264			

From the previous table, when it comes to the mean of different groups SMEs (FCC, PCC, MCC and NCC) regarding the first determinant, it can be seen that the values for the FCC and

PCC companies are different in relation to mean of the MCC and NCC. The visual assumptions about difference are confirmed by results from post hoc tests and it can be concluded that there are difference between: FCC and MCC, FCC and NCC, PCC and MCC and PCC and NCC). However, in relation to second determinants, the significance of the Levene's test is .004 which indicates that the assumption of the homogeneity of the variance is impaired. Also, F-ratio is non-significance ($F(3,260) = 1.429, p > .05$). Bearing in mind that the conditions for the application of ANOVA are not met, further analyses have not been conducted.

Analysis Open-Ended Questions

The third part of the questionnaire, in addition to the five-stage scale, contained a part in which the respondent could in his own words (in free form) provide further information about the constraints and obstacles of access to finance for Small and Medium-sized enterprises (SMEs) in Libya that could not be collected by previous part of questionnaire. It should be noted that only 46 respondents provided the answer to those part of the questionnaire, which is only 17% of the total number of SMEs involved in the survey.

Respondents' answers to questions about the constraints and obstacles of access to finance for Small and medium - Sized enterprises (SMEs) in Libya were largely similar. The respondents state the following constraints and obstacles of access to finance:

- complexity of procedures;
- plenty of papers required and delays in procedures;
- insufficient value and inadequate preparation of economical feasibility studies;
- the instability of the security and economic situation
- lack of labour market control.

Based on the above, it can be concluded that the procedures required in financial approaches to resource and the economic, political and security situation are also factors of constraints on access to financial resources.

DISCUSSION AND CONCLUSIONS

In recent years, Libya has embarked on numerous processes of liberalizing its own economy. These reforms began with the overthrow of the Muammar al-Gaddafi regime and are still taking place in a specific economic, political and security situation. Therefore, the issue of SMEs' business as the main factor in improving gross national product (GNP) in Libya requires a complex and comprehensive analysis to address barriers to further economic development of the country.

Previous research, dealing with the issue of constraints and obstacles in accessing financing in certain geographical areas, sought to arrive at the final mathematical formulas for access to finance. Such formulas were in the form and were products of the application of multiple or logistical regression. However, this approach in defining the final conclusion on the constraints and obstacles to access to finance has several problems. First, the terminological problem. Namely, most research used in same manner a terms "factors that affect access to finance", "determinants that affect access to finance" and „constraints and obstacles regarding access to

finance". The term "constraints and obstacle" itself has a negative connotation. On the other hand, the terms "factor" and "determinant" can have not only a negative but also a positive connotation. Namely, the determinant and factor can be accelerating and not only limiting. Second, even if a certain determinant and factor have a negative impact, the question arises of the intensity of that influence on access to finance. Third, research has been involved companies that have a problem and those that do not have a problem in accessing finance and both of them are considered as one sample or two subpopulations in the case when applying logistic regression analysis. However, the differences between these two groups were not considered.

On the basis of the above problems, this study began from the following assumptions:

- the term "constraints and obstacles regarding access to finance" has a negative connotation in relation to the company's business. Therefore, the determinants and constrain and obstacle are not the same concepts.
- companies that have good access to finance are the reference points in relation to those firms which have a problems in the access to finance
- When determining what is the difference in terms of factors that affect access to finances between firms that have good access to finance and companies that do not have that, then such a identified factor can be declared as constraints and obstacles regarding access to finance.

In this regard, ANOVA was used in this study to determine statistically significant differences between groups of enterprises. The classification of the company was carried out in accordance with the credit constrain status criterion, determined by Kuntchev and colleagues (Kuntchev et al., 2013), and these are the following group of companies: Full Credit Constrained (FCC), Partially Credit Constrained (PCC), Maybe Credit Constrained (MCC) and Non Credit Constrained (NCC). The results showed that there are differences between certain groups of companies according to entrepreneur characteristics. The differences exist between FCC and MCC, FCC and NCC, PCC and MCC and PCC and NCC. Therefore, it can be concluded that groups of companies that are FCC and PCC are firms that have problems with access to finance, while MCC and NCC generally have good access to finance.

Based on the results, it can be concluded that companies with a worse access to finance (NCC and PCC) have a limit factor - entrepreneur characteristics. Therefore, in order for NCC and PCC to improve their access to finance, it is necessary to focus more on activities that enhance the entrepreneur characteristics.

Implication of the study

Theoretical implications of this study are visible through the conceptualization of models of determinants that affect access to finance for SMEs. Most of the studies so far have not focused much on the formulation of theoretical concepts, on the contrary, they have focused more on practical problems and solutions when it comes to accessing finance for SMEs. Therefore, unlike other studies, this work creates a theoretical basis for the conceptualization of a comprehensive theoretical model of determinants that affect access to finance.

The practical implications of the research are visible in an effort to clarify more clearly the constraints and obstacles in accessing finance for SMEs in Libya. The research has shown that

the basis of the problem of access to finance for Libyan SMEs lies in the entrepreneur characteristics of the firm.

Conclusion of the study

The pace of growth of Libya's population is fairly high as the country is rich in resources, especially crude oil. However, there is limited information on the composition and size of Libya's population. Libya's economy is a developing one. The country has a large geographical area, with its desert wasteland area having a population density that is quite low. The country is well endowed with oil and gas resources. Its economy is heavily dependent on the export of crude oil. Libya is highly dependent on importing many intermediate industrial inputs as, apart from oil and gas, the availability of other natural resources is highly limited. Libya's economy is closely interdependent with other economies, especially in the exchange trade sphere. Unlike many sectors of the country's economy that have seen piecemeal, uncoordinated approaches to reforms, the oil industry has seen appreciably effective implementation of the reforms. The liberalization of the economy has persuaded the commitment of more and more resources to the oil sector.

However, in the Libya banking sector, the system has the necessary infrastructure to offer the necessary services to clients. However, even though the concentration is in Tripoli the major banks have tried to offer their services to all their customers through expansion and opening of new branches near their clients. The branches are equipped with competent staff who transact business on behalf of their mother banks (headquarters). They also have ATM machines to facilitate easy and convenient withdrawals, deposits, transfers, and balance enquiries without queuing for long hours. In conclusion, the banking sector in Libya is one of the most developed and is growing at a high rate, though there is still room for improvement and expansion.

The SME sector has the potential to become the expansion engine for the overall private sector in Libya. This has been evidently demonstrated by government interventions towards SME development in a number of ways. The sector has also proved to be significantly essential for the economic growth of the country. For instance, the SME industry is dominated by food production, and wood and metal production for construction. The sector also participates in clothing production, production of bricks and ceramics and grain milling which play a vital role in the economy of the country. This is because SME manufacturing businesses have the potential to connect into economic development opportunities via expansion in areas such as tourism. In addition, the value added participation and expansion performance of the SMEs with non-oil industries has been significantly less than in the oil industry. The Libyan SME sector is evidently lacking business knowledge and is facing disadvantages of economies of scale. It is also negatively affected by poor managerial, marketing, and financial capabilities. This is especially through the various obstacles that hinder effective access to financing by this sector. Additionally, while the macroeconomic setting is encouraging and production taxes are comparatively low, the entire regulatory structure still requires rationalization and improvement.

The growth of a thriving SME industry also faces the challenge of inadequate presence and pressure of an entrepreneurship culture in the economy. There is also limited intervention by government through a legal framework and incentives, and the lack of organizational coordination is undermining the materialization of a sustainable SMEs industry. The incentive framework consolidation and the improvement of a policy for SMEs expansion suffer from imperative knowledge gaps. In such a case, there is an obligation to evaluate the SME sector in Libya. The institutional structure should be able to classify existing challenges and

opportunities to promote SME expansion along the lines of domestic and national competitive and comparative advantages (Vandewalle, 1991).

There is a critical requirement for institutional strengthening, capacity building, and SME sector expansion in the economy. The underlying justification is that SME expansion in the state has a huge potential that is, however, mostly limited by the need for policy reliability and harmonization among the various agencies concerned with SME expansion. The requirement for external support, along with an inclusive examination of strategic recommendations for SMEs, should be clearly demonstrated. Alternatively, despite the active support by government of the SME industry and the expansion through direct financial support of entrepreneurs, potential entrepreneurs still require capacity building prospects. This should be especially in fields such as business management, network building with management and entrepreneurship development. Moreover, it is evident that SME owners need the opportunity to wholly understand and embrace SME industry prospects.

At the same time, financial institutions, especially banks, should be capable of supporting the expansion of the Libyan SME sector using technical backing and trilateral collaboration activities. Therefore, the SME sector is able to serve the Libyan economic demands if all these considerations are deliberated by the government. Although the government has shown some commitment in putting corrective measures in place for ensuring effective accessibility of SMEs to various financial sources, much more is required. The government should ensure that there are minimal obstacles (or no obstacles) that hinder access to finance for expansion in this sector. This will be possible through understanding and offering incentives to the SME sector.

Limitations and further study

This study has several limitations, particularly its reliance on subjective data provided by company representatives, which may not fully reflect the actual financial conditions of SMEs. Future research should incorporate objective financial indicators, such as profitability, revenue, and returns on equity, to provide a more accurate assessment of firms' financial performance.

Furthermore, involving financial institutions, government agencies, and relevant social organizations would provide a broader understanding of the challenges SMEs face in obtaining finance. The proposed model also requires further testing using new data and samples from different economic contexts to assess its reliability and applicability across countries.

Future studies should therefore combine subjective and objective data, include the perspectives of various financial and public institutions, and conduct additional analyses to validate and improve the model explaining the factors that influence SMEs' access to finance.

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