



Competitiveness and value chain management on credit risk of small and medium-sized enterprise sector bank financing



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ABSTRACT

All over the world, small and medium-sized enterprises (SMEs) are a crucial source of employment and nation development. Diverse and exhaustive research has been done to describe and understand the characteristics of SME as well as the factors that hit them, affecting their market's permanence. Within the success factors of SMEs are their competitiveness, their management of resources, and activities, also called chain value management. The SME sector has been generally known to have limited access to bank financing. SME manufacture sector in Puebla City México is affected by the same factors than SMEs all over the world. This research looked at defining whether there is a correlation between SME competitiveness and chain value management, as well as a correlation with credit risk. Data were collected through questionnaires, approximately 65 questionnaires answered by small business entrepreneurs of the manufacturing sector in the City of Puebla, Mexico. The results obtained indicate that competitiveness, value chain management and credit risk are related.

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INTRODUCTION

Small and medium-sized enterprises (SMEs) play an essential role not only in the economies of developed countries but also in developing ones, which are considered as a tool to fight poverty (Ávila, 2014). The importance of the SMEs is in the employment sources they offer to the world; over 50% of the world's jobs come from SME sector (Tello, 2014).

The primary catalyst of the SMEs is public and private financing (Calleja, 2014). The heterogeneity of SMEs determines their access to financial services and technical assistance (Leon, 2017). SMEs experience difficulties to tie receivable accounts with payable accounts, there is a gap in financing needs that they cover with their commercial suppliers when they cannot have access to bank credits (Vera et al., 2014). In times of crisis, when liquidity is scarce, SMEs are severely affected (Bussoli and Marino, 2018; Vera et al., 2014).

The main obstacle of the SMEs is the limited access to financing due to inefficient banking system, as well as the

high costs of financial services which limit the growth of these companies (Beck and Cull, 2014; Calatayud and Ketterer, 2016; Leal et al., 2018). Mitigating these obstacles and allowing SMEs to have adequate access to bank credit, will allow them to redistribute economic resources to people, reducing countries' poverty (Yan, 2016).

Banking plays a crucial strategic role to facilitate the flow of financial resources. Its activity is based on the provision of financial services that involve risks (Ramos and Borrás, 2017). In Mexico, as in the world, bank credit directed to SMEs is insufficient. The main reasons found are high interest rates, lack of guarantees, bureaucratic procedures and the availability of own resources. For commercial banking credit process is an expensive and risky process because Information from SMEs is scarce (Ferraro et al., 2011).

Commercial banking bases its risk profile assessment basically, on the following methodology: prior customer

Table 1. Competitiveness dimensions.

Strategic planning	Production/ operations	Quality assurance	Marketing	Accounting/ finance	Human resources	Environment administration	Information systems
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knowledge, real or adequate guarantees, credit history, behavior in the payments of its credit obligations and the indebtedness incurred (Ramos et al., 2014).

The models used in banking for the evaluation of SMEs are discriminant because they are based on information that an SME can hardly provide (Matias and Amaral, 2014).

THEORETICAL FRAMEWORK

Competitiveness

The competitive advantages of a company are the unique, valuable, and exclusive resources, which help a company, achieve its proposed aims (Ruiz and Camargo, 2017). A key element for the development, growth, and sustainability of an SME is competitiveness. In third world countries, SMEs are characterized by their flexibility in adapting to ever-changing economic circumstances (Ahmedova, 2015).

For the SMEs' competitive development, two key factors have been determined: first, basic factors, such as human resources, financial access, market strategies, etc. Second, globalization factors such as innovation, internationalization, and ITs (Díaz, 2009). The companies' competitiveness does not only depend on internal factors, but also on external ones like the competitiveness of the country where it works in terms of economic stability (Saavedra et al., 2013).

According to the 2013 studies from the United Nations Economic Commission for Latin America and the Caribbean (ECLAL), financing to SMEs is a source of resources to increase their capabilities and acquire competencies, this acquired skills are source of more productivity and competitiveness (Hernández and Cruz, 2017). Within entrepreneurial competitiveness, eight dimensions can be distinguished through efficient management to create the highest levels of enterprise competitiveness (Table 1).

Value chain

Each enterprise has a set of activities whose aim is to design, produce, market, and support its products. These activities are part of a value chain. The value chain, in strategic terms, is a powerful tool that gives competitive advantage (Porter, 1985). Thus, a credited SME with a

stable value chain ensures its competitiveness and permanence in the market. The value chain allowed the directors of companies to manage their main activities in improving their profitability and in increase enterprise competitiveness (Manzo Martínez, 2015). Theoreticians also conceptualize the value chain as the relationship between primary activities and supportive ones, which contributes to the creation of value and economic profitability for the enterprise (Aguilar, 2018). The value chain requires dynamic financing which transits transversally throughout all the links of the chain and at any given moment that it is observed (Calatayud and Ketterer, 2016). The performance of a value chain is affected by a series of risks, these risks are; systemic, related to the market, operational, credit and liquidity, which are all entwined and affect certain parts of the chain, therefore having repercussions in the entire value chain (Calatayud and Ketterer, 2016).

Credit risk

Credit risk is the probability that a credit is not paid in time or the established form, compromising the financial institution's profitability (Karimi, 2014; Million et al., 2015; Mpofo and Nikolaidou, 2018). To estimate the financial performance of an accredited SME is basic/primordial in the credit evaluation. This evaluation depends on the market conditions, industry growth, its administration and control. An inefficient credit evaluation increases the credit risk (Waemustafa and Sukri, 2015). The risk of non-performance credits are a multifactorial problem that is why is necessary to improve the risk evaluation process using multi-criteria models that recognize multiple aims and use quantified and quality information of the accredited (Leal et al., 2018). The credit risk analysis and credit monitoring process are related to the probability of default of the credit (Gai and Lelasi, 2014).

Various scientific researches on credit evaluation methodologies of commercial banking identified that none of them consider the value chain or the degree of competitiveness of companies as study variables in the methodologies (Appendix 1).

Hypothesis

A greater competitiveness and greater management of the value chain decreases the credit risk (Figure 1).

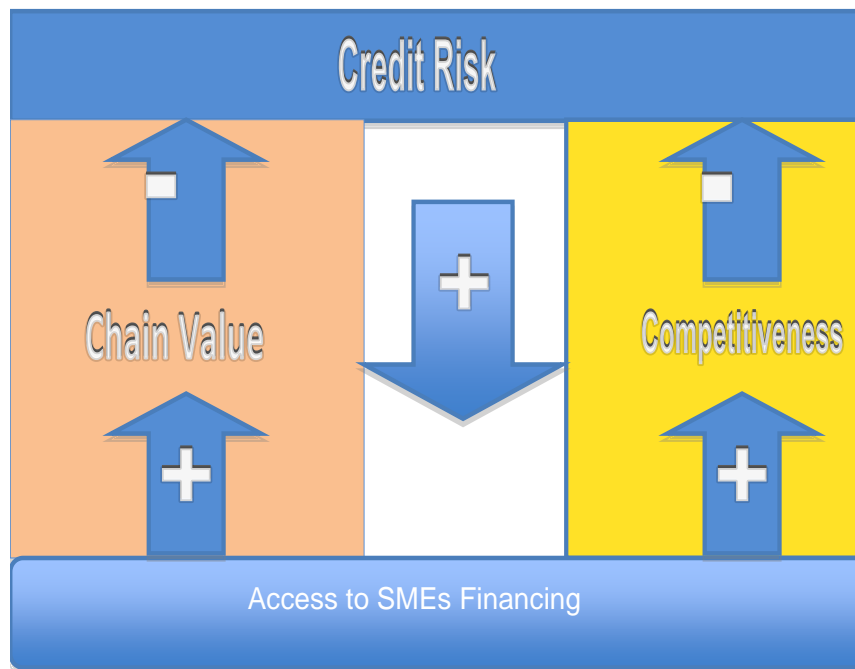


Figure 1. Research proposal.

Table 2. Credit risk variables.

Nominal variable	Authors	Variable's definition	Dimensions	Authors on dimensions	Indicators
Credit Risk	Karimi (2014), Million et al. (2015), Mpofo and Nikolaidou (2018), Trejo García et al. (2017), Waemustafa and Sukri (2015), Perez and Fernandez (2007), Gila-gourgoura and Nikolaidou (2018), Gai and Lelasi (2014), Ozili and Outa (2017), Gómez and Checo (2014)	Credit risk is the probability that a payment is paid neither in time nor in the established form	Probability of default Severity of the loss	Perez and Fernandez (2007), Leal, Aranguiz, & Mardones (2018), Gai and Lelasi (2014), Navaretti et al. (2015), Trejo García et al. (2017), Gómez and Checo (2014), Calabrese and Osmetti (2013) Jiang et al. (2017), Ghenimi et al. (2017), Cortez and Burgos (2016)	Capital Actives Quality Administrative Management Profitability Liquidity Exposure to risk

METHODOLOGY

This study is a field research and transversal. Its scope is descriptive and correlational. The independent variables are the value chain and competitiveness, whereas the dependent variable is established as the credit risk. These three variables are shown in Tables 2, 3 and 4. Each variable was studied through the Indicators shown in their correspondent table, the indicator was used to build the data collector instrument.

To obtain the data, the tool used was a 152 question

survey, which the following structure, competitiveness variable: 59 questions numbered from 1 to 59, value chain management 60 items numbered from 60 to 119, and lastly 33 questions concerning credit risk variable. Each subject was answered according to a Likert scale which is a measuring tool that measures the intensity of the answers to the given questions in such a way that we could categorize the responses in 1, totally disagree; 2, disagree; 3, neither disagree nor agree; 4, agree; and 5, completely agree. The answers for the credit risk variable have an inverse classification to the competitiveness and

Table 3. Value chain variable.

Nominal variable	Authors	Variable's definition	Dimensions	Authors on dimensions	Indicators
Value chain management	Porter (1985), Cayeros et al. (2016), Manzo Martínez (2015), Martínez et al. (2011), Rohvein et al. (2013), Calatayud and Ketterer (2016), Aguilar (2018), Prahalad and Hamel (1994), Ruiz and Camargo (2017)	Value chain management is the management of risks that affect the set of entrepreneurial activities whose aim is to design, produce, market, and support its products.	Systemic (Company's infrastructure, human resources management)	Martínez et al. (2011), Calatayud and Ketterer (2016)	Exposed to political uncertainty Exposed to macroeconomic uncertainty
			Market (marketing, sales, logistics)	Manzo Martínez (2015), Mancini (2016)	Exposed to social uncertainty Exposed to natural uncertainty Exposed to market's uncertainty Exposed to regulatory uncertainty Exposed to procurement uncertainty Exposed to production uncertainty
			Operational (operations)	Manzo Martínez (2015), Avendaño et al. (2013)	Exposed to administrative uncertainty
			Credit (sourcing)	Piatkowski (2012)	Exposed to guarantee uncertainty Exposed to the sector's or segment's uncertainty
			Liquidity (sourcing)	Sánchez and Millan (2012), Padilla and Oddone (2018)	Exposed to payment cycle uncertainty Exposed to the company's financial status uncertainty

Table 4. Competitiveness variable.

Nominal variable	Authors	Variable's definition	Dimensions	Authors on dimensions	Indicators
Competitiveness	Porter (1990), Ahmedova (2015), Prahalad and Hamel (1994), Ibarra et al. (2017), Saavedra, Milla & Sánchez (2013), Sipa et al. (2015), Ruiz and Camargo (2017), Manzo Martínez (2015), Arévalo and Sosa (2015)	Entrepreneurial competitiveness is the ability to generate and keep competitive advantages that lead to high and constant economic performance.	Strategic Planning	Mora-Riapira and Vera-Colina (2015), Manzo Martínez (2015), Cano et al. (2015), Cano et al. (2016)	Establishment of aims and goals, policies and follow-ups
			Production and operations	Cano et al. (2015), Cano et al. (2016), Pinheiro et al. (2017)	Defined Productive Processes Optimum tools and inputs Inventory Management Productive Processes Flexibility
			Quality assurance	Centurion (2015)	Certifications, norm implementation and any operation where there is evidence that both processes and products are certified
			Marketing	Cano et al. (2015)	Clients and suppliers' relationships Definition of target market and strategic marketing activities Financial management of monetary resources
			Accounting and finance	Sánchez and Millan (2012), Ortiz (2015), Hernández & Cruz (2017)	Financial Access Adequate strategies for the use and application of economic resources
			Human resources	Ibarra et al. (2017)	Training Selection and Hiring Processes Work Environment Compensations
			Environmental management	Rohvein et al. (2013)	Environmental Responsibility
Information systems	Du and Banwo (2015), Avendaño et al. (2013)	Use of new Technologies			

Table 5. General Cronbach's alpha.

Reliability statistics	
Cronbach's alpha	No. of items
0.984	152

Table 6. Cronbach's alpha competitiveness variable.

Reliability statistics	
Cronbach's alpha	No. of items
0.957	59

Table 7. Cronbach's alpha chain value management variable.

Reliability statistics	
Cronbach's alpha	No. of items
.953	60

Table 8. Cronbach's alpha chain value management variable.

Reliability statistics	
Cronbach's alpha	No. of items
0.973	33

chain value ones. In other words, the grade of the responses were measured on a Likert scale contrary to the ones used for the competitive and chain value variables. The questions were established with a low risk credit, while the aim was to find a relationship with high credit risk.

The measurement instrument was validated according to a pilot test of 26 surveys approved with the Cronbach's alpha Method, which is the most used tool to know the reliability of measurement. As long as the index gets closer to 1, it means that the instrument is trustworthy. Therefore, this index had to be obtained for all the variables, whether independent or dependent. There, the general alpha has to be bigger than the Cronbach's alpha for each variable. In this case, the Reliability index or Cronbach's alpha for the entire instrument is shown in Table 5.

Regarding to the variables, these have the following Cronbach's alphas, which are less than the General alpha and are shown in Tables 6, 7 and 8.

The study's population was defined by small

enterprises from the manufacture sector located in the State of Puebla in the Republic of Mexico, due to the political volatility happened in this region in the last four years. Based on theoretical studies about the inadequate distribution of banking credit in times of economic and political crisis, the study population was pertinent selected (Alcalá and Peñuela, 2015; Perez and Titelman, 2018; Gámez et al., 2018).

The study sample was comprised of 65 small business from manufacture sector in the State of Puebla, Mexico. The data collector instrument was applied to the managers who was decision-taking entrepreneurs about those small business from the State of Puebla Mexico. The selected companies may or may not have been credited by commercial banking, national ones or global ones institutions that operate in the Republic of Mexico.

To obtain the sample size from the population to whom the instrument would be applied, the calculation of a statistical sample size with a finite population was used. The input data is shown in Tables 9 and 10. As cited the population size is 1698 enterprises, defining 90% as reliability and 10% as statistical error, besides of the probability of success as 50%. Using the formula, the sample size calculated was 65 enterprises (Equation 1).

$$n = \frac{N Z^2 pq}{N^2 pq + d^2 (N-1)} \tag{1}$$

RESULTS

The results of the three variables were processed in the IBM SPSS Statistic 22 Program to find the relationship between them and the effects can be observed on Table 11, where the values of Pearson's correlation coefficient values can also be seen, and which determines the relationship between the variables with a value between - 1 to 1 and non-zero, as well as the significance level between 0.01 and 0.03. That is, it can be generalized with a higher probability of asserting that the behavior of the sample population will repeat itself in the community (Hernández et al., 2014).

The value chain management and the competitiveness dimensions correlate with the credit risk of a manufacturing SME located in the State of Puebla. Such a correlation is negative. That is, the relationship between them is inverse. Therefore, if the competitiveness and the value chain increases or decreases, the behavior of the credit risk variable will be inverse. Regarding the significance of the correlation, it is at 0.01, which is highly accurate than what was observed in the sample can be generalized in the population.

The competitiveness of a manufacturing SME company measured in accordance with the dimensions of competitiveness is correlated with the management of the

Table 9. Input data.

N	1698	Population size
p	0.5	Probability of success
q	0.5	Probability of non-success
N.C.	0.9	Reliability
Z		
D	.10	Statistical error

Table 10. Calculation.

n	N	z ²	pq	D
65	1698	2.6896	0.25	10%

Table 11. Correlations.

		Competitiveness	Value chain	Credit risk
Competitiveness	Pearson correlation	1	0.806**	-0.440**
	Sig. (2-tailed)		0.000	0.000
	N	65	65	65
Value chain management	Pearson correlation	0.806**	1	-0.720**
	Sig. (2-tailed)	0.000		0.000
	N	65	65	65
Credit risk	Pearson correlation	-0.440**	-0.720**	1
	Sig. (2-tailed)	0.000	0.000	
	N	65	65	65

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

value chain, since the correlation coefficient between both variables is 0.806, with a strong correlation between the competitiveness of manufacturing companies SMEs of the State of Puebla and their value chain management.

The dependent variable is the credit risk, which correlated negatively with competitiveness and chain value management. Therefore, it proves the general hypothesis from which stems off the study's model (Table 12).

H₁: A greater competitiveness and greater management of the value chain decreases the credit risk.

According with the research, as the general hypothesis has been demonstrated, a competitive SME which has a proper value chain management should access to more financing from the commercial banks in Puebla City Mexico.

Conclusion

Given the importance of the SMEs in the economic development of a community, it has awakened among

the scientific community many diagnostic studies that have given science diverse models to allow entrepreneurs and companies to understand the context in which they work. In order to reduce the mortality rate of this type of company since their affection is directly proportional to the creation of jobs and its corresponding social affection.

Historically, Latin America has shown weaknesses in its SME sector. The traditional commercial banking in Latin America mainly of a global structure is restrictive towards its financial inclusion. The government, through its institutions, is the catalyzers of the bank financing to SMEs. Stable governments with their tax, exchange, and monetary policies foster the risk appetite in the financial institutions. Political volatility, on the contrary, is one of the causes of the deficient distribution of banking credits. Due to this problem and the low interest of commercial banks in providing SMEs with access to bank financing, it was found that it was relevant to find the correlation of qualitative factors such as SMEs competitiveness and its value chain management with the decrease in their credit risk (Figure 2).

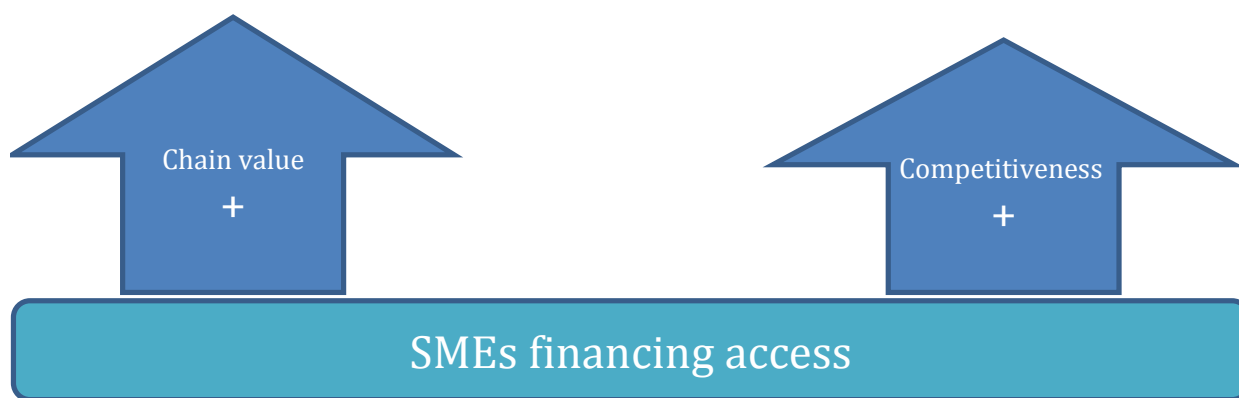


Figure 2. Bank financing catalyzer of competitiveness and chain value management.

Table 12. Results summary.

Hypothesis	Correlation	Index	Type	Result
Competitiveness – Value chain	Strong	0.806	Positive	The alternative hypothesis is not rejected
Competitiveness – Credit risk	Weak	-0.44	Negative	The alternative hypothesis is not rejected
Credit risk –Value chain	Strong	-0.72	Negative	The alternative hypothesis is not rejected
A greater competitiveness and greater management of the value chain decreases the credit risk		-0.440 y -720	Negative upon the dependent variable	The alternative hypothesis is not rejected

It has been studied in science that an enough bank financial loan in amount and time translates into greater competitiveness and better value chain management. However, commercial banks only grant bank loans to debtors that they consider low credit risk, this variable being defined as the probability that a debtor does not pay his loans.

The commercial banks in Mexico, as in the rest of the world, play an essential role in the distribution of monetary resources through credits given to companies which they use to develop the country's economy. The efficiency in the financial system depends on its adaptation to the global economic environment. Its relation to an optimal regulatory frame and its adaptation to market changes due to demographics movements or consumer habits, likewise it technological and innovative evolution. The high diversity among the participating banks in the Mexican banking market has created a financing concentration among the international participants.

Respecting the assessing credit methodologies, these do not distinguish between types or sizes of the requesters of bank financing, the source of information in the process of credit evaluation grants indicators

regarding solvency, payment capability, patrimonial backup, and credit score history.

Commercial banks in Mexico adopt a discriminative treatment in SME credit requests since they collect quantitative information from sources and are processed in mathematical, statistical, and parametric models to decide on a credit loan. However, these methodologies discriminate valuable qualitative characteristics that emanate from competitiveness and their chain value management.

An SME with competitive characteristics according to its dimensions is a company with proper strategic planning whose administration is distributed along with the organization, sets policies, aims, and gives follow-ups. Has better relationships with customers and suppliers, and have a better activities and resources plans. Also, it has technological and information innovation according to its functions; monetary funds flow through the events in an efficient manner generating value to their employees, customers, and shareholders.

Consequently, the correlation between these two variables reduces credit risk; therefore, in the manner that an enterprise is more competitive and manages its chain value, it has lesser credit risk and should easily

have more access to bank financing.

Credit evaluation methods should include the competitiveness and value chain management indicators from the debtor in order to increase the financing for SMEs, however Mexican government has not budgeted monetary resources to protect banks from non-performing loans, through governmental guarantees, only 50% of the loan is protected through the governmental guarantee but this is not enough to increase the financing to SMES.

REFERENCES

- Aguilar, C. (2018). Dimensiones de las competencias clave y del conocimiento organizacional desde el enfoque de los recursos y capacidades. *Red Internacional de Investigadores EnCompetitividad* 8 (1): 2164-2181.
- Ahmedova S. (2015). Factors for increasing the competitiveness of small and medium- sized enterprises (SMEs) in Bulgaria. *Procedia - Social and Behavioral Sciences*. 195:1104-1112. doi.org/10.1016/j.sbspro.2015.06.155.
- Alcalá A. & Peñuela K. (2015). Modelo dirigido a las pymes colombianas para el acceso efectivo al crédito comercial. *Colegio de Estudios Superiores de Administración*.
- Arévalo J. & Sosa J. (2015). Análisis de competitividad como herramienta para la gerencia global en las micro, pequeñas y medianas empresas (MIPYMES). *Puente Revista Científica*. Pp. 89-96. doi.org/10.18566/puente.v9n2.a09.
- Avendaño R., Daude C. & Perea J. (2013). *I pymes. Instituto Para La Integración de América Latina y El Caribe (BID- INTAL)*. 37: 75-86.
- Ávila Heredia, E. (2014). Las PYMES en México: desarrollo y competitividad", en *Observatorio de la Economía Latinoamericana*, Nº 201, 2014. Retrieved from: <http://www.eumed.net/cursecon/ecolat/mx/2014/cooperacion.html>
- Beck T. & Cull R. (2014). SME finance in Africa. *J. Afr. Econ*. 23(5):583-613. doi.org/10.1093/jae/eju016
- Bussoli C. & Marino F. (2018). Trade credit in times of crisis: evidence from European SMEs times of crisis. *J. Small Bus. Enterpr. Dev*. 25(2): 277-293. doi.org/10.1108/JSBED-08-2017-0249.
- Calabrese R. & Osmetti S. (2013). Modelling small and medium enterprise loan defaults as rare events: the generalized extreme value regression model. *J. Appl. Stat*. 40(6):1172-1188. doi:10.1080/02664763.2013.784894.
- Calatayud A. & Ketterer J. A. (2016). Gestión integral de riesgos para cadenas de valor. Retrieved from [http://www2.congreso.gob.pe/sicr/cendocbib/con4_uibd.nsf/9428D195BF9DC1BE05257F3F00753B1E/\\$FILE/CMF-TN-Gestion-integral-de-riesgos-para-cadenas-de-valor.pdf](http://www2.congreso.gob.pe/sicr/cendocbib/con4_uibd.nsf/9428D195BF9DC1BE05257F3F00753B1E/$FILE/CMF-TN-Gestion-integral-de-riesgos-para-cadenas-de-valor.pdf)
- Calleja D. (2014). El impulso europeo a la financiación de la pyme. *Financiación Empresarial*. 879:51-64.
- Cano C., Palacio J., Martínez L. & Barron E. (2016). Desarrollo de competencias en logística y su efecto en la gestión de inventarios: Impacto en empresas proveedoras de la industria automotriz Ciudad Juárez, Chihuahua. *CULCYT / Industria Automotriz*. 59: 108-120.
- Cano P., Carrasco F., Martínez J. L., Moreno Y. & Lopez G. (2015). Modelo de gestión logística para pequeñas y medianas empresas en México. *Contaduría y Administración*. 60(1):181-203.
- Cayeros S., Robles F. & Soto E. (2016). Cadenas Productivas y Cadenas de Valor. *Educateconciencia*. 10(11): 6-12.
- Centurion R. (2015). Gestión de Calidad, Formalización, Competitividad, Financiamiento, Capacitación y Rentabilidad en Mipymes de la provincia del Santa (2013). *Centurion Medina*. 6(1):146-165.
- Cortez D. & Burgos J. (2016). La Gestión De Cartera De Crédito Y El Riesgo Crediticio Como Determinante de la Morosidad o Liquidez de las empresas comerciales. *Observatorio de La Economía Latinoamericana*.
- Cruz C. A. (2018). Dimensiones de las competencias clave y del conocimiento organizacional desde el enfoque de los recursos y capacidades. *Red Internacional de Investigadores en Competitividad*. 8(1): 2164-2181.
- Díaz I. (2009). Enfoque de Porter y de la teoría basada en los recursos en la identificación de la Ventaja Competitiva: ¿contraposición o conciliación? *Economía y Desarrollo*. 143(1):101-114.
- Du J. & Banwo A. (2015). Promoting SME competitiveness: Lessons from China and Nigeria. *Am. Adv. Res. Manage*. 1(1):1-12.
- Ferraro C., Goldstein E., Zuleta L. A. & Garrido C. (2011). Eliminando barreras: El financiamiento a las pymes en América Latina. *ECLAC - United Nations*.
- Gai L. & Lelasi F. (2014). Operational drivers affecting credit risk of mutual guarantee institutions. *The Journal of Risk Finance*. 15(3): 275-293. doi.org/10.1108/JRF-12-2013-0087.
- Gámez A. M., Morales M. & Ramirez C. (2018). Estado del arte sobre problemáticas financieras de las pymes en Bogotá, Colombia y América Latina. *State of the art on financial problems of SMEs in Bogotá, Colombia and Latin America*. *Economicas CUC*. 39(2):77-94.
- Ghenimi A., Chaibi H. & Omri M. A. B. (2017). The effects of liquidity risk and credit risk on bank stability: Evidence from the MENA region. *Borsa Istanbul Review*. 17(4):238-248. doi.org/10.1016/j.bir.2017.05.002.
- Gila-gourgoura E. & Nikolaidou E. (2018). Credit risk determinants in the vulnerable economies of europe: Evidence from the Italian banking system. *School of Economics Macroeconomic Discussion Paper Series*, 2018.
- Gómez L. A. & Checo H. (2014). La Gestión del Riesgo de Crédito como herramienta para una Administración Financiera eficiente. Un estudio de caso. *Revista Científica de La Universidad Del Cono Sur de Las Americas (UCSA) Asunción, Paraguay*. 1: 24-32.
- Hernández R. & Cruz M. (2017). El Financiamiento como aspecto competitivo para las Medianas Empresas en México. *Strategy, Technology & Society*. 4:122-155.
- Hernández Sampieri R., Fernández Collado C. & Baptista Lucio P. (2014). *Metodología de la investigación*. McGraw-Hill Education.
- Ibarra M., González L. & Demuner M. de R. (2017). Competitividad empresarial de las pequeñas y medianas empresas manufactureras de Baja California. *Estudios Fronterizos*. 18(35):107-130. doi.org/10.21670/ref.2017.35.a06.
- Jiang L., Levine R. & Lin C. (2017). Does competition affect bank risk? *National Bureau of Economic Research No. 23080*. doi.org/10.3969/j.issn.1001-1978.2015.10.008
- Karimi A. (2014). Credit risk modeling for commercial banks. *Int. J. Acad. Res. Account. Financ. Manage. Sci*. 4(3):187-192. doi.org/10.6007/IJARAFMS/v4-i3/1811.
- Leal A., Aranguiz M. & Mardones J. (2018). Análisis de riesgo crediticio, propuesta del modelo. *Revista de La Facultad de Ciencias Económicas*. 26(1):181-207.
- Leon J. (2017). Inclusión financiera de las micro, pequeñas y mediana empresas en el Perú. *Experiencia de la banca de desarrollo*.
- Mancini M. E. (2016). Inserción en cadenas de valor globales y patrones de innovación de empresas de países en desarrollo: las pymes de Argentina. *Economía: Teoría y Practica*. 45:5-37. Retrieved from <http://www.izt.uam.mx/economiatyp/ojs>
- Manzo Martínez M. A. (2015). El análisis de la cadena de valor como fuente de ventajas competitivas en las empresas exportadoras de zarzamora en México. *Red Internacional de Investigadores En Competitividad Memoria Del IX Congreso*. Retrieved from <http://www.izt.uam.mx/economiatyp/ojs>
- Martínez J., Valenzo M. & Bonales J. (2011). Cadena de Valor y Competitividad. *Inceptum*. 6(10):243-262.
- Matias A. & Amaral S. (2014). Credit risk assessment and the impact of the new basel capital accord on small and medium-sized enterprises. *An empirical analysis*. *Manage. Res. Rev*. 35(8):727-749. doi.org/10.1108/01409171211247712.
- Million G., Matewos K. & Sujata S. (2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. *Afr. J. Bus. Manage*. 9(2):59-66. doi.org/10.5897/AJBM2013.7171

- Mora-Riapira E. H. & Vera-Colina M. A. (2015). Planificación estratégica y niveles de competitividad de las Mipymes del sector comercio en Bogotá. *Estudios Gerenciales*. 31(134):79-87. doi.org/10.1016/j.estger.2014.08.001.
- Mpofu T. R. & Nikolaidou E. (2018). Determinants of credit risk in the banking system in sub-Saharan Africa. *Review of Development Finance*. doi.org/10.1016/j.rdf.2018.08.001.
- Navaretti G. B., Calzolari G., Pozzolo A. F., Udell G. F., Di Noia C., D'Onofrio A., Schmukler, S. (2015). Who takes the risks for funding SMEs? Is special treatment for SMEs warranted? Matching demand and supply in SMEs financing. How relationships can reduce risk in small business lending by Robert deYoung. *Public Credit Guarantees and Access to Finance*. *European Economy Banks, Regulation and the Real Sector*.2(2).
- Ortiz J. (2015). Planeación Financiera como Estrategia para Mejorar el ciclo efectivo en Alarmas Multi-Servicios. Caso de Estudio. Institución Universitaria Politécnico Granacolombiano.
- Ozili P. K. & Outa E. (2017). Bank loan loss provisions research: A review. *Borsa Istanbul Review*. 17(3):144-163. doi.org/10.1016/j.bir.2017.05.001.
- Padilla R. & Oddone N. (2018). Manual para el fortalecimiento de cadenas de valor. ECLAC - United Nations.
- Perez E. & Titelman D. (2018). La inclusión financiera para la inserción productiva y el papel de la banca de desarrollo (E. Perez & D. Titelman, Eds.) (Naciones U). Naciones Unidas CEPAL.
- Perez F. & Fernandez H. (2007). Las Redes Neuronales y la. *Revista Ingenierías Universidad de Medellín*. 10:77-91.
- Piatkowski M. (2012). Factors strengthening the competitive position of SME sector enterprises. An example for Poland. *Procedia - Social and Behavioral Sciences*. 58:269-278. doi.org/10.1016/j.sbspro.2012.09.1001
- Pinheiro O., Sandro B., Rodriguez C. M. & Follmann N. (2017). A new definition of internal logistics and how to evaluate it. *Inngeniare*. *Revista Chilena de Ingeniería*. 25(2):264-276.
- Porter (1985). *Ventaja competitiva: creación y sostenimiento de un desempeño superior*. The Free Press, New York.
- Porter (1990). La competitividad de las naciones. *Harvard Business Review*. 85:11.
- Prahalad C. K. & Hamel G. (1994). *Competing for the future* (Vol. 25). Boston: Harvard Business School Press.
- Ramos E. & Borrás F. (2017). Las relaciones crediticias entre las empresas y la banca comercial en Cuba. *Cofin Habana*. 12(2):397-411.
- Ramos E., Camps D. & Borrás F. (2014). La gestión del riesgo crediticio: Experiencia cubana. *Cofin Habana*. 8:33-43.
- Rohvein C., Paravie D., Urrutia S., Roark G., Nunes D. & Ottogalli D. (2013). Metodología de evaluación del nivel de competitividad de las pymes. *Revista Ciencias Estratégicas*. 21(29):49-68.
- Ruiz L. & Camargo D. (2017). Propuesta para la evaluación de recursos y capacidades en pymes que hacen gestión del conocimiento. *Cuadernos Latinoamericanos de Administración*. 13(25):71-91.
- Saavedra M., Milla S. & Sánchez B. I. (2013). Determinación de la competitividad de la PYME en el nivel micro: El caso de del Distrito Federal, México. *Revista FIR*. 2(4):38-52.
- Sánchez X. & Millan J. C. (2012). Medición del Riesgo de Liquidez. Una aplicación en el sector cooperativo. *Entramado*. 8(1):90-98.
- Sipa M., Gorzeń-Mitka I. & Skibiński A. (2015). Determinants of competitiveness of small enterprises: Polish perspective. *Procedia Economics and Finance*. 27(15):445-453. doi.org/10.1016/S2212-5671(15)01019-9.
- Tello S. (2014). Importancia de la micro, pequeñas y medianas empresas en el desarrollo del país. *Lex*. 12(14): 199-218. Retrieved from <http://revistas.uap.edu.pe/ojs/index.php/LEX/article/view/623/852>.
- Trejo García J. C., Martínez García M. Á. & Venegas Martínez F. (2017). Administración del riesgo crediticio al menudeo en México: una mejora econométrica en la selección de variables y cambios en sus características. *Contaduría y Administración Revista Internacional*. 62(2): 399-418. doi.org/10.1016/j.cya.2017.02.006.
- Vera M., Melgarejo Z. & Mora E. (2014). Acceso a la financiación en Pymes colombianas: Una mirada desde sus indicadores financieros. *Innovar Revista de Ciencias Administrativas y Sociales*. 24(53): 149-160.
- Waemustafa W. & Sukri S. (2015). Bank specific and macroeconomics dynamic determinants of credit risk in Islamic banks and conventional banks. *Int. J. Econ. Financ. Issue*. 5(2):476-481. doi.org/10.6084/m9.figshare.4042992.
- Yan L. (2016). Situación actual del desarrollo de las Mipymes chinas. *Orientando, Temas de Asia Oriental, Sociedad, Cultura y Economía*.

Appendix

APPENDIX 1

	Author	Year	Title	Methodology	Includes Competitiveness and value chain mangement
1	Diego Armando Cortez Rivas	2016	La Gestión de Cartera de Crédito y el Riesgo crediticio como determinante de Morosidad o Liquidez de las empresas comerciales.	Analysis of Credit History and Credit Liquidity	No
2	Azucena Gonzalez Carvajal, et al	2016	Análisis financiero CAMEL a las cooperativas de ahorro y crédito del segmento Uno - Intendencia Zonal Ambato	"Analysis of CAMEL financial indicators; 1. Capital (C). 2. Asset Quality (A). 3. Administration (M). 4. Profitability (E). 5. Liquidity (L)."	No
3	Diego Patricio Vallejo Sánchez, Mónica Isabel Izurieta Castelo, Yolanda Patricia Moncayo Sánchez, José Gabriel Pilaguano Mendoza y Carmita Isabel Ajitimbay Muñoz	2017	Políticas y estrategias para minimizar el índice de morosidad en las cooperativas de ahorro y crédito del Cantón Riobamba	The C'S of the credit; Character, ability to pay, conditions, collateral, coverage	No
4	Jorge Estuardo Goyes Noboa y Karina Johanna Iza López	2017	Gestión financiera para la administración del riesgo crediticio, en la Cooperativa de Ahorro y Crédito San Miguel Ltda, Cantón San Miguel, provincia Bolívar, periodo 2012-2013	Volatility and collateral	No
5	Ivan Ordoñez, Eduar Guerra	2014	Microcrédito e créditos tradicional e informal como fuentes de financiamiento: facilidad de acceso y costos del capital de trabajo.	Customer knowledge, Guarantees, Credit history, indebtedness	No
6	Raffaella Calabrese & Silvia Angela Osmetti	2013	Modelling small and medium enterprise loan defaults as rare events: the generalized extreme value regression model	Volatility	No
7	Gómez, LA, & Checo, H.	2014	La Gestión del Riesgo de Crédito como herramienta para una Administración Financiera eficiente: Un estudio de caso.	The C'S of the credit; Character, ability to pay, conditions, collateral, coverage	No
8	Ramos L Elizabeth, Camps R Dana, Borrás A Francisco	2014	La gestión del Riesgo Crediticio: experiencia Cubana	The C'S of the credit; Character, ability to pay, condition "statistical-mathematical tools, financial, technical reasons of cluster, decision trees, the method of Brown and Gibson for qualitative analysis, neural networks "	No
9	Asrin KARIMI	2014	Credit Risk Modeling for Commercial Banks	Artificial Neuronal Network, cash flow, leverage and liquidity	No
10	Amjad Ali, Muhammad Rafi	2014	Development of Credit Scoring Model to Determine the Creditworthiness of Borrowers	Scoring Model	No
11	Kanno, Masayasu	2015	Macro Stress Test for Credit Risk	Macro Stress Test	No
12	Matias - Amaral	2014	Credit risk assessment and the impact of the New Basel Capital Accord on small and medium-sized enterprises An empirical analysis	Proposed model, combination of financial indicators and Accredited Quality, Administration Quality and capital structure, as well as Credit Bureau Information.	No
13	Miettinen & Niskanen	2015	Lender evaluations of start-up business prospects	Proposed model to evaluate start-up companies taking as evaluation variables, the origin of the resources, the background of the entrepreneur, the characteristics of the company and the sector of influence.	No
14	Trejo García, José Carlos Martínez García, Miguel Ángel Venegas Martínez, Francisco	2017	Administración del riesgo crediticio al menudeo en México: una mejora econométrica en la selección de variables y cambios en sus características	Proposed model to evaluate SMEs based on 5 variables: compliance or non-compliance, elapsed credit months, credit limit, default history and payment-balance balance method discriminant and linear regression.	No

Source: Own elaboration