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Article

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Commercial banking as a key factor for SMEs development in Mexico through factoring: A qualitative approach

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ABSTRACT

Despite the advantages that literature grants to factoring, its degree of adoption in small and medium-sized enterprises (SMEs) is low. The objective of the research is to establish the determinants in factoring adoption that allow greater access to financing by SMEs. For this purpose, a qualitative study was carried out through in-depth interviews with ten financial entities in Mexico that represent between 60 and 80% in volume of factoring that is operated in the country. Aspects such as legal certainty, efficient customer information systems, the reduction of requirements to start operations or the ease of operation and simplification of procedures are key in the design and implementation of factoring programs. The implications for financial institutions and public administration are to design factoring programs with a vision beyond the commercial aspect and define a robust legal framework to operate this financial product.

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1. Introduction

The study of supply chains is of special interest both at the academic level and for managers. Most works have highlighted the role that domestic companies play within these supply chains, since they favor, among other aspects, employment, economic development and avoid the relocation of activities and deindustrialization (Fong, 2017; Lampón, 2020; Lampón, González-Benito, & García-Vázquez, 2015; Lampón, Lago-Peñas, & González-Benito, 2015; Saavedra & Saavedra, 2014). In the case of Mexico, different key sectors of its economy are analyzed from the perspective of supply chains, highlighting that the Mexican companies integrated in these are mostly small and medium-sized companies (SMEs) (Hernández, Jiménez, & Marín, 2017; Lampón, Cabanelas, & Delgado-Guzmán, 2018). According to Inegi (2019), with data from the last economic census, in 2019, 99.8% of economic units are SMEs, which generate 52.2% of GDP and 69.4% of the country's employment. Hence the relevance of this type of companies

and the need to strengthen their performance through credit, as that performance has a substantial impact on the global behavior of the economies. Among the most relevant characteristics of Mexican SMEs compared to other countries in which their importance in the national economy is similar (e.g. Spain), it is worth noting their smaller size, since most of them have ten or fewer employees (95.0% in the case of Mexico compared to 89.6% in Spain). This aspect determines Mexican SMEs, with less capacity to face investment processes and improvement of their processes and it has characterized them as having low productivity, low adoption of innovation and limited technological development (Flores, Hernández, & Flores, 2009; Saavedra & Saavedra, 2014). Lastly, Mexican SMEs are excessively focused on the domestic, even local, market with little international presence; only 17% of Mexican SMEs export, compared to 36% in the Spanish case (Aragón, García, & Martínez, 2017). Among the reasons that limit the international presence of Mexican SMEs, the scarce culture of internationalization of managers and the lack of staff training stand out (Fong, 2017; Saavedra & Tapia, 2012).

Despite their great relevance, among the main causes of SMEs not prospering in Mexico is the absence of credit, since the financial support granted to them is just 0.03% of GDP (CNBV, 2016), which contrasts with that of other countries such as Brazil (0.5%) or the USA. (2.7%) (López Flores, 2013). This forces them to look

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for alternative sources of financing, such as family, friends, suppliers, or non-institutional lenders, which are expensive options, reduce their competitiveness and slow their growth (Secretaría de Economía, 2010).

To expand the financing offer, and at the same time mitigate the risk of default, banks have developed financial products aimed at SMEs, such as factoring. By this means, SME suppliers obtain immediate liquidity, not based on their own credit profile, but on the value of accounts receivable by a large buyer, as long as the credit profile of the latter exceeds that of its suppliers. Through credit arbitrage, that is, taking advantage of the differences in the credit profile of companies, banks manage to transfer credit risk from the small supplier to the large buyer, and thus SMEs can access working capital financing at a cost substantially less than their own credit profile would allow them.

Despite the fact that the literature suggests that factoring improves the performance of supply chains by allowing extension of payment terms for buyers, eased access to liquidity for suppliers, and mitigated risk of default of payment to banks, in practice, the process of adopting this means of financing is very slow and complicated, and is therefore underutilized (Pérez-Elizundia, Delgado Guzmán, & Lampón, 2019; Pérez-Elizundia & Lampón, 2020). In effect, the resources that banks grant to SME suppliers through factoring are carried out inefficiently, which is evident in a low GDP penetration of 2.71% in Mexico compared to 4.1% of the world average.

Building on the above, research objectives emerge to determine the reasons as to why the financing granted by banks through factoring has been inefficient for the development of SMEs in Mexico, as well as to identify the determinants of this financing alternative that allow a more efficient deployment of financial resources to SME suppliers. This will allow both financial intermediaries and the public administration to take specific actions that facilitate a more efficient deployment of financial resources for this type of companies to operate their working capital through factoring, in such a way that the banks fulfill their main mission to finance small and medium entrepreneurs. Based on the objectives, the following research questions are asked:

RQ-1: Why has financing provided by banks through factoring been inefficient for the development of SMEs in Mexico?

RQ-2: What are the determinants of factoring that allow or hinder the efficient deployment of financial resources to SME suppliers in Mexico?

To answer the research questions, this article is structured in three sections. The first one reviews key aspects of the literature on financing supply chains and analyzes the determinants in factoring adoption. The second section presents an empirical work that qualitatively analyzes the main elements that determine the implementation of factoring for SME suppliers in Mexico. The article ends with the conclusions and main implications of the research.

2. Literature review

2.1. Supply chain finance

As a result of increasing globalization, competition and customer expectations, competition no longer occurs between individual companies, but between supply chains, and hence the importance of achieving efficient management of supplies, information and financing (Alonso, Lampón, & Vázquez, 2006; Gelsomino, Mangiaracina, & Perego, 2016; Gomm, 2010; Liebl, Hartmann, & Feisel, 2016). As part of the dynamics in any supply chain, organizations face the conflict between buyers for extended payment terms and suppliers for liquidity and thus seek to optimize the management of their working capital. The financial challenge in the management of supply chains lies in how to use information and the different positions of suppliers and buyers to share the benefits of a collaboration, thus optimizing financing for each of the companies and for the supply chain as a whole (Gomm, 2010). This situation has encouraged the development of collaboration measures through supply chain finance solutions in all its forms, including factoring.

Supply chain finance has been approached from different standpoints (see Table 1), from a more general one including materials or information management, to a more specific one focused on supplier financing as a key element (Liebl et al., 2016). Thus, the most general approach is that of financial management of the supply chain, which focuses on the supplier-buyer relationship, in particular on the cash flow that accompanies the physical supply of products (Tanrisever, Cetinay, & Reindorp, 2012; Thangam, 2012; Wuttke, Blome, & Henke, 2013). Under this approach, financing, and its tools such as factoring, is necessary to manage financial flows related to material and information flows in the supply chain. The second approach focuses on optimizing working capital and liquidity. In this case, supply chain finance is used to create value through the management of financial resources between different actors throughout the chain. This approach includes financing prior to the physical shipment of products (e.g., financing of raw materials or inventory) and financing after shipment (e.g. cash discounts and factoring programs) (Hofmann, 2005; Atkinson, 2007; More & Basu, 2013; Meijer & Bruijn, 2013). The third approach addresses financing to supply chains focused on collaboration within the chain to specifically improve supplier financing. Under this approach, a large purchasing company and its suppliers work together with a bank to optimize the financial flows resulting from the exchange of products. In this way, factoring, particularly reverse factoring, is approached as a post-shipment financing solution, allowing the buyer to improve the payment terms and liquidity of their suppliers (Dyckman, 2009; Klapper, 2006; Tanrisever et al., 2012).

Therefore, factoring can be approached from all three perspectives, since it is a tool for the financing of supply chains related to

Table 1
Theoretical frameworks of supply chain finance.

Focus	Key aspect	Source
Financial supply chain management	Integration of financial flows to material and information flows in supply chains	Thangam (2012) Tanrisever et al. (2012) Wuttke et al. (2013) Liebl et al. (2016)
Supply chain financing	Optimization of working capital and liquidity of the different participants in the supply chains	Hofmann (2005) Atkinson (2007) More and Basu (2013) Meijer and Bruijn (2013)
Supplier finance	Assignment of collection rights by suppliers to financial intermediaries based on the credit strength of a large buyer	Klapper (2006) Dyckman (2009) Tanrisever et al. (2012)

Source: Elaboration by the authors based on the literature review.

the management of physical flows of materials (Liebl et al., 2016), which allows the optimization of working capital and liquidity throughout the chain (Meijer & Bruijn, 2013), and focuses specifically on suppliers (Tanrisever et al., 2012). This eclectic perspective that incorporates the three approaches to financing supply chains is used in our research to address factoring analysis.

2.2. Factoring to SME suppliers

The origin of factoring and its development are related to the organization and financing of trade (Hurd, 1939; Tatge & Tatge, 2012). This relationship dates back to the origins of civilization in ancient Mesopotamia, approximately 2000 years B.C. and continues into the era of globalization today (Kanayev & Sinitsa, 2013). Thus, the factor operation is considered one of the oldest (Hurd, 1939). Yet, as it stands today, it is considered one of the most recent commercial activities (Pérez-Elizundia & Lampón, 2020).

In its current version, factoring is a financial transaction in which the supplier assigns the collection rights of its invoices to a third party at a discount, in exchange for which said supplier receives a cash advance. Factoring involves three parties, the assignor (supplier), the lender who acquires ownership of the invoices and the debtor or obligor (buyer) with the responsibility of paying the legitimate holder of the collection rights at maturity. According to Liebl et al. (2016) and Klapper (2006), through factoring, suppliers issue an invoice for a given payment term, registered for the buyer as an account payable, and for the supplier as an account receivable, which is an illiquid asset for the latter until receipt of payment.

In general, factoring in Mexico is operated under a “buyer-centered” modality (Pérez-Elizundia, 2011; Pérez-Elizundia et al., 2019), without recourse to the SME supplier, through electronic means. By doing so, it is possible to transfer credit risk to buyers with a sound credit profile (also known as “anchor clients”, since it is around them that factoring programs are developed), thus giving SMEs the possibility of accessing working capital financing at very low rates, which otherwise would be practically impossible to access through traditional bank credit.

Although there are several institutional reports on factoring in Mexico, academic work is scarce. These reports coincide in highlighting the importance of legal, regulatory, governance and external variables as determinants for the relatively inefficient adoption of factoring in Mexico (Factors Chain International, 2020; World Factoring Yearbook, 2015). On the one hand, these reports highlight that the changes that factoring underwent after the reform of the factoring operating rules in Mexico in 2014 have been key (World Factoring Yearbook, 2015). These rules have involved, among other aspects, greater controls for fraud prevention as well as demanding information requirements in the process of supplier onboarding to the programs and have jeopardized the adoption of factoring. On the other hand, they point out that the public policies implemented in Mexico to promote this product have been insufficient for the level of adoption to be similar to that of neighboring countries (Factors Chain International, 2020; World Factoring Yearbook, 2015).

Regarding academic works, Klapper (2006), through a study of panel data from 48 countries and focusing his analysis on a factoring case in Mexico, identified access to good comprehensive credit information as a key element, especially in emerging countries like Mexico. This aspect implies the need to have a good information system for clients, as well as credit and risk management for efficient adoption. In addition, the study points out that the use of reverse factoring through an electronic platform reduces operating costs and is suitable for those countries with little credit information. The success of these reverse factoring programs depends in part on the legal and regulatory support of electronic signature and security laws. Other descriptive academic works have analyzed the

adoption of factoring in Mexico by focusing on the key aspects and challenges it faces (León, 2005; Pérez-Elizundia & Lampón, 2020). León (2005) highlights the design elements of the programs such as risk coverage and interest rates, the ease of operating with the product, and avoidance of commercial disputes between buyers and suppliers as key aspects in the adoption of these programs. More recently, Pérez-Elizundia and Lampón (2020), have identified the main challenges facing factoring in the country as the scarce financial culture and lack of understanding of factoring, unfavorable legal and regulatory spheres and the inefficiencies that delay the process of adoption of the programs (e.g. the many departments that intervene in their implementation or the complex process of ‘Know your Customer’).

Therefore, although there are previous works on factoring in Mexico and their contributions have helped to partially understand certain key factors of its adoption, they have not addressed the study of factoring from a comprehensive perspective that includes all the variables identified in the scientific literature on factoring. Furthermore, an empirical methodology, beyond the studies of a single case or the descriptive perspective of previous works, is necessary. This allows the results identified in previous works to be generalized and the key factors identified.

2.3. Determinants of factoring

The implementation and execution of a factoring program represents a significant commitment for banks. According to Bryant and Camerinelli (2014), the differences in the base of corporate clients make the process that each bank follows towards the adoption of a specific program different. However, these authors point out that there are steps and determinants that are largely similar and common to all the successful processes of adoption of these programs, which must be addressed by all participating actors. Therefore, any organization seeking to achieve synergies with its corporate strategy must know the determinants that make it possible to achieve dominant positions within the commercial or industrial sector to which it belongs.

Based on the above, the need arises to clearly and precisely identify the determinants of factoring programs that provide guidance, both to the banks and to the participating companies, on important aspects for decision-making and allocation of resources as part of the implementation process, which in turn allows them to maximize the effectiveness of the process of adoption and deployment of resources through factoring. In this respect, determinants are defined as those variables that management can influence through its decisions, and that can significantly affect the general competitive position of diverse companies in an industry (Hofer & Shendel, 1978).

Based on the literature review, fifty key aspects have been identified, classified into seven categories with twenty-three sub-categories of determinants that define the success or failure of the process of adoption, operation, and deployment of factoring resources (see Table 2).

Supply chain finance and its derivatives such as factoring have received increasing attention (Belassi & Tukul, 1996; Klapper, 2006; Whipple & Frankel, 2000), and this was more intense towards the end of the last decade (Bilgin & Dinc, 2019; Cavenaghi & Jiménez, 2016; Grüter & Wuttke, 2017; Kouvelis & Xu, 2018; Lata, 2016; Liebl et al., 2016; Mol-Gómez, Hernández, & Koeter, 2018). These works have allowed the determinants of factoring to be identified by analyzing the different aspects of this product, including, among others, objectives, background and barriers (Liebl et al., 2016), key exogenous and endogenous factors in adoption (Belassi & Tukul, 1996; Dello Iacono, Reindorp, & Dellaert, 2015), the impact on financial results (Grüter & Wuttke, 2017; Lekakos & Serrano, 2016;

Table 2
Determinants of factoring.

Source: Elaboration by the authors based on the literature review.	Source: Elaboration by the authors based on the literature review.	Source: Elaboration by the authors based on the literature review.
1. Business origination		
Business partner selection	Focus on relevant commercial and industrial sectors	Hurtrez and Gesua (2010)
Promotion	Selection of adequate large buyer	Bryant and Camerinelli (2014)
Price	Access to decision makers	Bryant and Camerinelli (2014)
Value proposal	Promotion strategy and market coverage model	Hurtrez and Gesua (2010)
2. Design and implementation	Discount rate and transaction fees	Camerinelli (2014)
Project management	Interest rates, alternative financing costs, supplier financial profile	Tanrisever et al. (2012)
Product design	Agility and customer response time	Hurtrez and Gesua (2010)
Implementation	Competent and committed project leader	Bryant and Camerinelli (2014)
Supplier management	Payment terms, interest rates, liquidity	Grüter and Wuttke (2017)
3. Credit and risk	Number of suppliers in the program, payment terms	Liebl et al. (2016)
Trust	Payment term, other financing alternatives	Lekkakos and Serrano (2016)
Control and prevention	Debt ratios	Bilgin and Dinc (2019)
Client information Systems	Program volume	Dello Iacono et al. (2015)
4. Operations and technology	Payment term, interest rates, supplier size	Van der Vliet et al. (2015)
Technological capabilities	Large buyer in charge of promoting the factoring program	Wuttke, Heese, and Blome, (2016)
Operations and process control	Key performance indicators (KPI), project term and sense of urgency	Bryant and Camerinelli (2014)
Information and communication technologies	Selection of suppliers to onboard (80–20)	Ascari (2015)
After sale service	Supplier onboarding process	Cavenaghi and Jiménez (2016)
5. Legal, tax and accounting aspects	Credit management, operational risks, portfolio diversification and documentation	Lata (2016)
Legal factors	Supplier default record	Liebl et al. (2016)
Accounting and tax factors	Supplier credit history	Kouvelis and Xu (2018)
6. Human and organizational factors	Know Your Customer process (KYC): both buyer and supplier	Cavenaghi and Jiménez (2016)
Human resources	Public records	Klapper (2006)
Internal support	Information systems, and credit and risk management	
Labor relations	Technological complexity of the process	Dello Iacono et al. (2015)
Internal organization	Capacity, sophistication, and operational and technological infrastructure	Bickers (2016)
7. External variables	Right IT platform provider	Bryant and Camerinelli (2014)
Macro factors	Local and cross-border reach in key geographies	Liebl et al. (2016)
Regulatory authorities and government	Process simplification	Bryant and Camerinelli (2014)
	Operational monitoring and control	Ascari (2015)
	Policies, rules and procedures	Lata (2016)
	Compatible information systems that allow timely information	Lata (2016)
	Service quality	Wuttke et al. (2016)
	Asset growth strategy	
	Collection rights protection, coverage, and access to credit risk information	Mol-Gómez et al. (2018)
	Judicial enforcement capacity	Camerinelli (2014)
	Perfection of collection rights through notification	Milenkovic and Dencic (2012)
	Contract for the transfer of collection rights	Bryant and Camerinelli (2014)
	Flexibility and agility in the design and approval of contracts	Camerinelli (2014)
	Perfection of collection rights through notification	Liebl et al. (2016)
	Definition and/or validation of accounting/tax treatment	
	Understanding of factoring by the involved parties	Ascari (2015)
	Senior management commitment	Bryant and Camerinelli (2014)
	Alignment between Finance and Purchasing areas of the large buyer	Ascari (2015)
	Common vision, alignment, integration, and synchrony between the involved parties	More and Basu (2013)
	Attitude, communication, trust, empathy, compatibility, and collaboration	Wuttke et al. (2013)
	Compliance with strategic objectives and expectations	Whipple and Frankel (2000)
	Bargaining power	Liebl et al. (2016)
	Project sponsor (top management member)	Belassi and Tukul (1996)
	Competition aspects	Belassi and Tukul (1996)
	Technological environment	Bickers (2016)
	Relationship with regulatory authorities and legal framework	Cavenaghi and Jiménez (2016)

Source: Elaboration by the authors based on the literature review.

Van der Vliet, Matthew, & Fransoo, 2015) and the benefits and costs of implementation (Milenkovic & Dencic, 2012).

However, most of the works have focused their analysis on a single category of determinants, such as commercial origination (Hurtrez & Gesua, 2010), product design (Van der Vliet et al., 2015) or regulatory and legal aspects (Milenkovic & Dencic, 2012; Mol-

Gómez et al., 2018). Some of them have even analyzed a single variable, using mathematical modeling to determine its impact on financial results (Lekkakos & Serrano, 2016). On the other hand, those who have adopted a broader vision, integrating multiple variables (Liebl et al., 2016), have lacked an analysis of their classification that would allow categorization of those variables.

Table 3
Variable coding.

Categorization criteria	Categories	Subcategories
1. Subject criterion	Factoring determinants identified by the participants	Composed of the seven categories and their respective sub-categories of determinants
2. Frequency criterion	Frequency of appearance of the determinants in the participants' responses	High/medium/low/null or absent
3. Importance criterion	Importance assigned by the participants to each of the determinants	High/medium/low
4. Performance criterion	Performance shown by the participants in each determinant	Good/fair/bad
5. Approach criterion	Factoring effectiveness, depending on the context in which the determinants were mentioned	Drivers and triggers/opportunity areas/inhibitors and challenges
6. Direction criterion	Attitude or tone of the participants' discourse regarding the current situation of the factoring sector	Optimistic/neutral/pessimistic

Source: Elaboration by the authors

Thus, our research, taking advantage of the results of these works, proposes to group the identified determinants into categories and to analyze all of them comprehensively. In this way, our research contributes, on the one hand, by establishing a categorization of the determinants, and on the other, by identifying the influence of each variable on factoring adoption with respect to all those previously identified as critical.

3. Empirical work

3.1. Methodology and data

To answer the research questions, this study uses a qualitative approach, through a case study and content analysis, for which semi-structured in-depth interviews and closed questionnaires were applied to a group of key informants from the main institutions that operate factoring directly, or that support the product somehow (through electronic platforms, financial resources and/or supplier onboarding).

The study universe consists of the main financial groups (commercial banks and a large non-bank financial institution) that offer factoring in Mexico, leaders of the sector, most of which are members of the Mexican Factors Association. The Association comprises 18 institutions that concentrate about 90% of the volume operated in the sector. The decision criteria to consider the providers of the product (and not the users) as the target population are the following:

- Banks know the product in depth, the operating policies, and the results that its implementation has had in various segments and at different historical moments.
- The banks have the decision power, since they have the economic resources, and from their structure they can anticipate the needs of the users.
- As banks are generally the bottleneck of credit, it makes more sense to test with them if the proposals of this research could facilitate access to resources to support SMEs working capital.
- There is greater access to banks, which is not the case with SME suppliers.

To select the interviewees, a non-probability sampling, with intentional and judgment selection is used, due to the need to know the opinions of experts in factoring. The sample is made up of ten participants that represent between 60 and 80% in volume of factoring that is operated in the country, made up of five large banks, two niche banks, a large and prestigious non-bank, a Fintech institution that provides electronic platforms and offers supplier management, and a development bank.

3.2. Data analysis

The analysis and interpretation of data is mainly based on the works of Pérez Serrano (1994), Ruiz Olabuénaga (1996) and Andréu Abela (2000), with the support of the MAXQDA Analytics Pro 2018 software. This analysis uses a code system based on data grouped by categories, which integrate the information obtained from the interviewed participants. This process helps to identify patterns and meanings among the cases analyzed.

The coding system is divided into two parts: a) coding of interviewed participants and b) coding of variables. In order to preserve the anonymity of the interviewed participants and guarantee the confidentiality of sensitive information, the names of the institutions were replaced by the label of Participant; followed by a number from 1 to 10 according to their profile: Large Banks (1–5), Niche Banks (6 and 7), Large Non-Bank (8), Fintech (9) and Banco de Desarrollo (10).

Regarding variable coding, the most important categorization criteria that emerged in this research are classified by subject, frequency, importance, performance, and approach as depicted in Table 3.

3.2.1. Categorization criteria: subject and frequency

The subject criterion integrates the seven categories of key aspects identified in the literature review, which in turn are divided into subcategories (as identified by the participants), each of which contains specific determinants. It is worth mentioning that only those determinants that arose during their responses were coded, and these are shown in Fig. 1.

This figure depicts the seven categories that frame the determinants, from which a total of seventeen subcategories emerged; that is, six less than the twenty-three identified in the theory. Once the subject codes were identified, a relative frequency analysis of determinant codes was performed, such that the higher the frequency of a specific determinant, the greater the importance that the participants assign to it. Based on this analysis, the determinants with the highest frequency in the response of the participants were those of the legal and regulatory framework (11%), followed by aspects of competition (10%) and sectors (10%). In contrast, the determinants that emerged the least were risk management (1%), product design (3%), and human factors (3%). The frequency analysis could offer an indication of the aspects that are most relevant to the participants, which will be complemented by the importance analysis that these participants assigned to each determinant in the questionnaire, as seen later in this section.

3.2.2. Categorization criteria: importance and performance

These criteria refer to the importance or degree of estimated contribution of the determinants to the success of factoring programs, as well as to the performance in each one of them. This information was obtained from the closed questionnaire, which

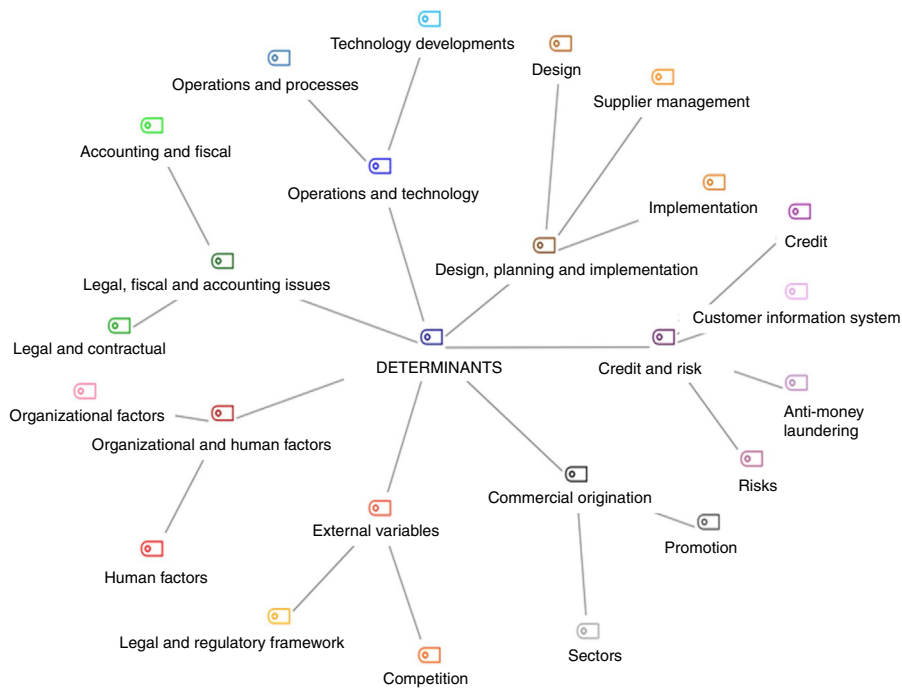


Fig. 1. Determinants identified by financial institutions.

Source: Elaboration by the authors based on the determinants identified by the interviewed participants.

was only applied to the banks and non-bank, excluding FinTech and the development bank, to have comparable results. This analysis illustrates that most of the participants considered of high importance all the determinants identified in the literature, while only some of them considered some determinants of medium importance, and no determinant as of low importance. Averaging out all responses results in overall high importance for all categories of determinants considered.

The importance and performance analysis complements the frequency analysis carried out previously, where out of the 30% of determinants that emerged the most, the legal and regulatory framework (included in the determinant of regulatory authorities and government) was assigned with high importance by all participants, while competition (included in the determinant of macro factors) and sectors (included in the determinant of selection of the commercial partner) were considered of high importance by about 80% of participants. This matches the results of the relative frequency analysis of determinant codes. For these three determinants, the average performance was fair in the first two, and good in the third.

Averaging out all responses results in good performance in all categories of determinants, except for legal, tax, and accounting aspects, and external variables, both with fair performance. On a consolidated basis, the above translates into good performance for half of the participants (4), and regular performance for the other half (4).

3.2.3. Categorization criteria: approach

The approach criterion distinguishes three types of determinants, namely: 1) drivers or determinants of success, 2) inhibitors or determinants of failure, and 3) areas of opportunity or determinants of improvement. The way and context in which participants introduce the determinants in their response conditions their approach, and therefore two different segments of their response that contain the same determinant can each be coded with two different approach criteria (i.e. as drivers, inhibitors or areas of opportunity).

Consequently, those determinants encoded by their approach are not necessarily mutually exclusive.

For example, one particular participant could present a poor performance in the determinant of anti-money laundering (AML), and therefore express that the said determinant represents a barrier that substantially affects the process of supplier onboarding since its compliance implies a great operative burden for not having qualified personnel to carry out this task; in this case the segment is encoded as inhibitor. However, another participant that also presents a low performance in the same determinant could propose that an approach with regulatory authorities could potentially result in reduced number of requirements for compliance with AML policies, which in turn would translate into an improvement in the efficiency of the supplier onboarding process. In this case, the segment is coded as an opportunity area.

Having defined the approach categories, a frequency analysis of the approach code segments in the participants' responses showed that the presence of inhibitors predominated (47% of the total), followed by areas of opportunity (37%), and the drivers far behind (15%).

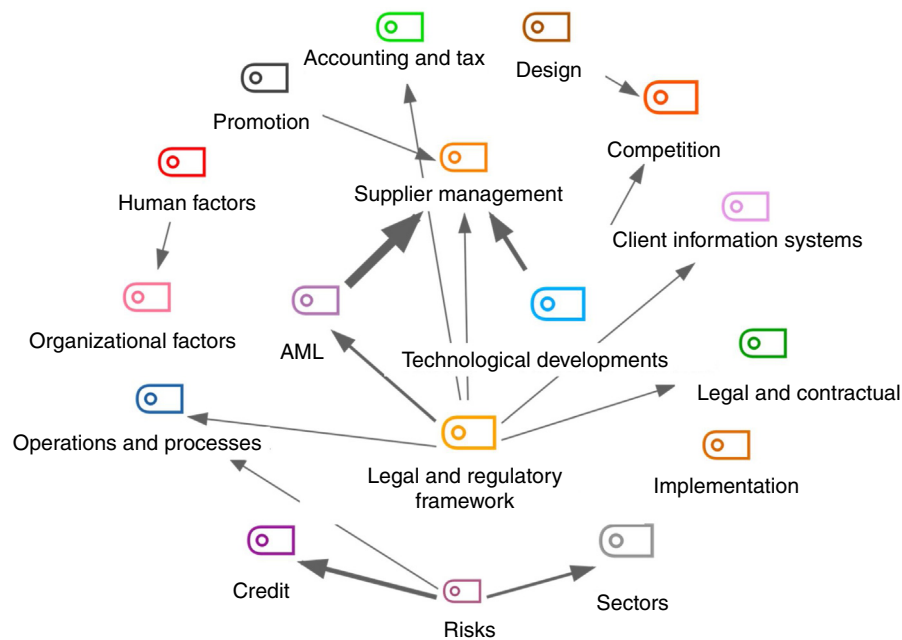
3.3. Results

Once the categorization criteria are defined, relationships between codes are identified. The most relevant being the subject and its frequency, and the subject and its approximation.

3.3.1. Interrelation of determinants and their frequency

The similarities and relationships between the determinants emerged from the participants' responses. In this sense, both categories are shown together in Fig. 2 below, where not only the convergences between determinants are observed (the thickness of the connection lines indicates the frequency of convergences for the same pair of variables), but also the frequency of appearance of each of the determinants (indicated by the font size).

Co-occurrences arise in practically all determinants; however, Fig. 2 only shows those cases where they occur at least three times



Source: Elaboration by the authors based on the categorization criteria of matter and frequency.

per pair of determinants. Likewise, the direction of the arrows indicates which determinants affect which other ones, thus having independent variables (those that affect others) and dependent variables (those that are affected by others). In this way, it is observed that the legal and regulatory framework is the determinant that has the greatest impact on the others (independent variable), while that of supplier management is the most affected by others (dependent variable).

3.3.2. Interrelation of determinants and their approach

This analysis is of special interest, since a single graph makes it possible to distinguish the general approach that the participants gave to the determinants (highlighting the most important ones) in their response and, depending on the frequency at which each determinant was coded towards a certain criterion of approach, the direction of their response can be determined, whether optimistic, pessimistic or neutral. The interrelation of various codes will in turn allow either financial intermediaries and / or regulatory authorities to take more appropriate decisions on the actions that would have to be implemented to achieve an improvement in the performance of certain determinants, as well as their level of priority and urgency. This in turn will be aimed at achieving results that have a more effective impact on the performance of factoring programs in the shortest possible time.

The code interrelation analysis is presented in Fig. 3, based on a map where each circle represents a code of subject (i.e. determinant) or focus (drivers, inhibitors and areas of opportunity), respectively, whose size is associated with the relative frequency of segment encoding. Likewise, the blue boxes frame certain determinants associated with the level of maximum importance, and the connecting lines between the codes indicate where and how often (depending on their thickness) two of them have converged for a certain segment. Finally, the distances between two specific codes represent the degree to which these codes converge in the data documents.

The result of the interrelation of codes is a triangular prismatic-looking figure showing three clusters of determinants grouped by focus code at each corner, these being the drivers, inhibitors, and areas of opportunity, marked in green, red, and yellow, respectively.

From the previous figure, it is observed that, of the five most relevant determinants according to their frequency, that of aspects of competition is considered a driver, while two of them are considered inhibitors (legal and regulatory framework, and sectorial aspects), and two more as areas of opportunity (supplier management and technological developments).

4. Conclusions

The identification of the main barriers that inhibit the development of factoring, as well as the most relevant determinants and the performance shown by the participants, is considered an important contribution to the theory. These determinants stem both from an exhaustive review of the literature and from empirical experience through direct consultation with the target population (the providers of factoring) through a case study and content analysis, and there is thus certainty that they are the most important ones for the Mexican context.

Although the current use of factoring is inefficient and its degree of penetration is low in the national economy, the presence of large corporations with great purchasing power, good credit standing and a broad supplier base, make factoring an ideal solution to facilitate access to working capital financing to SME suppliers in Mexico. The financing of the buyer-supplier duo is more efficient for both the lender and the business partners, than doing it independently.

Among the main findings of the empirical study is the fact that the factoring sector in Mexico has suffered significant changes in its environment since 2014, which have affected its performance on various fronts. In legal matters, a general lack of knowledge of the product prevails on the part of the authorities, which, together with the weak legal framework and an absence of executive merit in invoices subject to factoring discounts, creates an environment of uncertainty about being able to collect in the event of non-compliance. Likewise, there is a lack of clarity in the application of various laws, especially those that regulate the processes of prevention of money laundering to users of factoring. In relation to this, credit information systems are not robust enough to allow banks to obtain critical data from users of factoring quickly and reliably.

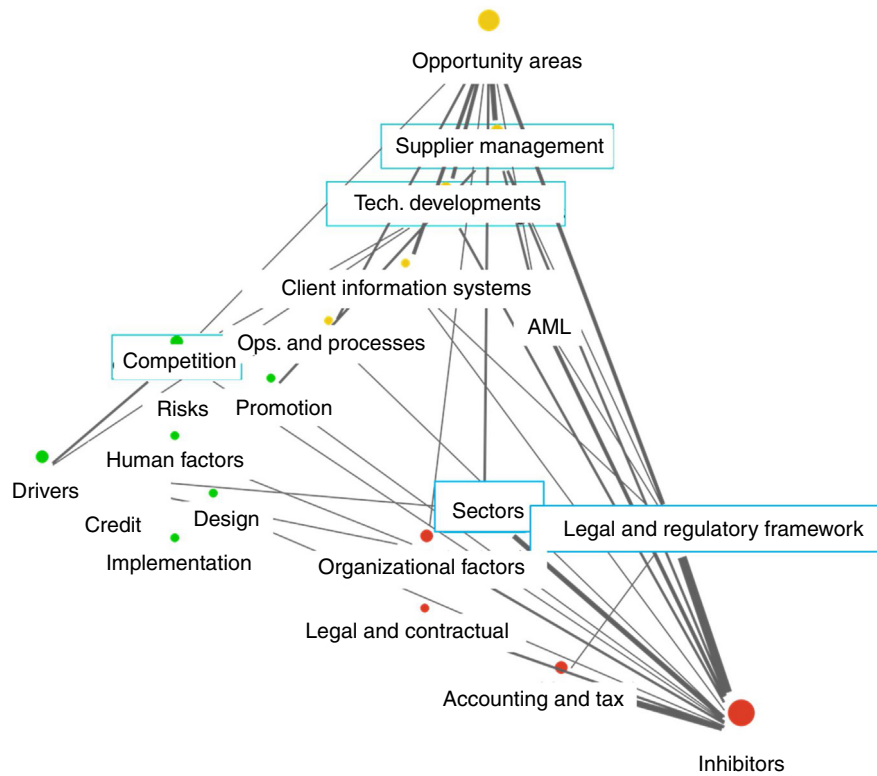


Fig. 3. Interrelation of determinants.

Source: Elaboration by the authors based on the criteria of code categorization.

Furthermore, there is a lack of statistical information about critical aspects of SMEs (e.g. credit amounts and terms, volume of invoicing on credit, etc.) and the little information available is unclear or outdated. This has a double impact: a) it exacerbates the information asymmetries between banks and SMEs, resulting in greater credit rationing and suboptimal solutions, and b) it prevents adequately dimensioning the market, thus complicating the design of a strategy for greater financial inclusion of the SMEs through factoring.

In regulatory matters, operational controls have been tightened following a series of scandals stemming from alleged frauds that damaged the product's prestige and credibility. Specifically, the debt acknowledgement obligation by the large buyer implies that the commercial debt be reclassified as bank debt, which affects those large buyers that are listed on the stock exchange and that operate reverse factoring, thus jeopardizing their credit rating for taking on greater financial leverage.

In fiscal matters, the authorities enacted an initiative that, although it seeks to achieve greater control over taxpayer payments, uses banks as control agents between buyers and suppliers in factoring programs. Finally, with respect to sectorial aspects, the public sector, where most SME suppliers obtain finance through factoring, substantially reduced its factoring operation because the law that forced para-state entities to publish their invoices through this product was extinguished nearly ten years ago. These findings help answer the first specific research question regarding the barriers that limit factoring in Mexico.

Once these barriers have been identified, it is important to understand the determinants that influence decision-making to implement actions that help increase the effectiveness of the process of adoption, operation, and deployment of financial resources. As a result of the empirical experience, the legal and regulatory framework, competition aspects and sectorial aspects emerge as the determinants with the greatest impact. Other variables of

utmost importance include access to reliable and efficient customer information systems, ease of operation, technological developments in supplier management, simplification of requirements and processes, and support from senior management.

A performance improvement in banks in those determinants would effectively favor greater financial inclusion of SMEs, by being able to access greater working capital financing at lower costs through factoring. This in turn would translate into lower prices, greater operational efficiency, greater competitiveness, better quality of products and services, from which the final consumer would benefit. In turn, greater participation of SMEs in the national economy would mean greater generation of jobs and economic development in the country.

Based on the results of our research and to allow effective implementation of factoring, a series of actions are proposed to the participants involved in factoring. The objective of these actions is fundamentally to reduce both the asymmetries of financial information in the supply chain and the rationing of credit to SMEs. The most important actions include a) facilitating greater access to company information through robust public registries of credit information, b) expanding the anchor client base to medium-sized companies through financial institutions willing to take greater risks, and c) offering combined schemes of bank credit, cash discounts and factoring.

The present study has some limitations, especially stemming from its empirical work. These can be overcome by tackling future lines of research. Thus, the study could be approached beyond the perspective of banks, expanding towards SME suppliers, large buyers, and/or the government. It could also include analysis of how new technologies such as the Blockchain can be applied in factoring, in order to maximize legal certainty about invoices assigned to third parties and recorded in public registries, to reduce operational and payment execution risks. Finally, although the focus of this work is qualitative, a quantitative analysis would effectively

allow testing of the impact of the determinants on the degree of factoring adoption, thus reinforcing the conclusions of this study.

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