

## **The Effects of the Capital Structure in Performance: Empirical Study on Manufacturing Smes of México**

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### **Abstract**

*The small and medium-sized enterprises (SMEs) generally present capital structures poorly planned, and appeal to financial sources both internal and external that while allow them to operate, often neither represent the best available options nor the most appropriate for maximizing their economic performances. The objective of this empirical study is to determine the effects of the capital structure in the performance of the SMEs, specifically; the work was done with a sample of 221 manufacturing SMEs located in Aguascalientes State in Mexico. The obtained results through the empirical testing of a structural equation modeling (SEM) provide empirical evidence that the internal financing sources influence significantly and positively the performance. Similarly, it was found that the external sources of financing have a positive influence, but not significantly in performance, which draws attention to the importance of these companies carefully plan their capital structure, giving preference to the internal financing sources.*

**Keywords:** Capital Structure, Performance, SMEs, Structural Equation Modeling.

### **1. Introduction**

The small and medium company (SMEs) has an outstanding performance at the global, regional and local levels, despite the rapid technological changes, globalization and the disadvantages faced regarding the large companies in almost all the world. (Di Tomaso & Dubbini, 2000; Beck et al., 2003; Dussel, 2004). These companies are major players in most of the countries, due to their ability to generate jobs and wealth. In the field of emerging economies of Latin America, Harvey & Wendel (2006), in a World Bank report, and Guaipatín (2003), in an investigation of the Inter-American Development Bank, point to the important role of SMEs in Latin America and show that access and decision making on funding sources is a common problem and tends to be a characteristic of developing nations.

In this regard, the financing sources and capital structure have been pointed out as two major factors that have adverse or positive effects on the operational life and performance of SMEs (Meredith , 1986). This is due to most of the problems in these companies are economic (OECD, 2006).

In Mexico, manufacturing SMEs account for two thirds of the industry in the country, however, they have had a significant drop in growth, which has been of just 1.3 % in 2015 and 2016 compared to previous years where the average growth ranged from 1.4 % to 5.4 %. In contrast, their operational life has dropped, highlighting as the main barriers: the access and use of the funding sources and the decisions they make regarding the capital structure they own (SE, 2014).

The capital structure is the combination of debt and capital that a company uses to finance its business (Damodaran, 2001). The capital structure and its impact on the value and performance of the company is still an issue that in the theory of corporate finance and in the literature of finance has not been solved, and that does not have some sort of consensus. The importance or the funding sources can be addressed through strategies and financial decisions that impulse growth and achievement of organizational objectives (Salazar & Soto Mosqueda, 2012). That is why the financing sources and capital structure of companies have emerged as important factors in the development, growth and success of SMEs (Ou & Haynes, 2006; Cook, 2001).

The methods of funding used by the SMEs vary from internal sources such as personal savings of the owner-manager and retained earnings (Wu, Song, and Zeng, 2008) to informal external sources, including financial assistance from family and friends (Abduzeedo, 2003) trade credit, of risk, capital financiers (He & Baker, 2007), and then to formal sources represented by financial intermediaries such as banks, financial institutions and stock markets (Chittenden, Hall, & Hutchinson, 1996).

Despite the effort that has been made in theorizing the capital structure in SMEs as a result of the different funding sources and its impact on performance, we have not been found convincing and conclusive results with regard to the relationship of these variables. The results of the empirical literature on the relationship between capital structure and performance are contradictory, which justifies further investigation. In addition, most of the published studies on the relationship between funding sources and performance have been conducted in developed countries and large companies, where there is development in the capital markets (Kajirwa, 2014). The capital market in Mexico is relatively of low development and, therefore, the traditional theories of capital structure that originated in developed countries and large companies need to be tested in developing countries and in different companies.

Based on the literature review and attending to the needs identified in manufacturing SMEs in Mexico, in this paper it has set the objective of analyzing the influence of capital structure on the performance of these enterprises. The document is organized into the following sections: a review of literature, hypotheses approach, then the applied methodology is described, the empirical results are shown and finally, the conclusions of the investigation are included.

## **2. Literature Review**

The impact of capital structure on performance has been studied by Durand (1952), who provided one of the first theories of capital structure and its impact on the value of the company, since then, this topic has received a great attention in the financial literature. Modigliani & Miller (1958) indicated that the capital structure is irrelevant and that there is no optimal capital structure, based on unrealistic assumptions and fairly debatable, derived from his postulate that exclusively contemplated perfect markets.

There is a lot of literature that has examined the determinants of the capital structure of companies in developed economies. Various empirical studies based on theories of capital structure have previously been made for Australia (Cassar and Holmes, 2003; Johnsen and McMahon, 2005), Spain (Sogorb, 2005), United Kingdom (Hall et al., 2000) and the US (Gregory et al., 2005) among others. Nevertheless, studies on the capital structure have spread to the contexts in developing countries in the recent past. It has been shown that factors such as the level of development of a country, legal and financial systems affect the capital structure of companies (Fan et al., 2006) so that investigations can differ significantly from one country to another. Some possible reasons is the discrepancy in the data and the unreliability of the information of SMEs in developing countries derives that these kind of companies are not officially required to disclose detailed financial information or having their audit reports contrary to what happens in developed countries.

There is a lot of preliminary work that has been carried out in developing countries like Poland (Klapper et al., 2006) Vietnam (Nguyen and Ramachandran, 2006) and Ghana (Abor and Biekpe, 2007). These studies argue that theories of capital structure and funding decisions are not applicable in SMEs, in the same way there are significant institutional and organizational differences between developing countries and developed countries.

In the studies mentioned above, the authors concluded that the size of the company is the main factor in choosing the financing sources and capital structure that the company will adopt. According to Chaganti et al., (1995) due to the assumption of rational economic behavior and perfect market conditions of the MM irrelevance theory, argues that it is not applicable in SMEs. SMEs differ from large companies in various aspects and they apply different funding decisions (Heyman et al., 2008). The SMEs have limited access to external financing unlike large companies and, this has caused that these businesses are encouraged to rely more on self-generated funds (own resources) or on short-term debt.

Abor (2007) evaluated the relationship between the capital structure and the performance of SMEs in South Africa and Ghana, found a significantly negative relationship of the financial leverage measured by the ratio of short-term debt, and positively significant with the long term debt. In addition to an existing negative relationship between external financing and profitability in companies in Ghana. Seppa (2008) found that companies in Estonia follow the pecking order hypothesis to decide which is the optimal capital structure, firstly they use internal funds to finance its objectives and, finally, external sources. According to Singh Luthra (2013), there is a greater difference in the capital structure behavior in SMEs from one industry to another, than from one country to another.

On the other hand, a number of empirical studies, including Kimhi (1997), Barton & Gordon (1987), using the model of lifecycle as an approach to understand the capital structure of SMEs indicating that their funding will primarily depend on life cycle stage, thus new businesses rely primarily on internal financing sources and mature companies use external financing sources, which will invariably affect their growth and the accomplishments that can be achieved as firm. However, other studies criticize the life cycle model of growth, claiming that does not offer a complete picture of the financial decisions and behavior in SMEs. For example, Berger & Udell (1998) admit that the paradigm of the life cycle is not applicable to all SMEs operating in different industries, as the company size, age and availability of information, cannot be perfectly correlated.

Gregory, Rutherford, Oswald & Gardine (2005) indicate that the financing of SMEs cannot be standardized. The pattern of financing of SMEs explained by Berger & Udell (1998), contrasts with the hierarchy theory hypothesis developed by Myers (1984) which suggests that the capital structure is based on the age and development of the company. The postulate of the hierarchy theory suggests that domestic sources of funding are a priority, while the use of external sources will be postponed until internal sources are exhausted. Therefore, the order of preference of the financing sources in a company are: internal equity, then the debt issuance, and finally, the shares issuance (Cassar & Holmes, 2003) and to the extent they design better their capital structure, better business results will be obtained.

According to the hierarchy theory and contrary to the life cycle model, Gregory et al. (2005) argue that companies should be less dependent on external financing sources than younger companies. They attribute this to the fact that older companies have more opportunities to earn profits than younger companies. The hierarchy theory was verified by Helwege & Liang (1996) who examined the financial decisions of a sample of SMEs between 1984 and 1992. They found contrary to what the theory suggests that there is no evidence of a significant relationship between obtaining external financing and a deficit in internal sources, and that none of the two sources had a significant impact on performance.

On the other hand, in the national context, Gomez & García Pérez (2010), in a study of 128 companies, obtained similar results to those obtained in the above-mentioned studies, on the one hand reinvestment of profits and contributions from owners, are mostly used by these kind of companies and the bank credit is hardly used as a way of financing projects or assets. Consequently, the most positive and significant impact was obtained by domestic financing sources, unlike external that did not influence the performance of firms.

From the review of the different backgrounds in the scientific literature, it is observed that some studies show a positive relationship between capital structure and performance, others a negative relationship between these variables, so it should be noted that one of the main contributions of this paper is to contrast how is the dynamics of the relationship between capital structure and performance presenting in the context of SMEs in a developing country, for which it has taken the view of those who say a positive influence among capital structure, consisting of internal financing and performance. Then the first research hypothesis is.

*H1: Internal financing has a positive and meaningful way in the performance of manufacturing SMEs in Aguascalientes.*

In this sense studies on capital structure and performance are mainly based on the theory of information asymmetry, the signaling and the agency cost. After Jensen & Meckling postulated the agency theory (1976), other researchers (Fama & French, 1998; Gleason *et al.*, 2000; Hadlock & James, 2002) have studied the effect of the influence of the capital structure on performance based on the agency theory and asymmetric information, prioritizing the external financing. Ross (1977) states that the choice of debt and its capital will indicate the quality and profitability the firm has. This study explains that low-quality companies pay high costs when they send signals to the market pretending to be a signature high-quality through the incorporation of an increase in its capital, using debt. He also remarks that companies with low debt end up freely spending their cash flow without any planning, generating them underperforming and, on the other hand, companies that handle reasonably debt will generate a higher yield derivative from their commitment to meet the interest payments and, for this reason they will manage the remaining cash flow in an efficient manner which will result in positive outcomes for the company.

Reinforcing the earlier point about the capital structure in SMEs, studies of previous years already gave light on the peculiar characteristics in this kind of companies, such as Jones (1979) study, which identified that the composition of the initial capital plays an important role on the performance of SMEs; too much debt at the beginning tends to generate liquidity problems. Also, Levin & Travis (1987) suggest that SMEs administrator preferences with respect to the choice between debt and equity play a more important role than in large organizations. Meanwhile, Barton & Gordon (1987) maintain that senior managers prefer to finance the activities of SMEs, using resources generated by it. In this sense, there is empirical evidence indicating that, in general, small business owners want to maintain control over strategic decisions (Shrivastava & Grant, 1985).

Harris & Raviv (1988) explain that some companies use more external leverage as a tool to exert more control over it, therefore, it means that they support a higher risk, and societies most at risk will be less likely to be acquired by a buyer, this would be done by managers in order to have greater security in their jobs and in the decisions of the company, thus affecting a lower performance which is not consistent with agency theory.

In an investigation with American SMEs, Titman & Wessels (1988) concluded a negative relationship between the capital structure based on external sources of funding and its performance. The authors argue that due to the costs and risks associated with external leverage, SMEs have difficulty accessing such loans as these firms are not attractive for banking institutions, therefore the interest rates they set them will be high and the loans will be mostly short-term derivative from their ability to pay may not be resolved for a long time unlike large companies (Pettit & Singer (1985). This is supported by Rajan & Zingales (1995) who found that performance was negatively correlated with the external leverage, which was confirmed by Ozkan (2001) who also explains that SMEs are more sensitive to the economic crisis and collapse in situations of financial difficulties since they have fewer resources available, so that these companies would solve to lesser extent an external leverage.

Recently Omondi and Muturi (2013) showed that external leverage had a negative and significant effect on the financial results of the company, and Umer (2014) adds the negative correlation between external sources and corporate profitability. However, Gill *et al.*, (2011) showed that short-term debt and long-term debt regardless of the funding source obtained a positive influence on profitability. In addition, Gill, *et al.*, (2011) classified the sample of services and manufacturing sectors, finding matching results in the two sectors. From the review of the scientific literature reviewed above, the second research hypothesis is presented with regard to the positive relationship that may exist between external sources of funding and performance.

*H2: External funding influences in a positive and significant way the performance of manufacturing SMEs from Aguascalientes.*

### **3. Materials and Methods**

#### **3.1 Sample design and data collection**

The empirical research has been done from a quantitative approach, and through a cross-sectional descriptive study, using as data analysis technique the structural equation modeling (SEM). For the development of this research, the database offered by the Business Information System of Mexico (2015) was taken as reference, in which 436 industrial companies with 11 to 250 employees were registered in the state of Aguascalientes to 30 October 2015. A probabilistic sample of SMEs from the manufacturing sector of Aguascalientes was defined with a confidence level of 95% and a margin of error of 5%.

The questionnaire was designed based on the theoretical model, which was applied randomly, giving a response rate of 77.34%, and counting at the end with 225 valid questionnaires, which were answered by managers or companies owners. The study was designed based on the theoretical model integrating scales previously tested and applied independently. The fieldwork was developed in 2015, through a system of random selection achieving a response rate of 77.34%, finally collecting 225 valid questionnaires, which were answered by the managers or owners of these companies.

### **3.2 Measurement of variables**

For the preparation of the measuring instrument, three blocks were used: internal financing sources, external financing sources and business performance.

#### **3.2.1. Source of internal financing variable**

To measure the internal sources of financing variable, various scales were adapted (AECA, 1995; CEPAL, 2011; Garcia, Barona & Madrid- Guijarro, 2012) and from the literature review, this originated that most of the scales previously used to measure this variable were based on indicators or financial reasons (not in the perspective of the manager or owner), which is practically impossible in Mexico, derived from public policies and from the unwillingness by managers or owners of SMEs to participate due to the fear and lack of confidence they have in providing this type of data in research. The scale consists of three items that were measured on a Likert scale ranging from 1 to 5 points, which are referred from low importance to high importance, respectively.

#### **3.2.2 External financing sources variable**

In measurement of this variable the criteria outlined above was taken, and various scales previously used were resumed (AECA, 1995; ECLAC, 2011; Garcia Barona & Madrid - Guijarro, 2012) which were reinforced with the literature review. The scale consists of nine items that were measured on a Likert scale ranging from 1 for low importance to 5 points for high importance.

#### **3.2.3. Performance Variable**

For this study, a scale that can capture the subjective perception of director or manager regarding the performance that has been seen in the company was defined. It has been taken into account the four dimensions proposed by Quinn & Rohrbaugh (1981), and previously used by Van Auken et al. (2008) Maldonado Martínez, García, Aguilera, & González, (2010), Mojica (2012), Estrada, Cuevas- Vargas & Cortés (2015) in subsequent studies. Where the dimensions of the scale are: the internal processes dimension that is measured on a scale of three items; the open systems dimension in a scale of three items; the rational objective dimension of 3 items, and the human relations dimension consisting also of 3 items. All dimensions were measured with a Likert scale ranging from 1 to 5 points, which relate to strongly disagree to strongly agree, respectively.

### **3.3 Reliability and Validity**

In order to assess the reliability and validity of the measurement scales a Confirmatory Factor analysis (CFA) was performed, using the maximum likelihood method using the statistical software EQS 6.1. Where the variable sources of internal and external financing were set as first order factors; and the performance variable as second order variable as it could not be directly measured (Bentler, 2005; Brown, 2006; Byrne, 2006). Also, the reliability of the three proposed scales of measurement was evaluated based on the *Cronbach Alpha* coefficients and on the Composite Reliability Index (CRI) (Bagozzi & Yi, 1988). From the results, all values exceeded the minimum recommended level of 0.7 for the *Cronbach's Alpha*, providing evidence of reliability of the scales (Nunally & Bernstein 1994). Likewise, we worked with robust statistical (Satorra&Bentler, 1988) to prove in a more efficient way the statistical adjustments, as shown in Table 1.

### **3.4 Model Adjustments**

The reference values that were used for Confirmatory Factor Analysis (CFA) were the Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI), the Comparative Fit index (CFI) and the Root Mean Square Error of Approximation (RMSEA) (Bentler & Bonnet, 1980; Hair *et al.*, 1995). It is noteworthy that values NFI NNFI and IFC between 0.80 and 0.89 represent a reasonable fit (Segars & Grover, 1993) and a value equal to or greater than 0.90 is good evidence of a good fit (Byrne, 1989; Jöreskog & Sörbom 1986; Papke-Shields, Malhotra & Grover, 2002). Also, RMSEA value below 0.080 are acceptable (Hair *et al.*, 1995; Jöreskog & Sörbom, 1986). The reference values that were used to perform the Confirmatory Factor Analysis are shown in Table 1.

Therefore, after applying the AFC0, it was found that the model got a very good fit of the data with reference to the robust statistical ( $S-B X^2 = 200.7838$ ,  $df = 96$ ,  $p = 0.000$ ;  $NFI = 0.888$ ;  $NNFI = 0.922$ ;  $CFI = 0.937$ ; and  $RMSEA = 0.070$ ), since the NFI values are between 0.80 and 0.89; NNFI and IFC are higher than 0.90; and RMSEA is less than 0.08, which are acceptable (Hair *et al.*, 1995; Jöreskog & Sörbom, 1986), and are found in Table 1, therefore, the theoretical model fitted has a high index fit and therefore, has content validity.

However, as evidence of convergent validity, AFC results indicate that all the related factors items are significant ( $p < 0.001$ ), the size of all the standardized factorial charges are greater than 0.60 (Bagozzi & Yi, 1988) as well as the standardized factorial charges average that is greater than the value of 0.70 (Hair *et al.*, 1995). As could be seen in Table 1, there is a high internal consistency of the constructs, in each case, the Cronbach's Alpha exceeds the value of 0.70 recommended by Nunnally & Bernstein (1994). The composite reliability represents the extracted variance between the group of observed variables and the fundamental construct (Fornell & Larcker, 1981).

Regarding to the evidence of discriminant validity, the results obtained are presented in Table 2 wherein the measurement is provided in two forms, the first with a 95% confidence interval, none of the individual elements on the latent factors of the correlation matrix, contains the value 1.0 (Anderson & Gerbing, 1988). Second, the extracted variance between the pair of constructs is less than its corresponding Variance Extracted Index (VEI) (Fornell & Larcker, 1981).

The diagonal represents the index of the Variance Extracted Index "VEI", below the diagonal part of the variance obtained from Confidence Interval Test is presented and above the diagonal the results of Variance Extracted are presented represented through the square of the covariance between each of the factors. Therefore, based on these criteria, it can be concluded that the various measurements made in this investigation demonstrate sufficient evidence of reliability and convergent and discriminant validity of the fitted theoretical model.

#### 4. Results

Once the reliability and validity of the proposed model was proved, a structural equation analysis was performed using the statistical software EQS 6.1, with the same variables to test the model structure and to get the results that contrast the hypotheses, which are presented in Table 3. Regarding the first hypothesis **H1**, the results presented in Table 3 ( $\beta = 0.231$ ,  $p < 0.05$ ) indicate that the sources of internal financing influence positive and significantly on the performance, therefore, the **H1** is accepted; regarding the second hypothesis **H2**, the obtained results ( $\beta = 0.078$ ,  $p > 0.1$ ) indicate that external sources of financing have positive but not significant effects on performance, therefore, **H2** is rejected.

#### 5. Conclusions

The capital structure has attracted an intense debate and attention in the field of finance especially in recent decades. Despite the extensive empirical analysis of the decisions of leverage in big companies, the empirical research of the capital structure of SMEs has been relatively recent. In addition, analysis of financing decisions of SMEs in Latin America, including Mexico, is still low. Therefore, this paper analyzes the influence on the capital structure of SMEs, focusing on the sources of funding they have and whether these, have impact on the firm's performance.

In this sense, the results of this research have important implications for the policies of the firm, industry and micro levels. First, this study found that performance of SMEs decreased when leverage with external sources is higher. Therefore, the study recommends that directors of SMEs must reduce external leverage in order to improve performance. It is further recommended that the government should regulate the financial sector through various monetary and fiscal policies in order to reduce the cost of debts since SMEs do not have access to external sources of financing or the cost of acquiring this kind debt is very expensive, being more difficult for SMEs, resulting in an impediment to the growth of this business sector.

In addition, it was found that the capital structure of SMEs in the manufacturing sector in Aguascalientes, Mexico, is not consistent with Modigliani and Miller (1958), regarding the capital structure theory, but it is consistent with the agency theory that states that the higher the external debt, the lower the performance. This justifies that companies do not rely on debt to finance its operations and that the increased use of resources for investment comes from retained profits and, especially SMEs that have greater financial difficulties and less access to loans.

It is recommended that the firm establish the point at which the cost of capital is minimized and thus maintain optimal capital structure to maximize the wealth of the owners. The size of the company seems to be the most important factor determining the capital structure and its effect on performance. This study concludes with some areas of future research. It suggests including the maturity of the debt, to distinguish between small and medium-sized companies and, in the same way, include the property structure. This particularly affects SMEs because much of the performance of the firm could be explained by the structure of the property. Furthermore, this study was focused only on the manufacturing sector and could include for a better understanding other sectors in future research.

**Table 1: Internal Consistency and Convergent Validity of the Theoretical Model based on EQS V6.1**

Variable	Indicator	Standardized Factorial Charges	Robust t-Value	Factorial ChargesAverage	Cronbach'sAlpha	IFC	IVE
Internal Financing Sources (F1)	FFI1	0.668***	1.000 <sup>a</sup>	0.798	0.828	0.843	0.645
	FFI2	0.845***	10.375				
	FFI3	0.881***	9.560				
External Financing Sources (F2)	FFE4	0.694***	1.000 <sup>a</sup>	0.707	0.741	0.750	0.500
	FFE5	0.684***	6.356				
	FFE7	0.742***	6.252				
	ERH3	0.875***	9.732				
Performance	F3	0.879***	3.234	0.810	0.832	0.890	0.676
	F4	0.976***	3.214				
	F5	0.801***	3.193				
	F6	0.582***	3.068				

• S-B  $X^2= 200.7838$ ;  $gl= 96$ ;  $p= 0.000$ ;  $NFI= 0.888$ ;  $NNFI= 0.922$ ;  $CFI= 0.937$ ;  $RMSEA= 0.070$

<sup>a</sup> = Parameter constrained to this value in the identification process.

Significance: \*\*\* =  $p < 0.001$ ; \*\* =  $p < 0.05$ ; \* =  $p < 0.1$

**Table 2: Discriminant Validity of the measurement of the theoretical model based on EQS V6.1**

Variables	Internal F.F.		External F.F.		Performance
Internal F.F.	<b>0.645</b>		0.070		0.016
External F.F.	0.194	0.334	<b>0.500</b>		0.011
Performance	-0.044	0.294	-0.016	0.226	<b>0.676</b>

**Table 3: SEM results of the theoretical model**

Hypothesis	Structural Relation	Standardized Coefficient $\beta$	Robust t-value
H1: Internal financing sources significantly influence performance.	Internal Financing $\rightarrow$ Performance	0.231**	2.213
H2: External financing sources significantly influence performance.	External Financing $\rightarrow$ Performance	0.078 NS	0.704

Significance: \*\*\* =  $p < 0.001$ ; \*\* =  $p < 0.05$ ; \* =  $p < 0.1$

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