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Debt incorporation to the capital structure in Mexico: A study with panel data.

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Abstract

The purpose of this research was to identify the main factors of the country and the firm, as well as assess and determine the mathematical relationship of individual exercise, by incorporating debt into the capital structure of companies located in Mexico. The analysis was conducted with the financial information published in the Mexican Stock Market, during the period between 2000 and 2007. An empirical study was performed where long-term debt was the dependent variable and by using the E-views 4.1 program and the technique known as panel data, the mathematical relationship which independent factors execute were estimated, that were previously identified and analyzed. The study results are from theoretical and practical interest, identifying and understanding the relationship of the main factors by including debt in the capital structure, facilitates and contributes to the normative postulates' construction.
Keywords: Capital Structure, Company Factors, Country Factors.

Introduction

The investigation arises from not finding in the company's real world capital structure policy, rule or model for its development, highlighting and raising the need to review the theories, empirical studies, existing hypotheses as well as the assumptions that underline and adopt different approaches to the study of the factors and their relationship to form the structure of capital. The review of theories and empirical studies gave a solid foundation to the questions, challenges and problems that we considered.

Theoretical Framework

The lack or existence of an optimal capital structure for the company, as well as how it should be determined have been one of the most controversial issues in the finance literature since Modigliani and Miller (1958), published their article and presented their proposals for the irrelevance of capital structure on the enterprise value. It's been 53 years since the publication of this seminal work which gave rise to corporate finance we know today and which in turn causes a study of the capital structure of companies to capture and received much attention from the finance and economic areas. Notwithstanding the extensive developed researches, the capital structure theory does not provide conclusive answers.

The theoretical models developed in recent years have tried to validate and generalize, sometimes, the thesis of the irrelevance of (Modigliani and Miller 1958), or some others, to adapt the thesis of maximum debt (Modigliani and Miller 1963). From convergence of both research lines in the decade of the sixties a renewed theory of capital structure emerged, which postulates the existence of an optimal solution to the raised problem.

In the actual investigation were reviewed among others the following theories: optimal capital structure, tax base theory, asymmetric information theory, theory of preferences hierarchy or pecking order theory (POT), which was formally proposed by Myers(1984) and by Myers and Majluf (1984) built on the preliminary work of Donaldson (1961), theory of agency costs and the free cash flows theory, together with empirical studies that support these theories, highlighting among others the study made by (Rajan and Zingales 1995), and the study of (Wald 1999), these studies provided empirical evidence for the G-7 countries. They analyze some institutional

factors of the company, such as: the size of the firm, earnings, growth rate, and risk. As well as in the financial theories' study, knowledge has grown and evolved, however it has not been able to build a model that includes all the factors considered as determinants of capital structure in the various empirical research, citing just to mention some of them those by Filbeck and Gorman 2000, Bradley, Chung 1993, Van Der 1989, Kester 1986, Harrell and Kim 1984.

The empirical evidence suggests that in addition to company specific factors, macroeconomic and institutional factors in each country are important determinants of capital structure. Booth et al. (2001),Antoniou,Guney, & Paudyal, (2008), Bonales and Gaytan (2009), Dias, Thosiro, & Cruz, (2009) and Dias and Toshiro (2009). However, most of the theoretical and empirical debate on corporate finance has been conditioned by well-developed capital markets and financial well-structured architecture (Zingales 2000). Arias et al. (2009) propose that specialized research is needed on this issue about Mexican companies in order to achieve a better understanding of its financial decisions, and be able to design appropriate financial instruments to their needs that enable and facilitate their growth.

The Capital Structure and The Macroeconomic or Institutional Factors of the Country

Recent empirical evidence suggests that country-specific factors are important determinants of capital structure in emerging markets. Booth, Aivazian, Demirguc-Kunt, & Maksimovic, (2001); Antoniou, Guney, & Paudyal, (2008); Gaytan & Bonales (2009); Dias, Thosiro, & Cruz, (2009), and Dias & Toshiro (2009). Suggest that specific factors about explaining the decisions of indebtedness of the company are related to the economic environment and institutional arrangements in each country, as the structure of the financial sector, taxation, the tradition of the legal system and accounting practices generally accepted.

In this study were considered the macroeconomic and institutional variables about countries in which empirical studies have been previously shown to have a significant impact as determining factors in the capital structure of enterprises: i) inflation Dias, Thosiro, & Cruz,2009), (Dias and Toshiro, 2009)(Gaytan and Bonales 2009). ii) the interest rate, (Barry, Mann, Mihov, Rodriguez, 2008). iii) the exchange rate (Burgman, 1996). iii) the exchange parity.

Capital Structure and the Enterprise Specific Factors.

It has been extensively searched how to identify the enterprise-specific factors that might be significant determinants on deciding the capital structure as well as the validity of the theories that gives them sustenance. Among the particular characteristics of the company that can act as determinants in the capital structure, Dias, Toshiro and Cruz. (2009), Bonales and Gaytan (2009), and Dias and Toshiro (2009) studied the mathematical relationship between the specific factors of companies established in Mexico and Latin American companies. His mathematical relationship to form the structure of capital, in their empirical studies related to the determinants of capital structure, they found significant evidence on the following factors: i) size, (Vigrén, 2009), (Rajan and Zingales (1995), (Frank and Goyal, 2009), (Titman and Wessels, 1988), (Chung, 1993) and (Ozkan,2001), (Dias, Toshiro and Cruz, 2009) and (Dias and Toshiro (2009). ii) profitability,(Rajan and Zingales (1995), (Ozkan,2001), (Frank and Goyal, 2009),(Teker,Tasseven and Tukel, 2009), (Dias, Toshiro and Cruz, 2009) and Dias andToshiro (2009). iii) risk (Vigra, 2009). iv) growth (Antoniou, Guney and Paudyal, 2008),(Rajan and Zingales, 1995), (Myers, 1977) (Hall, Hutchinson, and Michaelas, 2000),(Dias, Toshiro and Cruz, 2009) and (Dias and Toshiro, 2009).

Objective

Studies on the structure of capital in Mexico are essential, and due to the lack of a robust model to explain the financing decisions of Mexican companies in each sector, this study aimed to identify key institutional factors of the country, as well as institutional factors of the company and its positive or negative relationship with the addition of debt when forming the capital structure used by companies traded steadily in the period from 2000-2007 in the Mexican Stock Market.

Hypothesis

The main factors of national and company's concern that relate to the addition of debt when forming the capital structure used by firms in the areas of trade, services, telecommunications, mining, construction and transformation that are traded on the Mexican Stock Market are: interest rate, inflation, exchange rate and income tax, as well as company size, sales growth, profit and risk.

Metodology

The econometric model of panel data will be used to process information, which includes a sample of factors for a determined period of time, so it combines temporary dimension and cross-sectional data. The model is also known as longitudinal joint, grouped data, combination of data in time series and transversal, micro panel data, event history analysis (Gujarati, 2003).

The panel data technique allows developing and testing complex models, according to Carrascal (2004), applies on the following areas: a) forecast sales, b) studies and forecasting costs, c) Financial analysis, d) Macroeconomic prediction e) Simulation, f) Analysis and evaluation of any statistical data. It also allows to observe the causal inferences of independent factors on the dependent factors, such inferences of causality would be very difficult to understand if isolated it was only applied the technique of "cross-sectional data" or the technique of time series data".

The panel data analysis (or longitudinal) joint simultaneously the cross-sectional study with the time series study which captures the heterogeneity of economic agents and incorporates the dynamic analysis. (Rivera, 2007), (Mayorga & Muñoz 2000).

The key feature of panel data, which distinguishes them from the combinations of cross section, is the fact of having and following the same entities or companies over a sustained period of time (Wooldridge, 2001). In the comments organization, the data for the eight years of each company are located contiguously, the first year before the second. For almost all practical purposes, this is the usual sort of panel data sets. The availability of information is presented, therefore, in two dimensions, generating multiple punctual observations for each economic unit (Mur & Angulo, 2006).

In economics is frequent that data sets combine time series with cross-sectional units or cross-sectional (firms, countries, states, etc.), so that an application of techniques for separate study leaves unanswered questions. The panel data analysis studies the group putting together the cross-sectional data technique with time series. (Rivera, 2007), (Mayorga & Muñoz 2000).

A panel data set (or longitudinal) states simultaneously from cross-sectional data and time series. This is when you have comments on certain characteristics of a set of agents (individuals, countries, companies, etc..) over a continuous period of time. The available information is presented in two dimensions, generating multiple punctual observations for each economic unit (Mur & Angulo, 2006).

The model recognizes two effects, firstly the individual effects which refer to those who affect unequally each of the agents contained in the sample study and second to the temporary effects which affect both all individual units of study that do not vary with time. This allows studying changes in the benefits of a single company over a period of time as well as a variation on the benefits of several businesses together (Pindyck, 2001).

Thanks to this method the effects that are not observable in data purely cross-sectional or time series can detected and measured, thus they enrich the empirical analysis in a way that would not be possible if only the other methods were used in an isolated way. (Rivera, 2007), (Gujarati, 2003).

General Specification of the Panel Data Model.

The general specification of a linear analysis of panel data on a regression model according to Pindyck and Rubinfeld (2001) is as follows:

$$\boldsymbol{Y_{it} = X_{it}\beta + \varepsilon_{it}} \qquad \textbf{(1)}$$

Where the subscript i takes the values i = 1.2, ..., N and indicates the cross-sectional unit, t = 1.2, ..., T_{it} indicates the different periods of time, Y_{it} are the dependent variables or explained (*back*), X_{it} are independent or explanatory variables (*regressors*), β is the vector of parameters to estimate and ε_{it} is the error term or random disturbance. These are the components of classical linear regression model.

If for each unit of cross section there is the same number of temporal observations, that is, if $T_{it} = T$ for each i, we say that the panel data is balanced or unbalanced. Otherwise, the panel is not balanced or unbalanced.

The estimate of β in this model by Ordinary Least Squares (OLS) is consistent and efficient. However, there are generalizations of this model, more common in econometrics, for which the OLS estimates are inconsistent, (as shown below). It is customary for the study of different available estimates assume that the random error is decomposed into two terms, $\varepsilon_{it} = \alpha_{it} + U_{it}$, where α_{it} is the specific individual effect for each unit of cross section and is considered constant over time.

Thus, the general specification of a regression model with panel data to estimate is as follows:

$$\boldsymbol{Y_{it} = \alpha_{it} + X_{it} + \beta + U_{it}} \qquad \textbf{(2)}$$

With i = 1,….N; t = 1,….T.

Where i refers to individual or unit of study (cross section), t to the time dimension, α_{it} its vector of intercepts of n parameters, β is a vector of K parameters and X_{it} is the i-th observation at time t for K explanatory variables. The total sample of observations in the model is given by N x T.

The Specification of Panel Data in Error Terms.

Panel data models can also be interpreted through its error components. The error term U_{it} included on the equation (1), can be broken down as follows:

$$\boldsymbol{U_{it} = U_i + \delta_t + U_{it}} \qquad \textbf{(3)}$$

U_i represents the unobservable effects that differ between the units of study but not in time. They are generally associated with entrepreneurship firm (Burdisso, 1977).

δ_t is identified with non-quantifiable effects that vary over time but not among the units of study.

U_{it} refers to the purely random error term.

According to Burdisso, (1997), most applications which include panel data use the error component model known as "one way " in which t = 0. Different variants of the "one way" model (t = 0) from error components arising from different assumptions made about the term i, so three possible cases can be presented: using a simple model with fixed or random effects.

Alternative Models for Combining Time Series Data and Cross-Sectional.

There are several ways of specialization panel data from the general model. Different variants for the "one way" model (t = 0) from error components arising from different assumptions made about the term it. Various possibilities may arise, (Mayorga & Muñoz, 2000):

Regular Term

The simplest case is the one that considers the i = 0, so, that there is unobserved heterogeneity among individuals or firms. Given the above, i meet all the assumptions of general linear model, whereby the method of classical least squares estimation produces the best linear unbiased estimator and has the advantage of providing more degrees of freedom.

$$\boldsymbol{Y_{it} = \alpha_{it} + \sum_{k=1}^{k} \beta_{kit} + U_{it}} \qquad \textbf{(4)}$$

Where all coefficients are constant, $\beta_{kit} = \beta_k$ y e_{it} is heteroskedasticity and autocorrelated. However, the presence of random effects invariant on α_i time implies the appearance of persistent unobserved heterogeneity and failure of the assumption of homoscedasticity (constant variance disturbances) and no autocorrelation (variance 0 of the present comments from the same cross unit). As estimated by OLS will not lead to best linear unbiased estimator. Then, there are different frameworks for dealing with these models presented below.

In panel data analysis there are two models: fixed effects and random effects. (Gujarati, 2003), (Mayorga, 2000), (Wooldridge, 2000).

Fixed effects or intra group model (within).

Second possibility is to assume a fixed effect to *i* and different for each firm and individual effects are independent from each other. Each explanatory variable has a single coefficient (has the same impact on the dependent variable, but each individual or company has a different constant). In this case, the unobserved heterogeneity enters the model constant.

This model considers that the explanatory variables affect both the cross-sectional units and that they differ in characteristics of each other, measured by the intercept. That is why the N intercepts are associated with dummy variables with specific coefficients for each unit, which must be estimated. For the *i*-th unit of cross section, the equation is:

$$\boldsymbol{Y_i = i\alpha_i + \beta X_i + U_i} \qquad \textbf{(5)}$$

Where the subscript *i* represents a column vector of ones where α_i is an unknown parameter to be estimated. Y and X are the T observations of the *i*-th unit and U_i the vector T x 1 of associated errors. This model presents a significant lost of freedom degrees.

In the fixed effects model despite the fact that the intersection can vary for each individual, each intersection itself does not vary with time, is invariant over time. (Gujarati, 2003).

Random Effects Model: Generalized Least Squares.

The third alternative is to treat *i* as an unobserved random variable that varies between individuals but not in time. Unlike the fixed effects model, this model assumes that individual effects are not independent of each other, but instead, they are distributed randomly around a given value. A common practice in regression analysis is to assume that the large number of factors that affect the value of the dependent variables but have not been explicitly included as independent variables of the model can be properly summarized in the random disturbance (Mayorga and Munoz, 2000.) Thus, this model considers that both, the impact of explanatory variables as the characteristics of each bank are different. The model is algebraically expressed as follows:

$$\boldsymbol{Y_{it} = (\alpha + U_i) + \beta' X_{it} + \varepsilon_{it}} \qquad \textbf{(6)}$$

Where "i" comes to represent the random disturbance that would distinguish the effect of each individual in the panel. Is the random error which characterizes the i-th observation and is steady over time (Greene, 1999). For estimating purposes stochastic components are included, and the following relationship obtained:

$$Y_{it} = \alpha + \beta' X_{it} + U_{it} \qquad (7)$$

Where $U_{it}\delta_t + U_i + \varepsilon_{it}$ becomes the new term of disturbance, U is not homoskedastic, where $\delta_t, U_{it}, \varepsilon_{it}$ correspond to the error associated with the time series (t), to the disruption of cross section (U_i) and the combined effect of both (ε_{it}).

In this case, the Ordinary Least Squares method (OLS) may not be an option because no assumptions are known that allow the estimator be consistent. Therefore it is preferable to use the Generalized Least Squares (GLS) whose estimates are higher than OLS when they do not meet the traditional assumptions and are similar on the other hand. An estimate by GLS random effects is a regression of Y_{it} partial deviations over the same partial deviations of X_{it}.

Advantages and Disadvantages of Panel Data Technique

The panel data technique has a number of advantages and disadvantages compared with time series and cross section models. The most relevant according to Baltagi (1995) are the following:

Advantages:

1. The technique allows economic researchers, having a greater amount of observations increasing the freedom degree and reducing the collinearity among the explanatory variables and, ultimately, improves the efficiency of econometric estimates.
2. The technique allows capturing unobservable heterogeneity either between individual units of study as well as time units. Based on the foregoing, the technique allows implementing a number of hypothesis trials to confirm or reject such heterogeneity and how to capture it.
3. Panel data involve and incorporate the fact that individuals, companies, banks or countries are heterogeneous on the analysis. The time series and cross section analysis shall not try to control this heterogeneity run the risk of obtaining biased results.
4. The panel data allow a better study the adjustment processes dynamics. This is mainly true in studies focused on the permanence degree and permanence of certain levels with economic status (unemployment, poverty, wealth).
5. Allows developing and testing relatively complex behavior models compared with time series and cross-sectional analysis. Clear examples of this type of models are those focused on trying to measure technical efficiency on the individual economic units side (firms, countries, etc).

Disadvantages:

Overall, the disadvantages associated to the panel data technique relates to collection and evaluation of statistical information processes related to individual units of study, when the data is obtained through surveys, interviews or using some other means to obtain the data. Examples of such constraints are: coverage of the target population, response rates, confusing questions, deliberate distortion of responses and the high economic costs etc.

E-VIEWS (Econometric Views)

The software used on processing the gathered information to apply the panel data technique, was the econometrics package E-VIEWS (viewer econometric) version 4.1. on its Windows version, originally designed for TSP (*Times Series Processor*). The program can be used for the time series study, timeless series and panel data. (Carrascal, Gonzalez and Rodriguez, 2004).

Software E-Views 4.1 provides several specialized tools that help you work with grouped data and help to operate in any of the temporal dimensions series or cross section, and implement estimating methods that show a joint structure of the data.

Within the statistical estimation there are several factors that help us to interpret the results as the coefficients associated with each of the explanatory variables, its standard or typical estimated deviation, the

statistical error of individual significance and likelihood probability on itself. (Carrascal, Gonzalez and Rodriguez, 2004).

In turn, each estimated equation shows in the bottom part a block of statistics which allows us to partially evaluate executed regression: R-squared, Adjusted R-squared, SD dependent var, S.E. of regression Sum squared resid, Log likelihood, F-statistic, Durbin-Watson stat, Prob (F-statistic).

Source and Data Gathering

Data from company specific variables were obtained from financial statements published in annual financial statements of the Mexican Stock Market, being this a very reliable source, taking on consideration that according to specific laws, companies which are listed on the Stock Market, are required to generate reports at the end of each quarter (Schneider, 2001). The data of macroeconomic variables were obtained from databases and publications produced by the Mexican Bank.

The study sample was not random because there were considered all the companies that consistently chosen by sector were listed in the period 2000-2007. Based on the Stratification published in the Federation Official Journal of June 2009 all businesses are classified as large companies.

On the application of the econometric model the long-term debt was considered as an independent variable (contracted debt). The independent variables are represented by total assets (firm size) risk or capital (equity + minority) Net sales (growth), profit (operating income), income tax (tax rate) interest rate (cost of corporate financing) exchange parity (annual average of FIX exchange rate), inflation (national index of consumer prices).

Each of the variables were individually reviewed, so we could measure whether each variable is or is not individually significant in explaining the behavior of the endogenous variable on the period frame and together to determine changes in the correlations when considering other factors.

Model Specification

It was used the fixed effects model. This model takes into account the unique characteristics of each unit (company) of the cross section, causing the intercept vary for each unit, however, assumes that the angular coefficients are consistent between the units. The estimation was performed using the method of least squares (GLS) because it provides the most robust results for the characteristics of our study sample, at the same time the White contrast was used to identify heteroscedasticity and this was corrected by cross section weighting.

The dependent variable is represented by the long-term liabilities presented by each of the companies in the sample, also, within the regressors and as the independent variables, are the integration of each of the internal factors of the firm that could affect the debt integration in capital structure, which are specified within a common factor, so, EViews will include a single coefficient for each variable; to correct the heteroskedasticity problem the calculation of variances and standard errors consistent to White heteroskedasticity will be included; to avoid the multicollinearity problem, initially each of the variables will be analyzed on a bivariate way and jointly afterwards, adjusted by the exclusion of factors technique; to verify a possible autocorrelation, we will use the statistic from Durvin-Watson.

The model that we will follow is the fixed effect, establishing a ratio of interception by differential intersection dichotomous variables, with the journey across weighting option, using the following equation:

$$Y_{it} = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \ldots \alpha_n D_{ni} + \beta_{1i} + \beta_2 X_{2it} + \beta_3 X_{3it} + \ldots \beta_n X_{nit} + \mu_{it}$$

With i = 1,.....N; t = 1,...T.

Where:

i = refers to the individual or unit of study (cross section)

t = time dimension

α = vector of intercepts of n parameters

β = is a vector of K parameters

X_{it} = is the i-th observation at time t for the K explanatory variables

The total sample of observations in the model would be given by: N x T. (Mayorga and Muñoz, 2000) and (Pindyck and Rubinfeld, 2001).

Analysis and Interpretation of Results

The obtained results after applying the statistical tests by using the panel data technique, show that the main factors of national and company's concern relate to the addition of debt to form the capital structure used by business enterprises from the service sector, trade, services, telecommunications, mining, construction and transformation in Mexico, are not the same nor they do not have the same mathematical relation to each of the sectors. This can be seen in the summary tables shown in chart No.1 and No.2.

Null hypothesis was rejected where the various independent variables as determinants of capital structure, are not related to the incorporation of debt used by service sectors, trade, telecommunications, processing, construction and mining in Mexico. H_0: $B_j = 0$ where j corresponds to the independent variable at the significance level of 5%, because the evidence given by the E-views in all cases is less than (5%).

Table:1 Output results from E_Views software from the compared sectors

SERVICE SECTOR

Dependent Variable: PASIVO?
Method: GLS (Cross Section Weights)
Date: 01/15/11 Time: 09:29
Sample: 2000 2007
Included observations: 8
Total panel (unbalanced) observations 118

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Sales?	0.625878	0.079517	7.871005	0.0000
Int_Rate?	-2340524.	798638.5	-2.930643	0.0040
Iflation?	5705869.	1846925.	3.089389	0.0025
Income Tax?	1975572.	551611.0	3.581458	0.0005
Utility?	1.180083	0.415215	2.842101	0.0052
Weighted Statistics				
R-squared	0.981939	Mean dependent var		3997260.
Adjusted R-squared	0.978437	S.D. dependent var		4214064.
S.E. of regression	618805.6	Sum squared resid		3.75E+13
F-statistic	1331.999	Durbin-Watson stat		1.647648
Prob(F-statistic)	0.000000			

CONSTRUCTION SECTOR

Dependent Variable: PASIVO?
Method: GLS (Cross Section Weights)
Date: 01/15/11 Time: 11:35
Sample: 2000 2007
Included observations: 8
Total panel (unbalanced) observations 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Sales?	0.845287	0.012200	69.28362	0.0000
Int_Rate?	-6250474.	1294881.	-4.827064	0.0000
Parity?	-234555.7	33057.32	-7.095424	0.0000
Inflation?	13138762	2967976.	4.426843	0.0000
Weighted Statistics				
R-squared	0.907053	Mean dependent var		26197187
Adjusted R-squared	0.889805	S.D. dependent var		25396886
S.E. of regression	8430665.	Sum squared resid		6.89E+15
F-statistic	315.5342	Durbin-Watson stat		1.063583
Prob(F-statistic)	0.000000			

COMMERCE SECTOR

Dependent Variable: PASIVO?
Method: GLS (Cross Section Weights)
Date: 01/15/11 Time: 09:31
Sample: 2000 2007
Included observations: 8
Total panel (balanced) observations 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Int_Rate?	-17075101	3179499.	-5.370375	0.0000
Inflation?	33655650	7437906.	4.524882	0.0000
Income Tax?	-31559220	3228528.	-9.775110	0.0000
Sales?	-0.065929	0.023436	-2.813090	0.0057
Parity?	312994.5	54986.13	5.692245	0.0000
Utility?	2.797857	0.149861	18.66966	0.0000
Weighted Statistics				
R-squared	0.972696	Mean dependent var		19602594
Adjusted R-squared	0.967180	S.D. dependent var		21812485
S.E. of regression	3951624.	Sum squared resid		1.55E+15
F-statistic	705.3637	Durbin-Watson stat		0.845289
Prob(F-statistic)	0.000000			

MINING INDUSTRIES SECTOR				
Dependent Variable: PASIVO?				
Method: GLS (Cross Section Weights)				
Date: 01/15/11 Time: 09:46				
Sample: 2000 2007				
Included observations: 8				
Total panel (unbalanced) observations 118				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Sales?	-0.363248	0.093832	-3.871241	0.0002
Int_Rate?	-4980169.	282989.7	-17.59841	0.0000
Inflation?	11218166	633902.7	17.69698	0.0000
Imcome_Tax?	-2719202.	686579.5	-3.960505	0.0001
Assets?	0.646509	0.057267	11.28934	0.0000
Weighted Statistics				
R-squared	0.972046	Mean dependent var		23761573
Adjusted R-squared	0.966627	S.D. dependent var		18559698
S.E. of regression	3390555.	Sum squared resid		1.13E+15
F-statistic	851.9477	Durbin-Watson stat		1.655668
Prob(F-statistic)	0.000000			

TELECOMUNICATIONES SECTOR				
Dependent Variable: PASIVO?				
Method: GLS (Cross Section Weights)				
Date: 01/15/11 Time: 12:46				
Sample: 2000 2005				
Included observations: 6				
Total panel (unbalanced) observations 76				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Sales?	0.225786	0.050783	4.446114	0.0000
Parity?	491005.4	187872.4	2.613505	0.0106
Inflation?	42196434	17002529	2.481774	0.0151
Int_Rate?	-18861916	8572344.	-2.200322	0.0305
Utility?	0.165818	0.015183	10.92105	0.0000
Weighted Statistics				
R-squared	0.901921	Mean dependent var		16956676
Adjusted R-squared	0.873174	S.D. dependent var		16954052
S.E. of regression	6037784.	Sum squared resid		2.11E+15
F-statistic	133.3404	Durbin-Watson stat		1.404695
Prob(F-statistic)	0.000000			

TRANSFORMATION SECTOR				
Dependent Variable: PASIVO?				
Method: GLS (Cross Section Weights)				
Date: 01/15/11 Time: 09:39				
Sample: 2000 2007				
Included observations: 8				
Total panel (balanced) observations 120				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Sales?	0.596219	0.098859	6.030982	0.0000
Parity?	225636.7	74445.89	3.030882	0.0029
Incom Tax?	20380604	4318738.	4.719111	0.0000
Capital?	-0.345594	0.061395	-5.629030	0.0000
Weighted Statistics				
R-squared	0.971537	Mean dependent var		10128165
Adjusted R-squared	0.966464	S.D. dependent var		13696641
S.E. of regression	2508226.	Sum squared resid		6.35E+14
F-statistic	1149.159	Durbin-Watson stat		0.864867
Prob(F-statistic)	0.000000			

Source: Own elaboration based on financial data from the Mexican Stock Market between the years in the period 2000-2007.

Table: 2 Main factors that relate by incorporating debt to the capital structures by sector

Concept	Sales	Inflation	Interest Rate	Income Tax	Parity	Utility	Assets	Capital
Commerce	*	*	*	*	*	*		
Services	*	*	*	*		*		
Telecomunications	*	*	*		*	*		
Extractive	*	*	*	*			*	
Construction	*	*	*		*			
Transformation	*			*	*			*
	6	**5**	**5**	**4**	**4**	**3**	**1**	**1**

Source: Own elaboration based on the output results of the E-Views software (see chart No.1)

Conclusion

The research focused on a particular object of study which was to identify some key quantitative factors that relate to the addition of debt when forming capital structure, also, identifying the positive or negative mathematical relationships using the statistical technique of “data panel" between the dependent and independent variables, as well as the discrepancies between the factors of service enterprises, trade, telecommunications, processing, construction and mining in Mexico. However, the factors arising from the qualitative characteristics such as culture, power, country risk, and personal values are factors that can influence and change the results, which is why we suggest them to be included on a future research.

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