Modelo de Impacto de la Crisis en las Empresas Españolas en Latinoamérica

Impact Model of the Crisis in the Spanish Companies in Latin America

José Vicens Otero
Catedrático de Economía Aplicada. Universidad Autónoma de Madrid (UAM)
Facultad de Económicas y empresariales. Módulos XIV. Despacho 302.
Campus de Cantoblanco. 28049. Madrid
Teléfono: 914974191
jose.vicens@uam.es

Sofía García Gamez
Profesor de Economía Aplicada. UAM
Facultad de Económicas y empresariales. Módulos XIV. Despacho 301.
Campus de Cantoblanco. 28049. Madrid
Teléfono: 914973147
sofia.garcia@uam.es

Francisco Pérez Hernández
Profesor de Financiación e Investigación Comercial. UAM
Facultad de Económicas y empresariales. Módulos 14. Despacho 302.
Campus de Cantoblanco. 28049. Madrid
Módulo XVI / Despacho 207
Teléfono: 914977682
f.perez@uam.es

RESUMEN.

La hipótesis planteada en la presente investigación afirma que las empresas españolas que tienen una importante inversión directa en Latinoamérica han presentado/demostrado un mejor resultado en sus beneficios durante la turbulencia financiera actual, en comparación con aquellas que no han ubicado sus negocios en esta región. Para contrastar esta afirmación, se aplicó un modelo de diferencia en diferencias a los beneficios de 40 grandes empresas españolas que cotizan en la Bolsa de Madrid durante el período 2006-2009. Los resultados indican que, en condiciones normales, los beneficios del tejido productivo español tendrían un incremento medio del 26,9%, sin embargo, en una situación de crisis, las empresas con presencia en Latinoamérica podrían tener un aumento de sus ingresos del 6%, mientras que el resto sufriría una disminución de alrededor del 15% en esta variable. Las empresas españolas han apostado mucho en el valor de los vínculos culturales entre España y Latinoamérica. La crisis económica actual ha confirmado que la apuesta era correcta: Latinoamérica ha premiado el esfuerzo inversor de España.

Palabras clave: crisis financiera; IED; empresa multinacional; Latinoamérica.

ABSTRACT.

The hypothesis handled in the present investigation affirms that Spanish companies that have a significant direct investment in Latin America have comparatively presented/displayed a better result in their profits during the present financial

turbulence, compared to those that have not located their businesses in this region. To test this affirmation, we applied a model of difference-in-differences to the variable benefits of 40 large Spanish companies that were listed on the Madrid Stock Exchange during the period 2006-2009. The results indicate that, under normal conditions, the benefits of the Spanish productive weave would have an average increase of 26.9%; however, in a crisis situation, the companies with a presence in Latin America would realized an increase of their income of 6%, while the rest would suffer a decrease of around 15% in this variable. Spanish companies have long bet on the value of the cultural bonds between Spain and Latin America. The current economic crisis has confirmed that the bet was correct: Latin America has rewarded the investing effort of Spain.

1. INTRODUCTION.

It is well-known that the worldwide financial and real estate crisis that began in the middle of 2008 originated in the U.S., extending itself to a global scale because of the increasing interconnection of the financial markets. Generally, the results of this crash in the productive sector tie mainly to variations of the price of financial assets (sub-prime mortgages) and to the credit policy now being carried out by the banking sector.

More specifically, the impact of the changes in the price of an asset is limited to what economics literature calls the "wealth effect," which states that economic agents that perceive a sharp downward correction in asset prices will tend to reduce their consumption and investment because they perceive the possibility of lower solvency.

Moreover, the scope of a financial shock of short duration may have longer-term impact on the state of the economy because of what is called the "financial accelerator." This effect, initially developed by Bernanke et al. (1996), refers to changes in credit-market conditions that can amplify and propagate the effects of initial shocks in the economy, either real or monetary.

In short, the consequences of the financial crisis on a country's productive sector can be summarized as declines in consumption and therefore the sales level, tight restrictions on credit, defaults and bankruptcies, a decrease in the rate of creation of new businesses, and finally a rise in unemployment. The results of these effects have been rough in developed countries, especially in the case of Spain, where the growth model of the economy is largely supported by the housing sector and financial sector involvement in it.

Looking ahead, the necessary commitment to a more competitive economy is experiencing a reorganization of the production factors toward activities that lead to improved productivity and ensure sustained growth in the medium and longer term. These and other structural changes are the reason that the Spanish recovery will be slower compared to that in other countries in the region.

This scenario has provided a platform for analyzing whether a proportion of the overall results obtained by Spanish production have recovered from the crisis because of direct investment made in emerging markets, particularly in Latin America, the region that represents the second most common site of the total investment by Spain.

A large proportion of the literature, both theoretical and empirical, has focused on analyzing the factors that attract foreign direct investment (FDI) to the region or else explains the effects of direct investment in domestic economies (Hymer 1976, Dunning 1988). However, the research presented below is a geographical analysis of the impact such investments have had on the income statements of Spanish companies that have invested in Latin America.

For this purpose, we conducted a difference-in-differences model on the variable profits in a sample of forty Spanish companies listed on the Madrid Stock Exchange during the period 2006-2009. The paper is structured as follows: Section 2 reviews the literature about factors that have established Latin America as a preferential market for FDI issued from Spain. Section 3 describes the impact of the financial crisis in Latin America. Section 4 presents an analysis of the presence of Spanish companies in Latin America. Section 5 explains the methodology used in the analysis, and sections 6 and 7 shows the variables used and the results of the investigation, respectively.

2. Internationalization of Spanish Multinational Company.

Whereas the underlying assumption in this research is that Spanish companies with direct investment in Latin America gained better profits during the current financial turmoil than those that have not located part of their business in this region; the theoretical and empirical literature review is associated with the set of elements that have shaped Latin America as an option for internationalization of Spanish companies.

Although Latin America is a region in which there are marked differences in the development levels and peculiarities of each country, in the early nineties, a new economic offer model was launched: they opted for fiscal and monetary orthodoxy, international trade liberalization and foreign direct investment inflows and measures were taken aimed at deregulation, privatization and private property protection.

Overall, numerous studies have shown the benefits to multinational company (MNC) of this shift in economic policy. According Bengoa and Sanchez-Robles (2003), macroeconomic stability has been a key factor in stimulating the entry of foreign direct investment (FDI) in Latin America. Cuadros, Orts and Alguacil (2004) point out that from a financial standpoint, the elimination of barriers to the mobility of capital flow has increased investment levels in Latin American economies. Empirical evidence conducted more recently by Biglaiser and DeRouen (2006) states that changes in the conduct of economic policies designed to reduce protectionism in the public sector and promote free markets have had an heterogeneous impact in FDI flows in the area, coexisting with other important aspects such as natural resources and cheap labor.

In this context, Spanish multinational corporations have directed some of their assets to the Latin America, a protected environment for their investments with greater macroeconomic stability and regulatory.

Toral (2004) presents, from different theoretical and empirical perspectives, the Spanish authors' perspectives about the direct investment determinants in Latin America. However, the author maintains that direct investment in Latin America was based on the competitive advantage Spanish firms had, particularly their knowledge of the market, an advantage that in turn rests on two pillars: first, in the cultural context (historical and linguistic similarities) and second, the experiences or the institutional environment shared by Spain and Latin America (privatization, liberalization, globalization, strong regulation, and frequent interactions with the government).

Other authors emphasize that Spanish companies have taken advantage of the eclectic paradigm developed by Dunning (2000) Ownership, Location and Internalization)[1]. According to the paradigm's sequence, the owner of the advantages that make it competitive in the domestic market internalizes and decides to conduct business overseas, if the placement and location conditions of the host economy are attractive enough to realize the potential benefits.

In a study published by the Inter-American Development Bank (IDB), Arahuetes (2002) notes that while factors such as proprietary technology and know-how led the increase in FDI to the Latin America (the "necessary condition"), the location factors were the sufficient condition for this purpose. Thus, the size, growth rate, market liberalization, access to natural resources, elimination of restrictions, the proper

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[1]This model has been widely used by academics to analyze the determinants of FDI flows.

treatment to FDI, and the expected return, but above all the existence of a high cultural affinity, represented the keys to this endeavor.

Moreover, Arahuetes (2002) points out the remaining obstacle to Spanish companies' incentives to staying in the area, citing bureaucracy, political and economic instability, corruption, and violence. The vast majority of these elements remain dormant to a lesser degree today. In fact, numerous empirical studies incorporate costs, risks, and opportunities simultaneously with analysis of macroeconomic conditions as determinants of investment flows to Latin America (Montero 2008).

Consequently, we have to say that Latin America remains a magnet for investment flows, an assertion that is supported with the 18% increase in FDI in the region during the pre-crisis period (2007-2008) (see Appendix, Table 1).

3. GLOBAL CRISIS AND THE IMPACT ON LATIN AMERICA.

The world economy is experiencing the greatest financial crisis of recent times; its consequences and the inability to anticipate its duration have been the subject of much academic literature. Much importance is attributed not only to the loss of capital and financial wealth (given its financial origin), but also to the cost to the real economy in terms of production, income, and employment.

The crisis was centered in the U.S. and spread at an unprecedented rate first to the rest of the developed world and then to emerging economies. This decoupling, which showed the second crash on industrialized economies, is attributable largely to the existence of a financial system that was not exposed to toxic assets and an improvement in fiscal and external balances. Table 1 show these evident results.

TABLE 1: ECONOMIC GROWTH IN DEVELOPED VERSUS EMERGING ECONOMIES (GDP GROWTH).

Region	2003-07	2008	2009	2010
World	4.65	3.02	-0.60	4.21
Advanced economies	2.70	0.48	-3.16	2.32
Latin America	4.86	4.25	-1.79	4.01

Source: International Monetary Fund (IMF). WEO Database. April 2010.

Consequently, when at the end of 2008 the slowdown was evident in the developed world, Latin America reduced only by half a point its growth course. Ocampo (2009) explains that the boom experienced by the Latin American region for more than five years (2003-2007) was based on an unusual combination of financial boom, sustained increase in raw material prices, and a high level of remittances from migrant workers.

However, in 2009, the hypothesis of decoupling was questioned. The average GDP reduction in Latin America indicated that the region was not immune to the crisis, being able to bifurcate the transmission channels of the collapse from the developed world to emerging nations (particularly in Latin America) between trade and finance.

On the trade side, the fall in demand from the U.S. (the main trading partner of the region), European countries, and China has resulted in a decrease in the volume of goods and services exported by Latin American countries (Vicens 2010).

Closely connected with this is the decline in international prices for raw materials and falling terms of trade. The consequences of this have fallen more heavily on those economies that exhibit what a document of the Latin American and Caribbean

Economic System SELA (2008) describes as "an export profile with a strong bias towards this type of goods." In this regard, Vicens (2010) points out that dependence on the external sector is not homogeneous across the region, identifying two distinct groups of countries based on their level or degree of dependence.

In addition of these effects, remittances from migrant laborers living in the industrialized countries dropped, as did FDI flows to Latin American countries.

On the financial side, the effects of successive crashes resulted in fluctuating stock indices, exchange rate volatility, and a rise in the cost of borrowing, measured by a higher perception of country risk and an increase of the credit default swaps. In sum, the region received a temporary worsening of the debt capacity and/or greater restrictions on access to capital markets.

Despite these setbacks, the expected recovery in 2010 largely levelled the path established during the 2006-2008 trienniums. Thus, despite the peculiarities of each country, the shift in the economic cycle of the area is attributed to success in implementing public policy in the years before the financial crisis, which took advantage of the period of prosperity to clean up bills, reduce debt levels, and increase international reserves. This fact has been supplemented by an appropriate exchange rate policy and a financial system less exposed to toxic assets.

4. THE PRESENCE OF THE SPANISH COMPANY.

The opening and liberalization processes implemented during the nineties have turned Latin America into a magnet for Foreign Direct Investment (Trevino and Mixon, 2004; Trevino, Daniels and Arbelaez, 2008). Economic, cultural, and institutional factors help explain why multinational companies have taken a leading investment role in the region.

In 2009, FDI flows declined significantly because of the international economic crisis. According to preliminary figures, foreign capital flows fell globally for the second consecutive year, reaching $ 1.04 trillion, 39% less than last year.

The economic uncertainty, fluctuations in raw material prices, and difficult access to credit were the main causes of the decline in FDI in Latin America and the Caribbean. Thus, the FDI inflows in the region amounted to $ 76,681.3 million, which implies a decrease of 41.9% over the previous year. The main area affected was South America, which took in $55,009.7 million in FDI, 40.1% less than the previous year. Brazil, Chile, and Colombia were the recipients of the largest FDI flows. Also, Mexico, Central America, and the Caribbean experienced diminished inflows of foreign capital, with Trinidad and Tobago and Mexico seeing the largest declines (-82% and -51%, respectively).

However, despite the large declines in foreign capital inflows, the region remained above the average of the last ten years, being the fifth largest amount received in this period. Thus, the increasing trend of FDI in recent years has exceeded expectations. The major structural and sectorial FDI endured as a result of mergers and acquisitions and announcements of new investments, mainly in natural resources, low technology manufacturing sectors, and lower-middle (Biglaiser and De Rouen 2006; Montero 2008).

It is important to point out that in Latin America, active seeking of FDI assets to facilitate research and development (R&D) remains low. R&D represents an important opportunity if the region seeks to rely on FDI as a mechanism to move toward activities with a higher technological gap, since it would imply a significant

increase in the absorption capacity of Latin American countries (Jaffe and Trajtenberg, 2002; Barrios et al. 2004; Girma, 2005; Girma and Wakelin, 2007).

Table 1 in the appendix of this paper shows net inflows of Foreign Direct Investment in Latin America from 1997-2009. The data highlight seven Latin American countries: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela, which together capture over 87% of global FDI in the region, with Brazil (31%), Mexico (25%), and Argentina (9%) being the major investment destinations of MNCs. The main investors in Latin America are the United States (responsible for more than 40% of the regional investments), Spain (20%), Canada (10%), and The Netherlands (7%). Notably, the percentage of FDI issued by Spain has grown steadily since the mid-nineties, making that nation the second largest investor in the region.

TABLE 2: MAIN INVESTORS IN LATIN AMERICA.

Country	Percentage
United States	40
Spain	20
Canada	10
Netherlands	7
United Kingdom	7
Other Countries	16
Total	100

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Latin America is one of the main investment partners of the Spanish economy. In the period from 1993-2009, Latin America and the Caribbean accounted for 25% of Spain's direct investment abroad, making Latin America the second geographic area (after the EU-15) of investment interest of Spanish MNCs.

The main countries of destination of FDI from Spain in Latin America are the same: Argentina (31.3%), Brazil (26.0%). and Mexico (19.7%). This pattern confirms that these three Latin American economies have the largest absorptive capacity for capital flows of Spanish MNCs. From 1993-2009, the region captured 25.5% of total FDI, establishing itself as one of the main areas receiving FDI from Spain.

TABLE 3: IMPORTANCE OF LATIN AMERICA AND THE CARIBBEAN AS A RECIPIENT OF FDI SPAIN (PERCENTAGE, 1993-2009).

Region / Country	% FDI of the Spain in:	
	Latin America	World
Mexico, Central America and the Caribbean	22.94	5.84
Costa Rica	0.20	0.05
El Salvador	0.13	0.03
Guatemala	0.33	0.08
Honduras	0.07	0.02
Mexico	19.67	5.01
Nicaragua	0.12	0.03
Panama	0.79	0.20
Dominican Rep.	0.68	0.17
Trinidad and Tobago	0.00	0.00
Rest of Central America and the Caribbean	0.96	0.24
South America	77.06	19.62
Argentina	31.27	7.96

Bolivia	0.19	0.05
Brazil	26.02	6.62
Chile	8.62	2.19
Colombia	3.01	0.77
Ecuador	0.87	0.22
Guyana	0.01	0.00
Paraguay	0.09	0.02
Peru	2.95	0.75
Uruguay	2.50	0.64
Venezuela	1.52	0.39
Latin America and the Caribbean	100	25.46

Source: Compiled from data from the Ministry of Industry, Tourism and Trade. (DataInvex).

Sectoral specialization of FDI in Latin America from Spain, the European Union, and the U.S. shows a common feature: the main investment sector or target constituent is the holding companies. Spanish FDI made through these companies is focused on investment plans characterized by sectoral diversification that include investments in the energy sector (23.2%), telecommunications (19.1%), and financial services (16.4%).

By regions, the presence of the Spanish MNCs is represented by the headquarters effect. Madrid is the region that invests the most (67.1%), followed by the Basque Country (10.5%), and Catalonia (8.6%), the three main geographic areas with increased economic activity in the country.

5. A MODEL APPROACH TO THE IMPACT OF THE CRISIS ON SPANISH COMPANIES.

The working hypothesis is simple it boils down to whether Latin America during the crisis has had a better macroeconomic performance than Spain, and whether companies that focused their investments in Latin America have also had better outcomes than those that did not. If the hypothesis is true, the consequences are relevant to the Spanish economy, since in the past decades the main destination of Spanish direct investment has been Latin America. The cultural and linguistic reasons for this will continue to operate in the future as a pull factor. If we add expectations of benefits, as stated in our hypothesis, it is safe to say that Latin America will remain a preferred destination for Spanish direct investment.

An easy way to know immediately if the hypothesis is supportable is to compare the profits earned by companies in Spain in other areas of the world to those made by the same companies in Latin America. Logically, the data should compare the benefits to companies both before and during the crisis to infer whether profits from Latin America have suffered less in the second of the two periods. Unfortunately, this comparison is not possible because the lack of accounting information disaggregated by geographical area for Spanish MNCs. Still, it was evident that this information must exist at the domestic level, though most companies do not publish their results by geographical areas and are even less likely to do so for Latin America.

Logically, one can know the balances and incomes of the large Spanish companies listed, so we will stick to this group. This group does not publish the investments the companies make in Latin America; this information is included in their reports on the total benefits and added information on the total sales or revenues from sales in Spain and Latin America. This information is provided by most companies to measure the importance of the presence of companies on the continent by the

percentage of sales from Latin America and to establish two groups of companies, those that have a significant presence in Latin America and those that do not.

The problem could be solved by a simple analysis of mean differences between groups with ANOVA test. Thus, defining the annual earnings growth as our variable of interest, we have a total of one hundred sixty observations for forty companies and four points in time (2006, 2007, 2008 and 2009), the first two during in a period of no crisis, and second two during the period of crisis. Moreover, we identify twenty-three companies with a presence in Latin America and seventeen without a presence there.

In Table 4, the growth of corporate profits in periods of no crisis and crisis are not statistically different, while the aggregate growth for companies that have a presence in Latin America shows no significant differences. This last conclusion leads us to the companies that have similar behavior, which does not contradict our initial hypothesis because this means that the crisis has impacted to a lesser extent companies that have a presence on the continent. In other words, in periods of economic growth, all businesses have perform better in periods of crisis, regardless of their geographic diversity, but when analyzing the whole sample, we cannot observe significant differences by geographic location, even if during the period of crisis firms with a presence in Latin America have more positive results. To analyze this issue and determine if we should reject our hypothesis, we use a difference-in-differences approach (DiD) on the earnings growth variable. The endogenous variable, defined as earnings growth, is no accident and allows us to eliminate the size problem inherent in the varying profit figures and sizes of companies. While it is true that ratios such as return on asset size eliminate this problem, they do not solve the problem of integration of different sectors with different degrees of capital intensity, so the growth variable is considered more appropriate.

TABLE 4: ANALYSIS OF VARIANCE RESULTS.

Dummy Variable		Average	F Statistic	P-value
Crisis	1	26.9	32.2	0.00
	2	-5.9		
Spanish MNC presence in Latin America	1	8.1	0.9	0.34
	2	14.3		

The model that arises is a difference-in-differences model, a type widely used in the analysis of alternative policies or strategies in the context of natural experiments. A natural experiment occurs when a group within the population has been exposed to a change in one variable (treatment group), while another group has not undergone this change (control group). When one has taken observations for both groups in two different moments of time, before and after the change, it is possible to apply the difference-in-differences models. Thus, the first difference in the two periods of time of the treatment group we will collect will be the impact of the variable analyzed and other variables that influence the study but are not controlled, while the difference in the control group will only be affected by other uncontrolled variables, not by the impact variable we are studying. Thus, the difference between the two differences will result in the isolated effect of the variable.

In our experiment, the impact variable is the presence in Latin America, which defines the treatment group as those firms that do have a significant presence, while the control group consists of those companies that do not have a presence there.

The two moments in time will refer to before and during the international economic crisis, so that the model could be used as:

$$y_{it} = \beta_0 + \beta_1 L_i + \beta_2 C_t + \beta_3 I_{it} + u_{it} \qquad [1]$$

where the variable y_{it} is the growth in earnings of a company i at the time t, the subscript t indicating the time (t = 0 before the crisis and t = 1 during the crisis). L_i is a variable indicating whether firm i has a presence in Latin America ($L_i = 0$ not presence, $L_i = 1$ presence), C_t is a variable that determines the period of crisis ($C_t = 0$ no crisis, $C_t = 1$ crisis), and I_{it} is a variable that reflects the effects of equal value iteration to 1 for observations of companies with presence in Latin America in times of crisis and zero in other cases. Our parameter of interest is β_3, since this will pick up the differential impact of the crisis for companies that are in Latin America from those that are not. The variable I_{it} is obtained by a simple product of binary variables $L_i * C_t$.

In the specification of the model taken for the profit growth, or alternatively the difference of logarithms as an endogenous variable, this variable will collect the presence or absence of impact of the crisis on business. The specification of the model is extremely simple and straightforward for validating the hypothesis rather than for explaining the behavior of the benefits. Its simplicity implies four types of estimates (see Table 5).

TABLE 5: ESTIMATES OF PROFIT GROWTH.

		Crisis	
		No	Yes
Spanish MNC Presence in Latin America	Yes	$\beta_0 + \beta_1$	$\beta_0 + \beta_1 + \beta_2 + \beta_3$
	No	β_0	$\beta_0 + \beta_2$

Thus, the parameter β_1 will collect the difference in earnings growth among companies that are and are not in Latin America, growth that should be zero because there should not be differences between such companies. For its part, the parameter β_2 should be negative and nonzero, because it can be expected that companies will have fewer benefits in times of crisis than in non-crisis periods. Finally, the parameter β_3 will indicate whether companies gain different benefits from being invested in Latin America in periods of crisis. Thus, the parameter β_3 measures the statistical dependence between crisis events and Latin America as in the case of being statistically independent β_3 will be zero. Notice that in this case ($\beta_3 = 0$), the difference between being or not being in Latin America is β_1 ,that is, the difference

of the two rows in Table 1, and the difference between the two columns is β_2, which collects the impact of the crisis.

6. DATA AND VARIABLES.

To analyze the impact of the international economic crisis on the Spanish MNCs, we decide to include the corporations in the Ibex 35 index. A priori, we had considered only these firms because they have the largest trading volume and thus a higher probability of maintaining an international presence in Latin America and the Caribbean. To do this by industry required balanced treatment and control groups, including six listed as MNC in the Madrid Stock Exchange General Index (IGBM).[2] Consequently, our database is made up of forty-one multinational corporations and works with a temporal variability ranging from 2006-2009.

TABLE 6: SPANISH MNCs (STOCK MARKET) INCLUDED IN THE EMPIRICAL ANALYSIS.

Sector	Whit presence in Latin America	Without presence in Latin America
Banking & Financial Services	Banco Sabadell Banco Bilbao Vizcaya Argentaria (BBVA) Banco Santander Central Hispano (BSCH) Criteria Caixa Corp	Banesto Bankinter Bolsas y Mercados Españoles (BME) Banco Popular
Energy Sector	Cepsa* Endesa Gas Natural Iberdrola Red Eléctrica de España Repsol YPF	Enagás Fersa* Gamesa Iberdrola Renovables Montebalito*
Industry	Abengoa Acerinox Inditex	Arcelor Mittal Ebro Puleva Grifols
Construction Sector	Grupo ACS Fomento de Construcciones y Contratas (FCC) Obrasco Huarte Lain (OHL) Sacyr Vallehermoso San José*	Cleop* Uralita*
Infrastructure	Abertis Acciona	Técnicas Reunidas
Services	Mapfre	
Transportation and Telecommunications	Iberia Indra Sistemas Telefónica	Ferrovial Telecinco

Note: * Corporations of Madrid Stock Exchange General Index (IGBM)..
Source: Compiled from information available from financial reports and corporate websites of each MNC.

The dependent variable used two proxies: net profit growth of the firm *i* in *t*; and growth of earnings before interest, taxes, depreciation, and amortization (EBITDA) of each MNC. However, to avoid non-standard accounting adjustments in the income

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[2] We chose the highest trading volume in each sector.

statements of each company, we opted for the latter variable to analyze the impact of the international economic crisis on the Spanish MNCs in Latin America. It is important to note the work done to obtain the accounting information from the income statements for each of the companies discussed in this paper.[3] Also, for the net profit and EBITDA, we obtained the non-current assets and employment. The information sources are annual financial reports for each company and the accounting documents sent to the National Securities Market Commission (CNMV).

Among the exogenous variables used, we can distinguish two groups:

- Analysis variables:
    - To represent the effect of the international economic crisis, we developed a dichotomous variable that takes values 0 in 2006 and 2007, and 1 in 2008 and 2009. Thus, this variable is the first difference in our model.
    - The second difference is determined by the presence of Spanish MNCs in Latin America. This variable is calculated from the percentage of turnover (or revenue) accrued from Latin America of the total revenue of the company i at time t.[4] This is subsequently recoded as a dichotomous variable that takes values 1 if the MNC's presence in the region is greater than 5% and 0 when it is less than 5%. With this, we classify the treatment group (MNCs with more than *5*% presence in Latin America) and the control group (MNCs with less than 5% of revenues from the region or that simply do not have investments in Latin America).
- Control variables: the (company's stock market value) value of publicly traded company i at the time t[5] and Spanish and Latin America's GDP growth at constant prices of 2000[6].

When working with accounting variables, one of the major problems is that they are sensitive to shocks or inputs such as mergers or acquisitions of other companies, large amounts of investment in non-current assets, or long-term financing decisions. Thus, the process of identifying and eliminating accountant outliers is:

1. we identified those values that differed significantly in absolute terms;
2. with the outliers identified in the MNC i at the time t, we conducted a thorough search to identify the cause of this unusual fact[7]; and
3. based on available information, we eliminated those outliers that are related to financial transactions that significantly affected the statistics.

7. ESTIMATION MODEL.

The model has been estimated by Ordinary Last Scuare (OLS) and does not contain any of the three problems that can affect this type of models, endogeneity, intra-group correlation, or autocorrelation in resid (Vicens 2006). There is no endogeneity because the only variable potentially suspicious is the *treatment variable* "being in

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[3]We appreciate the effort of the students of the Seminary of the Spanish Company and Latin America at the Universidad Autónoma de Madrid, academic year 2009/2010.
[4]For companies Acerinox, Banco Sabadell, and Iberia, we are using the percentage of employees from Latin America of the total workforce of the company, since disaggregated data was not available for sales.
[5]Variable taken from the history of the Madrid Stock Exchange.
[6]Source: World Bank
[7]See Appendix.

Latin America", However, in our case and for the analyzed period, the benefits will not influence the decision to be or not be in Latin America. In the results obtained, the rate of change of these was not affected by the treatment variable. It can be accepted that the omission of variables on a model as simple as that proposed for the determination of benefits, but not that omitted variables are correlated with the crisis and treatment variables. The intra-group correlation in the sense proposed by Moulton (1990) does not arise, since the models estimate the group averages and there is no variation within each group because only four alternatives are estimated. Finally, the autocorrelation cannot be raised as a problem since the two time periods estimated are pre-crisis and crisis.

The results are presented in the Table 7. As can be seen, only one coefficient is not significantly different from zero, corresponding to the variable that indicates whether the company operates in Latin America or not. The fact that this coefficient is zero indicates no significant differences in earnings growth between companies that have a presence in Latin America and those that do not, which is a logical and even desirable outcome because it provides homogeneity to the treatment and control groups.

TABLE 7: ESTIMATION RESULTS.

Number of obs	155
F(3, 151)	13.57
Prob > F	0.0000
R-squared	0.2123
Adj R-squared	0.1967
Root MSE	35.19

Parameter	Coef.	Std. Err.	t	P>|t|
L	-8.077446	8.100508	-1.00	0.320
C	-44.53092	7.378267	-6.04	0.000
I	28.99967	11.48193	2.53	0.013
Const	30.1087	5.188478	5.80	0.000

By contrast, the crisis and iteration variables parameters are significant, and it is important to observe the influence of these variables on the growth of benefits. First, the crisis variable parameter shows the most significant negative impact on the enterprises behavior and the companies being analyzed in a fall situation. Thus, if the model estimation shows that the benefits grows in normal conditions at a rate of 30%, the crisis would lead to companies not operating in Latin America to a negative growth of -15%, while firms that are in Latin America would have an estimated profit growth of 6%. Thus, the parameter of interest β_3 is significant and shows that Latin American ventures for Spanish companies have been profitable and positive, having acted as a barrier during the current economic crisis by enabling positive growth in profits.

TABLE 8: ESTIMATES OF PROFIT GROWTH.

		Crisis	
		No	Yes
Spanish MNC Presence in Latin America	Yes	22%	6%
	No	30%	-15%

Clearly, the levels of fit are limited, but they respond, first, to the difficulty in explaining growth rates instead of levels, and second, to the very simplicity of the model, which uses only qualitative variables for the defined groups and does not include company-specific variables. Therefore, the model successfully determined the between-group variation, the true objective of the work, while intra-group variation is not considered.

8. CONCLUSIONES.

The negative effects of the current financial and housing crisis have emerged in much of the developed and emerging economies. From the second half of 2008, the aftermath of the crash on the productive sector in the global economy has created the need for international action to counter these effects. For their part, domestic firms and multinationals companies, mainly the banking sector, have resorted to all kinds of design strategies on credit policy to normalize their financial statements.

The impact of the international economic crisis in developed countries and especially in the case of the Spanish economy has been devastating. It has forced Spanish multinationals to make great efforts to invest in other regions of the world to counter the effects currently faced by most firms in Spain.

In this sense, Latin America and the Caribbean have played a major role in the financial recovery of Spanish MNCs. The region is currently the second largest destination of Spanish FDI, with Argentina, Brazil, and Mexico being the main recipients.

The results of the model difference-in-differences on the variable profit growth of forty-one Spanish MNCs for the period 2006-2009 prove that only the variable that indicates whether the MNC operates in Latin America is not significant. This result is consistent and even to be expected, because it provides homogeneity to the treatment and control groups. By contrast, the parameters of the crisis and iteration variables are significant, being important influences on the growth of benefits. Thus, if profits grow in normal conditions at a rate of 30%, the crisis would lead to MNCs with no presence in Latin America to see a decrease of 15% of their annual profits, while the MNCs that are in Latin America would have an estimated growth of 6%. Thus, the significant results of the model prove the statement that Latin American venture for Spanish companies has been profitable and positive, having acted as a barrier during the current economic crisis to facilitate positive growth in profits.

There is no doubt that when Spanish companies that were willing to invest outside Spain chose Latin America as a priority destination, cultural proximity and the existence of a common language were behind a major gamble for the future of the continent. Time has proven that they were right, and Latin America has compensated them for their efforts.

APPENDIX.

TABLE 1: FOREIGN DIRECT INVESTMENT IN LATIN AMERICA AND THE CARIBBEAN, 1997-2009 (US$ MILLIONS).

	1997-2000	2001-2004	2005	2006	2007	2008	2009
Mexico, Central America and the Caribbean	19.909,1	28.875,3	29.607,4	30.425,5	40.191,4	40.134,4	21.671,6
Costa Rica	512,3	578,1	861,0	1.469,0	1.896,0	2.021,0	1.322,6
El Salvador	388,0	316,8	511,2	218,9	1.508,4	784,2	430,6
Guatemala	285,3	213,0	226,7	353,8	745,1	753,8	565,9
Honduras	210,0	382,2	599,8	674,2	927,5	900,2	500,4*
Mexico	14.676,6	23.414,3	21.922,0	19.316,3	27.310,8	23.170,2	11.417,5
Nicaragua	256,3	201,4	241,1	286,8	381,7	626,1	434,2
Panama	997,6	587,2	962,1	2.497,9	1.776,5	2.401,7	1.772,8
Dominican Rep.	852,9	879,5	1.122,7	1.528,0	1.562,9	2.970,8	2.158,1
Trinidad and Tobago	762,9	858,7	940,0	883,0	830,0	2.800,8	510,7
Rest of Central America and the Caribbean	967,3	1.444,3	2.220,8	3.197,6	3.252,5	3.705,6	2.558,8*
South America	58.225,7	31.732,2	44.414,5	43.859,2	71.653,0	91.803,3	55.009,7
Argentina	12.714,2	2.522,9	5.265,2	5.537,0	6.473,0	9.725,6	4.894,5
Bolivia	856,2	413,7	-290,8	277,8	362,3	507,6	418,4
Brazil	28.229,6	16.834,3	15.067,0	18.782,0	34.584,9	45.058,2	25.948,6
Chile	5.879,9	4.557,5	6.983,8	7.357,7	12.533,6	15.181,0	12.702,0
Colombia	3.083,8	2.352,9	10.252,0	6.656,0	9.048,7	10.583,2	7.201,2
Ecuador	740,6	955,4	493,4	270,7	194,2	1000,5	311,7
Guyana	52,3	38,9	76,8	102,4	110,3	179,1	221,9*
Paraguay	194,1	39,8	53,5	182,9	201,8	109,1	184,2
Peru	1.633,2	1.558,5	2.678,7	3.466,5	5.491,0	6.923,7	4.759,7
Surinam	-52,4	151,4	398,5	322,7	315,7	345,6	333,7*
Uruguay	199,7	309,8	847,4	1.493,5	1.329,5	1.840,7	1.138,8
Venezuela	4.694,5	1.997,0	2.589,0	-590,0	1.008,0	349,0	-3.105,0
Latin America and the Caribbean	78.134,7	60.607,5	74.021,9	74.284,7	111.844,4	131.937,7	76.681,3

Note: * Estimation.
Source: Economic Commission for Latin America and the Caribbean (ECLAC).

TABLE 2: IDENTIFICATION OF OUTLIERS FOR EMPIRICAL ANALYSIS.

	Company	Year	Outlier
1	Acciona	2006	Significant revenues from infrastructure (from 2747 to 3557 million), energy (from 531 to 851,000,000), and urban and environmental services (from 320 to 606 million).
2	Acciona and Endesa	2007	The CNMV gives approval to the takeover bid by Enel and Acciona on Endesa, which operates obtained 25.01% stake in Endesa: Made financial impact on the results of 2007 which attributes within their turnover the share of 25% of Endesa for the three months of the year, while in 2008 attributed as income to 25% of Endesa's turnover for the year. Subsequently, in February 2009, Enel Acciona agreed to sell its stake in Endesa as no longer attribute the income share of Endesa by Acciona Group
3	Acciona	2008	Sold its stake in Endesa (25%).
4	Ferrovial	2006	Incorporation of the English capital MNE BAA Airports.
5	Ferrovial	2007	To remove the EBITDA, not taking into the account the above point, the 2007 figure is an estimate.
6	Gamesa	2006	Implementation of 7 major manufacturing facilities (4 in the U.S., 2 in Spain, and 1 in China), resulting in an increase of 20% of its total production capacity.
7	Iberdrola	2008	Acquisition of 100% of Energy East Corporation American MNC.

Source: Compiled from information available from the Financial Reporting and Corporate Websites in Spanish MNC.

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