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Hua Sheng, Hsia; Silva Pereira, Vinícius

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Effects of Internationalization on Ownership Structure: Evidence from Latin American Firms

Hsia Hua Sheng

E-mail address: hsia.sheng@fgv.br

Fundação Getúlio Vargas - EAESP/FGV

Fundação Getúlio Vargas, Rua Itapeva, 474, 01332-000, São Paulo, SP, Brazil.

Vinícius Silva Pereira

E-mail address: viniciuss56@gmail.com

Universidade Federal de Uberlândia – FAGEN/UFU

FAGEN/UFU, Av. João Naves de Ávila, 2121, 38408-100, Minas Gerais, MG, Brazil.

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Abstract

We analyze the direct and simultaneous effects of internationalization on the ownership structure of Latin American companies based on agency theory. Using a sample of 425 Latin American firms between 2007 and 2011, which corresponds to 1,776 observations, we use random effects and three-stage least squares panel data regression to test these effects. We find that the hypothesized positive effect of internationalization on ownership concentration is rejected. Our results support the negative relationship that is predicted by principal-agent theory when analyzing the effect of ownership on the degree of internationalization. Greater internationalization via the equity entry mode is associated with lower levels of ownership concentration. Finally, there is simultaneity in the determination of the relationship between the degree of internationalization and ownership concentration.

Key words: internationalization; entry modes; ownership structure; ownership concentration; property identity.

Introduction

According to the report of the Economic Commission for Latin America and the Caribbean (ECLAC, 2011), there has been an intense internationalization movement of Latin American companies during the last five years (ECLAC, 2011). The same situation has been reported in countries such as Thailand and China; similar to Latin American countries, these Asian countries are considered emerging countries or late movers (Bhaumik, Driffield, & Pal, 2010; Lien, Piesse, Strange, & Filatotchev, 2005).

Studies based on agency theory provide evidence of ownership structure as a determinant of outward foreign direct investment (FDI). Lien, Piesse, Strange and Filatotchev (2005) find that the corporate governance characteristics of Taiwanese firms, such as different forms of ownership structure and the composition of the board of directors, affect their FDI strategies. Bhaumik, Driffield and Pal (2010) conclude that family firms and firms with concentrated ownerships are less likely to invest overseas than other types of firms.

Although the main strands of agency literature provide evidence that ownership structure affects internationalization, little research has examined how internationalization decisions affect ownership structure or whether both may be mutual determinants. Would this situation constitute another case of endogeneity in finance as described by Coles, Lemmon and Meschke (2012)?

This paper extends the agency literature on ownership structure by investigating the effects of the degree of internationalization and main entry modes on ownership structure. In particular, using a sample of listed companies from Argentina, Brazil and Chile, we seek to assess how ownership structure is affected by (a) ownership concentration and (b) different forms of shareholders presences, including financial institutions, professional/business groups, families/individuals, investment funds and governments (La Porta, Lopez-de-Silanes, & Shleifer, 1999; Leal, Silva, & Valadares, 2002).

Thus, this paper investigates the unexplored relationship between internationalization and ownership and the simultaneity between them in Latin American multinationals. The following questions regarding internationalization and ownership structure will be investigated: (a) Do more internationalized companies tend to have a more or less concentrated ownership structure? (b) Do international market entry modes determine the level of ownership concentration? (c) Is there a relationship between internationalization and the presence of specific ownership? (d) Finally, is there a simultaneous relationship between internationalization and ownership structure?

Literature

The agency theory proposed by Jensen and Meckling (1976) argues that managers have a propensity to pursue their own interests at the expense of shareholders because of information asymmetry and differences between the interests of business owners and managers. This opportunistic behavior causes managers to make suboptimal decisions and waste resources and thus reduces the value of companies. Shareholders who pursue the maximization of corporate value tend to increase control to reduce such conflicts of interest. Accordingly, agency costs relating to ownership structure are created.

This nature of agency conflict arises when a company expands abroad. Multinational enterprises (MNEs) tend to have higher agency costs than domestic firms as a result of the greater difficulty of monitoring the behavior and actions of managers who are outside of the country (Wright, Madura, & Wiant, 2002). In addition, shareholders of multinational companies are more susceptible to communication and information failures, which in turn increases the cost of monitoring by shareholders (Burgman, 1996).

Agency conflict between MNEs and their international operations

Agency costs for MNEs exceed those of purely domestic companies. The complexity of international operations activities compared with domestic operations, including auditing and preparing multiple financial statements for each country with different cultures, languages and regulations makes monitoring activities more difficult for multinational companies than for domestic firms (Wright *et al.*, 2002).

Another conflict that cannot exist in a purely domestic company is the headquarters-subsidary conflict, which also increases multinational firms' agency costs (Wright *et al.*, 2002). The parent-subsidary relationship is essentially a principal-agent structure that gives rise to conflicts resulting from the mismatch between the objectives of headquarter managers and those of branch managers. They argue that although headquarter managers may act in line with the objective of maximizing shareholder wealth, foreign subsidiary managers may not do so.

This conflict between MNEs and their operations in other countries has been recognized in the literature on equity and non-equity entry-mode decisions. Based on agency theory and transaction cost analysis, Fladmoe-Lindquist and Jacque (1995) explain a service firm's international organizational choice between equity-based control and franchising. Other more common theories explain entry modes from the perspective of transaction cost theory (TCA), the resource-based view, institutional theory and Dunning's eclectic framework (Brouthers & Hennart, 2007).

Greater concentrated ownership in parent MNEs could cause the MNEs to become more attuned to shareholders' interests, who can better control and monitor a company's international operations and pressure managers to improve performance. A high level of ownership concentration may also reduce the information asymmetry between the principal and the agent because owners can request management information in a more rapid and centralized manner. Furthermore, with higher levels of ownership concentration, shareholders can prevent the opportunistic behavior of managers, who tend to become more committed to maximizing firm value (Dharwadkar, George, & Brandes, 2000).

Hypothesis 1: The higher the degree of internationalization is, the higher the ownership concentration is.

Agency conflict within the parent MNE

Internationalization is a means of diversifying markets, which is an interesting strategy for managers (Aggarwal & Samwick, 2003), as a company can reduce its risks by investing in unrelated activities and economically-integrated countries (Annavarjula & Beldona, 2000; Hennart, 2007).

In addition, international diversification also creates new opportunities for investments. However, this cash-flow outlet will cause an agency problem when managers have control of free cash flows, as this cash-withholding power can provide a favorable condition for a manager to act opportunistically against firm value maximization (Denis, Denis, & Sarin, 1997; Jandik & Makhija, 2005).

As a consequence, when a company's managers choose internationalization, minority shareholders may sell their shares back to the company, thereby affecting ownership concentration. Because of the small proportion of capital that they have invested in the company, minority shareholders may prefer to use capital markets to diversify their investment portfolio rather than diversifying through internationalization as a result of potential conflict issues between managers and shareholders. The difficulty in monitoring managers' decisions also favors selling. Because of geographic and market regulation distances, the costs to monitor and obtain information from such international operations or to implement robust control and incentive programs for executives are considerably higher.

This issue becomes more critical when a company uses the equity entry mode to enter a foreign market, as joint ventures, acquisitions and new investments (equity entry modes) require the use of a company's free cash flow. Accordingly, a company's management may be able to enter a foreign market only if it returns a large proportion of its current net earnings to shareholders through a buyback of shares, which in turn affects ownership concentration. A portion of shareholders might also be more willing to sell their shares back to the company rather than accept higher dividends because equity participation in an international operation involves a degree of risk that some shareholders are not willing to undertake.

Hypothesis 2: Companies that choose to internationalize via equity entry modes tend to have higher levels of ownership concentration.

Simultaneity between internationalization and ownership concentration

As noted previously, agency theory has been used to explain how the concentration and type of ownership structure affect companies' degrees of internationalization. Lien *et al.* (2005) study corporate governance factors in firms' decisions to accept FDI. Extending this discussion and considering ownership concentration and structure as key responses to the weak institutions of the emerging market, Bhaumik *et al.* (2010) find that firms with concentrated ownership are less likely to invest overseas than firms with lower levels of ownership concentration.

Oesterle, Richta and Fisch (2013) consider beyond the linear approach by arguing that the effect of ownership concentration on the expected degree of a company's internationalization follows a cubic function in a U shape. This pattern was introduced and confirmed in a study that involved 1990-2006 data from the 102 largest German manufacturing companies.

The main argument is that shareholders tend to be risk neutral and apathetically reliant on managers to protect their investments when a firm presents strongly dispersed ownership. In this context, there is a free-rider problem. The cost-benefit ratio of monitoring is negative because monitoring becomes a public good as each shareholder benefits from the monitoring activities of others. As consequence, shareholders do not have an incentive to influence management, and executives have greater freedom to pursue their own interests — that is, to move toward internationalization. Thus, lower levels of ownership concentration are associated with higher degrees of internationalization. This outcome is expected even when shareholders increase their ownership position and have more personal resources involved in a company. It would be advantageous to adopt control and incentive procedures for executives to minimize the principal-agent problem, but this control is not sufficiently strong to change management behavior.

As shareholders increase their ownership position, their level of risk aversion increases because the likelihood of reducing their wealth according to the amount of capital invested also increases (Aggarwal & Samwick, 2003). In this scenario, it becomes more feasible for shareholders with increased participation to monitor the actions managers take to avoid the destruction of their wealth. To do so, shareholders begin to adopt procedures for control, supervision and incentives for executives to minimize agency conflicts (Aggarwal & Samwick, 2003). In addition to monitoring, internationalization becomes interesting for these shareholders as a means of risk diversification for a company, especially risk related to an organization's market of origin.

Therefore, according to Aggarwal and Samwick (2003), the concentration of ownership also influences internationalization. Supported by this discussion and the discussion of the previous sections, we propose the following hypothesis:

Hypothesis 3: there is simultaneity in the determination of the relationship between the degree of internationalization and ownership concentration.

Methodology

Sample selection

We collect data from the Worldscope, Compustat and Economatica databases. To populate our sample, we initially set the population of publicly traded companies as those that are active and listed on the stock exchanges in their respective countries. To finalize our sample, we consider the population of companies headquartered in Brazil, Argentina, Chile, Colombia, Mexico and Venezuela for the period from 2007 to 2011. One of the reasons why we chose the period between 2007 and 2011 was the availability of data for Brazil. Some of the data on the variable degree of internationalization (DOI) for Brazil are collected in the reports of Brazilian Transnational Corporations published by Fundação Dom Cabral, whose first year of publication was 2007. Moreover, this chosen period encompasses the 2008 crisis that exerted an exogenous effect on the other variables in the model and that is the period of greatest growth in the internationalization of Latin American companies, according to United Nations Conference on Trade and Development (UNCTAD, 2011).

From this company database population, we exclude those companies with negative equity and asset values and those of the financial sector because of their specificities. From the dependent variables, we exclude those with missing values and extreme values (outliers). Our criterion for defining outliers is every case that is located more than 1.5 interquartile ranges (IQRs) below the first quartile or above the third quartile (Gujarati, 2006).

For absent information, we collect data from reports on company websites and the respective countries' stock exchanges. For cases with few missing values, we contact the firms' relationship investor departments and request the missing data. Where expansion of the data was not possible, we exclude those cases from the final sample of this study. Furthermore, as it was not possible to obtain reliable and consistent data on the ownership structure of Mexican, Colombian and Venezuelan companies, we exclude companies from these countries. The majority of Mexican, Colombian and Venezuelan companies do not provide ownership concentration data or the names of major shareholders, which constitute our dependent variables.

We obtain data on internationalization (the degree of internationalization and entry modes) from the Worldscope, Economatica and Compustat databases. Because of the missing values in these databases, we also collect information from publications that are available on the websites of the companies, the stock exchanges on which the companies are listed, the ECLAC (Economic Commission for Latin America and the Caribbean) and the UNCTAD (United Nations Conference on Trade and Development). For Brazilian companies, we also use internationalization data contained in the reports prepared by Fundação Dom Cabral. In some cases, we also establish contact with the investor relationship department to collect internationalization data for companies that still had missing values after conducting the previous procedures.

We obtain data on ownership identity (OWNT), the classification of the major shareholder of the companies, primarily from Economatica, and we classify the data according to the annual financial information reports disclosed by companies on their websites and on the stock exchanges.

We begin with a total of 3,985 company-year observations, but after the adjustments, we obtain a final sample of 1,776 company-year observations representing 415 companies from Argentina, Brazil and Chile. Table 1 shows the number of observations according to countries and companies' international conditions.

Table 1

Number of Observations in the Sample by the Country and International Conditions of the Companies

Country	Domestic	Multinationals			Total
		Total	Equity	Non-Equity	
Argentina	26	47	21	26	73
Brazil	591	535	197	338	1,126
Chile	309	268	146	122	577
Total	926	850	356	494	1,776

Note. Table 1 shows the frequency of observations in the sample by countries (Argentina, Brazil and Chile) and the international condition of companies (domestic, multinational, equity entry mode multinational and non-equity entry mode multinational).

It is noteworthy that most of the observations that we analyze are from Brazil. There are also a larger number of domestic companies in the sample, and among multinational companies, most report non-equity entry modes.

Description of variables

The test variables of this study are related to the ownership structure and company internationalization status.

For ownership structure, we use two variables: (a) the level of concentration (OWN1), which measures the concentration percentage of common shares of the main shareholder of the company, and (b) the ownership identity (OWNT). We consider six types of ownership identity as described in the literature (La Porta *et al.*, 1999; Leal *et al.*, 2002), and we transform them into five dummy variables: financial institution ownership, professional/business group, family/individual, investment funds, government and other types of ownership (such as shareholder agreements, management and employees).

Table 2 shows the ownership identity of the sample according to each company's international condition.

Table 2

Number of Observations in the Sample for the Ownership Identity and International Condition of the Companies

Ownership Identity	Domestic	Multinationals			Total
		Total	Equity	Non-Equity	
Financial Institution	41	42	18	24	83
Professional/Business Group	397	385	184	201	782
Family/Individual	332	275	93	182	607
Investment Funds	57	76	37	39	133

Continues

Table 2 (continued)

Ownership Identity	Domestic	Multinationals			Total
		Total	Equity	Non-Equity	
Government	94	50	28	22	144
Others	5	22	4	18	27
Total	926	850	364	486	1,776

Note. Table 2 shows the frequency of observations in the sample for ownership identity (financial institution, professional/business group, family/individual, government, investment funds and others) and the international condition of companies (domestic, multinational, equity entry mode multinational and non-equity entry mode multinational).

Most of the companies observed in the sample are controlled by professional companies/business groups, followed by family businesses/individuals. The other classifications of ownership identity are found much less frequently. This same distribution is also observed in domestic and multinational companies, whether their entry mode is predominantly equity or non-equity.

Table 3 summarizes the variables used, presenting the form of measurement, source, expected effects according to the theory and authors who have used the measurement.

Table 3

Independent Control Variables Related to the Characteristics of the Companies

Variables	Abbrev.	Form of measurement	Source	Effect	Authors ^a
<u>Ownership structure</u>					
Concentration level	OWN1	Number of shares held by the largest shareholder/total number of common shares	Economatica	(-) ^f	(8); (9)
Ownership identity	OWNT	Five control dummies ^b	Economatica, company sites and stock exchanges		(8); (9)
<u>Internationalization</u>					
Degree of internationalization	DOI	Average [(overseas assets / assets) + (overseas sales / sales) + (overseas employees / employees)]	Economatica, Compustat, Worldscope, company sites, stock exchanges and contact with the company	(+)	(6)
Entry mode	EMODT	Two control dummies ^c	Same as previous	(+)	(3); (10)

Continues

Table 3 (continued)

Variables	Abbrev.	Form of measurement	Source	Effect	Authors ^a
Control variables					
Company level					
Size	SIZE	log of total assets	Economatica	(+) (-)	(1); (2); (4); (5) (8); (9)
Growth opportunity	GROW	(Market value of equity + total liabilities) / assets	Economatica	(+)	(2); (4); (5); (7); (8)
Risk of bankruptcy ^c	RISK	log of the standard deviation of operating income for last 5 years	Economatica	(+)	(7); (8)
Level of asset tangibility	TANG	Fixed assets / assets	Economatica	(-)	(4); (5); (7)
Total debt	TLEV	Total debt / (liabilities + market equity)	Economatica	(+)	(2)
Payment of dividends	PAYOUT	Total dividends paid per common shareholders	Economatica	(-)	(9)
Industry Level					
Industry Type	IND	Control dummies ^d	Economatica		(1)
Country Level					
Country	CNTRY	Control dummies ^e	Economatica		(1) (2)

Note. Table 3 shows the variables, abbreviations, forms of measurement, sources, effects, theories and main authors. The variables in this test are those related to ownership structure and internationalization. The others are control variables related to the company, industry and country. Note that in addition to the control variables mentioned, we also control for the year of observation. **(a) Main authors who explained the relationship:** (1) Annavarjula, M., & Beldona, S. (2000). Multinationality–performance relationship: a review and reconceptualization. *International Journal of Organizational Analysis*, 8(1), 48–67. doi: 10.1108/eb028910; (2) Hennart, J.-F. (2007). The theoretical rationale for a multinationality–performance relationship. *Management International Review*, 47(3), 423–452. Retrieved from <http://link.springer.com/article/10.1007%2F11575-007-0023-3#page-1>; (3) Brouthers, K. D., & Hennart, J.-F. (2007). Boundaries of the firm: insights from international entry mode research. *Journal of Management*, 33(3), 395–425. doi: 10.1177/0149206307300817; (4) Jandik, T., & Makhija, A. K. (2005). Can diversification create value? Evidence from the electric utility industry. *Financial Management*, 34(1), 61–93. doi: 10.1111/j.1755-053X.2005.tb00092.x; (5) Denis, D. J., Denis, D. K., & Sarin, A. (1997). Agency problems, equity ownership, and corporate diversification. *The Journal of Finance*, 52(1), 135–160. doi: 10.1111/j.1540-6261.1997.tb03811.x; (6) United Nations Conference on Trade and Development. (2011). *World investment report 2011: trends and determinants*. New York, NY. Retrieved from http://unctad.org/en/docs/wir2011_embargoed_en.pdf; (7) Wright, F. W., Madura, J., & Wiant, K. J. (2002). The differential effects of agency costs on multinational corporations. *Applied Financial Economics*, 12(5), 347–359. doi: 10.1080/09603100210124984; (8) Lien, Y.-C., Piesse, J., Strange, R., & Filatotchev, I. (2005). The role of corporate governance in FDI decisions: evidence from Taiwan. *International Business Review*, 14(6), 739–763. doi: <http://dx.doi.org/10.1016/j.ibusrev.2005.08.002>; (9) Bhaumik, S. K., Driffield, N., & Pal, S. (2010). Does ownership structure of emerging-market firms affect their outward FDI? The case of the Indian automotive and pharmaceutical sectors. *Journal of International Business Studies*, 41(3), 437–450. doi: 10.1057/jibs.2009.52; and (10) Hill, C., & Jones, G. (2009). *Foreign direct investment: analysis of aggregate flows*. Mason: South Western Cengage Learning. **(b) Specification of five OWNT dummies:** (i) financial institution, (ii) professional/business group, (iii) family/individual, (iv) investment funds and (v) government. The Others group was the intercept. **(c) Specification of two EMODT:** (i) companies with predominantly equity entry modes and (ii) companies with predominantly non-equity entry modes. The group Domestic was the intercept. **(d) Specification of IND:** (i) Agriculture and Fishing, (ii) Food and Beverage, (iii) Commerce, (iv) Building, (v) Electronics, (vi) Energy, (vii) Industrial Machinery, (viii) Mining, (ix) Non-metallic Minerals, (x) Pulp and Paper, (xi) Oil and Gas, (xii) Chemistry, (xiii) Steel and Metallurgy, (xiv) Software and Data, (xv) Telecommunications, (xvi) Textiles, (xvii) Transport and Services, and (xviii) Vehicles and Parts. The “Others” group was the intercept. **(e) Specification of CNTRY:** (i) Brazil and (ii) Argentina. The group Chile was the intercept. **(f)** The authors found a negative effect of ownership concentration on internationalization.

We also use two variables for internationalization: (a) the DOI, measured by the average foreign assets to total assets ratio, the exports to total sales ratio and the ratio of employees abroad to the total number of employees according to UNCTAD methodology (2011) and (b) entry modes (EMODT). Two entry modes are considered in this study, as in the work of Hill and Jones (2009): equity entry modes (joint ventures, acquisitions and new investments) and non-equity modes (exports, franchise licensing, and research and development agreements). The categorization by this variable is the result of the difference between the total value of equity entries (the sum of the amount spent on joint ventures, acquisitions and new investments during the period) and the total value of non-equity entries (the sum of the total amount spent on exports, franchise licensing, and research and development agreements) out of total entry expenditures. Positive values for these calculations represent companies with predominantly equity entry modes, which are assigned the value 1. Negative values indicate a predominance of non-equity entries, and the value 2 is assigned to these companies. Companies that have no predominant entry mode (*i.e.*, domestic companies) are classified as 0. Using three entry mode categories, we create two dummy variables: the equity entry mode (EMODT = 1) and the non-equity entry mode (EMODT = 2).

The control variables in this study refer to the levels of company variables (size, growth opportunity, bankruptcy risk, the level of tangibility of assets, total debt and dividend payments), industry variables (19 industries transformed into 18 dummy variables) and country variables (4 countries transformed into three dummy variables), as indicated in Table 3. These variables are used in other works, such as Annavarjula and Beldona (2000); Hennart (2007); Brouthers and Hennart (2007); Jandik and Makhija (2005); Denis, Denis and Sarin (1997); UNCTAD (2011); Wright, Madura and Wiant (2002); Lien *et al.* (2005); Bhaumik *et al.* (2010); and Hill and Jones (2009). We also control for the year (from 2007 to 2011; thus, five years were transformed into four dummy variables).

Models and methods

The general objective of this study is to analyze the effects of internationalization on ownership structure. Therefore, we analyze the effects on the concentration of the major shareholder in common shares, OWN1 (Model 1), and on the ownership identity, OWNT (Model 2). The effects of internationalization that we test for are DOI and EMODT.

First, we use preliminary descriptive analyses of partial correlation between numerical variables and tests of differences between means using the ANOVA technique to describe the data.

Thus, Models 1 and 2, whose control variables were extracted from the literature, serve as the basis for the regressions with the panel data. In the case of Model 2, as the dependent variable in question, OWNT, is categorical, we use logistic panel data regression from the dummies created for this variable. To identify whether fixed or random effects would be more appropriate, we employ the Lagrange multiplier of the Breusch and Pagan test, which analyzes the hypothesis that the variance of the transverse cutting units is equal to zero and only varies in time, according to Gujarati (2006). Accordingly, we employ the Hausman test. For these two tests, we consider 0.05 as the significance level. After completing these tests, we run the models, analyze the estimated coefficients and compare the results to the hypotheses of this study.

$$\begin{aligned} \text{OWN1}_{it} = & \alpha_1 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{GROW}_{it} + \beta_3 \text{RISK}_{it} + \beta_4 \text{TANG}_{it} + \beta_5 \text{TLEV}_{it} + \\ & \beta_6 \text{PAYOUT}_{it} + \beta_7 \text{DOI}_{it} + \sum_{O=1}^2 \omega_j * \text{OWNTO} + \sum_{J=2}^{17} \gamma_j * \text{IND}_J + \sum_{T=2007}^{2011} \gamma_j * \text{YEAR}_T + \\ & \sum_{C=1}^3 \phi_C * \text{CNTRY}_C + \sum_{E=1}^2 \theta_j * \text{EMODT}_E + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{OWNT}_{it} = & \alpha_1 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{GROW}_{it} + \beta_3 \text{RISK}_{it} + \beta_4 \text{TANG}_{it} + \beta_5 \text{TLEV}_{it} + \\ & \beta_6 \text{PAYOUT}_{it} + \beta_7 \text{DOI}_{it} + \beta_8 \text{OWN1}_{it} + \sum_{J=2}^{17} \gamma_j * \text{IND}_J + \sum_{T=2007}^{2011} \gamma_j * \text{YEAR}_T + \\ & \sum_{C=1}^3 \phi_C * \text{CNTRY}_C + \sum_{E=1}^2 \theta_j * \text{EMODT}_E + \varepsilon_{it} \end{aligned} \quad (2)$$

Finally, in response to the secondary objective, we test the effects of ownership structure on the degree of internationalization and the effects of the degree of internationalization on ownership structure.

According to the literature, especially the works of Lien *et al.* (2005) and Bhaumik *et al.* (2010), a system of regression equations that simultaneously determines ownership concentration and internationalization is postulated. Following these authors, who do not analyze the effect of entry modes (EMODT), the present study does not consider this variable for comparison. The control variables used in previous models are maintained. These equations are estimated using three-stage least squares (3SLS), considering (DOI) and (OWN1) to be endogenous variables with respect to the model and considering the other variables to be instrumental. For the DOI equation, we exclude PAYOUT because there is no tested association of this variable in the literature.

The 3SLS method is preferable to ordinary least squares (OLS), as the latter leads to biased estimates and inconsistent parameters when a system has interdependent endogenous variables (Coles, Lemmon, & Meschke, 2012; Gujarati, 2006), as is the case for both DOI and OWN1.

The system of equations is represented mathematically by Model 3.

$$\left\{ \begin{array}{l} \text{DOI}_{it} = \alpha_1 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{GROW}_{it} + \beta_3 \text{RISK}_{it} + \beta_4 \text{TANG}_{it} + \beta_5 \text{TLEV}_{it} + \\ \beta_6 \text{OWN1}_{it} + \sum_{j=1}^2 \omega_j * \text{OWN1}_{it} + \sum_{j=2}^{17} \gamma_j * \text{IND}_j + \sum_{T=2007}^{2011} \gamma_j * \text{YEAR}_T + \sum_{C=1}^3 \varphi_C * \\ \text{COUNTRY}_C + \varepsilon_{it} \\ \text{OWN1}_{it} = \alpha_1 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{GROW}_{it} + \beta_3 \text{RISK}_{it} + \beta_4 \text{TANG}_{it} + \beta_5 \text{TLEV}_{it} + \\ \beta_6 \text{PAYOUT}_{it} + \beta_7 \text{DOI}_{it} + \sum_{j=1}^2 \omega_j * \text{OWN1}_{it} + \sum_{j=2}^{17} \gamma_j * \text{IND}_j + \sum_{T=2007}^{2011} \gamma_j * \text{YEAR}_T + \\ \sum_{C=1}^3 \varphi_C * \text{COUNTRY}_C + \varepsilon_{it} \end{array} \right. \quad (3)$$

Moreover, unlike OLS, 3SLS allows us to determine how ownership structure decisions affect DOI and how DOI affects ownership structure, both simultaneously and in isolation. This determination is achieved by separating the estimation results in the equation processes.

A commonly reported problem of 3SLS is the presence of multicollinearity (or almost perfect correlation) between the regressors, which leads to inflated standard error estimates and reduced statistical test values. To verify the existence of this problem, we use the variance inflation factor (VIF). A maximum VIF value of 1 indicates that no multicollinearity is present, whereas maximum values above 10 indicate that multicollinearity may unduly influence the regression estimates and that independent variables with high correlations with one another should therefore be excluded (Gujarati, 2006).

Empirical Results and Discussion

We observe that the associations between the variables are weak, which indicates the absence of autocorrelation between the explanatory variables of the model. Table 4 shows the correlation matrix of scalar numerical variables used in the study.

The association between DOI and OWN1 is negative and thus indicates that in a preliminary analysis, internationalization is negatively associated with ownership concentration. This result is not as expected, as this association suggests that agency theory applies to the influence of ownership structure on internalization. However, this relationship is close to zero, indicating the need for further investigation with a control variable.

Table 4

Correlation Matrix of Variables Used in the Study

Variables	SIZE	GROW	RISK	TANG	TLEV	PAYOUT	OWN1	DOI
SIZE	1.0000							
GROW	0.0259	1.0000						
RISK	-0.1077	0.5260	1.0000					
TANG	0.0702	0.1412	0.1485	1.0000				
TLEV	0.3252	-0.0502	-0.0332	0.0362	1.0000			
PAYOUT	-0.0295	-0.0067	-0.0115	0.0303	-0.0358	1.0000		
OWN1	0.0392	0.1324	0.1786	0.2026	-0.0066	-0.0292	1.0000	
DOI	0.2436	-0.0500	-0.0830	0.0473	0.3562	-0.0136	-0.0073	1.0000

Note. Table 4 shows the correlation matrix of the numerical variables used in the study for descriptive purposes. **Variables:** SIZE – Company size; GROW – Growth opportunity of the firm; RISK – Bankruptcy risk of the company; TANG – Level of asset tangibility of the company; TLEV – Total debt; PAYOUT – Dividends paid to common shareholders; OWN1 – Level of ownership concentration; and DOI – Level of company internationalization.

Table 5 shows the means, standard deviations and variance analysis for the study's test variables (DOI and OWN1), divided into four groups according to the companies' international conditions (domestic, multinational, multinational with equity entry mode and multinational with non-equity entry mode companies).

This analysis provides evidence that it may be important to include entry modes (EMODT) in the ownership concentration (OWN1) analysis. Multinational companies that choose to internationalize via non-equity entry modes are 16% $([53.18 - 43.83] / 43.83)$ more concentrated and 83% $([22-12] / 12)$ more internationalized than multinational companies that opt for equity entry modes. Again, the ANOVA outcome does not support hypothesis 2; *i.e.*, companies whose internationalization occurs predominantly via equity entry modes have higher levels of ownership concentration.

Table 5

Means, Standard Deviations and Analysis of Variance (ANOVA) of the Variables

Variables	Domestic companies		Multinational Companies						Total	
			Total		Non-Equity		Equity			
	Average	σ	Average	σ	Average	σ	Average	σ	Average	σ
OWN1	51.87	25.47	50.04	25.00	53.18	25.61	45.83	23.56	50.99	25.26
	Prob. > F = 0.1280				Prob. > F = 0.0000					
DOI	0.00	0.00	0.18	0.17	0.22	0.20	0.12	0.10	0.08	0.15
	Prob. > F = 0.0000				Prob. > F = 0.0000					
N	926		850		364		486		1776	

Note. Table 5 presents descriptive statistics of the means and standard deviations (σ) of the test variables (OWN1 and DOI) used in the study for the entire sample and for the groups of domestic firms, multinationals, equity entry mode and non-equity entry mode multinationals. The table also presents the difference in tests between means by the ANOVA for domestic versus multinational companies and for equity entry mode versus non-equity entry mode multinational companies. Domestic companies (DOI = 0); Multinationals (DOI > 0); N – Sample Size; and Prob. > F – Probability of averages being equal to one another or statistical significance of the ANOVA test (for this research, we accepted a significance level of 10%). **Variables:** OWN1 – Ownership concentration; DOI – degree of company internationalization.

After completing the descriptive analyses, we conduct a panel data analysis. Models 1 and 2 include three groups of control variables: company characteristics, industries and countries. Model 1 tests the influence of internationalization (DOI and EMODT) on the level of ownership concentration (OWN1).

The effect observed in Table 6 is that the level of internationalization (DOI) negatively and significantly determines ownership concentration (OWN1). Given the type of entry mode, this result not only rejects hypothesis 1 but also suggests a negative relationship between the degree of internationalization and the level of ownership concentration.

For Latin American publicly listed companies, this outcome suggests that internationalization does not require major shareholders to increase their ownership position to influence MNE managers to align with the interest of parent company shareholders. The perception of the risk of outward investment could help to explain this phenomenon, as companies in Latin American countries typically expand their overseas operation to developed countries that have better institutional environments.

We then consider the entry modes in our analysis. Companies that chose to internationalize predominantly via equity entry mode (EMODT = 1) tend to be less concentrated (OWN1) than other companies. This evidence rejects hypothesis 2, which indicated that higher levels of internationalization lead to higher levels of ownership concentration. Although the companies with a non-equity entry mode (EMODT = 2) have a positive coefficient, the lack of significance prevents further analysis.

Our results suggest that instead of the effect of internationalization on ownership that we hypothesized, principal-agent theory explains the effect of ownership on internationalization. Even when we observe that the perception of risk for an international venture is clear based on intensive cash flow investment in equity entry modes (joint ventures, acquisition and new investments), the relationship is significantly negative. Minority shareholders do not sell back to a company after an internationalization decision is announced, and major shareholders do not consequently increase their positions. Our results also support the approach (Bhaumik *et al.*, 2010; Oesterle, Richta, & Fisch, 2013) in which lower ownership concentration results in a higher degree of internationalization because of the conflict between shareholders and managers.

Model 2 of Table 6 presents the analysis of the effects of internationalization (DOI and EMODT) on the forms of ownership (OWNT). The DOI is significant only for companies whose main shareholder is a financial institution (OWNT = 1). The effect generated by the DOI of companies with this type of ownership is positive. Thus, the evidence suggests that more internationalized companies are more likely to have a financial institution as their largest shareholder. For other ownership forms (OWNT = 2, 3, 4 and 5), the significance of the relationship is unclear.

Table 6

Results of Panel Regressions from Models 1 and 2

Model variables	Model 1	Model 2				
	OWN1	OWNT=1	OWNT=2	OWNT=3	OWNT=4	OWNT=5
Constant	62.08***	-2.03**	-0.50	0.22	-4.61***	-7.64***
SIZE	-2.68**	0.26*	0.22***	-0.46***	0.32**	0.85***
GROW	1.53***	0.34***	0.14**	-0.39***	0.32***	-0.01
RISK	0.83***	-0.24	-0.08	0.27***	0.00	-0.58***
TANG	5.02***	-0.72	0.12	-0.28	-1.16**	1.47***
TLEV	8.05***	-0.76	-0.38	2.34***	-0.52	-4.03***

Continues

Table 6 (continued)

Model variables	Model 1	Model 2				
	OWN1	OWNT=1	OWNT=2	OWNT=3	OWNT=4	OWNT=5
PAYOUT	0.00	0.00	0.00	0.00	0.00	0.00
OWN1		-0.02***	0.00	0.00	-0.02***	0.01***
DOI	-8.41***	2.24**	0.38	-0.40	0.59	-0.12
OWNT = 1	-7.14*					
OWNT = 2	-13.21***					
OWNT = 3	-16.05***					
OWNT = 4	-17.35***					
OWNT = 5	-18.72***					
EMODT = 1	-1.76*	-0.23	-0.15	-0.10	0.15	-0.62*
EMODT = 2	1.19	-0.30	-0.18	0.10	-0.12	-0.82*
Breusch and Pagan	$p < 0.0000$	$p < 0.0000$	$p < 0.0000$	$p < 0.0000$	$p < 0.0000$	$p < 0.0000$
Adjusted R²	0.16	0.17	0.14	0.25	0.18	0.34

Note. Table 6 presents the results of panel regressions from Models 1 and 2 for the large sample containing multinational and domestic companies, highlighting the constants, coefficients and error terms for each regression. The table also presents the adjusted R² and p-values of the Lagrange multiplier test for random effects of Breusch and Pagan testing the suitability of using random effects rather than pooled OLS. For Model 2, we use logistic regression because the dependent variable is categorical. For each logistic regression, we use dummy variables constructed from the categorization of the variable OWNT, as noted in this table's caption. The coefficients of the control variables for industry (IND), year (YEAR) and country (COUNTRY) were omitted from the table. **Variables:** SIZE – Company size; GROW – Growth opportunity company; RISK – Risk of bankruptcy of the company; TANG – Level of the company's asset tangibility ; TLEV – Total debt; PAYOUT – Dividends paid to common shareholders; OWN1 – Level of ownership concentration of the company's major shareholder ; DOI – Degree of company internationalization ; OWNT – Ownership identity: financial institutions (OWNT = 1), professional/business group (OWNT = 2), family/individual (OWNT = 3), investment funds (OWNT = 4) and government (OWNT = 5); and EMODT – Equity entry mode (EMODT = 1) and non-equity entry mode (EMODT = 2).

*, ** and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.

Finally, a mutual effect between ownership concentration and internationalization is not rejected. In Table 7, the results obtained when simultaneously running the equations from Model 3 suggest that DOI and OWN1 are simultaneously determined.

Table 7

Regression of Simultaneous Equations Using the 3SLS Method

Model 3 Variables	DOI	OWN1
Constant	0.05	50.51***
SIZE	0.02***	2.41***
GROW	0.01	0.73
RISK	0.01	2.13***
TANG	0.06***	16.79***
TLEV	0.27***	15.99*
PAYOUT		0.00

Continues

Table 7 (continued)

Model 3 Variables	DOI	ONW1
OWN1	0.01***	
DOI		-60.71**
OWNT = 1	-0.14***	-32.98***
OWNT = 2	-0.15***	-24.15***
OWNT = 3	-0.09***	-23.78***
OWNT = 4	-0.07***	-28.53***
OWNT = 5	-0.17***	-14.91**

Note. Table 7 presents the regressions from Model 3 using the 3SLS estimation method. This estimation method is suitable for analyzing systems of two or more regression equations to check for simultaneous determination of the endogenous variables. The coefficients of the control variables for industry (IND), year (YEAR) and country (CNTRY) were omitted from the table. **Variables:** SIZE – Company size; GROW – Growth opportunity company; RISK – Risk of bankruptcy of the company; TANG – Level of the company's asset tangibility; TLEV – Total debt; PAYOUT – Dividends paid to common shareholders; OWN1 – Level of ownership concentration of the company's major shareholder; DOI – Degree of company internationalization; OWNT – Ownership identity: financial institutions (OWNT = 1), professional/business group (OWNT = 2), family/individual (OWNT = 3), rear (OWNT = 4) and government (OWNT = 5); and EMODT – Equity entry mode (EMODT = 1) and non-equity entry mode (EMODT = 2).

*, ** and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.

The simultaneous analysis supports the agency theory predicting the effects of ownership concentration on the degree of internationalization as analyzed by Lien *et al.* (2005) and Bhaumik *et al.* (2010). It is also important to note that hypothesis 1 remains rejected through the simultaneous estimation by 3SLS. That is, even if the variables are simultaneously determined, the higher degree of internationalization reduces the level of ownership concentration.

The lack of rejection of simultaneity shows that the works of Lien *et al.* (2005) and Bhaumik *et al.* (2010) may present the endogeneity problems that are commonly found in finance research, as reported by Coles *et al.* (2012). The reasoning of these authors based on agency theory may have led to the assumption that the decision of ownership structure is the *a priori* decision and that the decision to internationalize is the *a posteriori* decision and, thus, that it is not possible for these two variables to be determined simultaneously.

Conclusions

The hypothesized positive effect of internationalization on ownership concentration is rejected. Our results support the negative relationship that is predicted by principal-agent theory when analyzing the effect of ownership on the degree of internationalization (Bhaumik *et al.*, 2010; Lien *et al.*, 2005; Oesterle, 2013).

Higher degrees of internationalization predominantly based on the equity entry mode are associated with lower levels of ownership concentration. The conflict of interest between shareholders and managers and ownership structure are relevant issues for the internationalization of Brazilian, Argentine and Chilean MNEs. The cost–benefit analysis of monitoring activities is negative because monitoring becomes a public good: each small shareholder benefits from the monitoring activities of others. As a consequence, in a pulverized ownership structure, shareholders do not have incentives to influence management; thus, executives have greater freedom to pursue their own interests in moving toward internationalization.

However, the different forms of relationships regarding the internationalization process are unclear. The degree of internationalization is significant only for companies whose main shareholder

is a financial institution. Higher degrees of company internationalization are associated with a greater likelihood that such companies are owned by financial institutions. However, this interpretation is limited by the small number of observations from financial institutions.

Finally, as the simultaneous effect between ownership concentration and DOI is not rejected, the results of simultaneous analysis estimated by 3SLS also provide evidence that is consistent with agency theory. Therefore, the optimal ownership concentration not only mitigates the potential agency problem between shareholders and managers but also helps Latin American companies undertake value-adding activities in foreign countries.

In future research, our analysis can be applied to MNEs in other Latin American countries and can be compared to the results obtained for MNEs in developed countries. Other international degree indicators and means of ownership classification can be discussed in future investigations of the relationship between ownership structure and internationalization.

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