ARTICLES

Submitted 02.26.2012. Approved 09.25.2012.
Evaluated by double blind review. Scientific Editor: Mário Sacomano Neto
DOI: http://dx.doi.org/10.1590/S0034-759020140614

PERFORMANCE IN CROSS-BORDER MERGERS AND ACQUISITIONS: AN EMPIRICAL ANALYSIS OF THE BRAZILIAN CASE

Desempenho de fusões e aquisições cross border: análise empírica do caso brasileiro

Desempeño de fusiones y adquisiciones cross border: análisis empírico del caso brasileño

ABSTRACT

The purpose of this article is to investigate whether the cross-border acquisitions made by Brazilian companies over the past 15 years have improved their financial performance. Drawing on institutional, sociocultural, and organizational learning theories, this study develops and empirically tests several hypotheses on the determinants of M&A performance. The results demonstrate that the cross-border acquisition moves by Brazilian companies actually improve their financial performance. Financial performance tends to be positive when the cultural distance between the countries of the acquiring and acquired companies is low to medium and when the institutional context of the acquired company is a developed one. We also found an inverted-U shape relationship between acquiring companies' previous international M&A experience and the performance of a new cross-border operation. These findings suggest that research on international M&As should include acquirers' M&A experience as well as the institutional characteristics of their target countries.

KEYWORDS | Cross-border M&A, internationalization, financial performance, institutional theory, organizational learning.

RESUMO

Este artigo tem como objetivo investigar se as aquisições realizadas por empresas brasileiras fora do País nos últimos 15 anos têm aumentado o desempenho financeiro dessas empresas. Além disso, é realizada uma análise empírica dos fatores determinantes desse sucesso, com base nas teorias institucional, sociocultural e de aprendizagem organizacional. Os resultados indicam que, de fato, as investidas cross border de companhias do Brasil melhoram o desempenho, que é positivamente impactado quando a distância cultural entre os países da adquirida e da adquirente é baixa ou média e quando o ambiente institucional no qual a empresa-alvo se encontra é desenvolvido. Já a relação entre as experiências anteriores das brasileiras em fusões ou aquisições internacionais e o desempenho de uma nova aquisição fora do País segue o formato de U invertido, enfatizando a relevância de se considerar a experiência com fusões e aquisições da empresa compradora além das características institucionais dos seus países-alvo.

PALAVRAS-CHAVE */ Fusões e aquisições cross border, internacionalização, desempenho financeiro, teoria institucional, aprendizagem organizacional.*

RESUMEN

Este artículo tiene como objetivo investigar si las adquisiciones realizadas por empresas brasileñas fuera del País en los últimos 15 años han aumentado el desempeño financiero de esas empresas. Además, se realiza un análisis empírico de los factores determinantes de ese éxito, con base en las teorías institucional, sociocultural y de aprendizaje organizacional. Los resultados indican que, de hecho, las sociedades cross border de compañías de Brasil mejoran el desempeño, que es positivamente impactado por la distancia cultural entre los países de la adquirida y de la adquiriente que es baja o mediana y sobre el ambiente institucional en el cual la empresa blanco se encuentra que es desarrollado. Ya la relación entre las experiencias anteriores de las brasileñas en fusiones o adquisiciones internacionales y el desempeño de una nueva adquisición fuera del País sigue el formato de U invertido, enfatizando la relevancia de considerar la experiencia con fusiones y adquisiciones de la empresa compradora además de las características institucionales de sus países blanco.

PALABRAS CLAVE */ Fusiones y adquisiciones cross border, internacionalización, desempeño financiero, teoría institucional, aprendizaje organizacional.*

ADRIANA BRUSCATO BORTOLUZZO
adrianab@insper.edu.br
Professor at Instituto de Ensino e Pesquisa – São Paulo – SP, Brazil

MARIA PIA DE SIQUEIRA GARCIA
mariapiagarcia@hotmail.com
Master's in Business Administration from the Instituto de Ensino e Pesquisa – São Paulo – SP, Brazil

DIRK MICHAEL BOEHE
dirk.boehe@adelaide.edu.au
Professor at the Adelaide Business School, University of Adelaide – Adelaide, Australia

HSIA HUA SHENG
hsia.sheng@fgv.br
Professor at Escola de Administração de Empresas de São Paulo, Fundação Getulio Vargas – São Paulo – SP, Brazil

INTRODUCTION

Cross-border merger and acquisitions (M&As) are an increasingly significant phenomenon in contemporary society (Luo & Tung, 2007). From 1997 to 2007, approximately 90% of the world's foreign direct investments were the result of cross-border M&As, i.e., M&As where the acquiring and acquired companies are based in different countries. Considering 2007 alone, those operations totaled U$2.1 trillion, or 47% of all M&As conducted worldwide. In Brazil, over 30% of cases recorded involved foreign companies (United Nations Conference on Trade and Development [UNCTAD], 2008).

The theoretical foundations of cross-border F&A research were traditionally based on economic perspectives, such as transaction cost economics and the *eclectic paradigm (ownership-location-internalization advantages*) (Shimizu, Hitt, Vaidyanathc, & Pisano, 2004). Over the years, the focus moved to the resource-based view and the organizational learning perspective (Barkema & Vermeulen, 1998). Institutional- and sociocultural-based theories, which analyze the impact of cultural distance, regulatory differences, and institutional contingencies on corporate restructuring events, are increasingly numerous nowadays (Dikova, Sahib, & Witteloostuijn, 2010; Gubbi, Aulakh, Ray, Sarkar, & Chittoor, 2010; Lin, Peng, Yang, & Sun, 2009; Nadolska & Barkema, 2007; Reus & Lamont, 2009), as more traditional analyses focusing on financial-economic and market aspects have proved insufficient to apprehend the entire complexity inherent to a cross-border acquisition (King, Dalton, Daily, & Covin, 2004).

Despite their relevance, few studies focus on the emerging markets. Cartwright and Schoenberg (2006) mention the fact that longitudinal studies of M&A are also infrequent and conducted in developed countries only. Gubbi *et al*. (2010) examined the value creation process in cross-border acquisitions by Indian companies. Lin *et al.* (2009) analyzed statistics and cases focused in China and India; Abybar and Ficici (2009) studied value creation in acquisitions by multinational companies from various emerging countries.

The purpose of this study is to fill the gap in the literature concerning the Brazilian context, in order to empirically determine whether F&As conducted abroad by Brazilian companies from 1994 to 2008 have increased these companies' financial performance, as well as to analyze determinant factors of successful outcomes. The study uses accounting metrics as financial performance proxies and concludes that Brazilian companies that conducted cross-border M&As during the period showed a higher mean performance than the ones that did not. Moreover, we found that the institutional environment of, and the cultural distance from, the country of the acquired company affect the performance of cross-border M&As, and that the acquiring company's international experience in M&As exerts an inverted-U shape influence on that performance.

FINANCIAL PERFORMANCE IN MERGERS AND ACQUISITIONS

In the context of this study, the concept of value creation is based on Jensen and Ruback's (1983) idea that the value created by an acquisition will affect positively the overall performance of a company, as synergies obtained will translate into cost and revenue improvements clearly reflected in its consolidated financial statements – which, once published and analyzed, will result in positive stock price movements, and, therefore, in returns to the stockholder.

The fact is that no consensus exists yet in the M&A literature about M&A's effects on value creation for a company that adopts such operations as a growth and/or internationalization strategy.

The articles in the M&A literature which find positive associations between these events and the performance of the companies conducting them are normally based on the concept of synergy obtention via *parenting advantage*. The increase in acquirees' stock prices shows this appreciation (Healy, Palepu, & Ruback, 1992). Capron and Pistre (2002) argue that acquisitions are a mixed blessing for acquirer companies' stockholders, i.e., the return could be positive or negative for the acquirer; however, when acquirers succeed in creating synergies, there is value creation. Particularly with regard to cross-border M&As, Hagendorff and Voss (2010) argue that the geographic diversity produced by this internationalization strategy bears value for investors as it allows taking advantage of market imperfections, particularly by expanding the "informational" assets of a company.

Therefore, international M&As allow companies, particularly from emerging countries, to gain access to key strategic resources that might not be available in their domestic markets, thus improving their overall competitiveness (Luo & Tung, 2007). Moreover, the possible transfer of status and reputation from the acquiree to the acquirer company helps the latter overcome the typical liability of foreignness and newness problems that it faces in global markets (Eden & Miller, 2004).

Contrasting the above described positive effect, Datta and Puia (1995) conducted a study integrating Transaction Cost, Resource-based View, and Cultural Difference theories, reporting that, on average, international M&As do not generate value

for the acquiring business, thus aligning with findings of studies from the U.S. on national M&As. The agency problem between executives (agents) and stockholders (principals), denominated *managerialism*, is also used as one of the main justifications for cases of value-destroying M&As (Seth, Song & Petit, 2000).

In addition to these explanations, other issues can be mentioned as sources of business failure. Competition among multiple potential control buyers can generate a high premium for the stocks of the acquiree (Capron & Pistre, 2002), management inefficiency concerning companies' post-acquisition context (Reus & Lamont, 2009), and, finally, the different metrics used to assess performance could be one of the explanations for these disagreements (Zollo & Meier, 2008).

CONSTRUCTING THE HYPHOTESES

Besides the traditional question of synergy, the existing cross-border M&A literature divides the facts that impact M&As' outcomes in three major groups: (i) firm- and industry-specific facts, such as previous M&A experience as a multinational company, previous local experience, product portfolio diversity, internationalization strategy, technology, marketing, and sales force intensity; (ii) transaction-specific factors, such as the level of relationship between the companies, form of payment, and the post-event integration process; and (iii) institutional context-specific factors (or factors specific to the country of the acquirer or acquiree), such as growth, institutions, and culture – apart from idiosyncratic differences between the cultures of the countries (Shimizu *et al.*, 2004).

The synergy factor

The synergy hypothesis proposes that acquisitions occur when the value of the resulting company is greater than the sum of values of the constituting companies. This additional value, also known as synergy gain, can be the result of various factors, such as the increase in operational efficiency (such as scale and scope economies), market power increase, additional knowledge and development through the learning of new competencies or, still, some kind of financial gain (Seth *et al.*, 2000). Camargos and Barbosa (2009) also found M&As of Brazilian companies that resulted in operational synergy and created value for stockholders.

The source of value in international M&As lies in the ability to conduct a "reverse internalization", i.e., acquiring competencies and resources in other countries in order to use them valuably in their domestic markets. In this case, the combination of both companies' expertise tends to create new investment and production opportunities for the resulting company. Salis' (2008) study illustrates this effect on manufacturing companies acquired by foreigners in Slovenia. His study shows that the major gain in these cross-border acquisitions is the result of the reverse flow of resources established (from the cross-border affiliate to the acquirer), which suggests the pursuit of assets (particularly high technology and know-how assets) as the main purpose of direct foreign investments in the country.

Therefore, the synergy hypothesis that characterizes this study assumes the idea that executives make decisions with the purpose of increasing financial performance based on the creation of synergies (Hill & Hoskisson, 1987) and, moreover, that they actually have the cognitive ability to create these synergies.

Based on the theory presented above, we build our first hypothesis:

> H1: "*Cross-border mergers and acquisitions increase the financial performance of the acquiring company*".

The learning factor

Experience is a primary source of learning in organizations (Barkema & Vermeulen, 1998). Various studies approach the effects of a company's past experience on a new acquisition move, since both individual and organizational experiences may be necessary to minimize integration problems (King *et al.*, 2004).

According to Kusewitt (1985), the fact that, on the one hand, a few studies show that high acquisition rates lead to superior performance due to greater experience, while others suggest that the same factor can generate a "corporate indigestion", can be reconciled by believing that both views are correct, since there is an optimal relation between acquisition rate and acquirer performance. This relation would have an inverted U-shape, as it would be initially positive, and later, after a certain corporate "saturation" point, it would begin to drop.

The drop in this curve could be explained by, among others, the loss of control and the internal coordination difficulty caused by multiple acquisitions. Hitt, Harrison, Ireland, and Best (1998), in their study of success and failure attributes in corporate acquisitions in the U.S., cite examples of companies (HBO, Ashland Oil, Cooper Industries, and Datapoint, among others) that conducted several subsequent acquisitions in a short period and, as a result, their executives were not able to focus their energies neither on the necessary assessments and negotiation to acquire new companies, nor on the activities required to effectively integrate the companies already acquired.

Due to the operationalization that is commonly attributed to the concept of experience – based on the number of past M&As by a company – the notions of experience and of acquisition rate are confused, which could explain the lack of consensus on their effect on post-acquisition performance. In order to solve this gap, and based on the theory developed above, we build the second hypothesis:

> H2: "There is an inverted U-shape relation between cross-border acquisition experience and the financial performance of the acquiring company".

The formal institutional environment factor

The idea of domestic institutional environment effects on individual and organizational behavior is a key one in international business research (Peng, Wang, & Jiang, 2008). Researchers have created concepts and metrics for the effects of a country by analyzing the characteristics of local institutional environment that, in their view, can distinguish countries and explain variations among different nations in terms of organizational behavior.

Generally, institutional frameworks are specific to each country, and they are used as a basis for exploring intranational effects. These frameworks usually evolve within the limits of the socioeconomic environment and become established as the result of social interactions that involve different aspects of a nation, such as its cultural norms, social knowledge, rules and regulations, among other factors. As a consequence, they eventually define the social context where organizations operate, as well as the behavioral model they integrate (Scott, 1995).

With regard to acquisitions, business potential is even more sensitive to the level of efficiency of markets, particularly the financial and corporate control markets, which directly affect transaction costs. Transparency of financial information, predictability, agreement enforcement, stock market liquidity, and the presence of specialist financial intermediaries, typically found in developed institutional environments, can reduce the complexity of analyzing (or conducting a due diligence), negotiating, building agreements, and acquiring a foreign company (Meyer, Estrin, Bhaumik, & Peng, 2009).

Another possible institutional environment analysis regarding international M&As of Brazilian companies is founded on the resource-based view (RBV). This analysis holds that more advanced institutional environments, with greater competition and consumer-focused markets, can offer a superior learning potential for international expansion strategies (Luo & Tung, 2007).

On the other hand, one can argue that more developed institutional environments, precisely because they have a strong corporate control market, tend to increase the competition for companies and, thus, raise acquisition premiums. In this case, the potential financial performance for the acquirer company would be, in part, consumed by the incremental cost paid to the acquiree: that is what the *hubris* hypothesis holds in the context of M&As (Seth *et al.*, 2000). However, Gubbi *et al* (2010) argue that companies from emerging companies use this form of internationalization in order to acquire strategic assets in various markets, with the purpose of overcoming their latecomer and foreignness disadvantages and becoming more competitive during institutional transition periods. Those advantages – combined with learning potential and access to valuable informational assets – would more than compensate for the high premiums paid for companies from developed environments.

Finally, international developed markets also offer a better variety and quality of intangible resources and competencies, necessary for a company from an emerging country to renew and prepare itself to tackle increasingly complex problems (Gubbi *et al.*, 2010).

Based on the theory presented above, we build the third hypothesis of this article:

> H3: "Cross-border mergers and acquisitions in which the acquiree is based on a country with a developed institutional country will generate a higher financial performance than M&As in which targets are located in less evolved institutional environments".

The informal institutional environment factor

In addition to the impact of the formal institutional environment of the acquiree's country, every international acquisition is also subject to cultural differences between the merging parties. According to Stahl and Voigt (2008), a company's ability to create value by exploiting intangible assets in distant cultures is determined by its capacity to overcome and use this distance, since cultural distance affects the synergy and learning stimulus, the potential knowledge and competency transfer, and transaction costs related to geographic diversification and intracultural contact.

As cultural distance levels grow, values, management styles, and practices tend to vary significantly, producing conflicts between the resources that arise from ambiguity and cultural shock (Morosine, Shane, & Singh, 1998). Incompatibility and implementation problems during the integration process in acquisitions involving very distant cultures can eventually harm learning and synergies (Hagendorff & Voss, 2010).

Hagendorff and Voss (2010) argue that the value that investors attribute to the knowledge-intensive assets available

when a cross-border M&A occurs is directly affected by the moderating role of cultural distance in the sharing and learning of such information. Therefore, they argue that low and medium levels of cultural diversity between the merging parties positively affect the potential value of intangible assets to be shared, as employees' common values facilitate interaction, resource exchange, and learning. For high levels of cultural discrepancy, however, transaction costs tend to hinder the efficient transfer of competency, therefore reducing the value of geographic diversification.

Therefore, we build on the idea that low and medium levels of cultural distance are beneficial to M&A performance, while, on the other hand, higher cultural distances negatively impact performance, to propose the fourth hypothesis of the study:

> H4: "Cross-border mergers and acquisitions characterized by low and medium levels of cultural distance tend to generate a higher financial development than M&As characterized by high levels of cultural distance".

METHODOLOGY

In this section, we present our data collection methodology and how we selected variables and econometric models to achieve the goals of the study.

Sample and data

In order to answer the questions of this study, we collected information of every cross-border M&A conducted by Brazilian public companies in the industry and commerce sectors, from 1994 to 2008, based on Thomson Reuters' *Mergers & Acquisitions Database*. Filtering only for transactions where the percentage of stocks held by the acquirer after the transaction was higher than 50%, we obtained a total of 67 negotiations conducted by 25 different Brazilian companies.

Cross-border M&A data showed a concentration of operations since 2006 (57% of M&As), with a strong representation of American countries (particularly South American ones, due to the geographic and linguistic proximity, among other factors), in various industries, with a concentration in Steel and Metallurgy (20%), Processed Foods (18%), and Oil, Gas, and Biofuels (13%). For more details on the cross-border M&A sample, see Table 1.

In order to test Hypothesis 1, we selected all Brazilian public companies in the industry and commerce sectors which did not conduct a cross-border M&A from 1994 to 2008. In order to further homogenize the groups of companies that conducted a cross-border M&A and the ones that did not, in relation to the sector they operate in, we selected, for the sample of companies that did not conduct international M&As, only those with the same SIC code as the 25 companies that conducted at least one international M&A, which resulted in a sample of 102 companies in 2008. Information about these companies was collected for each year, from 1994 to 2008, meaning that a same company had data included for various years in the studied period, forming an unbalanced panel with 482 observations.

The companies' accounting data used in the study were entirely secondary data from Bloomberg financial reports and market studies, and they were suitably adjusted for building the series of necessary returns and indicators.

Choosing the variables

Variables were selected according to the literature available, and the operationalization of constructs was conducted according to the availability of data.

Dependent variables

In the proposed theoretic model, the response variable of interest is the creation of value in cross-border M&As. The model's operationalization was based on two accounting variables: Operating ROA (return on assets) and ROIC (return on invested capital), both of which were calculated for a period of 48 months. These variables are directly affected by M&A events, whether through operational and management improvements or through a correct allocation of the company's resources (Zollo & Meier, 2008).

The variables ΔROA e ΔROIC were created as post-merger financial performance proxies in order to measure variations in the metrics of return on assets and return on invested capital, respectively, calculated for the acquirer between years -1 and 1 (with 0 as the year the acquisition was executed), in relation to a group of companies in the same industry (Brush, 1996), according to the formulas below:

$$\Delta ROA = (ROA_i, t+2 - ROA_c, t+2) - (ROA_i, t-1 - ROA\ c, t-1) \text{ and}$$
$$\Delta ROIC = (ROIC_i, t+2 - ROIC_c, t+2) - (ROIC_i, t-1 - ROIC_c, t-1),$$

where ROA_i,t+2 and ROA_i,t-1 represent the return on assets of acquirer company "i" in years t+2 and t-1, respectively, and ROA_c,t+2 and ROA_c,t-1 represent mean return on assets for the remainder of companies in the sample (in the same industry and of similar size) in years t+2 and t-1, respectively.

We corrected variables according to their industries' means in order to control macroeconomic and industry-relat-

ed effects of the competitive environment, which simultaneously impact the performance of all companies in a same industry (Delong & Deyoung, 2007).

It is worth stressing that, in the model, we chose the dependent variable ΔROIC to verify Hypothesis 1, since ROIC's calculation considers the value of the capital invested in the company, making it more sensitive to cases of acquisition as it considers the amount spent to buy the company. On the other hand, in order to verify Hypothesis 2 to 4, we chose the variable ΔROA as the response, since it reflects more specifically the impacts of acquisition on the company's operations as it is more directly affected by gains from synergies and best practices.

TABLE 1. **Number of cross-border M&As over time, by acquiree's country and industry**

Period	Number of cross-border M&As	Acquiree's country	Number of cross-border M&As	Acquiree's industry	Number of cross-border M&As
1994-1995	6	Argentina	16	Steel and Metallurgy	13
1996-1997	2	EUA	7	Processed Food	12
1998-1999	5	Paraguay	5	Oil, Gas, and Bio-Fuels	9
2000-2001	6	Canada	4	Beverages/Mining	6
2002-2003	6	Colombia Mexico Norway Peru	3	Machinery and Equipment	5
2004-2005	4	Australia Turkey Chile United Kingdom Japan Uruguay Venezuela	2	Transport Equipment	4
2006-2007	20	Costa Rica Denmark Ecuador Germany Italy Mozambique Netherlands Portugal Spain	1	Computers and Equipment/Health	2
2008	18			Construction and Engineering/Miscellaneous/ Packaging/Electric Power/Wood and Paper/ Miscellaneous Materials/Service, Clothes and Footwear/Transportation	1

Explanatory variables

The model for verifying Hypothesis 1 was built with only one explanatory variable of interest: cross-border Merger or Acquisition (CBMA), which was operationalized by using a dummy indicator for the companies that conducted a cross-border M&A in the sample.

The model for verifying Hypothesis 2 to 4 used three independent variables in order to measure the impact of a few characteristics of companies involved in a cross-border M&A on these companies' performance: International Experience (Inter Exp), Institutional Environment (Inst Env), and Cultural Distance (Cult Dist).

The variable Experience in international M&A is based on Nadolska and Barkema's article (2007), and was operationalized using the number of acquisitions that the companies completed in foreign countries from 1980 (the first year this information is available for the database) to the announcement date of the transaction in question.

We used components of the Heritage Foundation's *Economic Freedom Index* as proxies of the force of a country's market-supporting institutions, choosing only the indices that best reflect the efficiency of a market: business freedom, trade freedom, investment freedom, financial freedom, and property rights. Therefore, for each country and year in the sample, we calculated the mean of values obtained for the five economic freedom indices in the acquiree's country. Finally, we used a dummy variable that indicates whether the country was classified as one with a "developed institutional environment", i.e., if the mean for the indices used was above 70.

The variable cultural distance was operationalized based on Kogut and Singh's (1988) index, widely used in studies of internationalization and based on the grades attributed to the four cultural dimensions of a nation: power distance (or PDI – Power Distance Index), individualism, masculinity, and uncertainty avoidance. (or UAI – Uncertainty Avoidance Index).

The measure of cultural distance is given by the arithmetic mean of differences between each cultural dimension in the acquirer's and the acquiree's countries, then adjusting it by the variance of each distribution associated with a particular cultural dimension. Again, we created a dummy variable that indicates whether the countries involved in the acquisition have a high cultural distance level, i.e., whether the value of the cultural distance measure was higher than the value of the third quartile of the sampling distribution.

Control variables

In order to test Hypothesis 1, we included in the model four control variables identified as relevant factors that could lead a company to conduct an international M&A (Danzon, Epstein, & Nicholson, 2007; Salis, 2008) and that, if not controlled, could affect the company's financial performance: sales growth (Sls Grth); operational costs increase (Op Cst Incr); company size (Market Cap); and excess cash (Exss Csh).

In order to test Hypothesis 2 to 4, we included three control variables: multinational subsidiary (Subsidiary), possibility of entry into new markets through acquisitions (New Mkt), and company size (Sales).

Models

In order to test the study's hypotheses, we had to use two different models, on for verifying whether the companies that conducted cross-border M&As created long-term value for their stockholders, and another to determine the possible determinant factors of this cross-border M&A-generated value.

As Salis (2008) and Bollen and Brand (2010) suggest, if the characteristics that determine the good performance of a company are also key determinants of acquisitions abroad, then the results of a model that only compares performance means of groups of companies that conducted international M&As and groups that did not will be biased, as the impact of an acquisition could be overestimated and, therefore, create an excessive expectation about the effects of this operation on a company in the country.

In order to minimize a possible bias and include the heterogeneity of companies into the model so that Hypothesis 1 could be verified, we chose panel data regression using the general sample of 127 Brazilian companies that conducted or did not conduct an M&A operation abroad.

The panel data regression model is given by the formula below:

$$y_{it} = \beta_o + \beta_1 x_{it1} + \beta_2 x_{it2} + \ldots + \beta_k x_{itk} + a_i + \varepsilon_{it}\ ,\ i = 1, \ldots, n \text{ and } t = 1, \ldots, T,$$

where a_i represents the unobserved effect of a company "i", and ε_{it} represents the random error of the company "i" on a time t. The regression was run with both fix and random effects, and we chose from models a posteriori, using Hausman's test.

In order to verify Hypotheses 2 to 4, we used a multiple linear regression model with the sample of the 25 companies that conducted the 67 cross-border M&As in the analyzed period. To correct the model's selection bias, since the sample of cross-border transactions is not a random one, we chose to use Heckman's (1979) procedure.

Heckman's correction is conducted in two phases: in the first, a probit model is created to evaluate the likelihood of a company to conduct an international acquisition according to certain explanatory variables (in this case, we used the control variables from the Hypothesis 1 verification model, since the literature recognizes these variables as possible determinants of a cross-border acquisition decision). In the second phase, the selection bias was corrected using the inclusion of an additional regressor in the equation of determinants of an international M&A performance: the variable , calculated through a transformation in the individual possibilities of model probit.

Exhibit 1 summarizes the operationalization of dependent, explanatory, and control variables included in the two models of the study.

Exhibit 1. **Dependent, explanatory, and control variables used in the models**

	H1: Panel data regression	Expected Effect	H2 to H4: Heckman-corrected Multiple Linear Regression	Expected Effect
Dependent Variable	ΔROIC: ROIC (return on invested capital) variation for the acquirer company, between years -1 and +2 (with 0 as the acquisition year), adjusted for industry mean Sources: Zollo and Meier (2008); Brush (1996)		ΔROA: ROA (return on assets) for the acquirer company, between years -1 and +2 (with 0 as the acquisition year), adjusted for industry mean Sources: Zollo and Meier (2008); Brush (1996)	
Explanatory Variables	CBMA: a *dummy* that assumes value 1 whenever the company conducted a cross-border merger or acquisition in the year in question	+	Inter Exp: number of cross-border mergers and/or acquisitions by the acquirer until the date of the operation in question Sources: Nadolska and Barkema (2007); Kusewitt (1985)	+
			Inst Env: a *dummy* that assumes value 1 when acquiree's country has a developed formal institutional environment Sources: Gubbi et al. (2010); Meyer *et al*. (2009); Luo and Tung (2007); Seth *et al*. (2000)	+
			Cult Dist: a *dummy* that assumes value 1 for high levels of cultural distance between the acquirer's and acquiree's countries Sources: Hagendorff and Voss (2010); Stahl and Voigt (2008); Kogut and Singh (1988)	-
Control Variables	Sls Grth: percentage variation of the company's sales between years t-3 and t-1, with t as the year in question Source: Danzon *et al.* (2007)		Subsidiary: a *dummy* that assumes value 1 if the acquirer company is the Brazilian subsidiary of a foreign company Source: Karpaty (2007)	
	Op Cst Incr: percentage variation in the company's operational costs (in relation to sales) between years t-3 and t-1, with t as the year in question Source: Danzon *et al.* (2007)		New Mkt: a *dummy* that assumes value 1 whenever the M&A has allowed the acquirer access to a market closed (by trade barriers) to the acquirer Source: Datta and Puia (1995)	
	Mkt_Cap: the logarithm of the company's market value, calculated by the value of its stocks multiplied by the number of stocks in circulation on the last day of each year Sources: Salis (2008); Danzon *et al.* (2007)		Sales: logarithm of the acquirer's sales (in R$ millions) Source: Ruckman (2005)	
	Exss_Cash: percentage of "cash and short-term investments" for sales Source: Danzon *et al.* (2007)			

RESULTS

Table 2 presents a descriptive analysis of the sample referring to the first hypothesis of the study. As shown in this table, the companies that conducted a cross-border merger or acquisition presented a higher mean value both for the performance variable ΔROA and for ΔROIC, compared to the ones that did not. On the other hand, their standard deviation is greater, indicating the performance variation mentioned in the literature among companies that conduct this kind of operation.

As expected, operational cost increase, cash excess, and company size alike were greater in the cases of organizations that carried out some acquisition in the analyzed period. The greater sales growth of companies that conducted an international M&A can be explained by the fact that growing companies have more resources and operational efficiency, which allows expanding their business into new markets (Ramamurti, 2012); or by the fact that these companies acquire other companies out of their country of origin precisely in order to keep at least constant expansion rates through an increase in their potential customer base, which corresponds to "market seeking" (Dunning, 2000).

The results of both panel data and Heckman-corrected regression models are shown in Table 3. It is noteworthy that the coefficient of variable lambda, related with Heckman correction, is statistically significant, which suggests that it needs to be included in order to correct the model's selection bias. As to the positive sign of the variable, it indicates that latent factors, not included in the performance equation, increase the probability of a company to conduct an international merger or acquisition, while also improving its performance. According to Hausman's test, the random effect regression model is more suitable for verifying Hypothesis 1.

TABLE 2. **Descriptive analysis of the variables used in the panel data model for testing Hypothesis 1**

No CBMA		CBMA			Total	
Variable	Mean	Std. Deviation.	Mean	Std. Deviation	Mean	Std. Deviation
ΔROIC	-0.10	6.36	1.37	7.84	-0.04	9.10
ΔROA	0.13	4.03	2.01	9.02	0.50	5.67
Sls Grth (%)	0.22	0.64	0.85	1.01	0.30	0.34
Op Cst Incr (%)	0.05	0.15	0.15	0.80	0.07	0.24
Exss Cash (%)	0.11	0.53	1.93	5.06	0.16	0.16
Mkt Cap	6.50	12.15	11.27	12.85	7.44	13.18

Note: ΔROIC = return on invested capital (ROIC) variation; ΔROA = return on assets (ROA) variation; Sls Grth = percentage variation in sales; Op Cst Incr = percentage variation in operational costs; Exss Cash = percentage of "cash and short-term investments" for sales; Mkt Cap = the logarithm of the company's market value; CBMA = cross-border merger and acquisition.

The explanatory variable of interest for verifying Hypothesis 1, CBMA, representing the execution of a cross-border merger or acquisition, was relevant at the level of 1% in the random effect model and had the expected sign, i.e., there is statistic evidence that conducting a cross-border merger or acquisition actually increases the acquirer's financial performance, supporting Hypothesis 1 of the study. This finding is consistent with theoretical (Luo & Tung, 2007) and empirical (Gubbi *et al*, 2010) studies, and supports the position of positive results.

According to the hypotheses built, we expected positive signs for the coefficients of variables experience and institutional environment. As to international experience's square analysis, we expected to find a negative coefficient, indicating, in combination with the linear form of the variable, the inverted-U relation between the experience and performance of an acquirer company. Finally, the variable used to measure cultural distance should have a negative sign, indicating that high levels of it would decrease the performance of an acquisition.

TABLE 3. **Results of panel data regression and Heckman-corrected regression models**

Explanatory and Control Variables		Dependent Variable		
		ΔROIC		ΔROA
		Fix Effects	Random Effects	Heckman
CBMA	H1	4.63**	6.10***	
		(2.06)	(1.78)	
Exp_Inter	H2			0.89
				(0.90)
Inter Exp	H2			-0.13*
				(0.07)
Inst Env	H3			6.77***
				(2.51)
Cult Dist	H4			-8.95***
				(2.66)
Sls Grth		-2.27	-1.98	
		(1.86)	(1.49)	
Op Cst Incr		-4.32*	-1.39	
		(2.28)	(2.30)	
Cash Exss		-1.83	-2.11	
		(3.43)	(2.37)	
Mkt_Cap		-0.001*	0.002	
		(0.0006)	(0.004)	
Subsidiary				-6.99***
				(2.38)
New Mkt				-3.87
				(2.48)
Sales				1.23**
				(0.61)
D1994_1995		0.26	0.33	-8.21**
		(0.45)	(0.42)	(3.92)
D1996_1997		0.55	-0.14	-16.59*
		(1.16)	(0.85)	(9.05)
D1998_1999		0.58	-0.20	-8.80***
		(0.68)	(0.38)	(3.64)
D2000_2001		0.65	-0.71***	-10.31***
		(0.77)	(0.22)	(3.59)
D2002_2003		-1.91**	-2.39***	-11.24***
		(0.95)	(0.85)	(3.68)
D2004_2005		-0.93	-1.45*	-6.46
		(0.86)	(0.76)	(4.49)
D2006_2007		1.95***	0.88**	-7.43**
		(0.46)	(0.34)	(3.46)
Constant		1.04	1.64**	3.61
		(1.03)	(0.75)	(6.28)
Lambda				0.34*
R-square		24%	8%	33%
Observations		482	482	67
Hausman's test		p-value = 0.97		

Notes: White's heteroskedasticity-corrected standard errors are between parentheses. *Statistic significant at the level of 10%, ** at the level of 5%, *** at the level of 1%. ΔROIC = return on invested capital (ROIC) variation; ΔROA = return on assets (ROA) variation; Sls Grth = percentage variation in sales; Op Cst Incr = percentage variation in operational costs; CBMA = occurrence of cross-border merger and acquisition; Inter Exp = number of cross-border M&As conducted by the company; Inst Env = acquiree's country has a developed formal environment; Cult Dist = cultural distance between the acquirer's and acquiree's countries; Exss Cash = percentage of "cash and short-term investments" for sales; Mkt_Cap = the logarithm of the company's market value; Subsidiary = the acquirer is a subsidiary of a foreign company; New Mkt = acquirer's access to a new market; Sales = the logarithm of sales (in R$ millions).

According to Table 3, all of the model's explanatory variables for verifying Hypotheses 2 to 4 showed coefficients consistent with the expected signs and proved relevant, except for the linear form of international experience. All the hypotheses proposed in the study were thus supported by the empirical analysis of data.

With regard to Hypothesis 2, since the coefficient of variable Inter Exp in its linear form has a positive sign and, in its quadratic form, a negative sign, the inverted-U relation between international experience and performance is supported. Using the model's coefficient and calculating the parabola's highest point, cross-border M&A performance grows until the third M&A, and from then on, it starts to decline with the increase in transactions by the acquirer. This result constitutes a new contribution to the literature, as it reconciles divergences in previous studies that affirmed positive and negative relations between experience and financial performance (Hitt *et al*, 1998; Kusewitt, 1985).

Hypothesis 3, which mainly posits that a more developed institutional environment would bring better outcomes to an international M&A, is supported by a statistic significance and by the positive sign of its coefficient, which indicates that developed institutions contribute to a higher degree to financial performance than less developed ones. Therefore, our test supports the conceptual argument of Luo and Tung (2007) about the advantages of conducting an M&A in developed countries.

In turn, based on the coefficient of cultural distance and its statistic significance, Hypothesis 4 is supported, i.e., for high levels of cultural distance between two countries, the result of an international acquisition would be inferior to that of medium and low distances. This result is in line with the study of Hagendorff and Voss (2010) and can imply that, while a few companies benefit more from informal institutional environments closer to their country of origin (H4), others benefit more from formal institutional environments more distant from their country of origin (H3).

With regard to the control variables included into the model, we found that both the entry into new markets and the acquirer's being a subsidiary of a foreign multinational company reduce the performance of an international acquisition, although only the latter was found relevant. As to the metrics used to represent company size, it indicated that larger corporations present higher returns in their international acquisition moves.

CONCLUSION

The purpose of this study was to analyze the financial performance resulting from cross-border M&As in the context of Brazilian companies. The results found show that conducting cross-border M&As generated a higher financial performance for companies which had already used this internationalization strategy. This result can be explained by the achievement of valuable synergies by means of accessing key strategic resources, scope and scale gains, market power increase, the obtention of new knowledge, and the overcoming of foreignness and newness liabilities.

With regard to the effect of acquirer's international M&A experience on the performance of a new acquisition move, we suggested there was an inverted-U relation between both, since the operationalization of the construct experience is normally made using the number of previous M&As, which allows a high experience level to also represent a high rate of operations conducted in a short period. In this case, from a certain point onwards, the acquirer's performance tends to decline due to the excess of simultaneous acquisitions and the resulting difficulty to coordinate and integrate them. This relation was confirmed by data, representing a significant contribution to the literature, which had found both positive and negative relations, without an explanation for this divergence. Because it finds preliminary evidence for an inverted-U curve, this study suggests that divergent results in the literature can be reconciled by analyzing companies' internationalization phases.

With regard to the impact of the institutional environment – in its formal aspect – on acquirer companies from emerging countries, we can affirm that major opportunities clearly exist in the acquisition of organizations from developed countries, particularly due to the potential of internalizing best practices and valuable informational assets. Therefore, it was hardly surprising that the relation between the institutional environment development level of the acquiree and the creation of value resulting from the acquisition should be positive, which we found to be true.

Finally, the hypothesis related to the informal aspect of institutions – their culture – was construed based on the latest contributions to the literature, originated in studies that sought, as the present study does, to explain contradictory results. The study segregated low to medium levels of cultural distance from high ones, as we believe that high levels always generate outcomes inferior to those generated by low and medium distances between cultures. Empirical evidence provided support to this idea, thus emerging as a possible alternative to operationalizing the variable.

It becomes clearly necessary for executives to analyze in advance the characteristics of the target company in various aspects, particularly regarding issues that organization areas in charge of acquisitions usually neglect, such as the formal and

informal institutional environment of the target. This because, as empirical analysis showed, the long-term performance of an investment of this nature could be substantially impacted by non-financial factors of the acquiree.

As a limitation of the study, we can cite the lack of available data concerning a few variables used in the model (e.g., cultural measures for Paraguay), as well as data concerning much of cross-border M&As conducted by Brazilian privately held companies. In addition, we know that the model proposed considers only a few international M&A performance-determinant variables, which were deemed highly relevant in the analyzed context. Several studies based on different theories identify other possible factors that should be considered both by academe and managers in future research on the subject.

NOTE

Article originally published in Portuguese entitled "Desempenho de fusões e aquisições cross border: análise empírica do caso brasileiro" in RAE-Revista de Administração de Empresas, 54(6), 659-671, 2014.

REFERENCES

Aybar, B, & Ficici, A. (2009). Cross-border acquisitions and firm value: an analysis of emerging-market multinationals. *Journal of International Business Studies*, 40(8), 1317-1338.

Barkema, H. G, & Vermeulen, F. (1998). International expansion through start-up or acquisitions: a learning perspective. *Academy of Management Journal*, 41(1), 7-26.

Bollen, K. A, & Brand, J. E. (2010). A general panel model with random and fixed effects: a structural equations approach. *Social Forces*, 89(1), 1-34.

Brush, T. H. (1996). Predicted change in operational synergy and post-acquisition performance of acquired businesses. *Strategic Management Journal*, 17(1), 1-24.

Camargos, M. A, & Barbosa, F. V. (2009). Fusões e aquisições de empresas brasileiras: criação de valor e sinergias operacionais. *RAE-Revista de Administração de Empresas*, 49(2), 206-220.

Capron, L, & Pistre, N. (2002). When do acquirers earn abnormal returns? *Strategic Management Journal*, 23(9), 781-794.

Cartwright, S, & Shoenberg, R. (2006). Thirty years of mergers and acquisitions research: recent advances and future opportunities. *British Journal of Management*, 17(S1), S1-S5.

Datta, D, & Puia, G. (1995). Cross-border acquisitions: an examination of the influence of relatedness and cultural fit on shareholder value creation in U.S. acquiring firms. *Management International Review*, 35(4), 337-359.

Delong, G, & Deyoung, R. (2007). Learning by observing: information spillovers in the execution and valuation of commercial bank M&As. *Journal of Finance*, 62(1), 181-216.

Dikova, D, Sahib, P. R, & Witteloostuijn, A. V. (2010). Cross-border acquisition abandonment and completion: the effect of institutional differences and organizational learning in the international business service industry, 1981-2001. *Journal of International Business Studies*, 41(2), 223-245.

Dunning, J. H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International Business Review*, 9(2), 163-190.

Eden, L, & Miller, S. R. (2004). Distance matters: liability of foreignness, institutional distance and ownership strategy. *Advances in International Management*, 16, 187-221.

Gubbi, S. R, Aulakh, P. S, Ray, S, Sarkar, M, & Chittoor, R. (2010). Do international acquisitions by emerging-economy firms create shareholder value? The case of Indian firms. *Journal of International Business Studies*, 41(3), 397-418.

Hagendorff, J, & Voss, H. (2010). Cultural distance and the value effects of global diversification. In: ANNUAL MEETING OF THE ACADEMY OF INTERNATIONAL BUSINESS, 52, 2010, Rio de Janeiro. *Anais*. Rio de Janeiro: AIB, 2010.

Healy, P. M, Palepu, K. G, & Ruback, R. S. (1992). Does corporate performance improve after mergers? *Journal of Financial Economics*, 31, 135-175.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica*, 47(1), 153-161.

Hill, C. W. L, & Hoskisson, R. E. (1987). Strategy and structure in the multiproduct firm. *Academy of Management Review*, 12(2), 331-341.

Hitt, M, Harrison, J, Ireland, R. D, & Best, A. (1998). Attributes of successful and unsuccessful acquisitions of US firms. *British Journal of Management*, 9(2), 91-114.

Jensen, M. C, & Ruback, R. S. (1983). The market for corporate control: the scientific evidence. *Journal of Financial Economics*, 11(1-4), 5-50.

Karpaty, P. (2007). Productivity effects of foreign acquisitions in Swedish manufacturing: the FDI productivity issue revisited. *International Journal of the Economics of Business*, 14(2), 241-260.

King, D. R, Dalton, D. R, Daily, C. M, & Covin, J. G. (2004). Meta-analyses of post-acquisition performance: indications of unidentified moderators. *Strategic Management Journal*, 25(2), 187-200.

Kogut, B, & Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, 19(3), 411-432.

Kusewitt, J. B. (1985). An exploratory study of strategic acquisition factors relating to performance. *Strategic Management Journal*, 6(2), 151-169.

Lin, Z. J, Peng, M. W, Yang, H, & Sun, S. L. (2009). How do networks and learning drive M&As? An institutional comparison between China and the United States. *Strategic Management Journal*, 30(10), 1113-1132.

Luo, Y, & Tung, R. L. (2007). International expansion of emerging market enterprises: a springboard perspective. *Journal of International Business Studies*, 38(4), 481-498.

Meyer, K. E, Estrin, S, Bhaumik, S. K, & Peng, M. W. (2009). Institutions, resources and entry strategies in emerging economies. *Strategic Management Journal*, 30(1), 61-80.

Morosini, P, Shane, S, & Singh, H. (1998). National cultural distance and cross-border acquisition performance. *Journal of International Business Studies*, 29, 137-158.

Nadolska, A, & Barkema, H. G. (2007). Learning to internationalise: the pace and success of foreign acquisitions. *Journal of International Business Studies*, 38(7), 1170-1186.

Peng, M. W, Wang, D. Y. L, & Jiang, Y. (2008). An institution-based view of international business strategy: a focus on emerging economies. *Journal of International Business Studies*, 39(5), 920-936.

Ramamurti, R. (2012). What is really different about emerging market multinationals? *Global Strategy Journal*, 2(1), 41-47.

Reus, T. H, & Lamont, B. T. (2009). The double-edged sword of cultural distance in international acquisitions. *Journal of International Business Studies*, 40(8), 1298-1316.

Ruckman, K. (2005). Technology sourcing through acquisitions: evidence from the US drug industry. *Journal of International Business Studies*, 36(1), 89-103.

Salis, S. (2008). Foreign acquisition and firm productivity: evidence from Slovenia. *The World Economy*, 31(8), 1030-1048.

Scott, R. (1995). *Institutions and organizations*. Thousand Oaks, CA: Sage Publications.

Seth, A, Song, K. P, & Pettit, R. (2000). Synergy, managerialism or hubris? An empirical examination of motives for foreign acquisitions of U.S. firms. *Journal of International Business Studies*, 31(3), 387-405.

Shimizu, K, Hitt, M. A, Vaidyanathc, D, & Pisano, V. (2004). Theoretical foundations of cross-border mergers and acquisitions: a review of current research and recommendations for the future. *Journal of International Management*, 10(3), 307-353.

Stahl, G. K, & Voigt, A. (2008). Do cultural differences matter in mergers and acquisitions? A tentative model and examination. *Organization Science*, 19(1), 160-176.

United Nations Conference on Trade and Development. (2008). *World investment report 2008*. New York: United Nations Conference on Trade and Development.

Zollo, M, & Meier, D. (2008). What is M&A performance? *Academy of Management Perspectives*, 22(3), 55-77.