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Article — Published Version

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Journal of Economics and Political Economy

Suggested Citation: Ficici, Aysun; Wang, Lingling; Aybar, C. Bulent; Fan, Bo (2014) : The Correlation between the Internationalization Processes and Performance of Firms: The Case of Emerging Market Firms of the BRIC Countries, Journal of Economics and Political Economy, KSP Journals, Istanbul, Vol. 1, Iss. 1, pp. 4-25

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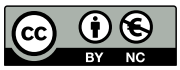

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Journal of
Economics and Political Economy
www.ijepe.com
Volume1 September 2014 Issue 1

The Correlation between the Internationalization Processes and Performance of Firms: The Case of Emerging Market Firms of the BRIC Countries

By Aysun FICICI[*] Lingling WANG[**]
C. Bulent AYBAR[***] and Bo FAN[****]

Abstract. In this empirical study we examine the correlation between the internationalization processes and financial performance of firms by focusing on the emerging market firms (EMNCs) that originate from the BRIC countries. We test the shape of the internationalization - performance curve and explore the differences on effectiveness of the sectors. Our sample data that is collected from the World Scope database that includes a total of 239 firms in which 13 of the firms are from Brazil, 58 of them from China, 156 from India, and 12 from Russia. The internationalization activities take place during the period of 2000 – 2010. Our results suggest that using only the first order term FSTS and second order term FSTS^2., demonstrates a positive relationship between DOI and ROA, a negative relationship between DOI and ROE, and DOI and ROS, and a positive relationship between DOI and ROA, DOI and ROS, and a negative relationship between DOI and ROE. The sign of the coefficient for FSTS are negative and for FSTS^2, positive. This result confirms the previous theories that financial performance decreases in the beginning of the internationalization processes, then increases with the expansion of international operations. These results are statistically significant and propose a U-shaped relationship between the financial performance of EMNCs and their degree of internationalization.

Keywords: Emerging Markets, Emerging Market Multinationals, Financial Performance, Internationalization and Degree of Internationalization, Foreign Direct Investment.
JEL Class.: F2, F21, F23.

1. Introduction

The relationship between internationalization process (I) and financial performance (P) of firms has attracted International Business (IB) scholar's responsiveness over the past three decades. In recent years, this has been given further attention as a focal issue in international business and management research. IB scholars particularly attempted to understand the impact of international expansion through Greenfield investments and acquisitions on the firm performance Caves1971, 1998; Williamson 1979; Hymer1976; Buckley and Casson 1976; Morck and Yeung 1991 and 1992). This issue has also been of interest to business strategists and financial analysts tracking firm performance and

[*]Corresponding author, International Business, Southern New Hampshire University, USA. a.ficici@snhu.edu [**]Doctoral Candidate and Junior Faculty of International Business and Strategy, Southern New Hampshire University, USA. [***]Southern New Hampshire University, USA. [****]Doctoral Candidate and Junior Faculty of International Business and Finance, Southern New Hampshire University, USA.

conducting comparative analyses of firms with their industry peers. However, results reported in empirical literature indicate a lack of consensus among the scholars regarding the linkage between internationalization and firm performance (Ruigrok, Amann, & Wagner, 2007).

While early studies find evidence in support of a linear form, the sign of the relationship has been noted as inconclusive and ranged from positive (Grant, 1987; Grant, Jammine, & Thomas, 1988; Jung, 1991; Qian, 1998) to negative (Siddharthan & Lall, 1982; Kumar, 1984). Given that linear form fails to capture the internationalization-performance nexus and lead to misleading interpretations, IB scholars explored the possibility of a non-linear relationship. While Capar & Kotabe (2003) provide some evidence of a U shaped relationship, results reported by Geringer, Beamish, & DaCosta (1989), Hitt, Hoskisson, & Kim (1997) and Gomes & Ramaswamy (1999) suggest an inverted U-shaped form.

More recently, scholars that attempted to reconcile these findings and suggest a horizontal-S shaped curve to best explain the I-P relationship (Riahi-Belkaoui, 1998; Contractor, Kundu, & Hsu, 2003; Lu & Beamish, 2004) suggesting a three-stage model of internationalization. The three-stage model proposes that the M-P relationship is not monotonic suggesting that the M-P relationship is negative in the early and late stages of internationalization processes, and positive in the middle stage. In other words, multinational enterprises (MNEs) experience a low performance level at the initial international expansion, enhanced performance level at reasonable degree of internalization and ultimately another low performance level at high degree of international expansion. The internationalization threshold refers to the inflection point between the second and third stage (Geringer et al., 1989). Beyond this threshold, the incremental costs of international expansion begin to outweigh the incremental benefits of international expansion. The implication of this is that performance suffers when the firm is under or over internationalized. The managerial insight drawn from these findings suggests that managers should rigorously pursue cost controls at the early stages of internationalization and steer away from excessive internationalization.

Hence, this study explores the correlation between the internationalization processes and the performance of firms by focusing on the firms that originate from the BRIC countries, namely the emerging market multinationals (EMNCs). While the internationalization process of EMNCs is not a new phenomenon, it has unquestionably gained pace and expanded its outlook in the last decade. Despite growing prevalence of international expansion of EMNCs few studies are conducted to explore the Internationalization-Performance relationship in the context of emerging market multinationals. For this reason, this study aims further contribute to the IB literature and expand the scope of empirical inquiry by turning the lenses on firms from these rapidly developing economies. Depicting the internationalization-performance relationship in the BRIC countries has the potential to shed light on the findings reported in the literature and enhance our understanding of the implications of internationalization of emerging market firms.

In this study, we utilized World Scope database, which contains information of 7163 firms from BRIC countries. Annual data of these 7163 firms collected in an 11-year period from 2000 to 2010. Among them 377 are from Brazil, 2358 from China, 3752 from India, 676 from Russia. After eliminating those which did not have FSTS data or their FSTS were not available for three consecutive years or sales data was not available, we ended up with 239 firms to utilize in our sample. Among them, 13 of the firms are from Brazil, 58 of them from China, 156 from India, 12 from Russia.

2. Literature Review

The internalization theory (Buckley & Casson, 1976; Rugman, 1981) lays out the rationale and patterns of firm international expansion based on the essential ideas of the transaction cost theory (Coase, 1937) and firm growth theory (Penrose, 1959). It maintains that firms pursue profit maximization through internalization of markets for intermediate intangible assets (technology, brands, know-how) across national borders in spite of market imperfections, such as informational asymmetries in the developing markets and government intervention in their business processes (Buckley & Casson, 1976; Rugman & Verbeke, 2003). The main benefits of internalization derives from economies of scale and scope, particularly the proficient leverage of intangible assets through geographic markets and operational flexibility (Caves, 1971; Ghoshal, 1987; Kogut, 1985; Kogut & Zander, 1993). Dunning's eclectic paradigm proposes that along with internalization benefits as ownership and location advantages highlight a firm's international expansion (Dunning, 1977, 1980, 1988).

Doing business overseas involves costs as discussed extensively by Hymer (1976). Costs of doing business abroad include liability of foreignness such as unfamiliarity with local environment and culture, deficiency of local information, discriminatory treatment by local customers, suppliers and governments (Zaheer & Mosakowski, 1997), absence of external business networks (Lu & Beamish, 2004; Stinchcombe, 1965), augmented internal coordination costs, intractability of financial risks and a need for adaptation to various host institutions (Guisinger, 2001; Kostova & Zaheer, 1999; Sundaram & Black, 1992).

Similarly, the Uppsala model, which is developed based on the works of Cyert and March (1963) and Aharoni (1966), suggests that the process of international expansion is incremental (Johanson & Vahlne, 1977). This model conjectures that internationalization is a cumulative and path-dependent process where the pattern of firm behavior is related to its past experience and inventory or knowledge (Eriksson, Majkgaard, & Sharma, 2000). In line with the Uppsala model, firms realize the international expansion incrementally. They take advantage of economies of scale, scope and locations initially in a homogeneous environment where liability of foreignness is not profound. When the firms further undertake internalization in unfamiliar markets, the impact of environmental and organizational complications arises and results in intensified administrative costs. Ultimately, the incremental costs of internationalization surpass the incremental benefits and compromise firms' financial performance.

The central premise of the research on the internationalization-performance relationship is the evaluation of the incremental benefits and costs of international expansion. The incremental benefits/costs are defined as the benefits/ costs increased or decreased by a unit change in degree of internationalization. The trade-offs of the benefits-costs derived from the change of incremental internationalization determine the performance at every point of degree of internationalization. The principle of U-shape, inverted U-shape and S-shaped models rest on that conjecture that the trade-off varies along the stages of firms' international expansion (Ruigrok et al., 2007).

Contractor et.al (2003) categorizes firms into three groups based on the degree of internationalization: Stage 1 or early international expansion where firms just start their international operations. These firms experiment negative effects of early international growth. Stage 2 or mature international operations where firms are well established in the foreign markets and take advantage of positive impact of economies of scale and scope. Stages 3 or extensive international expansion where firms are highly internationalized and internationalization costs outweigh the benefits of international expansion

Stage 1: When firms entering a new, unfamiliar foreign market, costs of learning, coordination, and establishment occur and may surpass the benefits of international expansion. Many of these costs would take place at any stage of internationalization. However, the negative impact would be most felt in stage 1, in terms of performance and profitability since the early costs are shared by a smaller base of operations. Furthermore, foreign sales are not sufficient to cover the incremental costs in the initial expansion. The negative impact on performance in stage 1 is a mixture of upfront threshold costs, in term of learning, adaptation and discrimination, and a scale that is deficient to substantiate the international operations. Many EMNCs are relatively small and have operations at an inefficient scale in their home markets. Small levels of international expansion may substantially supplement their domestic business. As a result, advantages of economies of scale kick-in earlier and bring about a shorter stage 1 for emerging market firms.

Stage 2: International firms benefit from geographical diversification, in terms of diversification of risk, economy of scale and scope, and knowledge exploitation and exploration. The positive impact of internationalization in stage two occurs after an early decrease in profitability in stage one. As soon as the company has went across the threshold of first growth overseas, the incremental benefits of additional international operations mentioned above are supposed to compensate incremental costs. When advantages in stage 2 accumulate, a positive slope is predicted between the performance and degree of internationalization. Emerging market firms can unquestionably experiment these benefits.

Yet, previous literature asserts conflicting results on internationalization through industrial diversification and its influence on performance. Bodnar et al. (1999), using comparable value measure find that international diversification increases shareholder value. On the other hand, other the studies suggest a negative relationship. For example, recently Denis et al. (2002) by employing excess value measure and aggregate data illustrate that both international diversification and industrial diversification decrease shareholder value substantially. Doukas and Lang (2003) consider a different view and suggest that industrial diversification and international diversification adorn or obliterate value in the existence or nonexistence of intangible assets– suggesting that advantage of internationalization arise from information-based asset of the firm. Their study examines the advantages of internalization to see whether the gains stem from the expansion of core or non-core business of the firm. The study finds that the internalization theory is more consistent with the core and not the non-core business of the firm (Doukas and Lang (2003).

Stage 3: When firms undertake highly-expanded international operations, in other words, the level of internationalization beyond optimum, additional international expansion is harmful to their overall profitability and the performance slope turns into negative. Past certain level of internationalization, the coordination costs may outweigh the benefits (Hitt et al., 1997). Most of the nations in the world have relatively small economies and markets. Therefore, in stage 3, the internationalization suggests a negative impact on the firm's performance.

Contractor et al. (2003) propose a three-stage theory test on a sample of 11 countries. They argue that this theory resolves the apparent conflicting outcomes of empirical studies in the field. The validity of this theory is confirmed by Lu et al. (2004) with a sample of Japanese MNCs with and by Thomas & Eden (2004) with a sample of US MNCs.

It is plausible to argue that the shape of the curves demonstrating the relationship between degree of internationalization and performance, and the

trajectory of slopes may exhibit different characteristics for emerging market firms. It is also uncertain whether emerging market firms go through all three stages prescribed in the model.

The existence of U shape curve in the internationalization processes of EMNCs and the uncertainty of the condition whether they go through all of the three stages are mainly due to the fact that they are typically smaller than the firms originating from developed countries and they tend have distinct characteristics in terms of size, assets, geographic diversification, home county factors, corporate governance standards and so on. Their characteristics are usually very different than that of the developed firms. As a result of these differences EMNCs encounter implications on their cross border expansion strategies (Lall, 1983). Consequently, the nature of managerial challenges encountered by these firms is similar to those of the small and medium size firms from developed countries. For instance, many of the EMNCs from Asia are controlled and run by founding families (Yeung, 1999).

However, most importantly, the relationship might depend on the characteristics of the industry that the firm belongs to.

Historically, manufacturing was chosen to be the most prominent industry for operations among the EMNCs. Specifically, in the 1980s, to pursue their manufacturing operations, a large number of EMNCs explored such factors as securing and /or accessing a stable supply of raw materials and manpower through economies of scale, as well as obtaining technical know-how and transferring technology (Wells, 1977; Agrawal, 1981; Jo, 1981; White, 1981; Ting and Schive, 1981; and Agrawal, 1985). Later, EMNCs developed their competitive advantage by matching their competencies, and resources to the environments they operated in. As EMNCs accumulated knowledge in managing international operations, they gradually built additional facilities in other countries. Once interaction and integration with different market environments increased, EMNCs gradually internalized their comparative advantages by investing production facilities in developed countries and established their own subsidiaries in these major markets (Khan, 1986; Lau, 1992; Lim and Moon 2001).

Consequently, in the early years of expansions, exports were favored for international operations. Especially, Asian and Latin American EMNCs carried out trade-related export strategies and/or export led growth strategies and thereby established export businesses as incremental commitments throughout the 1980s (Wells, 1980; Chen, 1981). This was mostly due to the fact that in the early years EMNCs face higher risks in their home countries derived from changing structures (Nachum, 2004). Emerging market economies were often strictly regulated and imposed constraints on private companies (Kumar & McLeod, 1981) and hence the markets also created the push effect for EMNCs to internationalize in an effort to escape stifling regulations of their home countries.

In the early 1990s, however, joint ventures and strategic alliances began to dominate the expansion scene. In 2000s Mergers and Acquisitions also began to be included in the expansion strategies of these firms. Besides these activities, the operations of EMNCs have come to include, cooperative arrangements, and firm networks (Kogut, 1988; Hennart; 1991; Buckley and Casson, 1996; and Calantone and Zhao, 2001). Gradually EMNCs began to be seen amongst the successful firms that carried on International Expansion activities.

Due to these changes, EMNCs have begun diversifying and modifying their internal operations at intra- and inter-firm levels in a wider geographic access. Today, these multinational corporations hold offices and subsidiaries in more than one developed, developing and/or emerging country. Consequently, EMNCs operate and organize their business activities in different international locations in

line with their overall firm strategies and relate their technologies according to the environments they operate in. Their increasing growth shows that these firms generate efficient allocation of capital and labor, and create various inputs and skills wherever international operations take place (Lecraw, 1977; Wells, 1977 and 1978, Kumar, 1981; Williamson, Oliver E., 1979; Thee, 1981; White, 1981; Akinnusi, 1981; Agrawal, 1981; S. Lall, 1981; R.B. Lall, 1986; and Lau, 1992). Thus, the diversification of operations reduces the dependence on inputs of home suppliers, and potentially circumvents the substantial threat of emphasizing on only one economy (Rugman, 1979).

Hence, it can be said that their expansion activities positively impacted their financial performances. The literature suggests that firms obtain above normal returns from international investments by internalizing host country market imperfections when their firm specific assets cannot find comparable value elsewhere (Caves1971, 1998; Williamson 1979; Hymer1976; Buckley and Casson 1976; Morck and Yeung 1991 and 1992). The gains derived from internalization are expected to be capitalized into a higher value of the firm. This has been the case for many firms although the international operations of them were almost always impacted by global financial and economic issues.

These distinct characteristics of emerging market firms allow them to take advantage of cross border expansion opportunities profitably One attribute that stands out is the structure of these firms. As Khanna and Rivkin (2001) and Yeung (1999) indicate, these firms are agglomerations with highly unrelated diversification (Yeung, 1999). While these type of diversified conglomerates are outdated in developed countries, many successful EMNCs originating from emerging markets are diversified conglomerates. These organizational structures compensate for the indigenous institutional weaknesses by building internal capital, labor and product markets (Khanna & Palepu, 1997). Members of these business groups benefit from access to internal markets for capital and talent circumventing institutional voids in domestic markets. The diversified conglomerate structure also improves companies' performance in other emerging markets with similar market context (Khanna et al., 1997), boosts their brand, and reputation. The amassed experience in detecting and dealing with mergers and acquisitions, economies of scale in finance, human resource management and functions that can be effectively fulfilled in a centralized structure permit EMNCs to get better prepared for the initially expensive international expansion.

Mathews (2006) demonstrates that the internationalization of EMNCs based in Asia-Pacific were considerably faster than their counter-parts and significantly differentiated from that of traditional western MNEs, as well as other developing market-based EMNCs in the 1960s and 1970s. Mathews and Zander (2007) define this phenomenon as 'accelerated internationalization'. Newly emerged MNEs from developing economies achieved fast international expansion with the innovations in organizational structure and creative strategies and hence compensated their deficiencies in finance and managerial capacity. The challenging environmental characteristics such as underdeveloped institutional infrastructure, price-sensitive and demanding consumers, and immature distribution networks in domestic market serves not as obstructions but rather as facilitators for development of competitive advantages and enable emerging market multinationals to compete effectively in international markets (Sinha, 2005).

3. Hypothesis Building

Since EMNCs are relatively small and their internationalization processes likely to have occurred recently, it is plausible to argue that EMNCs are resident in stages 1 and 2 of the internationalization path. When granting the legitimacy of the three-

stage theory, it is uncertain that firms from emerging markets are categorically in the stage 3, meaning highly internationalized. Since they are relatively small and their international operations are much recent. When population of developing-market based firms mainly takes place merely in stage 1 and stage 2, a plot starting with a negative slope, followed by a positive slope is expected. A (U)-shaped curve would be predicted, regardless of stipulating ordered terms for degree of internationalization. Therefore:

Hypothesis 1. The form of the relationship between performance and degree of internationalization curve for EMNCs will be U-shaped.

Firm size and age

The size of a company indicates the resource base that a firm controls. It has been well established in the literature that firm size is a significant determinant of firm (Rugman, 1983) and its impact on the relationship of performance and degree of internationalization has been verified (Haar, 1989). It is often adopted as a variable associated with firm performance applied to control scale of economies at firm level. Large firms are not impacted by liability of smallness (Aldrich & Auster, 1986), and they have more probability to survive than small firms (Stuart, 2000). Investors, suppliers, employees and customers incline to get more comfort in dealing with large firms as the large size reflect that they are more reliable and capable of doing business (Hannan & Freeman, 1984; Stinchcombe, 1965). It may be difficult to have access to capital in international expansion processes, particularly for small companies, this constituent can impose negative effect on performance (Coviello, & McAuley, 1999). Thus, the negative impact of early internationalization in the first stage on performance may be somewhat alleviated if the company has large base in capital and home-country sales. L. Li, Li and Dalgic, (2004) illustrate the international expansion processes as 'probing frontward and iterative'. Large companies with more managers tend to have international experience. Bloodgood, Sapienza, and Almeida (1996) show that the smaller the company, the more difficulty it will have to employ managers with international experience. Such impediment tends to transform to inferior performance for small companies.

Our interest is in verifying the relationship between performance of companies from emerging economies and their size at diverse stage in international expansion process. When other things remain equal, the performance prefer to large firms at all phases. Therefore:

Hypothesis 2. Other things remain equal; there will be a positive relationship between the performance of EMNCs in the process of internationalization and their size.

Examining the impact of firm age or span of existence on its performance also is valuable. Age is viewed as a considerable factor of determination on firm performance due to its effect on the steady relationships and resources a company may own in a given period (Baum, Calabrese, & Silverman, 2000). Young companies usually have a high failure rate because of liabilities of novelty as estimated by Stinchcombe (1965) and further reinforced by Carroll (1983) and Freeman, Carroll and Hannan (1983). Since, elder companies are more veteran, reliable and acceptable; they already benefited from the learning process and the related first mover advantages (Douma, George, & Kabir, 2006). Nevertheless, older companies tend to have more inertia and less flexibility of adapting to changing external environment. Many large companies from emerging markets have grown up in a protected domestic market and controlled by family. In strategy literature, the relationship between firm age and performance is contradicted. Birley and Westhead (1990) and Bracker and Pearson (1986) find positive

relationship, while Begley and Boyd (1986) suggest higher performance with lower age. In internationalization literature, there is no consensus about the effect of company age on international expansion. Similarly, Brush (1995) finds a weak relationship between time-period of existence and performance. Nevertheless, Yeung (1999) and Autio, Sapienza and Almeida (2000) suggest a positive relationship between firm age and performance. Because of inconsistencies in the literature, we view this relationship as an empirical question and propose the following.

Hypothesis 3. Performance of EMNCs will be positively related with their age, other things remain equal.

4. Methodology and Data

4.1. Data and sample

In this study, we utilize World Scope database, which contains information of 7163 firms from BRIC countries. Annual data of these 7163 firms collected in an 11-year period from 2000 to 2010. Among them 377 are from Brazil, 2358 from China, 3752 from India, 676 from Russia. After eliminating those which did not have FSTS data or their FSTS were not available for three consecutive years or sales data was not available, we ended up with 239 firms to utilize in our sample. Among them, 13 of the firms are from Brazil, 58 of them from China, 156 from India, 12 from Russia.

Most of the firms from BRIC countries started their international expansion after 2000. The 11-year period from 2000 to 2010 is used to observe the pattern of internationalization for these EMNCs from the BRIC countries. However, due to data limitation, the sample is covered from 2004 to 2010. Based on The FTSE/DJ Industry Classification Benchmark (ICB), 239 firms are classified into 10 industries, 36 in basic materials, 44 in consumer goods, 12 in consumer services, 18 in financial, 15 in health care, 58 in industrial, 7 in oil & gas, 42 in technology, 5 in telecommunication, and 2 in utilities.

TABLE 1: *Sample of Data Set 1*

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommu nications	Total
Brazil	2	1	1	0	0	3	1	0	0	8
China	1	12	2	2	1	11	1	2	0	32
India	12	10	4	6	6	11	2	18	3	72
Russia	3	0	0	1	0	1	1	0	1	7
Total	18	23	7	9	7	26	5	20	4	119

After eliminating data that is not available in 6 consecutive years, 119 firms are remained in the list.

TABLE 1: *Sample of Data Set 2*

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommu nications	Utilities	Total
Brazil	3	4	1	0	0	3	1	1	0	0	13
China	4	18	3	6	1	20	2	3	0	1	58
India	22	22	7	12	14	35	3	38	3	0	156
Russia	7	0	1	0	0	0	1	0	2	1	12
Total	36	44	12	18	15	58	7	42	5	2	239

4.2. Methodology

We adopted Panel data analysis in this study. Linear and squared terms for the internationalization variables are introduced in one of the models to test a U-shaped model. Two models are tested: one with the linear term and another with the quadratic term. Nine dummy variables are introduced to capture the industry effect.

4.2.1. Models

Model 1 (Linear Model):

$$PERF_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Age + \beta_3 DOI_{it} + DV1 + DV2 + DV3 + DV4 + DV5 + DV6 + DV7 + DV8 + DV9 + \varepsilon_{it} \quad (1)$$

Model 2 (U-shaped):

$$PERF_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Age + \beta_3 DOI_{it} + \beta_4 (DOI_{it})^2 + DV1 + DV2 + DV3 + DV4 + DV5 + DV6 + DV7 + DV8 + DV9 + \varepsilon_{it} \quad (2)$$

Where,
PERF = ROA, ROE and ROS
Size = natural log of total sales
Age = number of years the firm is in operation
DOI = FSTS
DOI^2 = the second-order item of FSTS

DV1, 2, 3, 4, 5, 6, 7, 8, 9 = dummy variables to control the subsector effect

The overall U-shaped curve (Hypothesis 1) would be advocated if the following conditions were encountered: (1) the signs of the coefficients of DOI and DOI^2 change from a negative sign for DOI to a positive sign for DOI^2. (2) The coefficient of DOI and DOI^2 are significant. (3) The R^2 and adjusted R^2 for Model 2 is higher than in Model 1.

4.2.2. Variables

Dependent variable

Similar to previous researches, the financial performance measures adopted are:

(1) ROA (return on assets) is commonly used in past studies on the relationship between performance and DOI (Daniels & Bracker, 1989; Gomes & Ramaswamy, 1999; Haar, 1989; Ramaswamy, 1995)

(2) ROE (return on equity) is a measure in accounting and business research (Qian, 1997). Return on equity concentrates on the efficiency of resources that a firm uses to earn profit for its shareholders.

(3) ROS (return on sales) has been broadly employed to measure performance through income statement and indicate the competitiveness and profit margins (Ramaswamy, 1995)

Independent variables

Foreign sales to total sales (FSTS) is widely employed to measure the degree of internationalization in performance-internationalization literature (Agmon & Lessard, 1977; Buckley et al., 1976; Haar, 1989; Hughes, Logue, & Sweeney, 1975; Michel & Shaked, 1986; Siddharthan & Lall, 1982). In today's integrated business world, the distinction between exports and FDI as foreign entry mode strategy is blurred. It is difficult to tell which the internationalization strategy is adopted, exports or FDI, when the value-chain is disaggregated over several countries. In both cases, FSTS is a proper indicator to evaluate a firm's degree of internationalization and is more legitimate than other measures in previous studies, for instance, the number of foreign subsidiaries, or number of countries in which the company has FDI subsidiaries.

Company size and age are also explanatory variables introduced into the equation. Company size is calculated by the natural logarithm of total sales, which is a transformation often used to variables that are not taken as ratios. Log transformation makes the outcomes easy to translate since the changes in the

logarithm form indicate comparative modifications in original metric. Likewise, it makes the distribution of the data closer to normal. Age of the company is evaluated by the number of years during which the company is in operation since the establishment. Finally, dummy variables are introduced for industry sub-sectors, to take industry specific factors that could impact firm performance into account.

5. Results

An evaluation of results illustrate that both Table 2 and 5 in the Appendix demonstrate the results for regression, using ROA, ROE, ROS to measure financial performance. The U-shaped curve in Hypothesis 1 is supported. Model 1, using only the first order term FSTS, demonstrates a positive relationship between DOI and ROA, a negative relationship between DOI and ROE, and DOI and ROS in Table 2 (Appendix) and a positive relationship between DOI and ROA, DOI and ROS, and a negative relationship between DOI and ROE in Table 5 (Appendix). Model 2, using the first order term FSTS and second order term FSTS^2. The sign of the coefficient for FSTS are negative and for FSTS^2, positive. This result confirms the previous theories that financial performance decreases that financial performance decreases in the beginning of the internationalization processes, then increases with the expansion of international operations. These results are statistically significant and propose a U-shaped relationship between the financial performance of EMNCs and their degree of internationalization

In Table 2 and 5 in the Appendix, Size has positive impact on all three financial performance measurements and Age is positively related to ROA and ROE. However, Age is negatively related to ROS in Table 2 and positively related to ROS in Table 5 but not statistically significant. (Please see the Appendix)

In Table 6 there are statistically significant differences on ROA, ROE and ROS between the firms from diverse countries of China and Brazil, China and India, China and Russia. (Please see the Appendix)

Finally, ROA for basic material industry is on average higher than the ROA for utilities provided that Age, Size, FSTS, FSTS^2 remain the same. There are significant differences on ROA, ROE, and ROS between countries in the sample.

Discussion

The results are consistent with the three-stage theory and confirmed the study of Contractor, et al (2007). For most of the EMNCs from BRIC countries, their internationalization stays en Stage 1 and Stage 2. For the three dependent variables, which measure the financial performance of firms in terms of ROA, ROE, ROS, the coefficient of FSTS is negative, while that of FSTS^2 remains positive. This result indicates that Stage 1, coupled with Stage 2 creates a U-shaped curve for EMNCs.

It is supported in Tables 3 and 5 that for the three financial performance measures, Size is positively associated with ROA, ROE and ROS. Thus, Hypothesis 2 is confirmed, although this is not consistent with the study of Contractor, et al (2007). It is also found that the Age has positive impact on ROA and ROE on both Tables 3 and 5. Table 3 shows negative relationship between Age and ROS, while Table 5 indicates that Age is positively related to ROS. Therefore, Hypothesis 3 is generally confirmed.

6. Conclusion

This paper extends the scope of the internationalization-performance literature with empirical study focused on EMNCs originating from the BRIC countries. It draws the path of international expansion and financial performance of 239 and

119 firms, from 10 subsectors and 9 subsectors, over a 7-year period respectively. This paper tests the validity of the three-stage theory of internationalization suggested by Contractor et al. (2003) and extended the study conducted by Contractor et al. (2007). The results of this paper are generally consistent with those of Contractor et al. (2007).

Executives and strategists need to know the comparison between their firms and their competitors in the industry, in terms of profitability versus degree of international expansion. A map can plot the position of firms and allows them to learn how the performance is compared with others by spotting the stage where the firm is situated, and what can be predicted from future internationalization. Executives should balance the gains of international expansion against its loss. In early stage, firms face more costs than benefits from internationalization. In the mature stage, firms achieve enhanced performance because of economy of scale, geographic diversification and the process of learning. It is suggested by the previous literature that when firms over expand internationally, their performance is generally negative. Yet, this is not found in our sample since few firms from BRIC countries are in this stage. Therefore, for EMNCs originating from the BRIC countries, the overall S-shaped curve between performance and degree of internationalization is only partially supported, as firms should experience all three stages in order for superior performance.

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Appendix:

TABLE 2: *Summary statistics (239 cross-sections)*

	ROA	ROE	ROS	AGE	SIZE	FSTS
Mean	8.936212	17.20945	0.107157	30.27615	56049774	37.63927
Median	7.980000	17.44000	0.100987	20.00000	10179946	26.95000
Maximum	149.5000	330.1500	0.937468	145.0000	2.03E+09	100.0000
Minimum	-126.6000	-668.9000	-2.232618	-3.000000	9351.000	0.000000
Std. Dev.	11.80133	37.45999	0.152500	25.76841	1.57E+08	33.06751
Skewness	0.822238	-5.369809	-3.353527	1.392774	6.050662	0.588879
Kurtosis	52.61978	115.2734	47.48138	4.631587	49.29286	1.972630
Jarque-Bera	156721.9	801401.7	134567.9	726.4550	152249.8	144.4190
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	13636.66	26020.69	171.0228	50652.00	8.95E+10	53410.13
Sum Sq. Dev.	212388.9	2120311.	37.09359	1110226.	3.93E+19	1550526.
Observations	1526	1512	1596	1673	1596	1419

TABLE 3: *Summary statistics (239 cross-sections)*

	ROA				ROE				ROS			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
Age	0.0149	(0.0042)***	0.0166	(0.0041)***	0.0731	(0.0090)***	0.0686	(0.0086)***	-0.0003	(0.0001)***	-0.0003	(0.0000)***
Size	0.2815	(0.0396)***	0.3392	(0.0339)***	1.4256	(0.1367)***	1.4050	(0.1335)***	0.0101	(0.0007)***	0.0104	(0.0006)***
FSTS	0.0055	(0.0042)*	-0.0882	(0.0130)***	-0.0153	(0.0088)**	-0.1716	(0.0277)***	-0.0001	(0.0001)***	-0.0013	(0.0001)***
FSTS^2			0.0010	(0.0001)***			0.0017	(0.0003)***			0.0000	(0.0000)***
DV1	4.1035	(0.6607)***	3.9684	(0.5925)***	-7.4326	(2.3422)***	-5.0974	(2.3080)**	-0.0425	(0.0108)***	-0.0303	(0.0104)***
DV2	1.9280	(0.6332)***	2.1227	(0.5388)***	-10.8528	(2.1785)***	-8.8280	(2.1408)***	-0.0852	(0.0107)***	-0.0809	(0.0103)***
DV3	-0.4581	(0.8685)	0.1233	(0.8029)	-17.5278	(2.8862)***	-14.5009	(2.9224)***	-0.0966	(0.0120)***	-0.0821	(0.0117)***
DV4	-3.8191	(0.6948)***	-4.3741	(0.6039)***	-11.1468	(2.4831)***	-9.7153	(2.4180)***	0.0161	(0.0123)*	0.0188	(0.0120)*
DV5	4.8981	(0.6881)***	4.4555	(0.6227)***	-7.2081	(2.2034)***	-5.1875	(2.2229)***	-0.0141	(0.0111)	-0.0053	(0.0103)
DV6	3.4644	(0.6404)***	3.6231	(0.5471)***	-6.2058	(2.2041)***	-3.9006	(2.1778)**	-0.0633	(0.0104)***	-0.0524	(0.0100)***
DV7	5.4761	(0.8597)***	5.5196	(0.7236)***	-7.8694	(2.5356)***	-5.5386	(2.6262)**	0.0295	(0.0175)**	0.0390	(0.0167)***
DV8	6.3044	(0.7118)***	5.9854	(0.6612)***	-4.3472	(2.2927)**	-4.0982	(2.3116)**	-0.0367	(0.0108)***	-0.0336	(0.0095)***
DV9	4.1377	(1.1536)***	4.1816	(1.0651)***	-10.5133	(2.7002)***	-8.0872	(2.6266)***	-0.0316	(0.0160)**	-0.0230	(0.0160)*
R^2	0.4076		0.4140		0.2085		0.2285		0.3364		0.3875	
Adjusted R^2	0.4028		0.4088		0.2020		0.2217		0.3312		0.3823	
F-statistic	32.7470		33.6783		16.1715		16.2686		56.2417		55.5287	
Durbin-Watson statistic	0.8971		0.9193		1.0108		1.0185		0.6847		0.7126	

Note: DV1: basic materials; DV2: consumer goods; DV3: consumer services; DV4: financials; DV5: health care; DV6: industrials; DV7: oil & gas; DV8: technology; DV9: telecommunications; the 10^{th} sub-sector is Utilities. Standard is error in parenthesis. *** $p < 0.01$. ** $p < 0.05$. * $p < 0.10$.

TABLE 4: *Summary statistics (119 cross-sections)*

	ROA	ROE	ROS	AGE	SIZE	FSTS
Mean	10.06369	19.87426	0.120930	31.33374	76918089	41.43565
Median	9.260000	18.97500	0.112587	20.00000	13036770	30.85000
Maximum	52.49000	293.1700	0.937468	108.0000	2.03E+09	100.0000
Minimum	-41.17000	-258.0700	-2.232618	-3.000000	165949.0	0.000000
Std. Dev.	8.464900	24.99856	0.146607	25.30142	2.03E+08	33.23374
Skewness	0.609760	-0.199730	-4.954602	1.121529	4.925827	0.503514
Kurtosis	6.963272	45.29694	85.16162	3.406715	31.65458	1.823833
Jarque-Bera	588.2039	61130.69	235995.6	179.0706	31637.58	80.61505
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	8262.290	16296.89	100.0090	25913.00	6.36E+10	33438.57
Sum Sq. Dev.	58756.72	511816.1	17.75382	528773.9	3.40E+19	890211.8
Observations	821	820	827	827	827	807

TABLE 5: *Regression Results (119 cross-sections)*

	ROA				ROE				ROS			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
Age	0.0291	(0.0075)***	0.0260	(0.0074)***	0.0989	(0.0121)***	0.0967	(0.0124)***	0.0000	(0.0001)	0.0000	(0.0001)
Size	0.3495	(0.0543)***	0.4827	(0.0534)***	0.8794	(0.1079)***	1.0674	(0.1059)***	0.0066	(0.0007)***	0.0071	(0.0007)***
FSTS	0.0267	(0.0057)***	-0.1132	(0.0188)***	-0.0260	(0.0129)**	-0.2046	(0.0421)***	0.0002	(0.0001)**	-0.0004	(0.0002)**
FSTS^2			0.0014	(0.0002)***			0.0018	(0.0004)***			0.0000	(0.0000)***
DV1	1.7984	(0.9614)**	1.9677	(0.9422)**	2.3271	(1.8688)	1.9582	(1.7817)	0.0068	(0.0121)	0.0073	(0.0122)
DV2	1.5693	(0.8498)**	1.1848	(0.8368)*	2.2219	(1.6922)*	1.2943	(1.5970)	-0.0306	(0.0117)***	-0.0346	(0.0119)***
DV3	-1.7775	(1.1630)*	-1.1228	(1.1267)	-6.1452	(2.9145)**	-6.0415	(2.8143)**	-0.0452	(0.0150)***	-0.0414	(0.0151)***
DV4	-4.4016	(0.9335)***	-5.9140	(0.9483)***	-2.8047	(2.1163)*	-4.3065	(1.9675)**	0.0658	(0.0156)***	0.0621	(0.0158)***
DV5	-0.5342	(1.1324)	-0.4442	(1.1306)	0.3579	(2.7038)	-0.6824	(2.5592)	-0.0104	(0.0154)	-0.0090	(0.0154)
DV6	1.4014	(0.8830)*	1.3903	(0.8669)*	4.9227	(1.6717)***	4.2500	(1.5393)***	-0.0291	(0.0116)***	-0.0265	(0.0117)**
DV7	3.1911	(1.1314)***	2.6106	(1.0736)***	0.6845	(2.1311)	-0.3418	(1.9091)	0.0841	(0.0190)***	0.0822	(0.0187)***
DV8	6.4145	(0.9792)***	5.7129	(0.9087)***	8.7799	(1.7543)***	6.6505	(1.4879)***	0.0218	(0.0127)**	0.0188	(0.0127)*
R^2	0.4113		0.4097		0.2484		0.2538		0.3545		0.3474	
Adjusted R^2	0.4039		0.4015		0.2389		0.2433		0.3464		0.3384	
F-statistic	8.6550		8.6014		3.0222		3.0275		6.7704		6.7800	
Durbin-Watson statistic	0.9146		0.9649		1.0788		1.0716		0.6303		0.6290	

Note: DV1: basic materials; DV2: consumer goods; DV3: consumer services; DV4: financials; DV5: health care; DV6: industrials; DV7: oil & gas; DV8: technology; the 9th sub-sector is telecommunications. Standard error is in parenthesis. *** p < 0.01. ** p < 0.05. * p < 0.10.

TABLE 6: *239 Firms*

ROA				
	Brazil	China	India	Russia
Brazil		***		
China	***		***	***
India		***		
Russia		***		

ROE				
	Brazil	China	India	Russia
Brazil		*		
China	*		***	
India		**		
Russia				

ROS				
	Brazil	China	India	Russia
Brazil		**		
China	**		***	***
India		***		
Russia		***		

In Table 6 there are statistically significant differences on ROA, ROE and ROS between the firms from diverse countries of China and Brazil, China and India, China and Russia. Table 7

119 firms

ROA				
	Brazil	China	India	Russia
Brazil		***		
China	***		***	
India		***		*
Russia			*	

ROE				
	Brazil	China	India	Russia
Brazil		***		*
China	***		***	
India		***		
Russia	*			

ROS				
	Brazil	China	India	Russia
Brazil		***		
China	***		***	***
India		***		
Russia		***		

TABLE 8: *239 Firms*

ROA									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials			***	***				***	
Consumer Goods				***				***	
Consumer Services	***					**	***	***	
Financials	***					***	***	***	
Health Care								***	
Industrials			**	***				***	
Oil&Gas			***	***					
Technology	***	***	***	***	***	***			***
Telecommunications								***	
ROE									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials									
Consumer Goods									
Consumer Services								**	
Financials									
Health Care									
Industrials									
Oil&Gas									
Technology			**						
Telecommunications									
ROS									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials		***				*			
Consumer Goods	***			***			***	***	
Consumer Services				***			***	*	
Financials		***	***			***			
Health Care									
Industrials	*			***			***	**	
Oil&Gas		***	***			***			
Technology		***	*			**			
Telecommunications									

ROA									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials			***	***				***	
Consumer Goods				***				***	
Consumer Services	***					**	***	***	
Financials	***					***	***	***	
Health Care								***	
Industrials			**	***				***	
Oil&Gas			***	***					
Technology	***	***	***	***	***	***			***
Telecommunications								***	
ROE									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials									
Consumer Goods									
Consumer Services								**	
Financials									
Health Care									
Industrials									
Oil&Gas									
Technology			**						
Telecommunications									
ROS									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials		***				*			
Consumer Goods	***			***			***	***	
Consumer Services				***			***	*	
Financials		***	***			***			
Health Care									
Industrials	*			***			***	**	
Oil&Gas		***	***			***			
Technology		***	*			**			
Telecommunications									

TABLE 9: *119 Firms*

ROA									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials			***	***				***	
Consumer Goods				***				***	
Consumer Services	***					**	***	***	
Financials	***					***	***	***	
Health Care								***	
Industrials			**	***				***	
Oil&Gas			***	***					
Technology	***	***	***	***	***	***			***
Telecommunications								***	
ROE									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials									
Consumer Goods									
Consumer Services								**	
Financials									
Health Care									
Industrials									
Oil&Gas									
Technology			**						
Telecommunications									
ROS									
	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil&Gas	Technology	Telecommunications
Basic Materials		***				*			
Consumer Goods	***			***			***	***	
Consumer Services				***			***	*	
Financials		***	***			***			
Health Care									
Industrials	*			***			***	**	
Oil&Gas		***	***			***			
Technology		***	*			**			
Telecommunications									

ROA for basic material industry is on average higher than the ROA for utilities provided that Age, Size, FSTS, FSTS^2 remain the same. There are significant differences on ROA, ROE, and ROS between countries in the sample.

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