

***Implications of firm experiential knowledge and  
sequential investment on Japanese subsidiaries'  
performance in Brazil***

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## **Abstract**

*A foreign firm investing in a culturally different market faces uncertainty. This study proposes that as a firm accumulates experiential knowledge, more capabilities and know-how is developed, it consequently reflects on subsidiary performance. Based on a subsidiary level sample of Japanese firms located in Brazil, the empirical findings of this study demonstrate that the accumulation of both international and local experiential knowledge can positively affect subsidiary performance. Moreover, a firm sequential foreign direct investment decision in the local market is a key strategy to achieving a higher level of subsidiary profitability in comparison with first-time investment firm.*

## **Keywords**

Experiential market-specific knowledge, general knowledge, sequential investment, Japanese FDI, subsidiary performance.

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## 1. Introduction

In the process of multinational enterprises (MNEs) internationalization, a firm faces uncertainty and is subject to the “*liability of foreignness*” (Hymer, 1976), which is associated with the cost of doing business outside the firm’s home country. However, as the firm accumulates knowledge through experience (Barkema *et al.*, 1996; Barkema and Vermeulen, 1998; Delios and Beamish, 1999b; Zahra *et al.*, 2000), building relations with local suppliers, working with governmental agencies, and recruiting local employees, its liability of foreignness should decline (Chang and Rosenzweig, 1998) and perhaps even disappear (Zaheer, 2002).

Many scholars have observed the importance of experiential knowledge in the process of internationalization, foreign market entry (Johanson and Vahlne, 1977; Kogut and Zander, 1993; Eriksson *et al.*, 1997; Mandhok, 1997), and ownership strategy (Padmanabhan and Cho, 1996, 1999; Cho and Padmanabhan, 2001). The term experiential knowledge refers all types of knowledge that firms accumulate by being active in foreign markets and implies the ability to search, analyze, and act on international business issues in local markets (Blomstermo *et al.*, 2004).

In addition, according to Johanson and Vahlne (1977), experiential knowledge is also important for subsequent expansion of operation in a host country, as well as the incrementally increasing resource commitments to foreign markets. Since initial investments build network capabilities and learning (Song, 2002), previous experience in a host country tends to increase the probability of choosing the same location for sequential foreign direct investments (Davidson, 1980).

Although many researches found that MNEs experiential knowledge can reflect on higher performance, most studies have focused on this approach on performance at corporate level (Delios and Beamish, 1999a; Lu and Beamish, 2001), or when studies based on performance at subsidiary level, they are limited to the sample of investments in developed countries (Li, 1995; Shaver *et al.*, 1997) or Asian developing countries (Makino and Delios, 1996; Luo and Peng, 1999, Carlsson *et al.*, 2005). Few studies have paid attention to emerging economies outside the Asian region, and most of them have focused on group of countries, such as Latin America (Neupert and Montoya, 2000; Vega-Céspedes and Hoshino, 2001) and Central and Eastern Europe (Beamish and Delios, 2001). Furthermore, based on the findings of previous studies mentioned above that accumulation of experiential knowledge led to enhanced performance, and according to other stream of researches that showed the importance of experiential knowledge for the decision of subsequent investments into the same location (Davidson, 1980; Kogut and Singh, 1988 ; Chang and Rosenzweig, 1998, 2001; Song, 2002), surprisingly no study has attempted to investigate whether firms that decided to invest sequentially in the local market in fact achieve higher level of subsidiary profitability than firms that had only one investment. An exception is the study developed by Shaver *et al.* (1997), which found that in the U.S. firms with experience in the host country tend to be more likely to survive than investments made by first-time entrants. However, the performance measured was based on survival rate, and not on financial statements.

This study distinguishes itself from previous researches as it examines the effect of firm experiential knowledge and sequential investment on performance by investigating Japanese foreign direct investment (FDI) in Brazil. More specifically, this paper analyzes whether firms that made sequential investment decisions in the local

market tend to reflect on higher level of subsidiary profitability comparing to first-time investment firms.

Attention to a single country permits to obtain firms' actual performance. By examining a single host country (Brazil) and a single FDI outflow country (Japan), it holds the country effects constant, which allow for greater theoretical and empirical attention to firms FDI performance (Hennart, 1991; Woodcock *et al.*, 1994). Japanese MNEs provide an appropriate sample for this study, because Japanese firms typically tend to follow a pattern of sequential entry by incrementally increasing their commitment to foreign markets through investments over a long period of time (Chang, 1995).

Furthermore, there are a number of reasons why Brazil provides a good ground for an empirical test. First, as mentioned earlier, most previous studies focused on investments of MNEs in developed countries and Asian developing countries. However, very little is known about operations and performance in a developing country outside the Asian region. Second, Brazil is the fifth largest country, the eleventh largest economy and the fifth largest population in the world, about 170 million people in 2001 (IMF, 2001). Third, Brazil became one of the largest recipients of FDI at the end of 1990s. It was the second in the ranking of FDI inflows in developing countries between 1997 and 1999, and was the fifth most attractive recipient of FDI in the world between 1997 and 1998 (JETRO, 2001). Based on a FDI Confidence Index (A.T. Kearney, 2002), Brazil in 1998 was the second, between 1999 and 2000 was the fourth, and in 2001 was the third world's most attractive destination of FDI. Finally, recently Brazil and other three emerging economies received special attention after the publication of a research study from economists at Goldman Sachs (Wilson and Purushothaman, 2003). The

Goldman Sachs's paper attempted to project the influence that BRICs (Brazil, Russia, India, and China) could have on global demand and global spending over the next 50 years based on demographic projections and a model of capital accumulation and productivity growth. According to this study, over the next 50 years, the BRICs economies could become a much larger force in the world economy, and in less than 40 years, the BRICs economies together could be larger than the G6 in U.S. dollar terms. By 2025 they could account for over the size of the G6, and of the current G6, only the U.S. and Japan may be among the six largest economies in U.S. dollar terms in 2050. Hence, Brazil provides not only an opportunity for an empirical test of MNEs investments, but also makes such a test necessary.

Therefore, one major goal of this paper is to enhance knowledge of the MNEs investments in one of the BRICs country, and to propose a framework in which learning from firm experiential knowledge and firm sequential FDI decision in the local market are key drivers in achieving superior performance outcomes of MNEs subsidiary.

## **2. Literature Review and Hypothesis Development**

When firms decide to invest abroad, some knowledge is required to compete successfully with host country firms in their own markets (Cohen and Levinthal, 1990). This market knowledge is necessary to deal with culturally different employees, suppliers, and customers. In addition, a firm needs to adapt its production systems to local infrastructure, to deal with local governments, and other local actors.

In the internationalization model, Johanson and Vahlne (1977) propose that

relevant market knowledge can be divided into *objective knowledge* and two types of experiential knowledge: *general knowledge* and *market-specific knowledge*. Objective knowledge is acquired through standardized methods, and can be learned by studying a new market before entering it, and includes knowledge of market size, customer purchasing power, laws and regulations. Objective knowledge is relatively easy to acquire and should not be of crucial importance for the performance of firms in the host country (Simpson and Kujawa, 1974; Denis and Depelteau, 1985).

General knowledge refers to marketing methods, formalities connected with purchases, sales, payments, employees, and common characteristics of certain types of customers and suppliers, irrespective of their geographical location. General knowledge is acquired from international operations in general and can often be transferred from one country to another country (Johanson and Vahlne, 1990). A longer experience of international operations allows the firm to better understand the complexity of cognitive, normative, and regulatory domains in different markets, and consequently more general knowledge the firm has acquired. Hence, internationalization is a gradual process in which firms accumulate experiential knowledge over time (Blomstermo *et al.*, 2004). Another way to acquire experiential knowledge is by operating many subsidiaries in a variety of countries (Huber, 1991), building a repertoire of knowledge and skills in dealing with different requirements from the environments (Zahra *et al.*, 2000). Therefore, in this study the term *firm international experiential knowledge* was employed to define the general knowledge that firm has acquired in terms of length of time and scope of operating international subsidiaries.

Previous studies showed the positive relationship between general knowledge and firm performance. In an investigation of corporate performance of Japanese

manufacturing firms, [Delios and Beamish \(1999a\)](#) found that geographic scope is positively associated with firm profitability. Geographic scope is measured by the number of FDI and the number of countries invested abroad. Using a sample of Japanese small and medium-sized enterprises, [Lu and Beamish \(2001\)](#) also found that greater levels of FDI are associated with higher performance. However, these studies focused on performance at the corporate level, and not at the subsidiary level.

Therefore, it will be interesting to use subsidiary level data in order to test the effect of a firm international experiential knowledge on subsidiary performance. Based on the arguments cited above, it is expected that as firms accumulate experiential knowledge in terms of length of time and scope by operating in different environments, this repertoire of a firm international experiential knowledge can be transferred to its subunits, and consequently it will reflect on increasing of subsidiary performance. Thus, it predicts:

*H1: The accumulation of a firm international experiential knowledge is associated with higher multinational subsidiary performance.*

On the other hand, experiential market-specific knowledge is defined as the knowledge about the specific market and its characteristics. It is critical in a firms' internationalization ([Penrose, 1959](#)). This market-specific knowledge cannot be acquired as easily as objective knowledge ([Johanson and Vahlne 1977](#)), because information tends to be complicated and tacit, and such knowledge is difficult to acquire through contracts ([Hennart, 1988](#)). The experiential market-specific knowledge can be learned only through learning-by-doing or experience ([Johanson and Vahlne 1977](#); [Huber, 1991](#)). Firms need to experience the local market to establish the initial

knowledge base and to understand and evaluate the context of host country (Cohen and Levinthal, 1990; Choe *et al.*, 2003). In general, having a longer presence in the local market allows the firm to interact with a variety of workers, customers, suppliers, and other local actors (Zahra *et al.*, 2000), it helps the firm to learn more about the host country, to develop more capabilities (Chang, 1995; Makino and Delios, 1996), and to increase know-how of doing business in the market (Johanson and Vahlne 1977, Luo and Peng, 1999). Therefore, accumulated knowledge in the host country is time-consuming, however it helps the firm overcome its initial concerns about foreign operations, while reducing operational uncertainties and enhancing performance (Davidson, 1980; Makino and Delios, 1996; Shaver *et al.*, 1997).

Furthermore, firms can acquire market-specific knowledge by operating other subsidiaries in the same host country. A firm that accumulates prior knowledge in the market can be in an advantageous position to assimilate and exploit new knowledge (Cohen and Levinthal, 1990). According to Song (2002), by collocating several of its subsidiaries, a firm could benefit from greater scale economies by sharing facilities, personnel, and other resources across subsidiaries. Hence, a firm increases the local knowledge by increasing social networks with suppliers, business and community leaders, and government officials. In this paper, the term a *firm local experiential knowledge* was adopted to define the experiential market-specific knowledge that a firm has acquired in terms of length of time and scope of operating local subunits.

Carlson (1975) argued that the more different the foreign market is compared to the firm's current markets, the more difficult it is for the firm to gain experiential market-specific knowledge. Firms usually have better knowledge about opportunities and business alternatives in their immediate surroundings than about far away markets.

Hence, it takes a long time to gather and interpret market information from markets that are at a long physical distance from the firm's current markets. Given the physical distance, cultural and institutional differences between Japan and Brazil (Hofstede, 1980), and because both countries are classified as independent from other cluster countries (Sirota and Greenwood, 1971; Ronen and Kraut, 1977; Ronen and Shenkar, 1985), the Japanese firms would have a great need to learn about local culture and business practices in Brazil. Consequently, accumulation of a firm's local experiential knowledge will be crucial for Japanese subsidiaries to achieve greater profitability. Therefore, it is hypothesized that:

*H2: The accumulation of a firm's local experiential knowledge is associated with higher multinational subsidiary performance.*

According to Kogut (1983) and Chang and Rosenzweig (1998), FDI has also been understood as a sequential process, where initial investments affect the nature and timing of subsequent investments. Multiple foreign market entries are not random, but follow a logic process based on capability development. In accordance with this view, Johanson and Vahlne (1977) argued that subsequent expansion of operations in a host country might be based on gradual acquisition and application of experiential knowledge about operations in the local market as well as the incrementally increasing resource commitments to foreign markets. Previous studies focused on the firm's motivation (Chang, 1995; Song, 2001) and entry decision of MNEs (Chang and Rosenzweig, 1998, 2001) that provide subsequent investment into a location. However, given that previous experience in a host country tends to increase the probability of choosing the same location for sequential investments (Davidson, 1980; Kogut and

Singh, 1988 ; Song, 2002), and based on findings that accumulated experiential knowledge achieves greater profitability (Luo and Peng, 1999; Delios and Beamish, 2001), it remained a question whether firms with sequential investment decisions in the host country will in fact enhance the profitability of its subsidiaries. No study has attempted to investigate the effect of firms' sequential investment in the same local market on subsidiary performance.

FDI by firms engaged in subsequent investments would receive more benefit from a firm local experiential knowledge such as the network of its subsidiaries. In other words, a firm could have greater scale economies by sharing facilities, information and knowledge about local market in relation to customers, suppliers, specific regulations and laws, and other resources across subsidiaries (Song, 2002). By contrast, firms without sequential investment in the host country realize little benefit of network information, because it is restricted to its own customers, suppliers, and government institutions. Based on these assumptions it is hypothesized that:

*H3: Firms that invested sequentially in the local market will achieve a higher level of subsidiary profitability than firms that did not.*

### **3. Methodology**

#### **Sample**

For this study, subsidiary level data was collected on all Japanese investments in Brazil from 1998 to 2002, which were listed from two main data sources. First, the 2002 and 2004 editions of *Anuário: Empresas Japonesas no Brasil – Burajiru*

*Nikkeikigyo Nenkan* (Yearbook: Japanese companies in Brazil), a yearbook published in Brazil since 1974, and provides extensive information of investments established by Japanese firms and also by Japanese descendants (*nikkei*) entrepreneurs. It is a bilingual edition published in Portuguese and Japanese. The 2002 and 2004 editions of this yearbook cover the end of fiscal year from 1998 to 2002. Second, the 1999 to 2003 issues of *Kaigai Shinshutsu Kigyō Souran: Kuni Betsu* (Toyo Keizai Databank: Japanese Overseas Investments: by country), an annual directory of the foreign investments of Japanese firms listed on the Japan stock exchanges (Tokyo, Osaka, and Nagoya), as well as by major unlisted Japanese firms. It is published in Japanese by Toyo Keizai, Inc. since 1970. The initial dataset contains a list of 447 subsidiaries established by 286 Japanese firms in Brazil. Where required, additional subsidiary information was gathered from various editions of *Exame Melhores e Maiores* (Exame Magazine - Biggest and Best), which supplies detailed data and information on over 500 of the biggest private companies in Brazil. The publication includes company balance sheets, reports, economic scenarios, and market trends. In addition, it used various issues of *Valor 1000* (Value 1000), which provide financial information of 1000 private companies in Brazil; and *Infainvest Análise de Empresas* (Company Analysis), an electronic dataset available on internet which includes annual reports, balance sheets and information of 2,832 companies in Brazil.

From each subsidiary, it listed the major Japanese parent firm, information obtained in both databases mentioned above. An additional parent company information was collected from 1999 to 2003 editions of *Nikkei Kaisha Nenkan: Jyōjyō Kaishaban* (Nikkei Annual Corporation Report: Listed Companies) and *Nikkei Soukan: Mijyōjyō Kaishaban* (Nikkei Annual Corporation Report: Unlisted companies).

The unit of analysis of this study is the subsidiary performance based on financial outcome measures between the periods 1998 to 2002. Hence, from the original sample of 447 subsidiaries, the sample was reduced to 119 cases. However, due to incomplete data for all the independent variables used in this study, and the presence of outliers, it resulted in a final count of 110 subsidiaries for the analysis. Although not reproduced in this paper, a standard *t-test* of non-response bias was conducted. Because the analysis of this study focused on a firm experiential knowledge, a *t-test* on a parent company years of experience in the local market was performed. The results revealed no significant differences in a parent firm experience in the host country of subsidiaries that reported performance measures and those that did not.

## **Description and measurement of variables**

### **Dependent Variable**

The dependent variable is subsidiary performance. Previous studies on Japanese FDI had used Toyo Keizai Inc. database as the main source of subsidiary performance (Woodcock *et al.*, 1994, Delios and Beamish, 2001), measured by the managerial assessment of profitability on a scale of three performance levels (loss, breakeven, and gain). However, for the Brazilian case, the number of subsidiaries that reported this subjective performance measure was decreasing year after year, and for the end of fiscal year 2002, it has only 28 cases. Further, no study has attempted to investigate empirically the objective measure of subsidiary performance in an emerging country outside the Asian region. Therefore, in this paper, performance was defined using accounting-based measures as in prior studies (Beamish and daCosta, 1984;

Tallman and Li, 1996; Hitt *et al.*, 1997; Delios and Beamish, 1999a). It was obtained from financial ratio-based performance reported in *Anuário: Empresas Japonesas no Brasil*, and where required, additional performance data was gathered from *Exame Melhores e Maiores*, *Valor 1000*, and *InfoInvest Análise de Empresas* databases. The return on sales (ROS), defined as Profit before Tax divided by Total Sales, is employed to measure subsidiary performance in term of profitability<sup>1</sup>. In order to test the reliability of the profitability measure used in this study, a correlation matrix was performed between the subjective performance measure reported in Toyo Keizai, Inc. Databank with objective performance measure reported in those database cited above. Although not reproduced in this paper, the results showed that objective measure (ROS, ROE) correlate well with subjective measure. Dess and Robinson (1984), and Geringer and Hebert (1991) also found similar correlation outcome. Hence, the results confirmed the reliability of the profitability data used in this study, and it appears that objective performance measures and subjective performance measures are assessing the same construct empirically, as well as theoretically (Brothers *et al.*, 1999). The performance measure was computed as a five-year average (Delios and Beamish, 1999a; Jameson *et al.*, 2000), which preserves between a firm variations in structural characteristics, while smoothing out year-to-year fluctuation in other variables (Jameson *et al.*, 2000), and eliminating the influence of short-term factors (Grant, 1987). For this study, a specific interval includes data at the end of fiscal years 1998 through 2002.

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<sup>1</sup> In addition to ROS, it was also tested another financial performance measure: return of equity (ROE = Profit before tax divided by Shareholder's equity). The results from both were similar, and there was high correlation between ROS and ROE. However, by using ROE as a performance measure, the sample decreases to less than 100 cases. Hence, it is worth showing only the outcomes obtained by ROS measures.

## **Independent Variables**

This study adopts independent variables such as a firm international experiential knowledge, a firm local experiential knowledge, and some control variables, which are expected to enhance performance of Japanese subsidiaries in Brazil. A firm sequential investment is partially considered inside of the variable for local experiential knowledge [LOC\_SCOPE], however additional analysis will be done separately to compare the subsidiary performance between firms that decided to invest sequentially and firms that did not.

### **Firm international experiential knowledge**

In order to investigate the effect of a firm international experiential knowledge on subsidiary performance, three different measures were employed:

- *Prior firm international experiential knowledge (length of time)* [INT\_P-LENGTH] - This variable estimates the previous firm international experience in terms of length of time. It is defined as the number of years the parent firm had subsidiaries abroad before establishing its first subsidiary in Brazil, calculated in a logarithm form ([Padmanabhan and Cho, 1996](#); [Carlsson et al., 2005](#)).
- *Prior firm international experiential knowledge (number of countries)* [INT\_P-CNTR] – This variable measures the previous firm international experience indicated by count of countries. It is constructed as the number of countries the firm had subsidiaries in before establishing its first subsidiary in Brazil ([Carlsson et al., 2005](#)).

- *Scope of a firm international experiential knowledge* [INT\_SCOPE] – This variable considered the parent firm’s network of subsidiaries abroad. It is measured by the parent firm’s total number of foreign subsidiaries (Delios and Beamish, 1999a, 1999b; Lu and Beamish, 2001), calculated as the number of overall subsidiaries that the parent firm established overseas minus one (focal subsidiary).

#### **A firm local experiential knowledge**

On the other hand, other experiential knowledge is measured by the firm experience in the host country, which was obtained by two measures:

- *Length of time of a firm local experiential knowledge* [LOC\_LEGHT] – it is constructed by the parent firm year of experience in the local market. It is computed as the logarithmic form of the total number of firm-years of experience in the host country (Delios and Beamish, 1999b).
- *Scope of a firm local experiential knowledge* [LOC\_SCOPE] – This variable measures the parent firm’s network of subsidiaries in the host country. It is defined as the number of subsidiaries the parent firm established in the local market.

#### **Sequential Investment**

A dummy variable was constructed based on LOC\_SCOPE, in order to make a comparison between a firm with more than one investment and first-time investors in the local market. In other words, by assigning this as a dummy variable it will possible to test whether firms that invested sequentially in the host country performed better than

firms that did not. Hence, a dummy variable was considered [INVEST], where it is assigned a value “1” for firms that have more than one investment in the local market and “0” otherwise.

### **Control Variables**

As suggested in previous literature (Pan and Chi, 1999), some control variables were included to assure that the findings have been adjusted for other potential impacts that may influence subsidiaries performance. First, to control for industry effects, as in Kogut and Singh (1988) and Brothers (2002), a dummy variable [INDUST] was included which gave a value of “1” for manufacturing firms and value of “0” for non-manufacturing firms.

Second, following Delios and Beamish (1999b), Padmanabhan and Cho (1996, 1999), and Cho and Padmanabhan (2001) studies, a dummy variable was considered to compare the main line of business of the Japanese parent firm with the subsidiary’s industry [RELATED], where related entries were coded as “1”, and “0” for unrelated entries.

Third, the degree of control of the parent firm over its subsidiary also figures prominently (Luo and Peng, 1999). According to Tallman and Shenkar (1994), the MNE has a greater influence over its wholly-owned subsidiaries than over joint ventures. Therefore, a dummy variable [EQUITY] was coded as “1” for wholly-owned subsidiaries, and “0” for international joint ventures<sup>2</sup>.

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<sup>2</sup> The following classification was considered for subsidiary equity:

- *Wholly-owned subsidiary* - Japanese parent firm(s) holds at least 95% of the subsidiary equity.
- *International Joint-Venture* - formed between Japanese partner(s) and local partner(s). A single Japanese parent firm holds at least 10% and no more than 95% of the subsidiary equity.

Finally, a logarithmic transformation of the number of employees in the subsidiaries [SUB\_SIZE] was used to control for the size of subsidiary (Tallman and Li, 1996; Luo and Peng, 1999), and for the size of parent company [PAR\_SIZE], a logarithmic transformation of the parent firm total sales was employed (Siripaisalpipat and Hoshino 1999).

As with the dependent variable, the independent variable [INT\_SCOPE] and the control variables [SUB\_SIZE, PAR\_SIZE] were computed as a five-year average.

### **3. Empirical analysis and discussion**

This study attempts to investigate how the firm international and local experiential knowledge of a foreign parent firm affect performance of its subsidiaries.

As a preliminary step to run the statistics, the correlation among the independent variables was verified for possible signs of multicollinearity. Correlation matrix and descriptive statistics are provided in Table 1. According to this table, a high correlation was found between the variables LOC\_LENGTH with INT\_P-LENGTH (0.824), and LOC\_SCOPE with INT\_SCOPE (0.891). Hence, these variables were considered separately in different models for regression analysis (*Model 3, Model 4, and Model 7*). For other independent variables, none of them appeared to be large enough to warrant concern of multicollinearity. Additionally, the variance inflation factor (VIF) was examined to determine the existence of multicollinearity under each model in Table 2 and Table 3. The results revealed that none of the VIF scores for each independent variable was above 2.5, indicating that multicollinearity should not be a problem with these data.

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**Insert Table 1 around here**  
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### **Impact of firm international and local experiential knowledge on performance**

A multiple regression analysis was used to examine the impact of firm international and local experiential knowledge on subsidiaries performance.

Performance of a subsidiary is explained by the following model:

$$\text{Subsidiary's Performance} = f [\text{Parent's firm international experiential knowledge}, \\ \text{Parent's firm local experiential knowledge}]$$

The model can be expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots \text{Control.Variables} \dots + \varepsilon,$$

where Y is the return on sales (ROS),  $X_i$  is the independent variables, and  $\beta_i$  is the coefficients of the independent variables (a firm international and local experiential knowledge).  $\beta_0$  refers to the constant, *Control.Variables* are Industry, Related entries, Equity, and Size (a parent firm and subsidiary). Finally  $\varepsilon$  is the disturbance term.

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**Insert Table 2 around here**  
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Four different models with all control variables were tested and reported in Table 2. *Model 1* considered the effect of a firm international experiential knowledge on

subsidiary performance. As can be seen in Table 2, the coefficients of prior to the length of time of a firm international experiential knowledge [INT\_P-LEGHT] and the scope of a firm international experiential knowledge [INT\_SCOPE] are positively and significantly associated with performance. This implies that the accumulation of a parent firm international experience, in terms of time and scope, enhances subsidiary performance. However, an interesting result was obtained by the variable INT\_P-CNTR, which is measured by the number of countries that the firm invested before establishing the first subsidiary in Brazil. The coefficient is statistically significant, but contrary to expectation it is negative. An explanation for this negative relationship with performance can be explained by a considerable number of subsidiaries (40% of the cases) which the Japanese parent firm established as the first international investment in Brazil. Hence, although the intention to include this variable in the model was to capture the effect of prior accumulation of international experience on subsidiary performance, the results suggested that by investing the first international operation in Brazil, a firm gained substantial advantages and knowledge in the local market that reflected on higher outcomes of its subsidiary. Partially, it showed the importance of accumulating a firm local experiential knowledge. Regarding control variables, the coefficients of subsidiary size [SUB\_SIZE] and parent size [PAR\_SIZE] are statistically significant, but interestingly both are negative related to performance measure. [Luo and Peng \(1999\)](#) also found this negative relationship between subunit size and performance using a sample of subsidiaries operated in a developing country (China), and noted that size is only marginally important for sales growth, but irrelevant to other performance measures. In another study involving Japanese investment in a developing country (Thailand), [Siripaisalpipat and Hoshino \(1999\)](#) showed that a firm size seems to be

negatively associated with performance, and suggested that larger-sized firms usually aim at maintaining stable and long term growth, thus satisfying with moderate profit rates. For other control variables [INDUST, RELATED, EQUITY], it is found not to be statistically significant in relation to performance.

As shown in *Model 2* in Table 2, it tested the impact of a firm local experiential knowledge on subsidiary performance. In accordance with expectation, the coefficients of length [LOC\_LEGHT] and scope [LOC\_SCOPE] of a firm local experiential knowledge are positively and statistically significant related to subsidiary performance. This finding suggested that accumulation of a firm experiential market-specific knowledge constitute an important driving to increasing the profitability of its subsidiary. As a firm gained experience by operating its subunits for a long period of time in the local market, it helps to learn more about the host country, and consequently it reduces operational uncertainty and enhances subsidiary performance. In addition, as the firm expands with more investments, increasing the network of subsidiaries into the local market, it also leads to improve the profitability of its subunits. In other words, the firm sequential investment decision allows to efficiently transferring knowledge and experience within subsidiaries, and consequently it reflects on achieving a higher level of subsidiary profitability. For the control variables, the findings showed the same results as reported in *Model 1*.

For remaining models in Table 2, it was considered the impact of both a firm international and local experiential knowledge on subsidiary performance. As mentioned earlier, because of the high correlation between the variables INT\_P-LENGTH with LOC\_LEGHT, and between INT\_SCOPE with LOC\_SCOPE, two different models (*Model 3* and *Model 4*) were employed.

For *Model 3*, the results showed that the firm international experiential knowledge [INT\_SCOPE] and the firm local experiential knowledge [LOC\_LEGHT] are positively and significantly associated with subsidiary performance. This implies that the firm international experiential knowledge of network of overseas subsidiaries, and the accumulation of a firm local experiential knowledge in terms of length of time of operation in the local market, help firms to increase the profitability of its subsidiaries. The variable [INT\_P-CNTR] is negatively associated with performance, however it is not statistically significant. The same result as in *Model 1* and *Model 2* was obtained for control variables.

Finally, as shown in *Model 4* in Table 2, the result was similar to *Model 3*, with a difference that the variable [INT\_P-CNTR] became statistically significant. This reinforces that in order to enhance performance of MNEs subsidiary, it is important to accumulate both a firm international and local experiential knowledge.

Therefore, *Hypothesis 1* was supported by *Model 3*, and partially supported by *Model 1* and *Model 4*, while *Hypothesis 2* is confirmed by *Model 2*, *Model 3*, and *Model 4*.

In addition, in order to investigate the relative importance of a firm international and local experiential knowledge on sequential investment decision in the local market, the sample was divided into two sub-samples. One in which the firm decided to invest sequentially in the local market [Sequential FDI], and one in which the firm was a first-time investor, in other words, a firm with only one subsidiary established in the host country [No sequential FDI]. It performed the same models as showed in Table 2, except for *Model 4*. The reason is that the variable LOC\_SCOPE cannot be calculated in one of the sub-samples [No Sequential FDI], because in this

case LOC\_SCOPE has only one value, which is “1”. Hence, the variable LOC\_SOCPE and the *Model 4* as in Table 2 were not considered for analysis in Table 3.

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**Insert Table 3 around here**  
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As shown in *Model 5* in Table 3, the accumulation of a firm international experiential knowledge revealed significant impact on performance. However, some interesting results were obtained for each sub-sample in this model. For sub-sample [No Sequential FDI], the variable INT\_SCOPE showed positive and statistically significant relationship with subsidiary performance. In addition, as reported in *Model 1* in Table 2 (Full Sample), the coefficient of INT\_P-CNTR is negative and significant. The firm knowledge accumulated in previous years of international experience before establishing the first subsidiary in Brazil [INT\_P-LEGHT] showed positive influence on performance, however it is statistically not significant. For control variables, the coefficient RELATED is positive and significant. It suggests that the related main line of business of the Japanese parent firm with its subsidiary’s industry [RELATED] revealed to be an important point to achieve a higher performance for first-time investors. Other control variables follow the same outcomes obtained in *Model 1* (Full Sample) as shown in Table 2. On the other hand, for sub-sample [Sequential FDI], regarding a firm international experiential knowledge, only the coefficient of INT\_P-LEGHT is significant related to performance. It suggests that although at least one of variables for a firm international experiential knowledge in each sub-sample

showed to be statistically significant associated with performance, the nature of this knowledge is different for each sub-sample. For firms without sequential investment in the host country, the network of MNEs subsidiaries established abroad revealed to be more important than the length of time of a firm international operation before establishing its first subsidiary in Brazil. Additionally, for sub-sample [Sequential FDI], the sign of control variable [RELATED] became negative, but not significant. This implies that as a firm increases the network of its subsidiaries increasing operational experience in the local market, the firm tends to diversify its investments from the core business of the parent firm.

In *Model 6* (Table 3), the impact of a firm local experiential knowledge is positively and statistically significant related to subsidiary performance for both sub-samples, which implies that the accumulation of experiential market-specific knowledge is crucial for achieving a higher subsidiary profitability. Regarding the control variables, it differs only that the coefficient of PAR\_SIZE although is still negative, became insignificant for sub-sample of firms with sequential investment decisions. It indicates that the influence of parent firm size on performance is greater for first-time investors than firms that invest sequentially in the local market.

Finally, as shown in *Model 7* in Table 3, where both a firm international and local experiential knowledge are considered for analysis, the results revealed interesting outcomes. For sub-sample [No Sequential FDI], the variable of a firm international experiential knowledge is significantly associated with subsidiaries performance, while the variable of a firm local experiential knowledge is not significant. On the other hand, for sub-sample [Sequential FDI] it showed an inverse result, in other words, the variable of a firm local experiential knowledge is statistically significant related to subsidiaries

performance, while the variables of a firm international experiential knowledge are insignificant. This implies that for firms that established many subunits in the host country, knowledge accumulated in the local market seems to be more important than experience gained in international operations for improving subsidiary profitability. While for first-time investors, knowledge acquired by operating international investments is valuable and reflects on its subsidiary financial outcomes. In relation to control variables, it showed the same results as *Model 5* and *Model 6* in Table 3. Therefore, *Hypothesis 1* is partially supported by *Model 5* and *Model 7* for firms with no sequential FDI in the local market. On the other hand, *Hypothesis 2* is supported by *Model 6* and *Model 7* for firms with sequential investment.

#### **Performance comparison between firms with sequential investment and first-time investors**

In order to investigate whether performance difference exist between firms that decided to invest sequentially in the local market with first-time investment firms, some statistical tests were performed, as shown in Table 4 and Table 5.

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**Insert Table 4 around here**  
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According to Table 4, there is a significant mean difference between two groups. It suggests that firms with sequential investment decisions (ROS mean = 0.0709) obtained a higher level of subsidiary profitability than firms with no sequential

investment (ROS mean = 0.0121) in the local market. Hence, the firm decision to invest sequentially in the same market is found to be an important strategy to improve the profitability of its subsidiaries. The accumulation of a firm local experiential knowledge by creating a network of subsidiaries in the local market is crucial for gaining scale economies by sharing facilities, personnel, and other resources across subunits (Song, 2002) which reflect on a higher level of profitability of MNEs subsidiaries.

In addition, in order to test whether the increasing number of investments in the local market in fact affects subsidiary profitability, the group of firms with sequential investment was divided in two sub-groups based on median values of the number of subunits in the host country. Hence, one sub-group is formed by firms with two to four investments (35 cases), and other sub-group for firms with more than 5 investments (34 cases).

-----  
**Insert Table 5 around here**  
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As shown in Table 5, firms with more than 5 investments showed a higher level of subsidiary profitability (ROS mean = 0.1239) than firms with 2 to 4 investments (ROS mean = 0.0193) and first-time investors (ROS mean = 0.0121). The difference mean between groups (ANOVA) showed a significant result ( $p < 0.01$ ). Further, when performance of a firm with more than 5 investments is compared to other sub-groups by applying post hoc test, the difference mean was also statistically significant. Comparing with firms with 2 to 4 subunits, it is significant at 0.005 level. When comparing with

firms with no sequential investment, it is significant at 0.012 level. Although there is no significant performance difference between firms with 2 to 4 investments and first-time investors, the results showed a higher level of subsidiary profitability for the firms with sequential investment decision. Hence, the analysis suggests that scope of a firm local experiential knowledge is critical to achieving a higher subsidiary outcomes comparing to first-time investors, thus supporting *Hypothesis 3*.

To further analyze the relative importance of scope of a firm local experiential knowledge on subsidiaries performance, as in [Carlsson et al. \(2005\)](#), some matrices (Figure 1) were used to investigate the performance mean between firms that invested sequentially with other firm experiential knowledge. The median values of a firm experiential knowledge were used to create the groups.

-----  
**Insert Figure 1 around here**  
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According to Figure 1, for all matrices, the groups of firms with sequential investment decision (upper quadrants) demonstrated a greater profitability mean than firms with only one investment in the local market (lower quadrants). Although the difference between groups is not statistically significant, which is probably caused by some few observations, the mean difference became much more significant when comparing groups of upper with lower quadrants than the comparison within the upper/lower quadrants. In addition, except for matrix 3 (with a small mean difference), in general the association of sequential investment decision with the increasing of other

firm experiential knowledge enhances the level of subsidiary profitability. To sum up, the results reinforces the important role of the scope of a firm local experiential knowledge, in other words, the accumulation of market-specific knowledge by investing sequentially in the local market, leads to enhanced subsidiary performance, and consequently showed a greater subsidiary profitability compared to first-firm investors. Hence, *Hypothesis 3* is also supported.

## **Conclusion**

This study examines the effects of a firm experiential knowledge and sequential investment decisions on subsidiary performance. Using profitability subsidiary-level data of Japanese investments in Brazil during the fiscal year from 1998 to 2002, the findings of this study make some contributions to the literature.

First, the results showed that both a firm international and local experiential knowledge can positively affect subsidiary performance. Thus, when investing in a foreign market, the previous firm experiential knowledge about operating international business, and the firm network of FDI established abroad exert an important influence to increase the level of profitability of MNEs subsidiary. In addition, investing firms may need other complementary knowledge and experience to operate successfully in culturally dissimilar countries ([Padmanabhan and Cho, 1996](#)). Because of the large geographical and cultural distance between Japan and Brazil ([Hofstede, 1980](#)) in addition to the constant changes in political and institutional environments in the host country market, the accumulation of market-specific knowledge provides context for

interpreting business environment, increasing knowledge of clients, suppliers, competitors, government, institutional framework, rules, norm, and values (Eriksson *et al.*, 1997), allowing firms to perceive opportunities, reducing uncertainty (Kogut and Singh, 1988), and consequently enhancing subsidiary profitability. This finding is in accordance to Makino and Delios (1996) study of Japanese ventures in Asia which demonstrated that acquiring local experiential knowledge is important for performance.

Second, the findings suggest that a firm can acquire local experiential knowledge not only by operating for a long time in the local market as showed by previous studies (Luo and Peng, 1999), but also by increasing the number of investments in the target country, in other words, making sequential investment decisions.

Finally, a key contribution of this study is to produce credible evidence that firms with sequential investment decision in the same country is more profitable compared with first-time investment firms. Increasing the firm network of subsidiaries in the target country, allow the firm to have a greater scale economies by sharing facilities, information, personnel, and other resources across subsidiaries (Song, 2002). Thus, the findings demonstrate that sequential FDI in the local market was an effective strategy for improving the level of profitability of MNEs subsidiaries in an emerging country.

The results have to be interpreted within the context of some limitations in conjunction with the discussion of some possible future research. First, by focusing on performance of Japanese investment in Brazil, it has both strength and weakness of the study. As argued earlier, it holds the country effects constant, which allow for greater theoretical and empirical attention to firms FDI performance (Hennart, 1991; Woodcock

*et al.*, 1994). On the other hand, some of the findings may be unique to the case of Japanese firms or to the Brazilian market. Future research should be undertaken to extend the sample to non-Japanese parents operating in other developing country in order to investigate whether the finding of this study can be generalized. However, it has to be said that the financial performance data of foreign subsidiaries in many emerging economies is very hard to obtain. Second, the profitability measures used in this study, which is return on sales (ROS) and also return on equity (ROE), are merely an explicit measure of performance. In some cases, a firm accepts moderate profit rates for some strategic reasons such as market share orientation, transferring pricing, long term growth (Siripaisalpipat and Hoshino, 1999). Future research could consider a multidimensional construct of performance measurement, including not only financial measures but also cover market and strategic criteria.

Nevertheless, the results of this study illustrate the importance of a firm experiential knowledge and sequential investment decisions to enhance the level of subsidiary profitability.

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**Table 1 – Correlation Matrix and Descriptive Statistics**

<b>Correlation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
1. ROS	1										
2. INT_P-LEGHT	0.148	1									
3. INT_P-CNTR	-0.110	0.082	1								
4. INT_SCOPE	0.140	0.466	0.338	1							
5. LOC_LEGHT	0.177	0.824	-0.299	0.354	1						
6. LOC_SCOPE	0.236	0.480	0.195	0.891	0.441	1					
7. INDUST	-0.167	-0.020	0.128	-0.170	-0.097	-0.215	1				
8. RELATED	-0.053	-0.217	-0.094	0.515	-0.158	-0.453	0.104	1			
9. EQUITY	0.058	0.062	0.084	-0.030	-0.102	-0.066	-0.241	0.056	1		
10. SUB_SIZE	-0.435	0.065	-0.061	-0.119	0.108	-0.169	0.443	0.131	-0.305	1	
11. PAR_SIZE	0.100	0.533	0.113	0.676	0.467	0.666	-0.351	-0.405	0.031	-0.243	1
<b>Descriptive Statistics</b>											
Mean	0.048	40.04	2.29	102.42	34.83	4.45	0.56	0.87	0.71	468.42	2,392
Std. Deviation	0.174	12.28	3.47	162.52	13.37	4.76	0.50	0.33	0.46	968.88	3,581
Minimum	-0.368	8.08	0	0	5.17	1	0	0	0	1	100
Maximum	0.837	69.17	16	542	69.17	17	1	1	1	8,175	11,072

**Table 2 – Regression Model for Subsidiary Performance (Full Sample)**

**Dependent Variable = ROS**

<b>Variables</b>	<b>Model 1</b> <i>(Firm International)</i>	<b>Model 2</b> <i>(Firm Local)</i>	<b>Model 3</b> <i>(Firm International &amp; Firm Local) 1</i>	<b>Model 4</b> <i>(Firm International &amp; Firm Local) 2</i>
Constant	0.117 <i>(0.589)</i>	0.199 <i>(1.189)</i>	0.219 <i>(1.240)</i>	0.142 <i>(0.732)</i>
<b><i>Firm International Experiential Knowledge</i></b>				
INT_P-LEGT	0.117 ** <i>(2.148)</i>	--	--	0.103 * <i>(1.885)</i>
INT_P-CNTR	- 0.010 ** <i>(2.064)</i>	--	- 0.006 <i>(1.061)</i>	- 0.009 * <i>(1.935)</i>
INT_SCOPE	0.000 * <i>(1.750)</i>	--	0.000 * <i>(1.669)</i>	--
<b><i>Firm Local Experiential Knowledge</i></b>				
LOC_LEGHT	--	0.090 ** <i>(2.399)</i>	0.084 ** <i>(2.003)</i>	--
LOC_SCOPE	--	0.009 ** <i>(2.015)</i>	--	0.011 ** <i>(2.369)</i>
<b><i>Control Variables</i></b>				
INDUST <i>(1=Manufacturing)</i>	0.002 <i>(0.043)</i>	0.002 <i>(0.063)</i>	0.008 <i>(0.226)</i>	0.005 <i>(0.137)</i>
RELATED <i>(1=Related Industry)</i>	0.036 <i>(0.683)</i>	0.027 <i>(0.532)</i>	0.002 <i>(0.571)</i>	0.034 <i>(0.667)</i>
EQUITY <i>(1=WOS)</i>	- 0.029 <i>(0.799)</i>	- 0.013 <i>(0.371)</i>	- 0.015 <i>(0.427)</i>	- 0.020 <i>(0.561)</i>
SUB_SIZE	- 0.051 *** <i>(4.769)</i>	- 0.049 *** <i>(4.563)</i>	- 0.051 *** <i>(4.736)</i>	- 0.049 *** <i>(4.581)</i>
PAR_SIZE	- 0.019 * <i>(1.815)</i>	-0.021 ** <i>(2.098)</i>	-0.018 * <i>(1.729)</i>	- 0.021 ** <i>(2.009)</i>
Number of Cases	110	110	110	110
F-statistics	4.167	4.923	4.071	4.579
Model Significant	0.000	0.000	0.000	0.000
R <sup>2</sup>	0.248	0.253	0.244	0.266
Adjusted R <sup>2</sup>	0.189	0.201	0.184	0.208

Note: *t*-statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level

**Table 3 - Regression Model (Sub-Sample)**

**Dependent Variable = ROS**

Variables	Model 5 (Firm International)		Model 6 (Firm Local)		Model 7 (Firm International & Firm Local)	
	No Sequential FDI	Sequential FDI	No Sequential FDI	Sequential FDI	No Sequential FDI	Sequential FDI
Constant	0.104 (0.381)	- 0.116 (0.333)	0.136 (0.482)	0.063 (0.262)	0.156 (0.633)	0.093 (0.335)
<b>Firm International Experiential Knowledge</b>						
INT_P-LEGHT	0.078 (1.142)	0.164 * (1.764)	--	--	--	--
INT_P-CNTR	- 0.018 *** (3.038)	- 0.005 (0.705)	--	--	- 0.014 ** (2.101)	- 0.003 (0.386)
INT_SCOPE	0.003 *** (2.856)	0.000 (0.063)	--	--	0.003 *** (3.154)	0.000 (0.134)
<b>Firm Local Experiential Knowledge</b>						
LOC_LEGHT	--	--	0.092 * (1.817)	0.111 * (1.792)	0.061 (1.252)	0.100 * (1.645)
LOC_SCOPE	--	--	--	--	--	--
<b>Control Variables</b>						
INDUST (1=Manufacturing)	- 0.027 (0.523)	- 0.004 (0.072)	- 0.009 (0.169)	- 0.004 (0.076)	- 0.019 (0.396)	- 0.001 (0.014)
RELATED (1=Related Industry)	0.455 *** (3.458)	- 0.019 (0.308)	0.166 (1.448)	- 0.020 (0.348)	0.454 *** (3.466)	- 0.019 (0.297)
EQUITY (1=WOS)	0.048 (0.919)	- 0.051 (1.055)	0.053 (0.917)	- 0.037 (0.781)	0.051 (0.982)	- 0.036 (0.759)
SUB_SIZE	- 0.064 *** (4.078)	- 0.048 *** (3.309)	- 0.052 *** (3.022)	- 0.048 *** (3.342)	- 0.064 *** (4.148)	- 0.048 *** (3.277)
PAR_SIZE	- 0.043 *** (2.977)	- 0.009 (0.574)	- 0.030 * (2.011)	- 0.008 (0.627)	- 0.043 *** (3.014)	- 0.007 (0.448)
Number of Cases	41	69	41	69	41	69
F-statistics	4.012	2.531	2.555	3.283	4.075	2.408
Model Significant	0.002	0.019	0.038	0.007	0.002	0.025
R <sup>2</sup>	0.501	0.252	0.311	0.246	0.505	0.243
Adjusted R <sup>2</sup>	0.376	0.153	0.189	0.159	0.381	0.142

Note: t-statistics in parentheses; \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level

**Table 4 – Performance difference between Firm Investment Decisions**

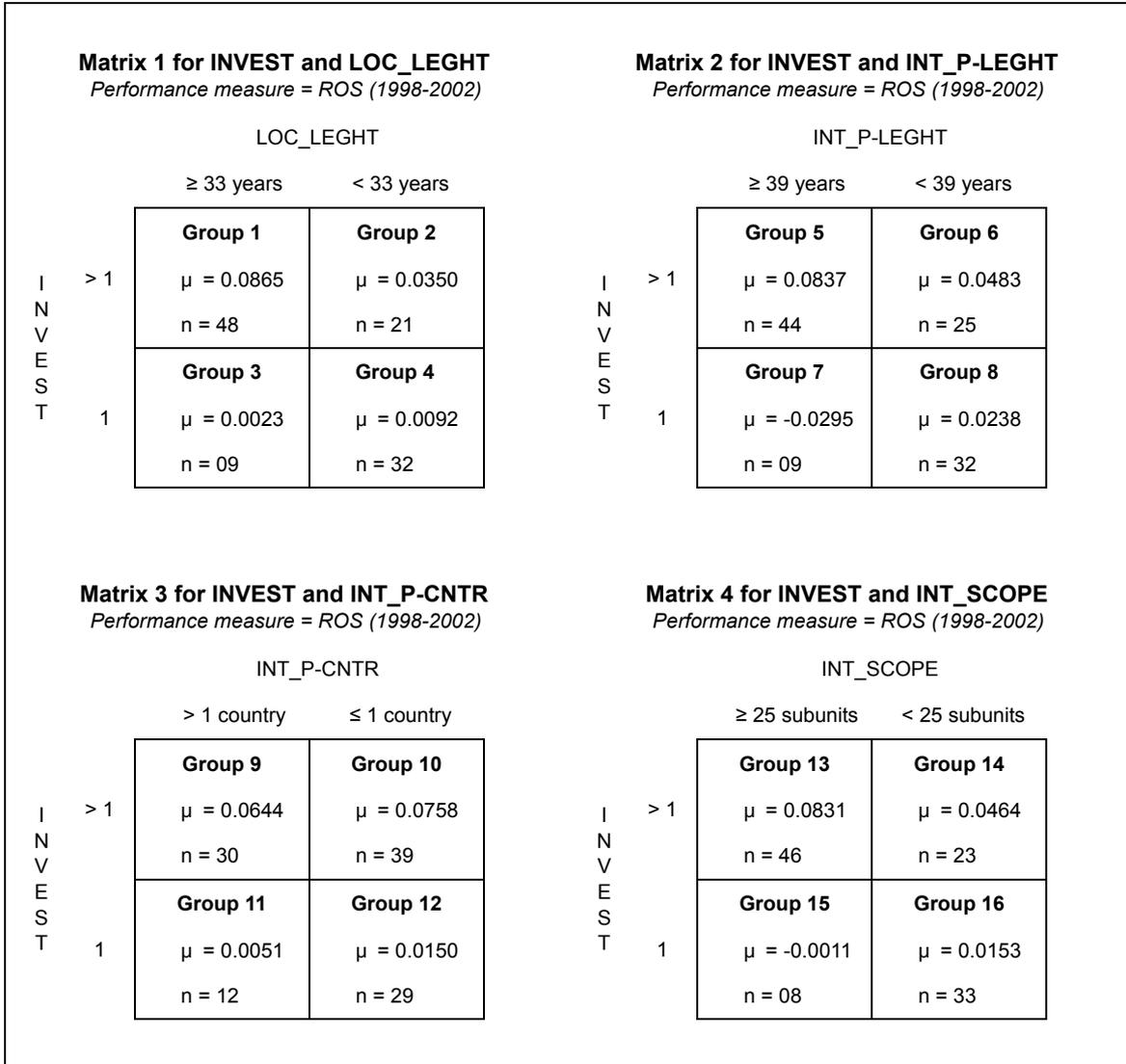
*Performance measure = ROS (1998-2002)*

Firms Investment Decision	Performance		Number of Cases
	Mean	Standard Deviation	
No Sequential Investment	0.0121	0.1629	41
With Sequential Investment	0.0709	0.1790	69
<b>Total</b>	<b>0.0489</b>	<b>0.1748</b>	<b>110</b>
Statistical Test	F-value	Significance	
ANOVA	2.959	0.088	
Association (ETA)	0.163		

**Table 5 – Performance difference between Quantity of Firm Investments**

*Performance measure = ROS (1998-2002)*

Quantity of Firm Investments	Performance		Number of Cases
	Mean	Standard Deviation	
Only 1 investment	0.0121	0.1629	41
2 to 4 investments	0.0193	0.1335	35
More than 5 investments	0.1239	0.2048	34
<b>Total</b>	<b>0.0489</b>	<b>0.1748</b>	<b>110</b>
Statistical Test	F-value		Significance
ANOVA	4.859		0.01
Association (ETA)	0.289		
<b>Post Hoc Test for each paired group</b>	1 inv vs 2-4 inv		0.852
	1 inv vs More 5 inv		0.012
	2-4 inv vs More 5 inv		0.005



**Figure 1 – Matrices for INVEST and Firm Experiential Knowledge**