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Abstract

Previous empirical researches on Japanese subsidiaries have found that wholly-owned subsidiary (WOS) outperform joint venture (JV). However, these studies considered entry mode selection using a conventional ownership classification of JV, and limited their samples to developed countries and Asian developing countries. This paper examines entry mode based on non-conventional forms of JV, and the impact of ownership and internalization advantages on Japanese subsidiaries' performance in Brazil. The findings suggest that Japanese-Japanese JV with a partner that has previous experience accumulated in the local market performed better than WOS and Traditional IJV. In addition, ownership and internalization advantages of multinational enterprises have mixed impact on subsidiaries performance.

Forthcoming
Japan and the World Economy

1. Introduction

Studies of entry mode selection by multinational enterprises (MNEs) and the subsidiary performance have attracted considerable attention (Li and Guisinger, 1991; Woodcock, Beamish and Makino, 1994; Nitsch, Beamish and Makino, 1996). Several empirical investigations have shown that entry mode choice has critical implications for the foreign investment's performance. Previous studies analyzing Japanese overseas subsidiaries found evidence of performance difference between ownership-based entry mode, and showed that performance of *wholly-owned subsidiary (WOS)* tend to be better than *joint venture (JV)* (Woodcock *et al.,* 1994; Siripaisalpipat and Hoshino, 2000).

Nevertheless, these studies have not taken into account the existence of other types of JVs, particularly Japanese subsidiaries. They have focused on two parent JVs formed between one foreign and one local firm, and have defined the JV by the percentage held by the foreign parent firm. Japanese firms have the characteristics of establishing JV with multiple and home-country partners (Makino and Beamish, 1998). Studies that examined this particularity of JV ownership on Japanese subsidiaries performance are quite limited (Makino and Beamish, 1998, Hanvanich, Miller, Richards and Cavusgil, 2003), but the investigation was restricted to the JV and there was no comparison between other entry modes.

Furthermore, previous researches are limited to the samples of developed countries, such as the United States (Woodcock *et al.*, 1994; Vega-Céspedes and Hoshino, 2001), and Europe (Nitsch *et al.*, 1996); and some Asian developing countries (Makino and Delios, 1996; Makino and Beamish, 1998), including a specific country such as Thailand (Siripaisalpipat and Hoshino, 2000). An exception (referring to a group of countries) is Latin America (Neupert and Montoya, 2000;Vega-Céspedes and Hoshino, 2001) and Central and Eastern Europe (Beamish and Delios, 2001).

Therefore, no research has attempted to examine the impact of entry mode, considering the new classification of JV on Japanese investments, on subsidiaries performance in Brazil. This country provides a good ground for an empirical test. First, Brazil is the fifth largest country in the world and the largest in the Southern Hemisphere. Second, it is the tenth largest economy and the sixth largest population in the world, about 170 million people in 2001. Comparing Brazil to other emerging markets worldwide, the economy is double the size of Russia's and larger than India's (IMF, 2001). Third, Foreign Direct Investment (FDI) inflows into Brazil tripled between 1996-98 to 31 billion U.S. dollars. Brazil was the second in the ranking of FDI inflows in developing countries between 1997-99, and was the fifth most attractive recipient of FDI in the world between 1997-98

(JETRO, 2001). Based on a FDI Confidence Index (A.T. Kearney, 2002), Brazil in 1998 was the second, between 1999-2000 was the fourth, and in 2001 was the third world's most attractive destination of FDI. Fourth, for over a century, Japan and Brazil have been traditional partners collaborating in a wide variety of activities. According to Toyo Keizai Databank 2001, Brazil represents 63% of the total number of Japanese subsidiaries established in South America, and 33% in Latin America. In the past, Brazil was the second most important host country of Japanese FDI after the U.S. (Beamish, Delios and Lecraw, 1997). Finally, Brazil has some characteristics that clearly differentiate her trend of productive internationalization from those observed in Asian countries of which the MNEs are more export oriented, while in Brazil the domestic market is the target. In some Asian countries, such as China and India, the host country government restricts the level of foreign ownership in local firms. These countries have pressured MNEs to develop JV with local firms rather than to set up WOS as a means for local companies to acquire technology (Anand and Delios, 1996). This kind of barriers and pressures to MNEs does not exist in Brazil. Therefore, Brazil provides not only an opportunity to test the impact of entry mode on performance of Japanese subsidiaries, but also makes such a test necessary.

The present paper proposes that when using a new classification of JV, the JV formed between home-country based partners will achieve better performance than *WOS* and *Traditional IJV*. In addition to entry mode selection, some industry and firm-specific advantages have impact on Japanese subsidiary performance. No research has attempted to test these advantages in Brazil. Hence, this paper is the first empirical study that examines the impact of ownership, internalization advantages, and entry mode, based on a non-conventional ownership form of JV, on Japanese subsidiaries' performance in Brazil.

In the following sections, the study will discuss the theoretical background, the hypotheses concerning entry mode selection and the impact of ownership and internalization advantages on subsidiaries performance, the empirical design and methodology, the empirical analysis and the discussion of the results of four statistical tests and ordered logistic regression, and finally the conclusions and limitations of this study.

2. Theoretical Background and Hypotheses

Entry mode selection is one of the most important decisions faced by MNEs that are expanding in nations outside their home locations, whereby *WOS* and JV entail direct investment in business sites in the target country. *WOS* are subsidiaries in another nation in which the parent company

has full ownership and sole responsibility for the management of the operation. JV on the other hand, involves a local and a foreign partner that share the ownership, management, risks, and rewards of the newly formed entity, and the international business literature has been defined as a JV by the percentage of equity held by the foreign parent: *majority-owned* (greater than 50% equity); *co-owned* (equal to 50% equity); and *minority-owned* (less than 50% equity). This conventional measurement assumes that the relative size of equity ownership represents the degree of control by the parent in the JV. On the other hand, there are other types of JVs, in a special case of Japanese subsidiaries. Makino and Beamish (1998) provide evidence that non-conventional forms of JV are frequently occurring, which means that ownership structure does not imply that all JVs involve a local partner. They introduced a new classification, such as JV formed by multiple, with non-local, and by affiliated firms[1]. Previous studies on Japanese subsidiaries performance, which compare WOS and JV entry modes, did not take into account this particular characteristic. Therefore, using the 95% as cut-off point to differentiate between JV and WOS (Stopford and Wells, 1972; Anderson and Gatignon, 1986; Gomes-Casseres, 1989; Hennart, 1991; Makino and Delios, 1996), and applying the concept of non-conventional ownership structure of JV (Makino and Beamish, 1998), this study considers entry mode choice based on this classification[2]:

- **Wholly-owned subsidiary (WOS)** - one Japanese parent firm holds at least 95% of the subsidiary equity;

- **Traditional International Joint Venture (IJV)** – formed between Japanese partner(s) and local partner(s). One Japanese parent firm holds at least 10%[3] and no more than 95% of the subsidiary equity;

- **Japanese-Japanese JV** - formed between Japanese partners. One Japanese partner holds at least 10% and no more than 95% of the subsidiary equity;

Entering a foreign country through a *Traditional IJV* can be an effective strategy and opportunity for gaining local partner's knowledge about the local institutional framework, local consumer tastes, business practices, and avoid costly mistakes in the new environmental (Chen and

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[1] Makino and Beamish classified JV into four ownership structures: *Intrafirm JV (JV formed between affiliated home-country based firms); Cross-national Domestic JV (JV formed between unaffiliated home-country based firms); Traditional IJV (JV formed between home-country based and host-country based firms); and Trinational IJV (JV formed between home-country and third-country based firms).*

[2] There is no *Trinational IJV* in the sample used in this study.

[3] According to Toyo Keizai Databank 2001 used in this study.

Hu, 2002). Moreover, it allows sharing the risks and the resource requirements of foreign entry (Anderson and Gatignon, 1986). Resources in this context could be either tangible resources (i.e. plant and capital) or intangible resources (i.e. market or operational know-how) (Woodcock *et al.,* 1994). However, *Traditional IJV* also entails unique risks, which is a potential problem of cooperating with a partner from a different national culture[4]. It means that a high level of national cultural distance exists between partners (Makino and Beamish, 1998). Cultural distance is the difference in the values and beliefs shared between investing country and host country. Large cultural distances lead to high transaction costs for multinationals investing overseas (Chen and Hu, 2002) and may limit the effectiveness of behavioral-based control mechanisms that rely upon trust, value congruence and respect (Woodcock *et al.,* 1994). In addition, JV formed by partners from different countries will also often have different mother tongues, and this can be expected to cause greater communication problems (Hennart and Zeng, 2002). Cultural differences may create ambiguities and mistrust in the relationship, which may lead to cross-cultural conflicts between parents of different nationalities, and even dissolution of the venture (Barkema, Bell and Pennings, 1996; Hennart and Zeng, 2002).

Japanese-Japanese JV involves firms from the same country, consequently they are more likely to have or have had dealings with one another, and hence, are less likely to misunderstand each other (Hennart and Zeng, 2002). According to Makino and Beamish (1998) the cultural distance level among home-country based firms is lower than the *Traditional IJV*, and they suggest that JV between partners with similar national cultures should experience higher survival rates and performance levels than JV between partners with dissimilar cultures. Therefore, partner cultural difference can affect foreign firm's performance in the host country (Parkhe, 1991), increase the likelihood of conflict between them (Hennart and Zeng, 2002), and can even cause the parent firms to terminate the JV (Barkema *et al.,* 1996), thus:

Hypothesis 1: *The Japanese-Japanese JV entry mode will achieve, on average, higher performance than Traditional IJV entry mode.*

WOS offer firms the highest levels of control, since there is no problem of having to integrate different cultures, divergent strategic viewpoints, and separate policies (Nitsch *et al.,* 1996).

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[4] According to Hofstede (1997) the following dimensions of cultural scales (Brazil, Japan): *power distance* (69, 54), *individualism* (38, 46), *uncertainty avoidance* (76, 92), *masculinity* (49, 95), and *long-term orientation* (65, 80).

However, it requires the highest resource commitments, it is a high investment risk, and the firm has the disadvantage of being 'foreign' in the local environment. This disadvantage stems from a lack of local knowledge which comprises information and know-how about the local economy, politics, culture and business customs of a region; information on local demands and tastes; as well as information on how to access the local labor force, distribution channels, infrastructure, raw materials and other factors required for the conduct of business in the host country (Makino and Delios, 1996).

In addition to the similarity of culture and language, the partners of *Japanese-Japanese JV* have the benefit to share the risk and the resource requirements to establish a new venture. Furthermore, most of the *Japanese-Japanese JVs* in Brazil are formed between home-country partners that have previous experience in the local market[5]. The accumulation of operational experience in a host country, considered to be the means of knowledge acquisition of the local economy, politics and culture, has been postulated to free the firm from the need for a local partner (Makino and Delios, 1996). This characteristic has the advantage to gain local knowledge through a Japanese partner but not from a local firm. It means that the Japanese partner has the knowledge to access the local conditions or to utilize the ability to deal with local government and local work force. Therefore, *Japanese-Japanese JV* does not have the substantial disadvantage of being "foreign" in the local environment as WOS, thus:

Hypothesis 2: *The Japanese-Japanese JV entry mode will achieve, on average, higher performance than WOS entry mode.*

Japanese-Japanese JV is formed between affiliated or non-affiliated firms. Partner affiliation is defined in terms of whether the JV's equity is between JV partners. According to Makino and Beamish (1998), firms are affiliated if: (i) they are parent firms (or subsidiaries) of the other home-country partner; (ii) they are cross-holding of each others' equity; (iii) the partners belong to the

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[5]   The following examples describe this characteristics:
    (a)   **Showa do Brasil** – established in 1982, is formed by:
        •   **Showa Corp.** (equity of 51%) - first investment in Brazil;
        •   **Moto Honda da Amazônia** (equity of 49%) - subsidiary of Honda Motor Co.,Ltd., established in Brazil in 1971;
    (b)   **Equipamentoss NGK-Rinnai Ltda**. – established in 1976, is formed by:
        •   **Rinnai Corp.** (equity of 50%) - first investment in Brazil;
        •   **Cerâmica e Velas de Ignição NGK do Brasil Ltda.** (equity of 50%) - subsidiary of NGK Spark Plug Co.,Ltd. established in Brazil in 1959.

same *keiretsu* group, which can be a group of firms linked to main banks through lending and financial relationships (*Horizontal Keiretsu*), a nonfinancial firm at its core *(Vertical Keiretsu)*, or based on long-term supplier-buyer relationships (*Distributional Keiretsu*). According to this definition, *Japanese-Japanese JV* can be classified into:

- **Intrafirm JV** – JV formed between affiliated home-country based (Japanese) firms;
- **Cross-national Domestic Joint Venture (DJV) –** JV formed between unaffiliated home-country firms.

When partners are affiliated firms, it is assumed that the Japanese partners are better informed, share similar organization cultures, and exchange both tangible and intangible resources (Makino and Beamish, 1998). Thus, it is expected:

Hypothesis 3a: *The Japanese-Japanese JV with partner affiliation (intrafirm JV) will achieve, on average, higher performance than Japanese-Japanese JV formed between unaffiliated firms (cross-national domestic JV)*

And consequently, this suggests:

Hypothesis 3b: *The Japanese-Japanese JV with partner affiliation (intrafirm JV) will achieve, on average, higher performance than WOS and traditional IJV entry modes.*

As mentioned earlier, one of the strategies to gain local knowledge is through the utilization of a local partner. On the other hand, there is a high distance level of national cultures between partners, additionally to the cost related to selecting a local partner. Therefore, sharing the ownership between home-country based firms in which one of the partners can provide local knowledge accumulated in the host country could achieve the success in foreign entry. Local knowledge can be a source of advantage, when it is uniquely developed or accumulated through its learning-by-doing process of operating in the host country (Makino and Delios, 1996) or in a processing of assessing or transferring knowledge from other firms (Chang, 1995). Based on this explanation, *Japanese-Japanese JV* can be classified into:

- **Japanese-Japanese JV with partner experience** – JV formed between Japanese partners which at least one of the partners has previous local knowledge accumulated in the host country;
- **Japanese-Japanese JV without partner experience** – JV formed between Japanese partners that are accessing the local market for the first time.

Therefore, it can hypothesized that:

Hypothesis 4a: *The Japanese-Japanese JV with a partner that has previous local experience accumulated in the local market will achieve, on average, higher performance than Japanese-Japanese JV formed between partners that are accessing the local market for the first time.*

And consequently, this suggests:

Hypothesis 4b: *The Japanese-Japanese JV with a partner that has previous local experience accumulated in the local market will achieve, on average, higher performance than WOS and Traditional JV entry modes.*

In addition to entry mode selection, according to *Dunning's eclectic paradigm* (Dunning 1977, 1980, 1988) some industry and firm-specific factors, as delineated in ownership and internalization advantages, have impact on subsidiary performance. By focusing on one host country (Brazil) and FDI outflow of a single country (Japan), the location advantage is controlled (Hennart, 1991; Woodcock *et al.,* 1994, Nitsch *et al.,* 1996). Although the ownership and internalization advantages have been long explored in the conceptual and empirical literature on FDI, multinational firms and foreign subsidiary performance, most other studies focused on entry mode and performance of subsidiaries established in developed and Asian developing countries. An empirical analysis in Brazil has not yet been explored. Furthermore, a unique feature was exhibited in Brazil when Japanese investment started in the 1950s. Japanese firms set up *WOS* or majority owned investment in such a distant country as Brazil and on a substantially large size by then-prevailing Japanese standards (Ozawa, Pluciennik and Rao, 1976). Additionally, although Brazil has achieved economic stability since 1994, and has been regarded as the most promising market in Latin America, with great economic potential due her size, natural resources and industrial base, Brazil is still considered as a high investment risk country. An investigation in this kind of environment outside the Asian developing countries to check the impact of ownership and internalization advantages on subsidiaries performance seems to be necessary.

The **ownership advantage** explains a firm's resource commitment and refers to assets power that a firm must possess to compete successfully with host country firms in their own markets, which can be tangible and intangible such as firm size, multinational experience, proprietary products or technologies, specialized know-how, and skills by its ability to innovate or to develop differentiated products (Dunning 1993, 1995; Nitsch *et al*, 1996). The size of parent's firm reflects

its capability for absorption of the high costs of marketing, for enforcing patents and contracts, and for achieving economies of scale in foreign markets. Empirical evidence indicates that the impact of firm size on FDI is positive (Cho, 1985; Kimura, 1989). Another form of asset power, a firm's level of multinational experience, has also been shown to influence entry choices (Agarwal and Ramaswami, 1991) and performance (Siripaisalpipat and Hoshino, 2000). As a firm expands its operations overseas, it learns more about how to cope with different environment in terms of economic, political and legal systems as well as the cultural distances. This ownership advantage generated corporate performance (Delios and Beamish, 1999; Gomes and Ramaswamy, 1999), and consequently reflected on subsidiaries performance (Siripaisalpipat and Hoshino, 2000; Vega-Céspedes and Hoshino, 2001). Finally, intangible assets are necessary to compete efficiently in a certain business line or a given industry (Siripaisalpipat and Hoshino, 2000). A firm will enjoy competitive advantages over its rival if it owns a proprietary product, specialized technology or knowledge, specific know-how and management capabilities (Kimura and Pugel, 1995). Based on this explanation, it is expected that:

Hypothesis 5: *The impact of ownership advantage is positively associated with the subsidiary performance in Brazil.*

The ***internalization advantage*** explains a firm's organizational control difficulties, and is primarily concerned with reducing transaction and coordination costs (Dunning 1993, 1995). It explains the cost advantages of internal hierarchies over arms-length market transactions for intermediate products. It may also include co-ordination benefits resulting from things such as transfer pricing to reduce tax liabilities, the flexibility to shift production quickly, the ability to respond instantly to competitive threats (Nitsch *et al.*, 1996), and the managerial transfers (Woodcock *et al.*, 1994). When firms make international investments, specific knowledge of the host country is gained, as it is more general knowledge of conducting international operations (Barkema *et al.,* 1996). Firms with more experience in a host country have developed organizational capabilities to that country, which are able to make greater commitments to foreign investments (Johanson and Vahlne, 1977). Further, Makino and Delios (1996) found that local firm's host country knowledge and a parent firm's host country knowledge are substitute channels for the acquisition of local knowledge when the parent or JV has spent a considerable amount of time in the host country. It is consistent with Chang (1995) who concluded that as Japanese firms

operate and learn in foreign environment, they build new capabilities and, thereby, overcome the disadvantages inherent in being foreign.

Hypothesis 6: *The impact of internalization advantage is positively associated with the subsidiary performance in Brazil.*

3. Empirical Design and Methodology

Sample and data collection

The empirical study examines the effects of ownership and internalization advantages, and entry mode, based on a new ownership classification of JV, on performance of Japanese subsidiaries MNEs in Brazil. The information sources used in this study were derived from Toyo Keizai Inc. - "Toyo Keizai Databank 2001: Japanese Overseas Investments (*Kaigai Shinshutsu Kigyou Souran)*", listed by the host countries. This report, published annually since 1970, provides extensive information on the overseas activities of Japanese subsidiaries. Although it is published in Japanese, the Toyo Keizai Inc. survey is enjoying increasing acceptance among academic researches [6]. Additional parent company information was collected from the "Nikkei Annual Corporation Report 2001 (*Nikkei Kaisha Nenkan: Jyoujyou Kaishaban*)" and "Nikkei Annual Corporation Report 2001 – unlisted companies (*Nikkei Soukan: Mijyoujyou Kaishaban)*", which shows information as at the end of fiscal years 1999-2000.

The original sample contained 294 Japanese subsidiaries located in Brazil, but to be included in the sample, the subsidiary must have to fulfill the following basic characteristics:

- **subsidiaries with performance information -** subjective measures of performance, which are *loss*, *breakeven* and *gain*.
- **subsidiaries in the manufacturing and service industry** - Although the FDI theory was originally developed to explain foreign production, its application to service industries is considered equally appropriate (Boddewyn, Halbrich and Perry*,* 1986). Other studies also have employed both segments (Brouthers, Brouthers and Werner, 2000; Vega-Céspedes and Hoshino, 2001; Brouthers, 2002). In addition,

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[6] Examples of studies that have employed Toyo Keizai database for empirical examination of Japanese FDI: Hennart (1991); Woodcock *et al.* (1994); Nitsch *et al.* (1996); Makino and Delios (1996); Beamish *et al.* (1997); Makino and Beamish (1998); Delios and Beamish (1999); Siripaisalpipat and Hoshino (2000); Vega-Céspedes and Hoshino (2001).

most of the service firms considered in this study is classified as *hard service* firms (32 cases out 44). Ekeledo and Sivakumar (1998), based on a classification scheme of service industry developed by Erramilli (1990)[7], propose that studies involving *hard service* firms should show no significant difference between the entry behavior of manufacturing firms and that of *hard service* firms.

- **subsidiaries that had been in existence for more than two years at the time of the data collection**[8] **-** Because of the tendency for new subsidiaries to take some time before their performance stabilizes, this study follows Woodcock *et al*. (1994).

As a result of satisfying the characteristics mentioned, from the original data, the sample population of 102 cases was considered for analyses (Table 1):

Table 1 - Sample distribution

Entry Mode	*Manufacturing*	*Service*	*Total*
WOS	24	35	59
Traditional IJV	16	2	18
Japanese-Japanese JV	18	7	25
Total	**58**	**44**	**102**
Classification of Japanese-Japanese JV:			
# J-J JV (Partner Affiliation)	**18**	**7**	**25**
- J-J JV (Cross-national DJV)	8	5	13
- J-J JV (Intrafirm JV)	10	2	12
# J-J JV (Partner experience)	**18**	**7**	**25**
- J-J JV (no partner experience)	10	2	12
- J-J JV (with partner experience)	8	5	13

Source: Toyo Keizai Inc., *Toyo Keizai Databank 2001: Japanese Overseas Investments*
Note*: J-J JV* is an abbreviation for *Japanese-Japanese JV*

A standard *t-test* of nonresponse bias was conducted. Sample of subsidiaries that reported performance data (102 firms) were compared to the sample of subsidiaries that did not report performance data (192 firms), with the difference between two means being assumed to be similar. Although not reproduced in this paper, no significant differences was found between the two

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[7] Erramilli (1990) divided service for foreign markets into *hard services* (e.g. architectural design, education, life insurance and music) and *soft service* (e.g. food service, health care, laundry and lodging service). *Hard service* permits separation of production and consumption. Conversely, *soft service* requires simultaneity of production and consumption. It requires physical proximity between the service provider and consumer or the consumer's possession being serviced.

[8] Toyo Keizai, Inc. database gives information of month and year of subsidiary establishment/operation. Based on this information, it was included only subsidiaries with more than two years of local experience in Brazil.

groups on variables such as subsidiary's U.S. dollar values of equity and the total number of employees (Makino and Beamish, 1998). It is concluded that nonresponse bias is not a problem, and hence, subsidiaries with performance data and subsidiaries that did not report performance data came from the same population.

Description and measurement of variables

Dependent Variable

The dependent variable is *subsidiary performance* and the profitability is a common measure of a firm's financial performance. However, unlike the ready availability of corporate performance data, particularly for public-listed firms, performance data at the subsidiary level is frequently lacking in consolidated reports and consequently it is very difficult to obtain. Therefore, the performance measure was derived from Toyo Keizai Database which represents the only information Japanese firms are willing to provide given their very private nature. The information was compiled by Toyo Keizai Inc. at the end of the fiscal year 2000, from public data and from a survey based on questionnaires sent to all firms listed on Japan stock exchanges (Tokyo, Osaka, and Nagoya), as well as to major unlisted firms, and it is reported as the subsidiary general manager's assessment (Beamish, Delios and Makino, 2001) in which there are three possible responses: *loss*, *break-even* and *gain*. The coverage of this report is close to the population of each firm's foreign subsidiaries undertaken by Japanese firms listed on the Japan stock exchanges as well as by major unlisted Japanese firms (Hennart, 1991; Yamawaki, 1991). A number of recent studies have found that firms are reluctant to provide objective measures of performance of their foreign subsidiaries and have suggested that subjective measures be employed (Woodcock *et al.*, 1994; Brouthers, Brouthers and Werner, 1999). These subjective measures of performance would provide valuable information on the progress of the subsidiary toward meeting parent firms' goals and objectives.

Therefore, the dependent variable has ordinal properties (*gain > breakeven > loss*) and it is coded as "1" for *loss*, "2" for *breakeven*, and "3" for *gain* (*Model 1 to 4*). To ensure the result of analysis, another set of models was performed (*Model 5 to 8*), which the dependent variable is coded as "1" for low performance (*breakeven and loss*) and "2" for high performance (*gain*).

Independent Variables

This study adopts independent variables such as entry mode, ownership advantage, internalization advantage, and control variable for industry effect and for size of investment, which are expected to have an impact on performance of Japanese subsidiaries in Brazil.

Entry mode

Using the 95% as cut-off point to differentiate between JV and a WOS, and applying the Makino and Beamish's (1998) non-conventional ownership structure of JV, the entry mode is coded using categorical variables: "1" if *WOS*, "2" if *Traditional IJV*, and "3" if *Japanese-Japanese JV*.

In order to investigate the Japanese partner affiliation, the categorical variable for *Japanese-Japanese JV* is substituted by "3" if *Cross-national DJV*, and "4" if *Intra-firm JV*.

And to examine the formation of JV with a Japanese partner that has previous experience accumulated in the host country, the categorical variable of *Japanese-Japanese JV* is replaced by "3" if the *Japanese-Japanese JV* are formed between Japanese partners that are accessing the local market for the first time (*Japanese-Japanese JV without partner experience*), and "4" if the *Japanese-Japanese JV* are formed with a Japanese partner that has previous experience in the local market (*Japanese-Japanese JV with partner experience*).

In order to make the categorization of the *Japanese partner that has previous experience in the local market*, it was required two kind of information: (1) the major parent company years of experience in Brazil; (2) the partner years of experience in Brazil. Therefore, it was classified as *"Japanese-Japanese JV without partner experience in the local market"* when there is no difference, in terms of years of experience in Brazil, between the major Japanese parent with the Japanese partner. The following example describes this classification:

- **Subsidiary: Nissin-Ajinomoto Alimentos Ltda** – established in 1965, is formed by:

    - **Nissin Food Products Co., Ltd.** (equity of 50%) - first investment in Brazil;

    - **Ajinomoto Co., Inc.** (equity of 50%) – first investment in Brazil.

On the other hand, it was classified as *"Japanese-Japanese JV with partner experience in the local market"* when there is a difference, in terms of years of experience in Brazil, between the major Japanese parent with its partners. The following example describes this classification:

- **Subsidiary: Pio XII Empreendimentos e Administração de Bens Ltda** – established in 1973, is formed by:

    - **Kurabo Industries Ltd.** (equity of 25%) - first investment in Brazil;

    - **Toyo Real State Co., Ltd.** (equity of 25%) – first investment in Brazil.

    - **Nichimen Corporation** (equity of 25%) – first subsidiary in Brazil was established in 1955;

    - **Unitika Ltd.** (equity of 25%) – first subsidiary in Brazil was established in 1961.

Ownership Advantage

Firm Size - the parent company's equity (Cho, 1985) is used as a proxy for the asset power of a parent firm in logarithm form. Since the distribution of monetary values usually does not follow the normal distribution curve, the use of the natural logarithm of the quantity is applied, instead of the monetary value itself, to smooth the values and to bring them closer to the normal distribution.

Multinational Experience – international management capabilities can be obtained from international experience with foreign markets in general, prior experience with a specific country, and experience from operating a particular foreign subsidiary. Therefore, the parent company's total number of foreign subsidiaries (Cho, 1985; Delios and Beamish, 1999) is used as a proxy for multinational experience, which is measured by the number of overall subsidiaries that the parent firm established overseas minus one (focal subsidiary).

Intangible assets – the major source of specialized knowledge and technology are a firm's contribution in R&D. However, in this study R&D expenditure is not a good proxy to measure the intangible assets, because it focuses on subsidiaries in both manufacturing and service industries. Therefore, this study adopts the managerial know-how, which enhances efficiency, productivity and profitability in the operations. The efficiency of an organization is used as a proxy for managerial know-how (Siripaisalpipat and Hoshino, 2000; Vega-Céspedes and Hoshino, 2001). It is calculated as the parent company's total sales divided by the parent company's total number of employees.

Internalization advantage

The parent company's experience in the host country introduced in logarithmic form is used as a proxy for internalization advantage (Lecraw, 1984; Makino and Delios, 1996; Delios and Beamish, 1999). It is computed as the log of the total number of firm-years of experience in the host country. A firm-year represents one year of operating experience in the host country for one foreign investment (Delios and Beamish, 1999). Additionally, the subsidiary's intensity of Japanese employment (Makino and Delios, 1996), which is the ratio of Japanese expatriate managers to total employees for each subsidiary, is included as a proxy of internalization advantage. Sending Japanese personnel to manage foreign activities has been used as a way to transfer knowledge from the parent company to the subsidiary.

Control variables

The impact of subsidiary's performance comes from a wide range of factors. By incorporating appropriate control variables, it can be assured that the findings have been adjusted for other potential impacts (Pan and Chi, 1999). Performance level of firms in one industry may be different

from the other industries such as the required scale of investment, the nature of market and competition, and the stage in the international product life cycle in a particular country. For this reason, the industry effect needs to be controlled. To avoid biasness, as in Kogut and Singh (1988) and Brouthers (2002), it was included as a dummy variable to control industry effects which were given a value of "1" for manufacturing firms and value of "0" for service firms. Furthermore, as in Delios and Beamish (1999), it was included as a dummy variable to compare the main line of business of the Japanese parent with the subsidiary's industry as described in Toyo Keizai Databank. Foreign firms that expand into a product market, not related to the parent's main line of business, incur a greater need for new knowledge and assets as well as a greater risk of unsuccessful entry (Li, 1995). Related entries were coded as "1", and "0" for unrelated entries. And finally, to control for size of investment, a dummy variable of subsidiary scale was considered in the analysis. Large-scale subsidiaries (more than 100 employees) are coded as "1" and "0" for small-scale subsidiaries (less or equal to 100 employees).

4. Empirical Analysis and Discussion

The analysis in this study is based on the sample of 102 subsidiaries in Brazil. The parameters are estimated using the SPSS 10.0 statistical package.

The level of subsidiary performance may be different from one industry to the other; consequently the industry effect has to be investigated. To statistically test for the relationship between industry and performance, three different classifications of industry are considered. The first classification refers to the general industrial sector (manufacturing and service firms), while the second classification comprises the main industrial sector with its categories, and the third considered the specific classification for service firms (*hard* and soft *services*). All industry classifications were cross-tabulated along with the three levels of performance (gain, breakeven, and loss), and a *chi*-square test of independence was applied. Although not reproduced in this paper, the results revealed no significance in any of the cases, which means that performance is not associated with a specific kind of industry.

Testing for the relation between entry mode and performance

In order to test if a statistically significant relationship exists between entry mode and performance, four tests were employed to ensure the results were duplicable, and were not the result of an inherent mathematical bias within one statistical technique (Woodcock *et al.*, 1994;

Nitsch *et al.*, 1996): **Pearson chi-square** – is often used with categorical variables, employing a frequency table to test the differences between predicted and observed occurrences (Nitsch *et al.*, 1996); **Kruskal Wallis rank sum test** – is a non-parametric alternative to the one-way analysis variance test (ANOVA). It is based on the generalized rank-sum test that investigates the null hypothesis and tests whether the samples come from the same population, similar to an *F-test*, and if they have the same mean (Freund and Walpole, 1987). **Spearman's rank correlation test** – is a non-parametric test analogue to the typical Person correlation coefficient that returns values ranging from –1 to +1 (Nitsch *et al.*, 1996). It is a measure of variance accounted for in the relationship and is computed from the ranks of the variables present (Freund and Walpole, 1987). **Wilcoxon rank sum test** – like most non-parametric tests, it is based on comparing the rank sums of two groups and it was used to compare pairs of modes against one another (Nitsch *et al.*, 1996). With just two categories, it tests if the samples follow the same distribution, similar to a *t-test*, without making any reference to the means.

Table 2 - Performance Breakdown by Entry Mode*

Entry Mode	Performance			Perform. Mean**	No. of Cases
	Gain (3)	Breakeven (2)	Loss (1)		
WOS	45.8%	27.1%	27.1%	2.19	**59**
Traditional IJV	44.4%	22.2%	33.3%	2.11	**18**
Japanese-Japanese JV	68.0%	32.0%	0.0%	2.68	**25**
Total	**51.0%**	**27.5%**	**21.6%**	**2.29**	**102**
Classification of Japanese-Japanese JV					
# J-J JV* (Partner Affiliation)**					
- J-J JV (Cross-National DJV)	61.5%	38.5%	0.0%	2.62	13
- J-J JV (Intra-firm JV)	75.0%	25.0%	0.0%	2.75	12
# J-J JV (Partner experience)					
- J-J JV (no partner experience)	41.7%	58.3%	0.0%	2.42	12
- J-J JV (with partner experience)	92.3%	7.7%	0.0%	2.92	13

Test A +	Signif.	Test B ++	Signif.	Test C +++	Signif.
Pearson *chi*-square	0.047	Pearson *chi*-square	0.113	Pearson *chi*-square	0.005
Kruskal-Wallis	0.033	Kruskal-Wallis	0.070	Kruskal-Wallis	0.016
Spearman-Rank Correl.	0.019	Spearman-Rank Correl.	0.013	Spearman-Rank Correl.	0.006
Wilcoxon Rank Sum Test		**Wilcoxon Rank Sum Test**		**Wilcoxon Rank Sum Test**	
WOS – Trad. IJV	0.766	WOS – Trad. IJV	0.766	WOS – Trad. IJV	0.766
WOS – J.J JV	0.014	WOS – J.J.JV (Cross)	0.110	WOS – J.J.JV (no exp)	0.493
Trad. IJVs – J.J.JV	0.032	WOS – J.J.JV (Intra)	0.033	WOS – J.J.JV (with exp)	0.003
		Trad. IJV – J.J.JV (Cross)	0.124	Trad. IJV – J.J.JV (no exp)	0.412
		Trad. IJV – J.J.JV (Intra)	0.047	Trad. IJV – J.J.JV (with exp)	0.005
		J.J.JV (Cross) - J.J.JV (Intra)	0.480	J.J.JV (no exp) – J.J.JV (with exp)	0.008

Notes: * given as performance frequency per entry mode in percent

 ** Mean is based on gain=3, breakeven=2, and loss=1

 *** *J-J JV* is an abbreviation for *Japanese-Japanese JV*

 + Test A - considering entry mode as WOS, Traditional IJV, and Japanese-Japanese JV

 ++ Test B - considering entry mode as WOS, Traditional IJV, and Japanese-Japanese JV (Cross-national and Intrafirm JV)

  +++ Test C - considering entry mode as WOS, Traditional IJV, and Japanese-Japanese JV (J.J.JV without partner experience and

   J.J.JV with partner experience)

According to the results illustrated in Table 2 - Test A, all tests were statistically significant considering the comparison of performance mean between *WOS* (2.19), *Traditional IJV* (2.11), and *Japanese-Japanese JV* (2.68). The *Pearson chi-square* (p=0.047), *Kruskall Wallis* test (p=0.033), and *Spearman's rank correlation* test (p=0.019) showed significant difference better than p=0.05 level. In relation to *Wilcoxon rank sum* test, statistically significant differences are confirmed between *Japanese-Japanese JV* and the other two modes. The strongest result was the *WOS/Japanese-Japanese JV*, which was significant at p=0.014 supporting the *Hypothesis 2*; followed by the *Traditional IJV/Japanese-Japanese JV* pairing at p=0.032 supporting the *Hypothesis 1*. No significant difference appeared to exist between the *WOS/Traditional IJV*.

In Test B, the category *Japanese-Japanese JV* was classified in terms of partner affiliation in order to see if *Intrafirm JV* will perform better than other entry modes. Based on this classification, the performance mean of *Intrafirm JV* is 2.75, while *Cross-National DJV* is 2.62. The results showed that statistically significant difference was found between *Kruskal-Wallis* (p=0.07) and *Spearman's rank correlation* tests (p=0.013). However, the *Pearson chi-square* test is insignificant. The *Wilcoxon rank sum* test showed significant differences better than p=0.05 between *WOS/Intrafirm JV* (p=0.033) and *Traditional IJV/Intrafirm JV* (p=0.047), which supports the *Hypothesis 3b.* However, no significant difference was found between *Cross-national DJV/Intrafirm JV, thus* the *Hypothesis 3a* is not supported.

Based on the results exhibited in Test C, the formation of *Japanese-Japanese JV* with a partner that has previous experience in the local market (performance mean = 2.92) seems to be an effective entry mode strategy in order to obtain a good performance. All tests demonstrated significant differences better than p=0.01 based on *Pearson chi-square* (p=0.005) and *Spearman's rank correlation test* (p=0.006), and better than p=0.05 using the *Kruskal-Wallis* test (p=0.016). Regarding the *Wilcoxon rank sum* test, it also confirmed significant difference better than p=0.01. Comparing the *Japanese-Japanese JV with partner experience* with the *Japanese-Japanese JV without partner experience,* it was significant at p=0.008, which supports the *Hypothesis 4a.* And based on comparison between the pairs *WOS/Japanese-Japanese JV with partner experience* (p=0.003), and the *Traditional IJV/Japanese-Japanese JV with partner experience* (p=0.005), it supports the *Hypothesis 4b*.

Although not reproduced in this paper, it was performed the same previous tests to see if the service industry (44 cases) behaves differently from the manufacturing industry (58 cases) in terms of entry mode selection and performance. The results for *Test A* showed similar results for *Kruskall-Wallis test, Spearman's rank correlation test* and *Wilcoxon rank sum test* (comparison between

WOS/Traditional IJV and *Traditional IJV/Japanese-Japanese JV*). Only the comparison between the pairs *WOS/Japanese-Japanese JV* (p=0.03 for service firms and p=0.14 for manufacturing firms), and *Pearson chi-square* (p=0.20 for service firms and p=0.07 for manufacturing firms) reported different level of significance. *Test B* revealed similar results for *Pearson chi square*, *Kruskall-Wallis test*, *Spearman's rank correlation test* and almost in all pairs of the *Wilcoxon rank sum test.* Only the comparison between *Traditional IJV/Intrafirm JV*, showed different level of significance (p=0.31 for service firms and p=0.09 for manufacturing firms). Finally, *Test C* showed same outcome for *Kruskall-Wallis test*, *Spearman's rank correlation test* and almost in all pairs of the *Wilcoxon rank sum test.* Some difference was found between pairs of *Traditional IJV/Japanese-Japanese JV with partner experience* revealed significant for manufacturing firms (p=0.03) and not significant for service firms (p=0.11), and *Japanese-Japanese JV without partner experience/Japanese-Japanese JV with partner experience*, p=0.04 for manufacturing firms and p=0.11 for service firms. The results of *Pearson chi-square* showed p=0.24 for service firms and p=0.02 for manufacturing firms. The mixed results can be explained partially by the difference of distribution between service and manufacturing firms' entry mode categories. A standard *t-test* was conducted and it reported a significant result (p=0.001 for *Test A*, p=0.002 for *Test B*, and p=0.009 for *Test C*). In addition, it was tried to compare manufacturing and service industry based on the classification of *hard* and *soft service* (Erramilli, 1990). However, because of the small number of cases for *soft services*, it creates so many empty cells (there is no case for *Traditional IJV* and for *Japanese-Japanese JVs without partner experience*) that there are not enough valid cases to perform the analysis.

The direction of the relationship showed that *Japanese-Japanese JV* entry mode on average outperforms *WOS* and *Traditional IJV* entry modes in Brazil, especially when *Japanese-Japanese JV* is formed with a partner that has previous experience in the local market. The results are quite different from previous empirical tests that considered JV using a conventional ownership classification[9]. However, this study proposes that not only entry mode selection has impact on performance, but also some industry and firm-specific advantages (ownership and internalization advantages) have effect on subsidiary performance. The following analysis will consider these aspects.

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[9] The same test was performed comparing WOS with JV, based on a conventional ownership measure (majority-, co-owned, and minority-owned JV). The results showed a significant performance difference between WOS and majority-owned JVs applying Wilcoxon rank sum test (p=0.074), which means that WOS on average outperform JVs. On the other hand it was insignificant when applying Pearson *chi-square* and Spearman's rank correlation test. When comparing WOS with IJV (JV formed by one foreign and one local partner), the results also showed that WOS performed better than JV, however no significant difference was found.

Ordered Logistic Regression

As mentioned earlier, the performance measure for this analysis was the managers' assessment of the subsidiary's financial performance. Because the dependent variable has categorical values of ordinal properties (i.e., 1=*loss* < 2=*breakeven* < 3=*gain*), it was used as an ordered logistic analysis as the estimation procedure in Pan and Chi (1999) study. Ordered logistic models belong to the class of models identified as qualitative choice models and are appropriate procedures when the dependent variable has ordinal properties but is not a ratio scaled (Amemiya, 1981). In addition, Chu and Anderson (1992) showed that using ordered logistic regression improves interpretability of the estimated coefficients and enhances parsimony over the multinomial logit model in cases where it is reasonable to expect that the underlying categories are indeed ordinal. The basic form of a generalized linear model is:

$$link\left(\gamma_j\right)= \theta_j -\left[\beta_1 x_1 + \beta_2 x_2 +...+ \beta_k x_k\right] \qquad (1)$$

where γ_j is the cumulative probability for the jth category θ_j is the threshold or constant for the jth category, $\beta_1...\beta_k$ are the regression coefficients, $x_1...x_k$ are the independent variables, and k is the number of predictors. The model is used to predict *cumulative probabilities* for the categories. A link function was chosen when determining the model, which was examined by the distribution of cases for the dependent variable. According to Table 2, the majority of the cases are concentrated in the higher categories (*gain* and *break-even*). For this reason, it was used as the *complementary log-log* link function, since that function focuses on the higher outcome categories. The signs of the coefficients in the ordered logistic regression can give important insights into the effects. A positive coefficient indicates a relationship between performance and determining variables, while the negative coefficient has inverse relationship.

As a preliminary step to run the statistics, the correlation among the independent variables was verified for possible signs of multicollinearity. As can be seen in Table 3, there are some level of relationships, however, none of them appeared to be large enough to warrant concern of multicollinearity. In addition, variance inflation factor (V.I.F.) was examined to determine the existence of multicollinearity. None of the V.I.F. scores was above two, indicating that multicollinearity should not be a problem with these data.

Table 3 - Correlation Matrix of independent variables

	Variable	Unit of Measure	Mean Value	Coefficients							
				1	2	3	4	5	6	7	8
	Ownership Advantage										
1	**PAR_EQU**	Tho US$	1,545,070	1							
2	**INTERN**	Companies	37.93	0.219	1						
3	**EFFIC**	Ratio	3,073	-0.021	0.462*	1					
	Internalization Advantage										
4	**PAR_EXP**	Years	27.27	0.149	0.262	0.23	1				
5	**SUB_R_JP**	Ratio	0.10	0.099	-0.026	0.05	-0.218	1			
	Control Variables										
6	**INDUST**	Dummy	0.79	0.046	-0.162*	-0.27	-0.027	-0.365*	1		
7	**RELAT**	Dummy	0.57	-0.109	-0.326	-0.20	0.070	-0.078	-0.101	1	
8	**SUB_SIZE**	Dummy	0.39	0.174	-0.001	0.46	0.248	-0.384*	0.456*	-0.038	1

Notes: *indicates correlation significant at the 1% level
V.I.F. is less than two, showed no support for the existence of multicollinearity

According to Table 4, the subsidiary performance is measured at three ordinal levels (*gain, breakeven, and loss*), and the ordered logistic regression was applied using four different models that, as noted in the *chi*-square, are significant at the one percent level. *Model 1* is the base-line model, which examines the effect of ownership, internalization advantage, and the control variables on subsidiary performance. For the *Model 1*, several results are noteworthy. Regarding ownership advantage, the coefficients of firm size [PAR_EQU] and efficiency of an organization [EFFIC] are positively and significantly associated with performance. An interesting result was obtained by the variable international experience [INTERN], which is measured by the number of overall subsidiaries that the parent firm established overseas. The coefficient is significant, but contrary to expectation it is negative. An explanation for this negative relationship with performance refers to the costs of operating subsidiaries in various locations. It brings numerous problems of communication, co-ordination, control, and motivation (Kogut and Singh, 1988). In addition, the administrative obstacles in managing culturally dissimilar and distinct markets can be expected to exceed any potential returns that the multinational growth may bring (Gomes and Ramaswamy, 1999). In relation to internalization advantage, the parent experience in the host country [PAR_EXP] is positively and significantly associated with performance. Interestingly, the coefficient of subsidiary intensity of Japanese employment [SUB_R_JP] was opposite of the predicted direction for the hypothesis. The sign is negative and significant. An argument to support this negative relationship was proposed by Tomlinson (1970), who explain that sharing the responsibility with local associates will lead to a greater contribution from them and to achieve higher subsidiary

performance. For the control variables, none of them are significant, which means that type of industry, relatedness, and size of investment are not consistent factors of the subsidiary performance. The insignificant outcome of industry effect also confirmed the previous result of *chi*-square test for independence.

Table 4 - Results of Ordered Logistic Regression
Performance measure = Gain, Breakeven, Loss

Variable		Model 1	Model 2	Model 3	Model 4
Ownership Advantage					
Firm Size					
- Parent Firm Size	PAR_EQU	0.2752***	0.2946***	0.2966***	0.2866***
		(6.896)	(7.461)	(7.572)	(7.136)
Multinational Experience					
- International Experience	INTERN	-0.0114***	-0.0112***	-0.0113***	-0.0101***
		(10.551)	(9.078)	(9.236)	(7.769)
Intangible Assets					
- Efficiency of an organization	EFFIC	0.0002**	0.0002**	0.0002**	0.0001*
		(4.401)	(4.136)	(4.483)	(3.276)
Internalization Advantage					
- Parent Experience	PAR_EXP	0.3925**	0.3817**	0.3552**	0.3830**
		(5.362)	(4.894)	(4.182)	(4.766)
- Subsidiary intensity of Japanese employment	SUB_R_JP	-1.8451**	-1.9215**	-1.9569**	-1.8584**
		(4.060)	(4.207)	(4.359)	(3.902)
Control Variables					
- Industry	INDUST	-0.2121	-0.2249	-0.2334	-0.0904
		(0.351)	(0.356)	(0.386)	(0.057)
- Relatedness	RELAT	-0.5986	-0.5745	-0.5350	-0.2842
		(1.777)	(1.544)	(1.332)	(0.353)
- Size of Investment	SUB_SIZE	-0.3327	-0.4600	-0.4493	-0.0904
		(0.810)	(1.542)	(1.469)	(0.057)
Entry Mode					
- Wholly-owned subsidiary	WOS		-0.6273	-0.9661	-2.0706**
			(2.121)	(2.281)	(3.994)
- Traditional IJV	TRAD_IJV		-0.9576*	-1.2880*	-2.3773**
			(3.658)	(3.511)	(4.945)
- Japanese-Japanese JV #	JJ_JV		0		
Japanese-Japanese JV (Partner Affiliation)					
- J-J JV (Cross-national DJV)	JJ_Cross			-0.5995	
				(0.607)	
- J-J JV (Intrafirm JV) #	JJ_Intra			0	
Japanese-Japanese JV (Partner Experience)					
- J-J JV (no partner exp)	JJ_Noexp				-2.0350*
					(3.379)
- J-J JV (with partner exp)	JJ_Withexp				0
Number of Cases		102	102	102	102
Log Likelihood		187.265	183.058	182.409	178.047
***Chi*-square**		22.691***	26.897***	27.546***	31.909***

Notes: The dependent variable is coded loss=1; breakeven=2; and gain=3;
Wald Statistics in parenthesis
J-J JV is an abbreviation for Japanese-Japanese JV
\# This parameter is set to zero because it is redundant (reference category);
*significant at the 10% level; **significant at the 5% level; ***significant at the 1% level;
V.I.F. in all equation is less than two, and multicollinearity did not threaten the estimations.

Model 2 has the base-line model and it includes the categorical variables of entry mode. The objective of this model is to test if the entry mode becomes statistically significant when it is combined with other variables in the analysis. If a categorical variable is used, the coefficients for each category represent the effect of each category compared to a reference category, which the coefficient is necessarily zero since it does not differ from itself. The purpose of this analysis is to compare the *Jap-Jap JV* with *WOS* and *Traditional IJV*, thus the selected reference category is *Japanese-Japanese JV*. In this case, the coefficient for *WOS* is interpreted as the contribution of selecting *WOS* instead of a *Japanese-Japanese JV* as the entry mode, in generating a *gain* instead of a *loss* or *breakeven*. In the same way, the coefficient for *Traditional IJV* is compared to the reference category. A positive sign indicates a positive contribution of selecting entry mode to performance while a negative sign indicates the opposite. The results in *Model 2* showed equivalence to the outcome in *Model 1* in terms of sign and significance levels, and confirmed that ownership and internalization advantages have impact on subsidiary performance. The influence of entry mode showed a negative sign of *WOS* and *Traditional IJV*, which means that *Japanese-Japanese JV* perform better than *WOS* and *Traditional IJV* entry modes in Brazil[10], however only the coefficient of *Traditional IJV* is statistically significant. It means that JV formed between home-country based firms demonstrated better performance than JV formed between a local and foreign firms. This outcome confirmed partially the previous results found with the four tests for the relation between entry mode and performance (Table 2 – Test A). Hence, when combining other variables (ownership, internalization advantages, and control variables) in the model with entry mode, the *Hypothesis 1* is supported, but the *Hypothesis 2* is not supported.

Model 3 tests the base-line model with the *Japanese-Japanese JV* partner affiliation, in order to compare the performance of *Japanese-Japanese JV* formed between affiliated firms (*Intrafirm JV*) with other entry modes (*Cross-national JV, Traditional IJV* and *WOS*). Therefore, the *Intrafirm JV* is the reference category. It predicts that when partners are affiliated firms, the Japanese partners share similar organization cultures, goals and strategies, and consequently it is expected that *Intrafirm JV* would achieve higher performance than other entry modes. According to the results reported in *Model 3*, the variables of ownership and internalization advantages followed the same sign direction and level of significance obtained from the base-line model. The coefficients of entry

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[10] The ordered logistic regression (Model 2) was also performed applying the conventional ownership measure of JV. When comparing WOS with JVs (majority-, co-owned, and minority-owned JV), it showed that WOS performed better than JV,

mode *WOS, Traditional IJV* and *Cross-national JV* are signed in the hypothesized direction, and as the result obtained in *Model 2*, only the categorical variable *Traditional JV* is statistically significant. Thus, the findings partially support the *Hypothesis 3b*, while *Hypothesis 3a* is not supported.

 Model 4 examines the base-line model with the entry mode *Japanese-Japanese JV* that is classified according to the presence or absence of a partner that has previous experience in the local market. The reference category is the *Japanese-Japanese JV with partner experience*. It proposes that when home-country based firms form JV with a partner that has previous experience, and consequently has local knowledge in the host country market, it will achieve higher performance than other entry modes (*WOS, Traditional IJV*, and *Japanese-Japanese JV without partner experience*). Based on the results depicted in Table 4 - *Model 4*, the variable of ownership and internalization advantages are equivalent to that obtained in the base-line model, but with a decrease of significance level of the intangible assets variable [EFFIC]. As an intention of this model, the influence of entry mode revealed a significant association with subsidiary performance. All entry modes showed a negative and significant result, which means that *Japanese-Japanese JV with partner experience* outperform the *Japanese-Japanese JV without partner experience* entry mode, and also achieve higher performance than *WOS* and *Traditional IJV*. Including the variable of ownership and internalization advantages, and classifying the *Japanese-Japanese JV* according to the presence of a partner that has experience in the local market, the results support the *Hypothesis 4a* and *Hypothesis 4b*. And consequently, it is consistent with earlier statistic tests (Table 2 – Test C).

 To further examine the effect of ownership, internalization advantages, and entry mode on subsidiaries performance, the performance measure was classified into *low performance* (*breakeven and loss*) and *high performance* (*gain*). The dependent variable maintains the ordinal properties (*high performance > lower performance*), thus the statistics is run again using the ordered logistic regression model. The dependent variable is coded as "1" if *low performance* and "2" if *high performance*. By doing this, a new link function was chosen for this model, because the cases for the dependent variables become evenly distributed (according to Table 2, *high performance <gain>* represents 51%, and 49% is the *low performance <*sum of *breakeven* and *loss>*). Therefore, it was used as the *logit* link function.

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however the coefficients are insignificant. When comparing WOS with JV (formed by one foreign and one local partner), the same relationship was found and it was significant (p=0.08) showing that WOS outperform JV.

Table 5 - Results of Ordered Logistic Regression

Performance measure = High (Gain) and Low (Breakeven and Loss)

Variable		Model 5	Model 6	Model 7	Model 8
Ownership Advantage					
Firm Size					
- Parent Firm Size	PAR_EQU	0.2379**	0.4433**	0.4771**	0.4525**
		(4.321)	(4.675)	(4.705)	(4.618)
Multinational Experience					
- International Experience	INTERN	-0.0105**	-0.0159**	-0.0164**	-0.0147**
		(5.964)	(4.821)	(5.003)	(4.065)
Intangible Assets					
- Efficiency of an organization	EFFIC	0.0001*	0.0002*	0.0002**	0.0002*
		(3.164)	(3.498)	(3.904)	(2.779)
Internalization Advantage					
- Parent Experience	PAR_EXP	0.3928**	0.5814*	0.5412*	0.6062*
		(4.685)	(3.510)	(2.976)	(3.443)
- Subsidiary intensity of Japanese employment	SUB_R_JP	-1.9000*	-2.6564	-2.7241	-2.6832
		(3.741)	(2.510)	(2.601)	(2.332)
Control Variables					
- Industry	INDUST	-0.1975	-0.2443	-026874	-0.0646
		(0.279)	(0.176)	(0.215)	(0.012)
- Relatedness	RELAT	-0.7066	-0.9326	-0.8920	-0.5030
		(2.239)	(1.996)	(1.832)	(0.504)
- Size of Investment	SUB_SIZE	-0.2555	-0.3538	-0.3175	-0.4259
		(0.451)	(0.424)	(0.335)	(0.584)
Entry Mode					
- Wholly-owned subsidiary	WOS		-0.6434	-1.0892	-2.3821**
			(1.226)	(1.974)	(4.351)
- Traditional IJV	TRAD_IJV		-1.0684*	-1.5121*	-2.8049**
			(2.109)	(2.830)	(5.158)
- Japanese-Japanese JV #	JJ_JV		0		
Japanese-Japanese JV (Partner Affiliation)					
- J-J JV (Cross-national DJV)	JJ_Cross			-0.9138	
				(0.803)	
- J-J JV (Intrafirm JV) #	JJ_Intra			0	
Japanese-Japanese JV (Partner Experience)					
- J-J JV (no partner exp)	JJ_Noexp				-2.7102**
					(4.526)
- J-J JV (with partner exp) #	JJ_Withexp				0
Number of Cases		102	102	102	102
Log Likelihood		121.438	118.606	117.706	112.683
***Chi*-square**		19.925**	22.757**	23.657**	28.680***

Notes: The dependent variable is coded Low Performance=1, High Performance=2

Wald Statistics in parenthesis

J-J JV is an abbreviation for Japanese-Japanese JV

This parameter is set to zero because it is redundant (reference category);

*significant at the 10% level; **significant at the 5% level; ***significant at the 1% level;

V.I.F. in all equation is less than two, and multicollinearity did not threaten the estimations.

According to Table 5, considering the performance measure as *low performance* and *high performance*, it confirmed the results from Table 4 (performance measure equals to *gain,*

breakeven, and loss), which according to the *chi*-square, the *Model 5 to Model 7* are significant at five percent level, and the *Model 8* is significant at one percent level. Interestingly, the variable subsidiary intensity of Japanese employment lost the significance level when combining with the categorical variable of entry mode, but it is still negative. All other variables are significant, although some of them decrease in significance levels. Therefore, in addition to ownership and internalization advantages, JV formed between home-country based firms (*Japanese-Japanese JV*) achieved better performance than JV formed between a local and foreign firm (*Traditional IJV*). When however *Japanese-Japanese JV* forms alliance with a Japanese partner that has previous local experience in the host market, it performed better than other entry modes (*WOS, Traditional IJV,* and *Japanese-Japanese JV with no partner experience*).

Finally, in all models of ordered logistic regression, the effect of ownership advantage in Brazil was both positively (proxy of parent firm size and parent intangible assets) and negatively (proxy of multinational experience) associated with subsidiary performance. Regarding the impact of internalization advantage, it is positively (proxy of parent firm local experience) and negatively (proxy of subsidiary intensity of Japanese employment) associated with performance of Japanese overseas investments in Brazil. Hence, these findings support partially the proposition stated in *Hypothesis 5* and *Hypothesis 6.*

5. Conclusions and Limitations

In contrast to earlier empirical research on Japanese FDI, this study addresses the relationship between performance of overseas operation and entry mode selection (*WOS* and JV), based on a non-conventional form of JV (Makino and Beamish, 1998). In addition, it examines the important role of MNEs ownership and internalization advantages on subsidiaries performance. The empirical results were obtained on 102 foreign investments using Toyo Keizai Databank 2001 in Brazil by Japanese firms that report information on performance. The results suggested that when considering a new classification of JV, JV formed between home-country based firms (*Japanese-Japanese JV*) achieved, on the average, a higher performance than *WOS* and *Traditional JV*. This result is different from previous empirical tests, which showed that *WOS* outperform JV in the developed (Woodcock *et al.,* 1994) and developing Asian countries (Siripaisalpipat and Hoshino, 2000). Studies on performance of Japanese subsidiaries that did not account for the non-conventional form of JV can lead to misleading results. When only JV (with a new classification of JV ownership) is taken into consideration, the result is consistent with previous empirical tests

(Hennart and Zeng, 2002; Hanvanich *et al.,* 2003) which indicated that JV formed between home-country based firms performed better than JV formed between a local and a foreign firm (*Traditional IJV*). Culture differences can influence all aspects of collaboration, such as the knowledge management process and management style, which affect knowledge acquisition and transfer capabilities of the partner that is not familiar with the local practices (Hanvanich *et al.,* 2003). Consequently, it also affects the JV subsidiary performance.

The main finding of this paper suggests that the higher performance of JV formed between Japanese partners is not related to the affiliation relationship between partners (e.g. firms that are parent or subsidiaries of the partner, or firms that belong to the same *keiretsu* group). However, the success of *Japanese-Japanese JV* is associated with Japanese partner experience. In other words, the formation of JV with a Japanese partner that has previous experience accumulated in the local market. The absence of partner culture differences minimizes problems related with managerial complexity (Makino and Beamish, 1998), but the opportunity for gaining local knowledge through a Japanese partner that has accumulation of operational experience in the host country market leads to higher performance. This finding provides a managerial implication. Taking into consideration the previous explanation, it suggests that JV continues to be an attracting organizational form for companies to access the foreign markets.

In addition, ownership and internalization advantages have both positive and negative impact on performance of Japanese subsidiaries in Brazil. In terms of ownership advantage, it is important to possess parent firm size and efficiency of organization in order to compete successfully in the host country. On the other hand, multinational experience showed a negative association with performance. Regarding the internalization advantage, the parent firm local experience confirms that accumulation of knowledge in the local market is a crucial factor to achieving higher performance. But the subsidiary's intensity of Japanese employment indicated a negative contribution with performance.

Considerations for the limitations of this study are discussed in conjunction with possible future research. First, the data used in this study were only one-year base. This was the most recent edition at the time that the data were collected. Future studies should include data of numerous years for statistical analysis. Second, the subsidiary data used in this study published by Toyo Keizai Inc., only reported the performance in a subjective measure. In fact, this problem cannot be avoided since this is the only source of subsidiary data available. Future studies should gather objective measure of performance as well as collect one's own data based on questionnaires. Third, future studies should examine the impact on survival of Japanese–subsidiaries and also to control

the firms' prior entry into Brazil, in order to see the effect of sequential FDI on performance. Finally, it will be interesting to conclude whether this finding can be generalized JV with non-Japanese parents based in other countries and operating in other markets.

Despite these limitations, this study has clearly provided the first empirical evidence of the impact of ownership, internalization advantages, and entry mode, based on a non-conventional ownership form of JV, affecting the operation of Japanese subsidiaries in Brazil.

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