What Makes MNCs Succeed in Developing countries?
An Empirical Analysis of Subsidiary Performance

Hansen, Michael W.; Gwozdz, Wencke

Centre for Business and
Development Studies

CBS DEPARTMENT OF INTERCULTURAL COMMUNICATION AND MANAGEMENT
COPENHAGEN BUSINESS SCHOOL

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By Michael W. Hansen[1] and Wencke Gwozdz[2]

Abstract: *MNCs are increasingly investing in developing countries to be part of rapid market growth, to enhance the efficiency of their value chains, and to access abundant resources and talent. The potential gains are high, however so are the risks. Some developing country subsidiaries become top performers in terms of growth and revenue and assume key roles in the MNCs' global value chains, but other subsidiaries fail to meet expectations, struggling to produce positive returns and frequently experiencing stop of operations. While the issue of subsidiary performance should be at the heart of any International Business (IB) enquiry into MNC activity in developing countries, surprisingly little research has examined this issue. Based on a unique data base of approx. 800 MNC subsidiaries established between 1969 and 2008, this paper examines the evolution in subsidiary performance and the factors influencing this performance. The analysis reveals that MNC subsidiaries in developing countries have improved enormously on their performance since the early investments in the 1960s and 70s, but also that the risks of failure remain high. The paper moves on to analyze factors shaping subsidiary performance. Inspired by received IB theory, it is hypothesized that subsidiary performance is essentially shaped by five dimensions: location, industry, MNC capabilities, subsidiary role, and entry mode. A variance component analysis is employed to identify the sources of subsidiary performance. Especially MNC capabilities and subsidiary role appear to explain variance in performance, while location and industry factors appear to have less explanatory power. This suggests that while locational and industry factors affect subsidiary performance, strong MNC capabilities and appropriate strategy can make MNCs succeed regardless of location and industry. The findings of the study have important implications for the IB literature, for managers and for policy aimed at promoting FDI in developing countries.*

Introduction

In recent decades, developing countries have become an increasingly important location for MNCs. Market liberalization, emergence of capable local firms, development of mass consumer markets, rapid growth, and improvements in institutions create vast revenue opportunities for foreign investors. However, just as the opportunities of these locations are high, so are the risks! Thus, there are huge variations in the quality of business climates and market conditions depending on which developing country we are looking at. Moreover, rapid change in market and institutional environments create high risks and uncertainties for foreign investors (Hoskisson et al, 2000; Luo, 2003; Peng, 2003; Khanna & Palepu, 2010).

The study in hand examines MNC subsidiary performance in different regions of the developing world and seeks to identify key influences of that performance. In doing so, the study fills a lacuna in the extant literature on MNC activity. Thus, although one would expect that subsidiary performance would be at the heart of any IB inquiry, little is known about this issue (Makino et al, 2004; Delios & Beamish, 2001; Venaik et al, 2005). The paper contributes to the literature by presenting new insights regarding MNC subsidiary performance based on a comprehensive and unique data set, and by placing these insights in the context of the – limited - extant literature. Apart from contributing to the literature, the findings of the study also offers insights with relevance to MNC managers as well as policy makers involved in investment promotion.

The paper proceeds as follows. First, the extant literature on subsidiary performance is reviewed. Based on this review, a model for explaining subsidiary performance is developed. The model is tested against a sample of approx. 800 MNC subsidiaries in developing countries established over the last 40 years. The findings will be discussed and implications for the IB literature, for managers and for policy will be outlined.

The literature on subsidiary performance

Ultimately, *the* key issue for MNCs would seem to be whether and how foreign direct investment can be made sustainable and profitable. In spite of the paramount importance of this issue, the IB literature contains curiously few studies examining subsidiary performance and its determinants. Instead, the subsidiary literature has focused on issues such as ownership configuration, subsidiary mandate, motive behind investment, principal-agent issues or expatriate and staffing issues. In other words, the literature on MNC subsidiaries seems to have been preoccupied with organizational, managerial and strategic issues and the question of how subsidiary strategy, management and organization relates to performance plays only a secondary role (Makino et al, 2004; Delios & Beamish, 2001; Venaik et al, 2005).

Several reasons for this lack of performance research can be offered: One is that comparable performance data are difficult to access. This is partly because different countries follow different accounting and reporting conventions, partly because MNCs are reluctant to make performance data public, and partly because MNCs simply do not have precise performance data for subsidiaries available (Anderson et al, 2000). A second reason could be that the performance data that can be obtained are unreliable as MNCs may manipulate subsidiary performance data for tax purposes (Christmann et al, 1999).

Theoretical perspectives on firm performance

In spite of the obvious lacunas in the IB literature in regard to subsidiary performance, there are nevertheless a number of studies that directly or indirectly addresses the issue:

The business literature has traditionally searched for sources of firm performance in industry factors (as in the Industrial Organization perspective (Bain 1956; Porter 1980)), in firm specific factors (as in the resource and capabilities based perspectives (Barney 1991; Peteraff, 1993; Teece & Shuen, 1997)), or in properties of the market (as in the transaction cost perspective (Williamson, 1975)). All perspectives tend to analyze firm performance in a single country context and treats country effects as external to firm performance. Thus, we must turn to International Business theory (IB) to find inspiration for understanding inter-country variations in MNC subsidiary performance. Indeed, the very *raison d'être* of IB[3] is that country context matters for strategy, organization and performance; that superior performance of MNCs derive from their ability to leverage resources and integrate activities in multiple geographical locations (Kogutt, 1985) but also that MNCs are hampered in their ability to achieve high performance due to liabilities of foreigness (Caves, 1996) and coordination and integration costs of geographically dispersed activities (Hennart, 1982; Porter, 1986).

The IB literature on subsidiary performance

While there are numerous studies examining how multinationality affects the financial and competitive performance of the MNC parent (see e.g. Brouthers, 1998; Delios & Beamish, 1999; Delios and Henisz, 2000; Hitt, Hoskisson & Kim, 1997; Tallman & Li, 1996; Geringer, Beamish & da Costa, 1989; Lu & Beamish, 2001), relatively few studies have examined what drives subsidiary performance. Those that do, produce an array of explanations for subsidiary performance, some rooted in firm specific factors, some in locational factors, some in industry factors, and some in strategic factors. Inspired by Christmann et al (1999), Delios & Beamish (2001), Makino et al (2004), Venaik et al (2005) and Devinney (2009), we can identify five streams of research explaining subsidiary performance: The location stream, the industry stream, the MNC capability stream, the subsidiary role stream, and the entry strategy stream. The location and industry streams essentially find the sources of performance variations in factors external to the firm. The MNC capability stream finds the sources of performance variations in the idiosyncratic resources and capabilities of the MNC. And the subsidiary role and entry strategy streams essentially find the sources of performance variations in strategic choices and roles of the subsidiary. These various streams of performance research can be placed on a continuum, spanning from the environmental determinism of location

and industry streams, over the contingency dependency inherent in the MNC capability stream, to the high level of agency emphasized by the subsidiary role and entry strategy streams (Christmann et al, 1999).

The location stream

The influence of location factors on performance has long been emphasized by IB research (Caves, 1996; Christmann et al, 1999) and there are plenty of IB theories suggesting that host country environments impact subsidiary performance both as a performance enhancing and performance limiting factor. At the most basic level, countries will have different comparative advantages, e.g. cost advantages for capital, labor and land (Dunning, 1998). Specifically in developing countries, the abundance of factor endowments such as natural resources and cheap labor are important determinants of MNC performance. Moreover, growing purchasing power and rapid market growth influence the location and performance of subsidiaries. However, increasingly developing countries also harbor more advanced types of advantages influencing subsidiary performance, e.g. presence of skilled labor, good supply conditions, sophisticated demand, etc. (Makino et al, 2004). More recently, the importance of institutions for the attraction and performance of MNC subsidiaries has been emphasized by the institutional strategy literature (Hoskisson et al, 2000; Wright et al, 2005; Peng, 2002, 2003; Khanna and Palepu, 2010). This literature makes a distinction between formal and informal institutions (see e.g. Peng, 2002) and argues that informal institutions related to networks and culture play a particularly large role in developing countries. Finally, literature on culture in MNCs has argued that cultural distance between countries may reduce performance of MNC subsidiaries (Li & Guisinger, 1992; Chang, 1995; Luo & Peng, 1999; Lazlo et al, 2005).

The industry stream

Industrial organization (IO) holds that main sources of variations in the organization, strategy and performance of firms are to be found in industry structure (Bain, 1956; Scherer, 1980, 1996). Hence, factors such as the degree of competition in the industry and the bargaining power of suppliers and customers (in short, the industry configuration) offer a space within which firms formulate strategy and gain competitive advantage (Porter, 1980). The IO perspective has formed the basis for much of the early thinking on FDI, which essentially explained FDI as an extension of oligopolistic competition to foreign locations (Hymer, 1960/1975; Kindleberger, 1972; Knickerbocker, 1973; Graham, 1974). Thus, the IO stream understands performance variations between subsidiaries as a reflection of competitive conditions in different industries (Luo, 2003; Makino et al, 2004)[4].

The MNC capability stream

In contrast to the location and IO streams which largely find the sources of firm performance outside the firm, management and organizational scholars have looked for sources of performance in the idiosyncratic resource configurations of firms (Barney, 1991), resources being unique attributes of the firm that cannot be easily copied by other firms but can be replicated within the firm (Teece, 2000; Buckley, 1988; Lu & Beamish, 2004). Resources can be transformed into capabilities, e.g. *static capabilities* such as a technology, an organization, a brand, access to skilled specialized labor, etc. or *dynamic capabilities* such as leaning ability and flexibility (Hoskisson et al, 1999). The resource based logic has been applied to international business activity including subsidiary performance (Caves, 1996; Christmann et al, 1999; Makino et al, 2004; Venaik et al, 2005). There are essentially three types of MNC capabilities that impact subsidiary performance: The first is the kind of capability that creates superiority over local firms and helps MNCs overcome 'liability of foreigness', e.g. brands, designs, processes, competencies, technologies, financial and organizational strengths, etc. (Caves, 1996, Makino et al, 2004; Barkema et al., 1996; Barkema et al, 1997; Lu & Beamish, 2004). The second is the kind of capability that is particularly relevant for succeeding in international operations, e.g. internationalization experience (Johanson & Vahle, 1977; Barkema et al., 1996), multinational presence (Thomas & Eden 2004; Lu & Beamish, 2004), or country specific knowledge (Barkema et al.,1996; Johanson & Vahlne, 1977). The third is the kind of capability that allows firms to benefit from internationalization, e.g. ability to integrate, coordinate and learn from internationally dispersed operations (Bartlett & Ghoshal, 1989; Prahalad & Hamel, 1990; Birkinshaw et al, 1997; Makino et al, 2004; Kogut, 1985; Delois & Beamish, 2001).

The subsidiary role stream

Another stream of literature emphasizes the strategic role of the subsidiary as an influence of performance (Anderson et al, 2002). The greater the strategic interdependency between subsidiary and parent, the more likely the subsidiary will be to receive support and resources from the parent to maintain high performance. Subsidiaries that play key strategic roles for their parents, e.g. as having regional, product or functional mandates, will have a direct claim to resources within the MNC, whereas subsidiaries that are auxiliary portfolio investments have fewer opportunities of gaining additional resources from HQ should a crises erupt (Porter, 1986; Birkinshaw et al, 2005; Subranmaniam & Watson 2006). Also the strategic intent/ investment motive behind establishing the subsidiary may influence performance. Some subsidiaries may have a strategic intent of accessing local markets, while others may have as their strategic intent to supply export markets and/or other subsidiaries with components (Dunning & Lundan, 2008). As the latter type of investment impacts

the global operation of the MNC directly it can be expected to have higher performance than e.g. market seeking investments.

The entry strategy stream

Finally, a strong tradition within IB seeks the sources of subsidiary performance in the entry strategy of the MNC. In particular it is examined how the choice between acquisition or greenfield entry and/or the choice between fully controlled or joint venture entry mode affects performance (Meyer & Estrin, 2001). The entry strategy stream is closely related to the MNC capability stream in that joint ventures and acquisitions typically are motivated with the need to access country specific capabilities, e.g. market knowledge, access to authorities, or knowledge of how to manage a local work force. Entry strategy can impact subsidiary performance in a number of ways (Contractor et al, 2003). On the one hand, joint ventures and acquisitions will make the investor access resources and knowledge that are essential to succeed in the local market, thereby enhancing the likelihood of high performance (Inkpen & Beamish, 1997). On the other hand, performance may be impaired in the project maturation phase as cleavages in the strategic, organizational, capabilities and cultural fit between the foreign and local entity transpire (Stahl & Voight, 2008).

Constructs and measures

In this section we will, based on the literature review, develop a model that will be used to structure the subsequent empirical analysis of subsidiary performance.

Measuring subsidiary performance

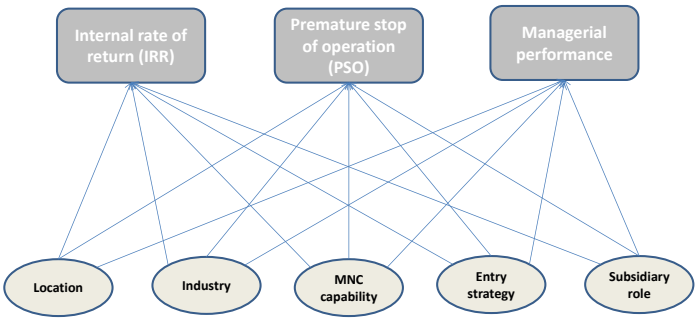
Several authors argue that performance should be treated as the ultimate dependent variable in subsidiary research (e.g. Brouthers, 2002; Glaister & Buckley, 1999; Venaik et al 2005; Hult et al, 2008). There is however no clear-cut way to measure performance and performance measurement remains a controversial area within IB (Chakravarthy, 1986; Venkatraman & Ramanujam, 1986; March & Sutton, 1997; Anderson et al, 2001). Venkatraman & Ramanujam (1986) make a distinction between three types of performance: 1. Financial; 2. Operational; and 3. Organizational/managerial. In this study we will use all three measures. Financial performance will be measured through the Internal Rate of Return (IRR). Operational performance will be measured through whether the subsidiary has experienced premature stop of operation (PSO). Finally, organizational performance will be measured through an assessment of subsidiary managerial performance (MP).

Drivers of subsidiary performance

Our explanatory model will distinguish between five categories of factors that may influence subsidiary performance: locational factors, industry factors, MNCs capability factors, subsidiary role factors, and entry strategy factors. These five categories of factors integrate insights of the IO and RBV paradigms with IBs understanding of cross border locational factors' and entry mode factors' influence on performance. Studies by Christmann et al (1999), Makino et al (2004) and Venaik et al (2005) adopt similar models and will be used throughout the paper as a point of reference.

We can formulate a number of hypotheses regarding the factors influencing subsidiary performance that will guide the subsequent analysis:

Drivers of subsidiary performance



Country specific factors

1. Region
   Hypothesis: Different regions have different market, resource and institutional endowments and thus affect firm performance differently. Region is used as a proxy for the many variables associated with location that may impact performance.
   Measurement: Region-dummies
2. Market potential
   Hypotheses: The larger the country, the larger the income per capita and/or the larger the country growth rate, the higher the potential returns on investment and thus the better the performance.
   Measurements: GDP, GDP per capita, and GDP growth
3. Quality of institutions
   Hypothesis: The more underdeveloped the institutions are, the more likely that subsidiary performance will be affected adversely.
   Measurements: World Bank Doing Business score

Industry factors

4. Industry
   Hypothesis: The competitive forces of a given industry (e.g. the level of rivalry and competition) affect performance of subsidiaries.
   Measurement: SIC code/sector-dummies

MNC capabilities

5. Size of investor
   Hypothesis: Large firms have more resources and better abilities to leverage resources, leading to higher performance.
   Measurement: total employment + total turnover
6. Capital intensity of investor

Hypothesis: The more capital intensive the investor, the more likely it is to be able to raise the capital needed to make the subsidiary economically viable.
Measurement: Capital intensity of parent (Turnover/employment ratio).

7. Management quality of investor
   Hypothesis: The higher management quality of parent, the greater the chance of high subsidiary performance
   Measurement: Management Quality and Performance score
8. International experience of investor
   Hypothesis: The more international experience the investor has, the more likely the subsidiary is to have high performance.
   Measurement: Number of subsidiaries in developing countries + experience with international production

Entry strategy factors

9. Acquisition or green field
   Hypothesis: Acquisitions perform better than green field investments as they are taking over an on-going business and thus can draw on contacts and relations to local business environment.
   Measurement: Entry form dummies
10. Entry mode
    Hypothesis: Joint ventures will have better performance than fully controlled subsidiaries as the operation is more likely to be aligned with the local institutional and market context.
    Measurement: Owner share of subsidiary dummy

Subsidiary role

11. Size of subsidiary
    Hypothesis: The larger the subsidiary, the less likely it is to fail as the sunk cost in the operation will dictate continuous investments until the operation succeeds.
    Measurement: Subsidiary employment + total project investment
12. Relative importance of subsidiary
    Hypothesis: Subsidiaries of key importance to the parent are expected to perform better than more auxiliary investments due to fact that the subsidiary may make or break the investor.
    Measurement: Employment subsidiary relative to employment parent + project investment subsidiary relative to parent turnover.
13. Strategic intent
    Hypothesis: Efficiency seeking investors are expected to have better performance than natural resource and market seekers as they are contributing directly to the investor's global value chain.

    Measurement: Investment motive dummies

Control variable: Year of establishment

The influence of the above mentioned variables are expected to be dependent on when the project was initiated. In this case, we have a sample of firms spanning from 1969 to 2008. When year of establishment is assumed to be important it is because we expect that the abilities of MNCs to handle and integrate international operations have improved within this time span and because the

locational factors in emerging markets generally can be expected to have improved. The influence of these developments is controlled for by including a time variable. At the end of the analysis, we will examine in more detail how year of establishment interacts with the model.

Methodology

Sample and data collection

This study is based on a data base of 818 Danish investments in developing countries supported by the Danish state owned outward investment promotion agency IFU. IFU is a co-investor in subsidiaries (always minority shareholder) and investment projects are carefully described, analyzed and assessed before IFU commits equity, loans or guarantees. Moreover, IFU is continuously monitoring the conduct and performance of the subsidiaries on a large number of dimensions.

The data base represents app. 1/3 of Danish investments in emerging markets between 1969 and 2008 (Hansen, 2011) and represents a cross section of Danish FDI in developing countries. The database includes both large and small investors, the average investment being Euro 2 million. The main biases of the data base when comparing to the entire population of Danish subsidiaries in developing countries derive from the facts that IFU does not participate in pure sales activities or in industries involved in weapon production and tobacco.

The measures used as proxies for the constructs obviously have strengths and limitations: Concerning the measurement of performance, there are several strengths of this study: First, where most existing studies use one or at best two performance measures (typically financial and operational measures) (Venkatraman & Ramanujam, 1986; Venaik et al, 2005), we use three measures in this study by including management performance (MD). This allows for a more fine grained analysis of the various influences of performance. Second, the measurement financial performance through projects Internal Rate of Return (IRR) has relatively high reliability. Hence, the IRR figures derive from the institutional investor IFU. IFU is highly unlikely to tolerate any attempt by the MNC to manipulate IRR data for tax purposes, partly because the fund is a state owned fund, partly because transfer pricing practices may reduce IFU's return on investment[5]. Moreover, where existing studies face huge problems in regard to the timing of IRR measurement, IFU consistently records IRR at project exit, typically after 4-6 years. Also, relying on IFU's IRR help overcome the difficulties associated with different accounting standards in different countries. Third, in regard to operational performance measured through whether the project has experienced premature stop of

operation (PSO), the data are quite reliable as IFU immediately records if a project has ceased its activities. This situation occurs when the project stops operations but before it is liquidated. In theory, it may be possible for the project to resume operation at a later stage, however in practice this will only be relevant for a very small group of the most recent projects. Fourth, in relation to organizational performance, measured through management performance (MP), we employ a measurement where investment officers can give projects scores between 1 and 40. The assessments are of course subjective, but they are expected to be fairly reliable, partly because the assessments are based on on-site visits, partly because investment officers typically are board members and therefore – in theory - have access to all information about the company and its management. It should be noted that where we have data on IRR for 760 subsidiaries (all concluded projects) and on PSO for 818 subsidiaries, we only have observations for MP for 319 subsidiaries as this measurement has not been employed before 1995.

Concerning the independent variables in the model, data are partly generated from data bases over host country characteristics (e.g. from the World Bank Development Indicators and Doing Business Indexes), partly from IFU's own records over management quality, experience, size, and strategy of the Danish investors recorded in connection with appraisal of projects. Obviously, we don't have full data for all projects for all years, in particular because many of the more qualitative variables (such as international experience and management quality of parent) has not been measured before 1995.

Concerning controls, we have data on performance going back to the late 1960s all the way up until the end of 2008. The long time frame is a major strength of the study; other similar studies either have no time series, or they introduce the time dimension by controlling for age of the subsidiary (see e.g. Delios & Beamish, 2001; Tallman & Li, 1996), or, at best, they observe performance for very short periods of time (see e.g. Makino et al, 2004).

Analytical methodology

Our objective was to test for the relative contribution of five categories of independent variables to explain variance in performance measured in three ways.

$$P = \alpha_0 + C\alpha_1 + I\alpha_2 + F\alpha_3 + S\alpha_4 + E\alpha_5\, T\alpha_6 + \varepsilon \qquad (1)$$

where P is a matrix for our measures for performance as defined above. C is a matrix of country specific factors, I is a matrix of observable industry factors, F is a matrix of observable firm specific factors, S is a matrix of subsidiary factors, and E is a matrix of entry mode factors. T is a matrix of control variable, here, is the project start year. ϵ is a matrix of idiosyncratic error terms, and the α's

are the coefficients to be estimated. ϵ is a matrix of idiosyncratic error terms, and the α's are the coefficients to be estimated. Equation (1) is estimated using ordinary least squares or probit – depending on the nature of the dependent variable. A Breusch-Pagan test indicated heteroskedasticity and we corrected this by estimating robust standard errors through clustering by country.

In a first step, we examined the influence of each category of factors (country-, industry-, firm-specific, subsidiary as well as entry strategy factors) on performance by estimating the explained variance of performance by each of these categories of factors when controlling for the influence of other categories of factors. In a next step, we estimated the full model (including all factors) on each of the performance measures. For all estimations, we used the same sample for each dependent variable, i.e., the sample of the full model for each performance measure was also used for the estimations for each category of factors. This ensures comparability of the regression analyses across the various categories. We then estimated the full models stratified by time period (1969-1994 and 1995-2008) in order to assess if the models contribution to explained variance changed over time. As can be seen, our analytical methodology is more explorative than most other studies of subsidiary performance[6]. The explorative strategy is adopted as we have no strong *a priori* assumptions as to which of the five factors examined would be more important in explaining variance in performance.

Findings

The performance of subsidiaries in developing countries

Generally, MNC investments in developing countries generate relatively high revenues (McKinsey, 2003) and this is also the case for Danish investment in developing countries[7]. However, the risks are also very high: In our sample, no less than 43% of the projects ended out with a negative IRR, 21% ended with premature stop of operation (PSO)[8] and 24% had poor or critical management performance (MP). This high return – high failure profile of investment in developing countries possibly reflects that foreign investors, due to the high risks in developing countries, only engage in projects with prospects of high returns.

As evidenced by Table 1, our three performance measures were strongly correlated - displaying correlations of 0.3 - 0.5 – suggesting that we are measuring closely related but not completely identical phenomenon. We will later discuss to what extent the three measures are related.

Table 1 about here

The factors explaining variance in subsidiary performance

Overall, we find that our model is quite robust in regard to explaining the variance in performance measured through IRR and PSO. Thus, as shown in Table 2, the model explains 17% of total variance in IRR and 21% of total variance in PSO. The model appears less effective in explaining MP, with 5% of variation explained and this not at a statistically significant level.

Which factors explain variance in subsidiary performance

What are then the key factors explaining variations in subsidiary performance? The early literature generally found that subsidiary effects were most important followed by industry and corporate effects (Rumelt, 1991; McGahan and Porter, 1997; Makino et al, 2004). In a study of 93 Japanese MNCs, Makino et al (2004) found that the main determinant of performance was affiliate effects (31.4%), followed by what is called corporate effects (10.8%), industry effects (6.9%) and country effects (5.5%). Makino also compared performance of developed and developing countries and found that country and industry effects were relatively more important than corporate effects in developing countries. What Makino et al labeled 'Year effects' accounted for only a small fraction (0.1%), however Makino only studied a very short time span, namely 1996-2001. In a cross sectional study of 76 subsidiaries of four US MNCs within a single industry, Christmann et al (1999) found that country factors were the by far most important determinants of performance, followed by industry structure, subsidiary strategy and firm characteristics. The implication, according to Christmann et al, is that performance is largely determined by factors outside the control of the MNC, mainly location and industry factors[9]. Venaik et al (2005) in a study based on a survey of 126 subsidiaries of Japanese, UK and US MNCs also find the most important determinants of subsidiary performance outside the firm, in this case mainly in industry factors.

According to our study, all dimensions of the model have some level of explanatory power on variance in performance. However, it also appears that there are important variations in the ability of the dimensions of the model to explain variance. Thus, for all three expressions of subsidiary performance we find that MNC capability factors and subsidiary role factors are better at explaining variations in performance than industry and location. For PSO and MP, also entry strategy appears

more important than industry and location. These are very important findings as they suggest that it is firm specific factors that decide success or failure of subsidiaries rather than external factors related industry and location. This finding resembles the findings of Makino et al's (2004) study but contrasts with those of Christmann et al (1999) and Venaik et al (2005) which find stronger influence of industry and location factors.

Table 2 about here

The relatively low importance of locational factors is surprising, given the high variation in the quality of business environments in developing countries. However, as mentioned, other studies - in particular Makino et al (2004) - have produced results that are very similar. Our interpretation is that firm specific capabilities and strategy factors moderate the influence of location so that resourceful firms and/or firms adopting the right strategy will be able to counter the adversities of location.

Industry factors explain surprisingly little variance compared to what is found in other similar studies (1-5% in our study compared to 14-19% in several other studies (see Christmann et al, 1999 for a review)). One interpretation could be - as argued by Ghemawat (2003) – that efficient capital markets levels out inter industry performance variations. In our case this means that the co-investor IFU, through its screening and appraisal procedures, is capable of achieving an even performance across industries. Another explanation for the low explained variance due to industry could be that our industry proxy – SIC code – does not adequately capture the variations in industry competition and rivalry.

Variations between performance measures

It is clear from Table 2 that our model interacts with the three dependent variables in different ways. Thus, as seen above, the explained variance in MP is much smaller than for IRR and PSO and is in fact not significant. This makes us infer that the three performance indicators, while strongly correlated, have different antecedents (see Delois & Beamish (2001) for a similar argument). Alternatively, the relative distinctiveness of MP could reflect that this measure is rather subjective, i.e. constructed through investment officer observations of subsidiary management.

Comments on specific explanatory variables

In the following we will discuss what it more precisely is about location, industry, MNC capabilities, subsidiary roles and entry strategy that explain the variance in subsidiary performance. It should be noted that in this discussion, we have controlled for the influence of other variables in the model. The findings are summarized in Table 3.

Table 3 about here

MNC capabilities

The key dimension for explaining variance in performance appears to be MNC capabilities. We measured MNC capabilities through firm size, managerial capacity and international experience (i.e. capabilities specifically associated with managing geographically dispersed activities).

Clearly, companies with a relatively weak management capacity are more likely to experience PSO. It is not surprising that weak management capability decreases the chance that the subsidiary overcomes a crises. Also high capital intensity of parent appeared influential in relation to PSO. Possibly, capital intensive firms have a stronger financial position than labor intensive firms and can more easily find the additional capital to deal with a crises at the subsidiary, should it erupt. International experience appears to be influential in explaining variance in IRR. This suggests that a learning perspective on internationalization (such as the Upsala model (Johansson & Vahlne, 1977)) is corroborated; the scope of previous internationalization has implications for the success of future internationalization.

The most significant finding in regard to MNC capability factors is that the study suggests that singling out size measured via their number of employees or turnover as a key determinant of variance in performance (as done by e.g. Lu & Beamish (2004) is unfounded; evidently it is capabilities of the investor other than size that influence performance (see Biggs (2002) for a similar argument).

Subsidiary role

The second key dimension explaining variance in performance was the strategic role of the subsidiary measured through subsidiary size, size relative to parent, and strategic intent of the subsidiary. Here we find that large subsidiaries (measured in terms of employees) also have better IRR and MP. The

explanation probably is that large projects are key to the parent and therefore receive more attention and get resources from the parent. Variations in PSO are more related to the size of the subsidiary *relative* to the parent than to absolute size. Surprisingly, the relation is negative so that relatively large subsidiaries have higher propensity to experience PSO. The explanation could be that a high subsidiary/investor employment ratio indicates high exposure of the MNC to the subsidiary and thus also relatively fewer additional resources to mobilize if the subsidiary experience a crises.

Whereas the investment motive (strategic intent) only to a limited degree influences IRR and MD, it significantly explains variance in PSO. Hence efficiency seeking and market seeking investors are less likely to experience PSO than natural resource seekers which is our baseline. This could reflect that natural resource seekers are more susceptible have their performance adversely affected as they are highly dependent on the local authorities and community for licenses to operate.

Locational factors

While locational factors are of lesser importance than capability and strategy factors, they do explain some of the variance in IRR and PSO. In particular, we find that high GDP growth rates significantly influence the performance of subsidiaries. It thus seems that in a rising economy, more subsidiaries will succeed, in a stagnant economy more will fail. Significantly, the level of economic development measured through GDP does not explain variation in performance. In other words, whether host developing countries are rich or poor does not influence the performance of investments.

Using African investment as a base line, we find that subsidiaries in East Asia (mainly China) have lower IRR and PSO performance than African investments. This is a highly surprising finding; essentially the finding is that it is more profitable and safe to invest in Africa than in China. One explanation could be that African investments are characterized by 'adverse selection' in the sense that investors only engage in very profitable and relatively safe projects due to the high risks and uncertainties in this region. Another explanation could be that investments in China often have other success criteria than financial performance as they serve a function within the global value chains of the investor, something that never is the case with African investments.

The quality of the local institutional environment (measured through World Bank Doing Business indicators) appears to exert surprisingly little influence on the performance of subsidiaries. This is a notable finding, given the strong emphasis on institutional factors in the recent IB literature (see e.g. Peng (2002, 2003) or Khanna and Palepu (2012)). Our interpretation is that while institutional factors may exert little independent influence on the performance of subsidiaries that are already

established (the focus of our study), they may exert a strong influence in connection with the pre-investment choice of investment location and entry mode.

Entry strategy

Several studies suggest that entry strategy understood as entry mode and entry form has implications for subsidiary performance (see e.g. Lu & Beamish, 2004; Brouthers & Nakos, 2004; Woodcock, Beamish & Makino 1994). However, our study suggests that entry strategy is less powerful in explaining variations in subsidiary performance when we control for other variables. One interpretation could be that while entry strategy factors may previously have had a larger influence on performance (e.g. because entry strategy was more or less dictated by host governments), firms have for the last 10-15 years been largely free to choose their entry strategy in most countries and industries.

Industry factors

Generally, we find relatively little influence of industry on performance, especially when controlling for other variables. The exception is that the chemical industry (which includes pharmaceuticals) has better IRR performance and that the food industry is more likely to avoid PSO than the base line natural resource dependent industries (agriculture, fisheries, forestry, etc.). The reason could be – as argued above - that natural resource dependent industries are extremely susceptible to adverse institutional environments and developments due to this industry's high dependence on approvals and certifications from local, regional and national authorities.

Controls: Year of establishment

Throughout and in relation to all three performance measures, year of establishment exerts a strong influence. Overall we find that performance of projects have improved significantly over the years so that 'only' 31.6% of exited projects started between 1992 and 2008 led to negative IRR compared to more than 61.5% between 1979 and 1991 and only 15.2% PSO compared to 39.2% in the earlier period. In terms of managerial performance we find that newer projects have better performance than older projects. One explanation for the improved performance could be that investors generally have moved up the learning curve in terms of investments in emerging markets and become better at shielding themselves against adverse impacts of the business environment in such locations. Another explanation could be that financial performance variations are reduced in regard to IRR (see Table 4) as MNCs have embarked on more globally integrated strategies where different units perform dedicated mandates (Birkinshaw & Hood, 1998) and where financial and other resource

cross-subsidization is widespread (Hamel & Prahalad, 1985). A third explanation could be that general and overall improvements in host country business environments have led to higher overall performance of subsidiaries over time.

Obviously, there are important interaction effects between year of establishment and the specific dimensions in our model. These we will seek to unravel in the following (see Table 4). As MP only is measured after 1995, we will focus alone on IRR and PSO in the following:

Table 4 about here

First, we note that the predictive power of our model in relation to IRR changes over time so that more of the variance in IRR is explained among earlier projects than among more recent projects. Thus, the model explains 30% of the variance in IRR in projects from before 1995, but only 20% after 1994. This could partly be attributed to new – to our model exogenous - factors that have become more important in explaining variance in IRR performance, and partly to the fact that the total variance to be explained has declined significantly. We also note that the fit of the model in regard to explaining PSO is an astonishing 37% in projects initiated after 1994.

Secondly, it appears that the significance of different influencing factors changes over time. For instance, where location could not explain variation in PSO at a significant level in the early sample (up until 1995), it has become significant after 1994. In other words, the influence of location on survival of subsidiaries may be on the rise.

Thirdly, the relative explanatory power of the model's dimensions changes over time. Where subsidiary role factors seemed to play a relatively important role in explaining variations in the early sample, this factor is relatively less important recently. This could suggest some level of mainstreaming of performance across different subsidiary roles. More interestingly, it appears that MNC capabilities consistently have been relatively important in explaining variations in performance over the years, supporting our overall observation that this dimension is key to performance.

Discussion and implications

The findings of the study have important implications for the IB literature as well as for managers and policy makers:

Implications for the IB literature

This study is unique in the sense that it provides longitudinal data on the evolution in subsidiary performance over 40 years. It provides data on complementary but not identical subjective and objective performance measures[10]. It opens up for analyzing performance against a number of dimensions. And as the methodology adopted is similar to that adopted by other studies of subsidiary performance, the validity of the findings is enhanced.

A key finding is that foreign investors consistently have been improving their performance over time. Where conducting investments in developing countries previously was an exceptionally risky undertaking for MNCs, such investments appear over time to have been 'mainstreamed'. This is indicated by the increases in average earnings (IRR) and management performance (MP), and the reduced levels of premature stop of operation (PSO). In sum, where investments in developing countries previously were made by less experienced firms moving into often very difficult business environments leading to high probability of failure, the investments in developing countries have more recently displayed much better performance. To our knowledge, no other studies present such strong evidence of improved performance of foreign investors in developing countries over time.

The study further enabled an analysis of factors driving improved performance of MNC subsidiaries. A main finding in that regard is that MNC capability and strategy factors are relatively important in explaining variations in subsidiary performance and that location and industry factors are relatively less important. Thus, resource-full and well-managed firms with an appropriate strategy can make profit and succeed in difficult locations regardless of industry. This finding feeds into the IB debate on whether MNC performance is mainly driven by environmental factors or by idiosyncratic firm level factors. Here our study suggests that difficult locations far from predestine MNCs to low performance as implied e.g. by institutional economics. Instead, capability and strategy factors seem decisive, e.g. international experience, capital intensity and appropriate entry strategy. We thus tend to agree with those authors arguing that in a global economy, the defining differentiator between firms has become ability to manage geographically dispersed activities (Kogut, 1985), to integrate and arbitrage between activities in numerous locations (Ghemawat, 2003), and to manage institutional specificities of the numerous locations they operate in (Peng, 2002,2003; Henisz, 2000).

Finally, the study provides insights into specific factors influencing subsidiary performance. For instance, it is not the size of the MNC but its experience and management quality that shape subsidiary performance. And it is not the income level or institutional quality of the host country that determine success of subsidiaries, but rather level of growth in the economy.

Policy implications

The findings of this paper may have implications for public policy, in particular investment promotion. First, it seems that generic country aspects such as market size and institutional quality are poor predictors of subsidiary performance. Hence, rather than focusing advise for prospective investors on country factors such as market size and institutional quality - as is commonly done by investment promotion authorities - investment promotion should focus on filling resource gaps and enhancing strategic capabilities of prospective investors. Second, while locational factors generally are of lesser importance, the level of economic growth stands out as relatively important. Hence, investment promotion should segment its target countries based on level of economic growth rather than on a particular region or on countries defined by income per capita. Finally, the data clearly indicate that there is no correlation between firm size and performance. Therefore, investment promotion targeting SMEs may be misplaced and indeed ineffective as SMEs are not particularly impaired in their performance qua being SMEs. Instead, investment promotion should be directed towards firms that have less international experience and/ or firms that have a weak capital base relative to their investment.

Managerial implications

Knowing the opportunities of developing countries as well as the driving forces of success may assist managers in making more leveraged decisions regarding investment locations and strategy and may help them improve the performance of their subsidiaries. A key managerial implication of our study is that investments in developing countries are far less risky than they used to be. All industries can succeed in developing countries and this in large as well as small developing countries, rich as well as poor. However, to succeed, it will be an advantage to invest in high growth countries (whenever those can be identified). Moreover, investors must focus on developing managerial capabilities (including international experience) and on making sure that they are financially well furnished before they invest. If investors do not have such capabilities, they may be acquired through strategic alliances with firms and organizations that have experience and financial strength or through outright acquisitions of other firms. In sum, understanding the country and industry context is important, but the key preparatory ground work for MNCs will be to carefully scrutinize their own resources and capabilities in light of the particular locational characteristics of host countries and formulating strategies that fit those capabilities.

Limitations

In making generalizations based on this study, at least three limitations should be kept in mind, in addition to the statistical limitations discussed in the methodology. The first is that the study focuses on MNCs from only one western country, namely Denmark. This may introduce certain biases that may impair generalizations, e.g. that Danish industry has a relatively strong representation of SME enterprises and that Danish MNCs are predominantly operating in highly specialized BtB markets rather than consumer markets. However, as the study has a broad representation of both large and small MNCs as well as BtB and consumer market oriented investors, the biases stemming from the particularities of the Danish industry structure should be controlled for.

Second, throughout this study we have viewed performance through the lenses of the institutional investor IFU. This has implied a number of advantages, e.g. in terms of reliability, depth and breadth of data. However, one major bias may thereby have been introduced, namely that IFU may itself influence the performance of subsidiaries. This partly because IFU screens out investment projects that are not considered viable, partly because IFU plays an active role in the management of subsidiaries. Thus, we can expect that the performance of the sample MNCs may be slightly higher than a cross section of Danish investors in developing countries. On the other hand, 'adverse selection' may counter this bias toward better performing investors as those investors having the best investment projects may not use IFU as they don't want to share the upside on the investment.

Third, the study has focused on performance. However, high performance, especially in terms of IRR, may not always be essential. As noted by the MNC finance literature, appraisal of investment projects should not only be related to the net present value of future income streams from the subsidiary but also to its strategic role, e.g. in providing key inputs to the global value chain of the investor or playing a key competitive role vis-à-vis investors. From this perspective, a foreign direct investment that fails to produce positive IRR may still be valuable to the owner.

Conclusion

This study examined performance of approx. 800 Danish subsidiaries in developing countries using objective as well as subjective performance indicators. It was documented that the performance of subsidiaries has improved significantly over the last 40 years, and the paper explored the antecedents of this higher performance. A model consisting of five dimensions of potential drivers of subsidiary performance was developed based on the - surprisingly limited – IB literature on

subsidiary performance. The model explained significant variance in performance and it was suggested that in particular MNC capabilities and strategy are decisive for performance of MNC subsidiaries. These findings have important implications for the ongoing debates on structure versus agency in international business studies as well as for managers and investment promotion.

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World Bank, www.worldbank.org, for development indicators, governance data and doing business data.

Annex Tables

Table 1: correlation between dependent variables

		IRR Profitability of investment (Dummy)	Premature stop of operation (PSO)	Management performance (MP)
IRR Profitability of investment (Dummy)	r	1		
	Sig			
	Obs.	760		
Premature stop of operation (PSO)	r	-.322***	1	
	Sig	.000		
	Obs.	542	818	
Management performance (MP)	r	.498***	-.460***	1
	Sig	.000	.000	
	Obs.	276	316	319

Table 2: Results of regressions' summary statistics

	Stats	Location	Industry	MNC capabilities	Subsidiary role	Entry strategy	Total
IRR (dummy)	Pseudo R2	.059	.037	.081	.067	.040	.171
	Obs.	447	447	447	447	447	447
	Wald X^2	54.27	17.53	59.63	22.10	20.29	556.49
	(p-value)	.000	.025	.000	.009	.002	.000
PSO	Pseudo R2	.055	.093	.093	.096	.058	.206
	Obs.	429	429	429	429	429	429
	Wald X^2	45.63	17.07	29.04	44.38	40.22	5465.91
	(p-value)	.000	.029	.000	.000	.000	.000
MP	R2	.000	.000	.033	.082	.010	.048
	Obs.	179	179	179	179	179	179
	F-value	1.95	3.93	1.75	3.52	1.94	1.25
	(p-value)	.064	.001	.089	.002	.106	.180

Table 3: Regression coefficients for full models on IRR (dummy), PSO & PM (full sample)

		IRR_cat	PSO	MP
Country-specific factors				
	Region: Africa & Middle East (REF)			
	Region: East Asia	-.797*	.846**	-1.460
		-.401	-.328	-1.483
	Region: Eastern Europe (EU)	.241	.580	.193
		-.405	-.381	-1.489
	Region: Eastern Europe (non-EU)	-.514	1.126**	.028
		-.478	-.435	-1.469
	Region: Latin America	.188	.242	-.123
		-.329	-.270	-1.301
	Region: South Asia	-.526	.449	-1.132
		-.292	-.307	-.993
	Region: South East Asia	.037	.387	1.158
		-.385	-.480	-1.491
	GDP per capita (1,000 US $)	-.010	-.028	-.016
		-.024	-.029	-.114
	GDP growth	.092**	-.129***	.160
		-.036	-.033	-.105
	World Bank Doing Business Score	.002	-.001	-.007
		-.003	-.004	-.009
Industry-specific factors				
	Industry: agriculture, forestry & fishing (REF)			
	Industry: chemicals	.718*	-.392	.816
		-.327	-.418	-2.401
	Industry: finance	.128	-.497	-.128
		-.439	-.406	-2.524
	Light manufacturing	.201	-.393	-.131
		-.378	-.359	-2.627
	Industry: manufacture food	.434	-.811*	.467
		-.337	-.403	-2.270
	Industry: metals, machinery	.390	-.377	-.912
		-.313	-.430	-2.372
	Industry: other services	.430	-.127	.769
		-.343	-.400	-2.492
	Industry: utilities & construction	.473	-.335	1.881
		-.400	-.431	-2.671
MNC capabilities				
	Turnover (1,000 US $)	.067	-.094	-.006
		-.060	-.055	-.031
	Employees (1,000)	.053	.032	.077
		-.035	-.027	-.070
	Capital intensity of parent	.007	-.1936**	.000
		-.004	-.067	-.007
	Experience: number of projects	.019	-.0524*	.057
		-.018	-.023	-.069
	Experience: high (REF)			
	Experience: missing	-.358	-1.287*	2.480
		-.471	-.547	-2.448
	Experience: low	1.266*	n/a	n/a
		-.602		
	Experience: medium	.457	n/a	n/a
		-.416		
	Management: high (REF)			
	Management: missing	.810	13.005***	-4.717
		-.433	-.672	-3.532
	Management: low or medium	.165	9.062***	-.871
		-.429	-.466	-3.107
Subsidiary role				
	Project: actual employment	.001***	-.001	.002**
		.000	.000	-.001

	Project: actual investment	-.000*	.000	.000
	(1,000 US $)	.000	.000	.000
	Relative importance: employees	.000	.007*	-.015
		-.004	-.003	-.010
	Relative importance: turnover	.000	.000	.000
		.000	.000	.000
	Motive: natural resources (REF)			
	Motive: missing information	.450	-.295	1.885
		-.334	-.489	-1.869
	Motive: local and regional	-.137	-.940*	1.643
	access	-.332	-.392	-1.671
	Motive: low labour costs	.277	-.764*	1.920
		-.332	-.385	-1.649
	Motive: other	.142	8.171***	.304
		-.537	-.680	-2.735
Entry strategy				
	Type: greenfield (REF)			
e_type1	Type: missing	-0,325	n/a	2,945
		-0,439		-1,663
e_type2	Type: miscellaneous	0,521	n/a	n/a
		-0,570		
e_type3	Type: acquisition	0,511	-0,241	0,486
		-0,366	-0,455	-1,949
e_type4	Type: brownfield	0,199	0,167	0,114
		-0,269	-0,348	-0,638
owner_cat	Danish ownership	-0,051	-0,159	0,538
		-0,094	-0,136	-0,350
Obs.	Obs.	447	429	179
adj R2/ pseudo R2	adj R2/ pseudo R2	.171	.206	.048

Note: standard errors in parentheses are clustered by country, control variable is start year, reference categories presented in italics

* p ≤ .05, ** p ≤ .01, *** p ≤ .001

Table 4: Regression coefficients for full models on IRR (dummy), PSO & PM (by time)

IRR Dummy

1969-1994

		Location	Industry	MNC	Subsidiary role	entry strat	full model
	Pseudo R2	.082	.051	.059	.119	.008	.299
	Obs.	169	169	169	169	169	169
	Wald X2	93.19	12.98	15.33	26.20	2.04	325.38
	(p-value)	.000	.073	.004	.000	.564	.000

1995-2008

		Location	Industry	MNC	Subsidiary role	entry strat	full model
	Pseudo R2	.049	.011	.076	.041	.021	.204
	Obs.	278	278	278	278	278	278
	Wald X2	15.85	5.86	48.04	8.90	4.31	55.73
	(p-value)	.070	.556	.000	.351	.506	0.003

PSO

1969-1994

		Location	Industry	MNC	Subsidiary role	entry strat	full model
	Pseudo R2	.017	.048	.077	.096	.038	.220
	Obs.	210	210	210	210	210	210
	Wald X2	4.19	7.73	16.65	17.22	7.55	53.75
	(p-value)	.898	.357	.002	.016	.056	0,004

1995-2008

		Location	Industry	MNC	Subsidiary role	entry strat	full model
	Pseudo R2	.139	.028	.101	.080	.029	.367
	Obs.	219	219	219	219	219	219
	Wald X2	24.39	1,355.63	24.52	32.90	10.58	64.17

(p-value)	.004	.000	.000	.000	.032	.001

End notes

[1] Corresponding author: Michael W. Hansen is an associate professor at CBDS/CBS.

[2] Wencke Gwozdz is an associate professor at IKL/ CBS.

[3] Typically, IB explains subsidiary organization, strategy and performance in the interface between firm specificities, country specificities, and investment or subsidiary specificities. This triad of explanations are integrated in John Dunning's OLI framework Dunning emphasized that the advantage of MNCs lies in their ability to balance the ownership (O), locational (L), and organizational (internalization (I)) advantages and that all three advantages needs to be present in order for an investment to be successful. However, within IB, there are different traditions, each emphasizing different advantages' role in creating and sustaining competitive advantage.

[4] It should be noted that it often will be difficult to untangle industry effects and country effects. Hence, as argued by Makino et al (2004) as well as Venaik et al (2005), industry characteristics may vary between countries depending on abundancy of factors as well as institutional factors such as industrialization strategy. And Porter has forcefully explained ow the competitive environment within a given industry varies depending on the configuration of the national diamond.

[5] In any case, a test by Christman et al (1999) to examine if tax levels correlates with profits of subsidiaries found no significant effect which made them conclude that these "results seem sufficiently strong to dispel serious worries about profit distortion" (251).

[6] Other studies are using slightly different analytical methodologies: Christman et al (1999) used hierarchical regression analysis to test for the relative contribution of the different sets of independent variables. This presupposes a theoretically founded hierarchy of independents, in this case moving from high determinism to low determinism. Venaik et al (2005) is more interested in conduct's influence on performance and therefore they examine the performance effects of conduct after having controlled for location, firm and industry factors. The study most similar to our study is that of Makino et al 2005. Following other performance studies (e.g., Rumelt, 1991; McGahan and Porter, 1997; Chang and Hong, 2002), Makino et al (2005) employed a variance component analysis where all the independents were treated as random effect variables.

[7] Indeed, the profitability of Danish firms in emerging markets is significantly higher than that of investments in other regions according to the Danish National Bank (2010). Thus, the Danish National Bank estimates that the revenue on direct investments in developing countries was almost twice that of revenue from investment in developed economies between 2004 and 2008 (21% versus 9%). (Special calculation by Danish National Bank for IFU, 20/8 2010).

[8] Obviously, the vast majority of projects that experienced stop of operation also ended with negative IRR (86%).

[9] Generalizations from this study are however impaired by the facts that it contains no time series and that is focuses on only four MNCs.

[10] While MP in several respects is a performance outlier, it should be kept in mind that managerial performance remains strongly related to IRR and PSO performance, with correlation coefficients of close to 0.5, vindicating the choice of including this measure in the analysis of subsidiary performance.