

Reinvested earnings as a component of FDI: an analytical review of the determinants of reinvestment

Sarianna M. Lundan*

Reinvested earnings represent an important component of foreign direct investment, but the managerial and policy implications of affiliate reinvestment have been neglected in the international business literature, although they have received attention in the economic literature on taxation. This article presents an analytical review of the determinants of reinvestment, paying particular attention to the role played by taxation. We consider reinvestment as a form of marginal investment, and discuss six determinants grouped under three headings, namely, factors encouraging reinvestment, factors encouraging the repatriation of earnings and the influence of agency considerations on the financial management of the TNC. We also discuss issues of measurement, and the empirical testability of our conceptual model of reinvestment. We think that a better theoretical and empirical understanding of sequential flows of investment has great relevance for policies aimed at investment attraction, which have tended to focus on greenfield investment and have often failed to deliver the desired results in the past.

Key words: reinvestment, taxation, financial management

1. Introduction

As the stock of foreign direct investment (FDI) in the global economy becomes more mature, new investment is more likely to be sequential, i.e. additional to existing investments,

* Sarianna Lundan is Associate Professor of International Business Strategy at the University of Maastricht in the Netherlands. The author is grateful to Christian Bellak and three anonymous reviewers for their constructive comments. Contact: S.Lundan@os.unimaas.nl

and possibly influenced by strategic considerations, such as trying to pre-empt or imitate the industry leaders. In addition to these types of investment, incremental FDI is also more likely to take place as a result of the reinvested earnings of the foreign affiliates of existing transnational corporations (TNCs). The spectacular growth of FDI, particularly in the 1990's, has given grounds for an investigation into the importance and implications of reinvested earnings as a component of these investment flows. To our knowledge, in the international business literature to date, nothing has been written regarding the empirical importance of reinvested earnings, or what factors govern the decision of whether income earned at a foreign location is repatriated to the parent in the home country, or whether it is reinvested at the foreign location. The conceptual model of reinvestment we present here treats reinvestment as a form of marginal investment, and consequently, we focus on factors that increase the attractiveness of the host country as an investment location, as well as the factors that increase the attractiveness of the alternative of repatriation. We identify six major factors, namely, macroeconomic factors affecting investment opportunities in the host country, the profitability of foreign investment, exchange rates, different systems of corporate governance, the tax treatment of repatriated foreign income (intra-firm dividends), and the use of dividend policy as a means of managerial control. In our discussion, we pay particular attention to the literature on taxation, since several studies in this tradition have examined the issue of intra-dividends (the repatriation of earnings), which forms the counterpart to our focus on reinvestment. We also consider in some detail the issues related to the operationalization of these determinants in empirical research. In order to motivate our discussion, we begin by presenting a brief overview of the patterns of reinvestment in the transatlantic context. We hope to demonstrate that reinvestment is quantitatively important, and warrants more attention both on a theoretical level, as well as in terms of empirical study. We then move on to the determinants of reinvestment, including the factors encouraging reinvestment, the factors encouraging the repatriation of earnings, and the influence of agency considerations on the financial management of the TNC. In the

concluding section, we consider the relevance of reinvestment for the policies of investment attraction and point to areas of future research.

2. Patterns of reinvestment in the transatlantic context

Using the publicly available balance of payments data from the United States Department of Commerce, Bureau of Economic Analysis (BEA), we present an overview of the extent of reinvestment in United States FDI abroad, as well as for FDI into the United States. The balance of payments data collected by the BEA are among the most detailed and consistent of its kind. The data on reinvestment are drawn from mandatory enterprise surveys that are conducted annually. These are supplemented by comprehensive benchmark surveys every five years. The data are collected in a consistent manner for both outward and inward FDI, enabling comparisons to be made between the two series.¹

Ideally, one would like to contrast these data with data from European or Japanese sources on investment abroad. However, triangulation with other data sources is difficult in this case, since the balance of payments data that are available from other source countries vary in its treatment of reinvested earnings. Although the guidelines issued by the IMF and the OECD have been adopted in most countries, and as a result, the balance of payments statistics are now more consistent in their definition of FDI, the treatment of reinvestment is still far from uniform. The primary reason for this is that since reinvested earnings do not give rise to cross-border transactions that would flow through the banking system, enterprise surveys are required to obtain the data. This is in contrast to the other components of FDI, for which data can be collected from central bank sources. Consequently, a number of countries, such as Denmark, France, Japan, Spain, Singapore and Thailand have either not collected

¹ The definitions of the different components of foreign direct investment, and the methodology employed by the BEA in data collection, are detailed in Quijano (1990) and Mataloni (1995).

data on reinvested earnings, have collected the data but do not report it, or have only collected data pertaining to either inward or outward transactions.

In light of these difficulties, and since FDI from the United States to Japan has been extremely low, we focus on the pattern of investment between the United States and Europe.² The leading European investors (in terms of stocks) are the United Kingdom, France, Germany, the Netherlands and Switzerland. The same five countries also account for the largest share of United States investment in Europe.

The balance of payments data yield the following information: the investment position at historical cost at year end, after-tax income earned by the affiliates, and the annual flow of investment broken down to its three component parts, namely equity, inter-company debt and reinvested earnings. Reinvested earnings are the only major component of the foreign investment position that originates in the host country, rather than being transferred from the home country.³ In line with other measures of FDI relying on balance of payments data, these data do not represent the total assets or extent of activity in a foreign affiliate, but rather they represent the proportion of financing for the foreign affiliate that originates in the home country of the parent. In most cases the affiliate receives financing from other sources as well.

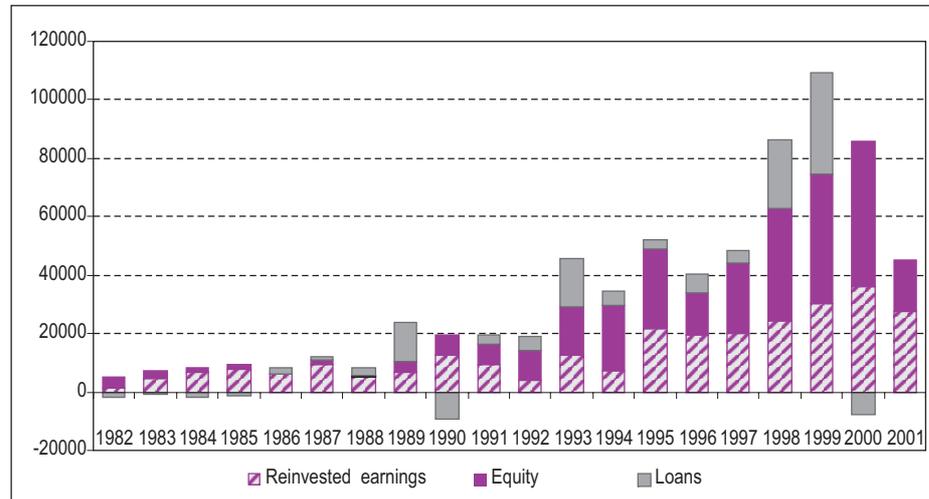
Figures 1a and 1b illustrate the breakdown of the flows of United States FDI to Europe and European FDI to the United States. In the period of 1982-2001, the average share of

² United States FDI to Europe accounted for an average of 54% of the total outflows of United States FDI in 1982-2001. Although Europe encompasses a larger group of countries at the end of the period than in the beginning, on average the five largest investors accounted for roughly three quarters of all the investment to Europe.

³ Valuation adjustments, which occur when foreign assets recorded at historical value are sold and their value is adjusted to reflect the market price, is another component of the foreign investment stock that does not represent a direct transfer of resources from the home country.

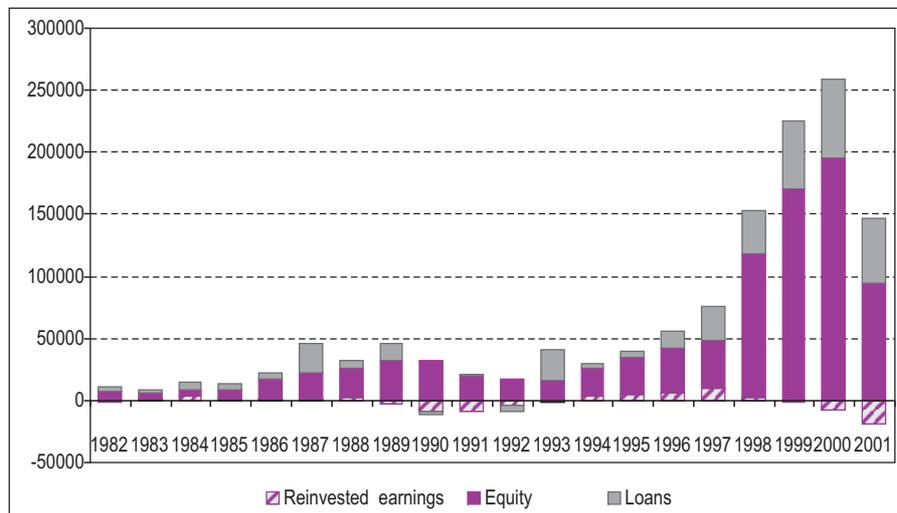
reinvestment in the outflows of United States FDI was 39%, with flows of equity investment accounting for 44%.⁴ In absolute

Figure 1a. United States FDI flows to Europe
(Millions of dollars)



Source: United States Department of Commerce, Bureau of Economic Analysis.

Figure 1b. European FDI flows to United States
(Millions of dollars)



Source: United States Department of Commerce, Bureau of Economic Analysis.

⁴ In principle, the BEA data is available until 2005. However, the inward FDI data for 2002-2005 is in the process of being revised, and consequently we only report the data until 2001.

terms, these flows corresponded to an average of \$13.5 billion of reinvestment annually, for a total of \$270 billion in cumulative reinvestment over the entire period. For European FDI in the United States, the share of reinvestment was negligible (-2%), while equity flows accounted for 74% of the total flows (although this was strongly influenced by M&A activity in the late 1990s). The average annual reinvestment was negative, amounting to a total of -\$18 billion in cumulative withdrawals over the entire period.

Facilitating the two-way comparison is the fact that a high degree of intra-industry investment characterizes the transatlantic relationship within the manufacturing industries, although following growth through acquisitions since the mid-1990s, the largest individual industry in terms of United States investment in Europe is now financial services, including insurance but not including depository institutions (banks). Chemicals (pharmaceuticals) is the largest manufacturing industry, and the petroleum industry is also notable, although not particularly so in the five largest host countries. Germany and France host the largest share of United States manufacturing investment, while financial services are relatively more important in the Netherlands, Switzerland and the United Kingdom. For European investment in the United States, extensive investment in chemicals (pharmaceuticals), and a considerably lower share of financial services are notable. Other important industries for outward investment are petroleum investment from the Netherlands, motor vehicles from Germany, the telecommunications industry from the United Kingdom and the insurance industry from Switzerland.

Overall, we observe that for United States FDI abroad, reinvested earnings have represented a notable component of annual flows of FDI. Indeed, it has exceeded equity flows of FDI for fifteen of the 20 years covered here. For European investment in the United States, reinvested earnings have been a substantial component of the FDI flows in some years, but this has been followed by sizable cumulative withdrawals, making European reinvested earnings volatile, but negligible

in absolute terms in this period. This means that during the period of study, cumulative European withdrawals were larger than incremental investment using reinvested earnings.⁵ Also, the average income earned by United States investors on their investment in Europe is about twice as high as the income earned by European firms on their investment in the United States. As a proportion of income, European firms also reinvested a lower proportion than did United States firms.

Although we are perfectly willing to accept that some of the differences we note here may be influenced by the way in which the BEA data are reported and collected, as well as the tax minimizing strategies of foreign investors in the United States, it seems unlikely that differences of this magnitude are merely a statistical artefact. We believe these data demonstrate that reinvestment is both quantitatively important, as well as being variable in its determinants across countries, and both of these factors suggest a need to achieve a better understanding of what drives these flows of investment. We now move to consider six possible determinants of reinvestment.

3. Factors encouraging reinvestment

Comparative investment opportunities

When TNCs earn income abroad, this income can either be reinvested in the affiliate, or it can be repatriated to finance projects in the home country or in third countries. What determines the proportion of income that is reinvested has not been investigated in the literature to date, although some attempts have been made to model the pattern of repatriation of earnings (the payment of intra-firm dividends).

⁵ Negative reinvestment represents a reversal of prior reinvestment, which is distinct from divestment, which shows up as a one-time capital flow back to the investor country. Negative reinvested earnings indicate that reversals of reinvestment from prior years exceeded new reinvestment in a given year.

In this paper, we conceptualize the issue of reinvestment as a form of marginal investment in a predetermined location. Our approach is akin to that taken by Kopits (1972), who argued that TNCs have a desired level of capital accumulation (financed through reinvestment), which in turn determines the level of the intra-firm dividend. This self-financing argument has strong historical support (e.g. Penrose, 1956; Chandler 1990), although the use of reinvested earnings to finance affiliate expansion may have become somewhat less important over time. Consistent with this view, we expect investment opportunities in the host country to be the most important determinant of reinvestment. Many ways of characterizing investment opportunities exist in the economic literature. Here, we consider two simple measures, one at the country level, and one at the industry level. The most obvious macro-level determinant of investment opportunities is the rate of growth in GDP, or alternatively, the difference between the rates of growth in the host country and the home country. Favourable economic conditions in the host country would encourage reinvestment, while favourable conditions in the home economy would encourage repatriation. (Of course, data permitting, differences in the rates of growth at the sectoral level could also be employed.)

At the level of the industry, income earned by TNC affiliates in a given industry could also be considered as an indication of further investment opportunities in the host market. Although positive income is necessary for reinvestment to take place, it is not clear whether higher levels of income would encourage higher levels of reinvestment, or higher levels of repatriation. We hypothesize that higher levels of income would signal better operating conditions in a given industry, and therefore encourage more reinvestment.

At the level of the firm, Tobin's q has been used as a proxy for investment opportunities in the economic literature. However, at the level of the TNC affiliate, another proxy would need to be found, since Tobin's q can only be calculated for firms with a known market value. One possibility is to follow Shin and Stulz (1998), who used lagged segment sales growth

to proxy for the missing q in their study of the efficiency of internal capital markets. For companies that are not listed but nonetheless have financial information available, the sales to assets ratio has also been used as a proxy of investment opportunities. Affiliate profitability, which is discussed in the following section, could also be considered a measure of the opportunities that are firm-specific.

Affiliate profitability

The second factor we consider is that affiliate reinvestment is likely to be influenced by firm-specific differences in profitability. This is in line with other models of firm-level investment behaviour, but testing it in a cross-country context is complicated by the fact that any differences in profitability are likely to be at least partly masked by differences in accounting standards and disclosure requirements, as well as the use of transfer pricing.

Unlike investment opportunities, which at the country and industry levels are external to the firm, differences in productivity (and consequently profitability) are internal to the firm, and reflect the use of firm-specific assets (FSAs) and capabilities. In the case of a TNC affiliate, they reflect both the mobile FSAs of its parent, as well as the mobile and immobile affiliate-specific assets of the affiliate (Rugman and Verbeke, 2001). To the extent that high profitability results from the exploitation of such advantages in the host country context, we would expect higher profitability to encourage reinvestment. However, if high profitability is the result of transfer pricing, the incentives for reinvestment are likely to be weaker.

Some of the earliest studies on FDI demonstrated the superior productivity of foreign affiliates over indigenous producers, such as the higher productivity of United States firms as opposed to the indigenous British firms (Dunning, 1998[1958]), and the productivity gap between foreign and domestic firms has been confirmed in a large number of studies since then. Indeed, the ownership-specific advantages

underlying performance are considered to be essential in explaining why firms would find it profitable to exploit their capabilities via direct investment rather than some other modality. Somewhat paradoxically, the low profitability (rather than productivity) of both Japanese as well as European investors in the United States has also been noted repeatedly in the literature. Notable studies documenting the financial and managerial difficulties of foreign firms in the United States have included Delios and Beamish (2001) and Jones and Gálvez-Muñoz (2002), while the implications of different corporate objectives to the profitability of Japanese firms have been explored by Buckley and Hughes (2001).

Few studies have directly addressed the issue of the extent to which such profitability gaps are real, or caused by differences in accounting conventions and different corporate objectives, as well as transfer pricing. The most comprehensive analysis to date was carried out by Grubert, Goodspeed and Swenson (1993), who observed that in 1987, foreign affiliates in the United States had nearly four times lower taxable income than their United States counterparts, whether measured in relation to total assets or in relation to sales. Since transfer pricing is nearly impossible to measure directly, the authors investigated a range of other possible reasons for the low affiliate profitability, including a greater reliance on debt, lower cost of capital, fixed costs related to mergers and acquisitions (M&As), fluctuation in exchange rates (in the period of the late 1980s) and transfer pricing.

They found that the distribution of taxable income to assets of foreign firms was centred around zero within a narrow range, while the distribution of domestic firms was wider, and shifted to the right. This implies that the average domestic firm was more likely to have positive taxable income, although the profitability of foreign controlled firms did show a rising trend over time. They also found that exchange rates had a significant effect on the profitability of wholesale companies, and that the ratio of taxable income to assets was understated for many foreign companies due to recent asset re-valuations connected

to acquisitions. At the same time, levels of debt and interest income, or possibly poorer performance of acquired United States firms, did not seem to be an explanation for the low level of profitability of foreign affiliates. Cost of capital differences also did not seem to be important, and, if anything, the parents of foreign companies tended to be more profitable than comparable United States companies. The authors concluded that up to a half of the differential between rates of return on foreign and domestic companies could be explained by factors other than transfer pricing, leaving the other half unexplained, and thus possibly accounted for by transfer pricing. In a more recent study, Mataloni (2000) found that there was still a persistent gap between the return on assets (ROA) of foreign non-financial affiliates and indigenous United States firms in the period 1988-97. The gap was present in 22 out of 30 industries, but it did show some signs of narrowing over time, possibly due to a catch-up effect, as new acquisitions from the late 1980s became integrated into the acquiring (European and Japanese) firms.

Indeed, the majority of the spectacular growth in inward investment into the United States in the late 1990's was equity investment in the form of M&As. Most of this investment was undertaken by European firms in the new technology-intensive industries, such as computers and communications equipment and services, as well as in finance and insurance, particularly life-insurance (Howenstine and Troia, 2000). The investment in computer and microelectronics was undertaken at least in part to close the technology gap with the United States industry, and as a consequence, the 'latecomer' argument, which has generally been applied to Japanese technology intensive investment in the United States (e.g. Belderbos, 2003), might apply for this investment as well. Thus, even if the earnings gap between foreign affiliates and indigenous United States firms might have narrowed during the 1990s, the new wave of acquisitions suggests that another period of lower performance owing to a renewed "latecomer" status might again be expected, with possible effects on reinvestment.

4. Factors encouraging the repatriation of earnings

In addition to these two drivers of reinvestment, we also need to consider the contextual factors that might influence reinvestment behaviour by making the repatriation of earnings more (or less) attractive. These are changes in exchange rates, differences in the system of corporate governance, and differences in the system of taxation.

Depreciation of the host country currency

A sustained depreciation of the host country's currency can be expected to discourage repatriation, and therefore to increase reinvestment.⁶ It should be noted, however, that on a theoretical level, such macroeconomic explanations are antithetical to the idea of FDI arising from the exploitation of the firm-specific assets and capabilities of the investing firm. The desire to manage an enterprise abroad is fundamentally separate from portfolio investment, which is a financial investment solely predicated on obtaining the highest available return. Although some theories based on macroeconomic considerations do explain some forms of FDI, the accepted view sees them as partial determinants of FDI flows, and considers exchange rates as more likely to affect the timing rather than the level of FDI (Dunning, 1993).

Corporate governance

The second contextual factor affecting the attractiveness of repatriation is due to the different expectations of corporate performance that prevail under different systems of corporate governance. In the broad groupings of economies employed by Hall and Soskice (2001), "liberal market" economies such as the United States and the United Kingdom are characterized by flexible labour markets and high stock market capitalization, while the "coordinated economies" such as Germany,

⁶ Strictly speaking, it is expectations about future changes in exchange rates that should be relevant to prospective investment.

Switzerland and, to an extent, France and the Netherlands operate a bank-based system, which is characterized by a high reliance on debt financing and the cross-ownership of banks and corporations. Continental European firms, like Japanese firms, are said to take a more long-term view as regards affiliate performance, and to tolerate lower earnings in the short to medium term than their liberal market counterparts. We would therefore expect firms in a liberal market system, which are generally more concerned about short-term financial performance and shareholder value, to be more eager to repatriate earnings, while affiliate reinvestment would be a consistent choice for the firms in a coordinated market system. However, as an empirical matter, it should be noted that separating the influence of different systems of corporate governance from other country-specific factors, such as differences in systems of taxation is likely to be quite difficult. This is because systems of corporate governance and systems of taxation are neither entirely separate, nor completely overlapping. Additionally, since the number of countries with significant levels of inward or outward FDI is relatively small, country-specific factors are likely to interact with the influence of the systems of governance and taxation.

Taxation of affiliate income

The third contextual factor influencing reinvestment is the tax system. The literature on TNCs and taxation is quite extensive, and distinguishes between two main types of effects, namely locational effects and behavioural effects. We will discuss these in turn, since they illustrate different aspects of the difficulties encountered in empirical studies dealing with TNCs and taxation. The primary effects we are concerned with here are behavioural effects that affect the form in which a TNC would choose to repatriate its earnings, whether through intra-firm dividends, interest payments or royalties.⁷ An important

⁷ Corporate income taxes might also affect the desirability of reinvestment directly, although this is more likely to be the case with greenfield investment rather than reinvestment.

difference to the approach adopted in this article is that the studies on taxation tend to assume that the TNC makes a decision on the desired level of repatriation (intra-firm dividends), and that the level of reinvestment is determined by default.

When TNCs repatriate affiliate income, or in other words, pay themselves dividends from abroad, the tax treatment of this income differs across countries. In addition to TNC affiliates being subject to corporate income taxes in their host location, most home countries tax the repatriated earnings of foreign affiliates as well. Two basic systems of affiliate taxation exist, which seek to neutralize the effects of this double taxation. The system applied by the United States and the United Kingdom (as well as Japan) is one where credit is applied for the taxes paid by incorporated affiliates in the host country against the tax liabilities of parent firms. Under the credit system, depending on the differences in rates of taxation between the home and host country, either more taxes will be due, or credit can be accumulated if more tax was paid in the host country than was due in the home country. Most credit system countries also allow for tax deferral, so that tax is only incurred if and when income is repatriated to the home country.⁸

The second system, sometimes referred to as territorial taxation, exempts income earned abroad from domestic taxation. This system is applied in most EU countries, with the exception of Greece, Ireland, Spain and the United Kingdom, although the extent to which income is fully or partially exempted varies across countries and is affected by the provisions of bilateral tax treaties (Commission of the European Communities, 2001; Hines, 1996; Mooij & Ederveen, 2003). An exemption system is also applied in Switzerland, but only the earnings of branches are exempt, while incorporated Swiss affiliates in the United States are subject to home-country taxation, which again varies by canton (Hines, 1996).

⁸ Branch plants are subject to United States taxes whether or not dividends are paid, and thus without deferral, but these account for less than 5% of all the affiliates of United States firms.

There are four types of tax rates commonly used in the literature: statutory tax rates, average tax rates (ATR) based on micro or macro data on actual taxes paid, and effective marginal tax rates (EMTR) or effective average tax rates (EATR) computed from the tax code.⁹ Average tax rates based on data are also known as backward looking or *ex post* rates, while statutory rates and effective calculated tax rates are forward looking or *ex ante* rates of taxation.

While statutory tax rates are readily available, they do not necessarily reflect the real burden of taxation on TNCs, which depends on the available deductions and exemptions. Average (*ex post*) tax rates based on micro or macro data have the benefit of reflecting all of the elements of the tax code. However, they are likely to suffer from endogeneity problems, since the average tax rates based on data also reflect underlying differences in, for example, profitability or rates of growth between locations. On the other hand, *ex ante* tax rates calculated from the tax code are based on assumptions about interest rates, forms of financing and so on, which may influence the results. Devereux *et al.* (2002), who constructed *ex ante* tax rates using a range of different assumptions, argue that when a TNC decides whether to serve a foreign market by export or by FDI, or when it decides between two locations, such choices are discrete. Furthermore, such decisions are made by firms with market power that expect to earn economic rent on the investment. Consequently, they argue that for the location decisions of a TNC, EATR is the relevant rate, while affiliate reinvestment may be more sensitive to EMTR.

(i) *Effects of taxation on the choice of location.* Since the location decisions of TNCs are complex, the extent to which it is possible to separate the influence of taxation on cross-border location is limited. Success in assessing the impact of differences in tax regimes on the choice of location rests on the degree to which other determinants of location are adequately accounted

⁹ Although rates based on actual tax revenues are also sometimes called effective tax rates to distinguish them from statutory rates.

for in the model. In addition to factors such as market size (measured typically by GDP or population) or level of development and the quality of demand (measured by GDP per capita), several factors related to agglomeration play a role in the choice of location. These factors can be related to the locational specificity of the distribution of natural resources, or the distribution and locational specificity of created resources.¹⁰

Overall, the empirical literature points to a negative impact of corporate taxes on the inflow of foreign investment. The literature reviewed by Hines (1999) suggested a consensus estimate of -0.6 , e.g. a 1% higher tax rate would lead to a reduction in inbound investment by 0.6% (or a semi-elasticity of -2% for a tax rate of 30%).¹¹ However, such literature surveys, by necessity, combine studies that use different model specifications, data and methodology. To (partially) overcome these problems, de Mooij and Ederveen (2003) conducted a meta-analysis of 25 empirical studies, where they converted the results of the studies into comparable elasticities, and then examined the characteristics of the underlying studies to see if these systematically influenced the observed elasticities.

The authors found a median tax elasticity of around -3.3 , but there was substantial variation across studies. Systematic differences in the results were due to the type of tax rates used and the measure of foreign capital. However, there were no systematic differences between investors from tax credit countries and tax exemption countries. M&As (as a subset of FDI) seem to have strongly positive semi-elasticities, but this

¹⁰ These can also be labeled as endowment effects and agglomeration effects. Endowment effects refer to the immobile resources, either natural or created, that make particular locations attractive for economic activity. Agglomerative economies refer to the additional benefits derived by a firm from locating in the proximity of other firms due to expected spillovers, or other strategic or competitive considerations.

¹¹ Elasticity is defined as the percentage change in one variable in response to a percentage change in the other variable. A semi-elasticity is a level change in one variable in response to a percentage change in the other variable.

finding was based on only one study.¹² Studies employing statutory tax rates had the lowest (but still negative) elasticities, followed by ATR, then EMTR and EATR, which had strongly negative elasticities.

In the EU, Gorter and Parikh (2003) found that a reduction of one percentage point relative to the EU mean in the effective corporate income tax rate increased FDI from another EU member state by 4%. Their model was simple, containing only population and GDP per capita, but it used both backward looking rates based on Worldscope data (ATR) and forward looking rates (EMTR) based on the tax code. In another study of the EU, Devereux and Griffith (1998) employed a more complex model of foreign production that included the option of exporting or not serving the foreign market at all. In their model, in addition to taxes, agglomeration effects, unit labour costs and the cost of capital determined the choice of location. They found that EATR played a role in location choice, conditional on a firm having decided to produce in Europe. Thus, for example, a one percentage point increase in EATR in the United Kingdom would lead to a 1.3 percentage point reduction in the probability of a United States firm choosing to produce there. However, EATR did not play a role in determining whether to export to Europe, or not to produce there at all.

In line with the argument of Devereux *et al.* (2002), Bellak *et al.* (2006) argued that while the use of statutory rates is relatively easier, doing so may mask the size of the true effect of taxation on FDI location. In particular, they argued that bilateral effective average tax rates (BEATRs), which are calculated from the tax codes of the home and host countries and include the terms of any double taxation agreements (exception or credit), are preferable to statutory tax rates. They constructed BEATRs for seven prominent source countries investing in eight host countries in Central and Eastern Europe.

¹² Swenson (2001) found that higher state tax rates in the United States attracted fewer new plants and plant expansions, but they did not discourage foreign acquisitions.

Bellak and Leibrecht (2005) employed these rates in a gravity model of FDI, which also included a comprehensive list of other location variables. They found semi-elasticities of -3.3 to -4.6 , which are larger than those reported in earlier studies and arguably closer to the true effect.

In the United States, Hines (1996) evaluated the influence of the differences between tax rates at the state level on investment in plant, property and equipment. This study also controls for the agglomeration factors affecting location choice, such as the inherent desirability of regions like New York City or Silicon Valley. The effects Hines found were large, as a 1% difference in state tax rates was associated with a 9-11% difference in the share of capital by fully taxed investors as compared to lightly taxed investors. (Lightly taxed investors were those foreign investors who received home country credits for the taxes paid in the United States, i.e. investors from Japan and the United Kingdom.) However, five states had zero rates of corporate tax, and if these states were removed from the model, the effect of taxes on capital ownership was not different from zero.

Finally, using data on United States TNCs, Desai *et al.* (2004) found that the indirect tax burden significantly exceeded the foreign income tax obligations of the affiliates of United States TNCs, and would therefore be expected to influence the location of FDI.¹³ They found that indirect tax rates were negatively correlated with investment levels (as measured by assets), approximately to the same extent as corporate income tax rates. Their results suggested that an increase in the local indirect tax rate of 10% would be associated with 7.1% less affiliate assets, which is similar to the effects of income taxes. Furthermore, they found that affiliate output fell by 2.9% in response to a rise in indirect taxes of 10%, while higher income taxes had more modest output effects. They also found that high

¹³ The role of indirect taxes is particularly important in countries like the United States, that do not permit foreign tax credits to be accumulated on taxes other than income taxes.

corporate income tax rates depressed the capital-labour ratios and profit rates of foreign affiliates, while indirect taxes did not.

An alternative to re-locating real activities is for the TNC to use transfer pricing to achieve a tax-minimizing allocation of profit.¹⁴ An interesting feature of the previous study by Desai *et al.* (2004) is that since indirect taxes are not a function of corporate income, they are unaffected by the form of financing of foreign affiliates, or by transfer pricing. In other words, the measured effects related to indirect taxes are uncomplicated by any tax-motivated shifting of profit or changes in the form of affiliate financing between debt and equity.

The modern TNC embodies a large volume of intra-firm transactions of both tangible and intangible nature. Since the benefits of internalization are particularly important for R&D intensive and advertising intensive TNCs, such firms typically have higher volumes of intra-firm transactions, and consequently more opportunities for transfer pricing (e.g. Harris *et al.*, 1993; Grubert, 2003). However, even in the case of intra-firm trade in tangible goods, identifying comparable prices for transactions that involve non-homogenous goods can be wrought with difficulty. Even more problematic (for the TNC itself as well as for the tax authorities) is the pricing of R&D related intangibles within the firm (Borkowski, 2001; Eden, 2001, 2005).

While it is clear that not all of the trade conducted within the firm is motivated by tax-related considerations, measuring the true extent of abusive transfer pricing is very difficult, and consequently any estimates about the extent to which transfer pricing influences the impact of taxation on TNC activity must be considered suggestive at best.

¹⁴ It should also be noted that TNCs from different industries differ a great deal in the extent to which they are able to re-locate productive activities across borders, with e.g. simple assembly tasks being relatively footloose, while activities employing a skilled labour force engender higher costs of transfer.

(ii) *Effects of taxation on TNC behaviour.* While the effect of tax rates on FDI location is difficult to assess, the effect of taxation on the behaviour of TNCs is arguably somewhat easier to come to grips with. Like all forms of regulation, taxation changes the incentives facing firms in ways that may distort their behaviour and induce inefficiencies. The behavioural effects of taxation on TNCs have been studied extensively by using the BEA data for United States TNCs. This research has uncovered distortions in TNC behaviour in four main areas, namely the extent and timing of repatriation of affiliate earnings, the financing of affiliates, the payment of royalties and technology transfer, and joint venture activity.¹⁵

Taxation affects both the timing and extent of profit repatriation, although the magnitude of this effect is difficult to ascertain, since there is little understanding of what constitutes a “normal” level of repatriation by TNCs.¹⁶ Desai *et al.* (2001) conclude that while a variety of non-tax considerations affect repatriation decisions, lower rates of tax on repatriated profits are nonetheless associated with higher rates of repatriation. They found that foreign affiliates of United States TNCs that were taxed higher had higher dividend payout rates, but if the firm was in a position of excess credit, or foreign income was exempt, these effects would disappear. By contrast, firms in low tax countries might prefer to engage in reinvestment within the TNC network (perhaps making use of tax havens) rather than repatriate income.¹⁷

¹⁵ Hines (1999) offers a comprehensive review of the literature concerning taxation and TNC behavior, while Desai *et al.* (2006) summarize some recent research results.

¹⁶ Desai *et al.* (2001) apply a Lintner dividend payout model, which is usually applied to dividends to shareholders, as a baseline for intra-firm dividends.

¹⁷ Deferral of repatriation may also be increasingly undertaken via indirect affiliate ownership. Desai *et al.* (2002) show that indirect ownership of United States affiliates has increased from around 15% of all affiliates in 1982 to over 35% in 1997.

Excess foreign tax credits arise when firms pay taxes abroad that are higher than they would have been required to pay in their home country. A tax rate decline in the home country, all other things being equal, would thus make it more likely for firms to be in a position of excess credit. Excess foreign tax credits blur the distinction between credit and exemption countries as regards TNC behaviour. While the sensitivity of firms from credit and exemption countries to high rates of taxation should be clearly different, this is not always the case empirically, because firms in credit countries differ in the degree to which they have excess credit. Firms without excess credit are relatively insensitive to (high) foreign rates of taxation, while firms with excessive credit behave more like firms from exemption countries, and are more sensitive to high rates of taxation. For example, a study by Slemrod (1990) compared the behaviour of foreign affiliates from credit and exemption countries in the United States, and found no difference in their behaviour. The type of FDI was found to matter, however, as higher taxes had a negative effect on (equity) FDI and transfer of funds (intra-firm loans), but not on reinvested earnings.

The excess credit status of TNCs will also affect the desirability of financing a foreign affiliate by debt as opposed to equity, since the interest payments are tax deductible. Desai *et al.* (2004) examined the attractiveness of using debt financing for foreign affiliates in high tax countries and equity financing for affiliates in low tax countries between groups of affiliates that are controlled by the same United States parent. They found that levels of debt were significantly higher among affiliates that were located in countries with a higher tax rate.¹⁸ They also found that borrowing from the parent was more sensitive to tax rate differences than borrowing from external sources. Additionally, firms with excess foreign tax credits have an incentive to defer from repatriation from high-tax source countries, and they also have an incentive to repatriate income in the form of royalties rather than dividends.

¹⁸ In response, “thin capitalization” rules have been introduced in many countries to prevent the excessive leveraging of affiliates.

The existing evidence on TNC activity and taxation leads us to believe that tax considerations are likely to play a role in forming decisions on reinvestment, but estimates of the magnitude of the effect are dependent on model specification. Taxes are likely to impact reinvestment in two ways. The primary effect is that differences in corporate tax rates between the home and host country affect the desirability of reinvestment, subject to the credit position of the parent company. The secondary effect is that the tax treatment of intra-firm dividends affects the costs of repatriation. Since the locational component can (almost) be assumed away in the case of reinvestment, it provides a particularly interesting context for the study of the tax-related behavioural effects. Recent literature also points to a reconsideration of the tax rate used and suggests that carefully constructed bilateral marginal and average tax rates, which account for all of the relevant aspects of the tax code of the home and host countries, provide a more realistic measure of the tax burden for discrete as well as marginal investment. However, as discussed earlier, this still leaves unsolved the considerable problem caused by TNCs' use of transfer pricing and the fact that TNCs optimize their tax liabilities on a global basis.

5. The role of agency considerations

Like the tax studies, studies that treat the issue of intra-firm dividends in a manner analogous to the dividends paid to shareholders also consider the relevant decision to be one of determining the level of intra-firm dividends rather than the level of reinvestment. The key to this approach, however, is to attribute deviations from optimal tax behaviour to agency considerations. High dividend payments to shareholders can be seen as a signal of the good financial health of a firm, or alternatively, they can be seen as a tool to discipline management. Similarly, high intra-firm dividends might either signal the good performance of the affiliate, or they might be used by corporate management to try to control the affiliate. The expectation here is that an affiliate in a culturally or institutionally distant and/or politically risky country would present a greater agency risk to the parent, and

therefore the parent would desire a higher degree of control of the affiliate's investment behaviour. Under such conditions, the parent might require higher intra-firm dividend payments (repatriation rather than reinvestment of affiliate income) than it requires from its other affiliates in less risky or more familiar markets.

To test this proposition, Lehmann and Mody (2003) analyzed the dividend repatriation patterns of United States, United Kingdom and German foreign affiliates based on a panel consisting of annual aggregate data on income and dividends from national sources for the period 1982-2001. They found that United Kingdom investors had the highest and most stable dividend payout ratios, followed by the United States and Germany. Host country political risk, statutory tax rate, economic growth and incidence of currency crisis had inconsistent effects of dividend payout rates. However, this result might be due to examining three source countries in a very large number of host countries, both developed and developing, with very different sectoral composition of investment across countries.

Using firm-level data from the BEA on 23,799 majority-owned affiliates for the period 1982-1997 and Compustat data of parent dividends to shareholders, Desai *et al.* (2001) applied a Lintner dividend payout model (Lintner, 1964) as a baseline for intra-firm dividends. They found that, just as in the case of dividends paid to shareholders, United States TNC had a desired level of dividends they did not want to deviate from year-to-year, but this was conditional on earnings. In a later study, Desai, Foley and Hines (2003) found that dividend payments from United States affiliates to their parents were "common, large and persistent", and a third of affiliates reported positive dividends, with a median ratio of dividends to net income of 78%.¹⁹ Furthermore, 72% of affiliates that paid dividends in 1996 also paid dividends in 1997, although this is still lower

¹⁹ In 1984, only 16% of the foreign affiliates of United States firms paid dividends (Hines and Hubbard, 1990).

than the persistence of dividends that firms pay to their shareholders. The inclusion of affiliate capital expenditure had little effect on the Lintner model, implying that an absence of intra-firm dividends could not simply be equated with capital expenditure (which could be financed by other means as well). Furthermore, a comparison of publicly and privately held parents suggested that there was little influence of outside shareholders on the dividend policy. While incorporated affiliates did adjust long-run payout ratios to reflect tax costs, their payout ratios were remarkably similar to foreign branches, which do not face tax consequences from dividend remittances.

An interesting, although less robust, finding from Desai, Foley and Hines (2003) is that United States TNCs continued to reinvest in affiliates even when it was not optimal in terms of the overall tax burden. This occurred specifically when parents invested new equity in an affiliate, while simultaneously receiving a dividend. Partially owned affiliates, affiliates that were located far away and had high political risk (weak legal protection) had the most rigid dividend policies, and they were most likely to engage in tax penalized behaviour, suggesting that managerial decision making, and possibly control issues, may underlie these patterns.

While this approach is intriguing, it does not offer any direct evidence that agency considerations have played a role in intra-firm dividend decisions. The proxies used to characterize the riskiness of host countries or the cultural/institutional distance associated with affiliate operations are imperfect, and they are particularly problematic in the context of investment between OECD countries due to limited variability.²⁰ Indeed, the fundamental question of whether TNCs make decisions on repatriation or on reinvestment has not yet been addressed in

²⁰ In addition to the familiar Kogut and Singh (1988) index of cultural distance, recent studies have also begun to use the measure of institutional distance devised by Yiu and Makino (2002), as well as institutional measures drawn from political science, such as the index of Kaufmann *et al.* (2005).

the literature and would require survey-based data to determine more conclusively.

6. Discussion and suggestions for further research

This paper has demonstrated that reinvested earnings are an important component of the flows of FDI, and that differences exist in the patterns of reinvestment in the transatlantic context. While United States firms show a preference for relatively high levels of reinvested earnings that are stable over time, European firms show a pattern where reinvested earnings are an important component in some years, only to be reversed in subsequent years. The conceptual model of reinvestment presented here treats reinvestment as a form of marginal investment, and consequently, in our discussion, we examined the influence of factors that increase the attractiveness of the host country as an investment location, as well as the factors that increase the attractiveness of the alternative of repatriation.

In a separate study, we undertook panel data analysis using the industry-level transatlantic investment data that were available from the BEA and found that the income earned in the industry was by far the most significant and positive determinant of reinvestment (Lundan, 2006). While this may seem like an obvious result at first, it is obvious only in the sense that positive earnings are necessary for reinvestment to take place. As long as a firm has positive earnings, it has the choice to reinvest or to repatriate a lower or a higher proportion of those earnings. Existing work on United States TNCs at the firm level has confirmed that they set a target level for the intra-firm dividend that they do not like to deviate from over time. Since our focus is on reinvestment, this suggests that it would be useful in future work to model reinvestment as a dynamic adjustment process whereby TNC affiliates seek to reach their desired level of capital.

Another important topic for further empirical study, which cannot be addressed by means of secondary data, concerns the question of which decision is actually made by TNCs; the

decision concerning the repatriation of earnings, or the decision concerning reinvestment. If the decision is made concerning reinvestment, which is the approach taken in this paper, then other factors relevant to the profitability of marginal investment are likely to play a role. If the decision that is made concerns intra-firm dividends and the repatriation of earnings, then a different set of factors comes into play, including factors that involve the mitigation of agency problems within the firm.

We believe this work has significant implications in two areas central to international business. First, if the benefits from FDI are tied to the affiliate's degree of integration to the local economy, the pattern of reinvested earnings can have a significant impact on the stability of FDI in host countries, and it is therefore relevant to the discussion on policies aimed at investment attraction and retention. Second, the use of dividend policy within the TNC to mitigate agency problems in the headquarters-affiliate relationship offers a new way of integrating issues of financial control into the discussion of the strategic management of an integrated TNC. We discuss these briefly.

As the stock of FDI matures globally, reinvestment will contribute a growing share of the flows of FDI, and consequently, they should be relevant to policies aimed at investment attraction and retention.²¹ The issue of to what extent foreign affiliates integrate into local clusters has been the subject of extensive study, particularly by scholars on regional issues (Cooke, 2001; Peck, 1996). Since reinvested earnings represent gradual investment in the same location, the increasing size of the investment makes the opportunity costs of relocation higher, and therefore affiliates that engage in reinvestment might have better incentives to integrate into the local economy. While reinvested earnings is not the only means by which an affiliate can grow and become integrated into its host location, internally generated funds represent a low risk means of financing future

²¹ See e.g. Mudambi (1999b) and Young *et al.* (1994) on investment attraction and retention.

growth, and older affiliates have been found to be more likely to engage in sequential investment in the same location (Mudambi, 1998). Consequently, investing public resources into retaining firms that have a record of reinvestment may have a better risk-return profile in the long run than trying to attract new investment (Lundan, 2003).

As regards the issues of control, over the past decade, the international business literature has moved from focusing on the headquarters-affiliate relationship to considering affiliate roles and affiliate autonomy, and in recent years there has been an enormous growth of studies that centre on the process of knowledge acquisition within the firm. Affiliates within integrated TNCs have distinct roles, and while some might obtain global product mandates that utilize the affiliate's unique capabilities and generate independence from the parent firm, other affiliates remain much more directly dependent on the parent firm. The opportunities to gain mandates are limited, and often involve a high degree of activity by the affiliate, but when successful, affiliates' entrepreneurial initiative can become the driver for corporate competitiveness (Birkinshaw, 1996; Birkinshaw, Hood and Jonsson, 1998).

While affiliate initiative and independence contribute to the competitiveness of the TNC, they also create control problems for the parent. The use of expatriates, training programmes and other forms of socialization can be used as a form of control in integrated TNCs (Harzing, 2001). However, Rugman and Verbeke (2001) have argued that not only defined affiliate roles, but also the more general conditions under which affiliate specific advantages are developed contribute to the differentiation between affiliates of the TNC. Importantly, they also argue that the independence of the affiliates cannot adequately be managed by socialization and corporate culture, but that some transparent, recognizable metrics are required within the firm, and that the control problems are likely to be particularly acute following takeovers and mergers.

We believe that integrating financial control as a means of solving agency problems is a promising way to enrich the research on affiliate control. In the international business literature the role of financial control has been largely absent with a few notable exceptions, such as research on managing the effects of currency fluctuations within the accounting system of a TNC (Jacque and Vaaler, 2001; Oxelheim and Wihlborg, 1997). Other studies have considered the role of the TNC headquarters as managing an efficient capital market within the firm, in which case increased affiliate autonomy might detract from the efficiency of the internal market (see e.g. Mudambi (1999a) on foreign engineering affiliates in the United Kingdom). Survey-based research is needed to uncover what the role of the headquarters in setting the internal dividend payout ratio is, and whether dividend payout ratios are indeed a means to exercise control in TNC affiliates, or whether instead, these are determined as a consequence of the desired levels of reinvestment. ■

References

- Belderbos, R. A. (2003). "Entry mode, organizational learning, and R&D in foreign affiliates: Evidence from Japanese firms", *Strategic Management Journal*, 24(3), pp. 235-259.
- Bellak, C. and M. Leibrecht (2005). "Do low corporate income tax rates attract FDI? Evidence from eight Central and East European countries", *Research Paper*, 43 (Nottingham: University of Nottingham).
- Bellak, C., M. Leibrecht and R. Römisch (2006). "On the appropriate measure of tax burden on foreign direct investment to the CEECs", *Applied Economics Letters*, forthcoming.
- Birkinshaw, J. (1996). "How multinational subsidiary mandates are gained and lost", *Journal of International Business Studies*, 27(3), pp. 467-495.
- Birkinshaw, J., N. Hood and S. Jonsson (1998). "Building firm-specific advantages in multinational corporations: the role of subsidiary initiative", *Strategic Management Journal*, 19(3), pp. 221-241.
- Borkowski, S. C. (2001). "Transfer pricing of intangible property: harmony and discord across five countries", *International Journal of Accounting*, 36(3), pp. 349-374.

-
- Buckley, P.J. and J.F. Hughes (2001). "Incentives to transfer profits: a Japanese perspective", *Applied Economics*, 33(15), pp. 2009-2015.
- Chandler, A. D. (1990). *Scale and Scope: the Dynamics of Industrial Capitalism* (Cambridge, MA: Harvard/Belknap).
- Commission of the European Communities (2001). *Company taxation in the Internal Market* (Brussels: European Commission).
- Cooke, P. (2001). "Regional innovation systems, clusters, and the knowledge economy", *Industrial and Corporate Change*, 10(4), pp. 945-974.
- de Mooij, R. A. and S. Ederveen (2003). "Taxation and foreign direct investment: a synthesis of empirical research", *International Tax and Public Finance*, 10, pp. 673-693.
- Delios, A. and P.W. Beamish (2001). "Survival and profitability: the roles of experience and intangible assets in foreign subsidiary performance", *Academy of Management Journal*, 44(5), pp. 1028-1038.
- Desai, M.A., C.F. Foley and J.R. Hines (2001). "Repatriation taxes and dividend distortions", *National Tax Journal*, 54(4), pp. 829-852.
- Desai, M.A., C.F. Foley and J.R. Hines (2002). "Chains of ownership, regional tax competition, and foreign direct investment", *NBER Working Papers*, No. 9224 (Cambridge, MA: NBER).
- Desai, M.A., C.F. Foley and J.R. Hines (2003). "Dividend policy inside the multinational firm", Harvard/NBER/University of Michigan.
- Desai, M.A., C.F. Foley and J.R. Hines (2004). "A multinational perspective on capital structure choice and internal capital markets", *Journal of Finance*, 59(6), pp. 2451-2487.
- Desai, M.A., C.F. Foley and J.R. Hines (2006). "Taxation and multinational activity: new evidence, new interpretations", *Survey of Current Business*, 88(2), pp. 16-22.
- Desai, M.A. and J.R. Hines (2004). "Old rules and new realities: corporate tax policy in a global setting", *National Tax Journal*, 57(4), pp. 937-960.
- Devereux, M.P. and R. Griffith (1998). "Taxes and the location of production: Evidence from a panel of US multinationals", *Journal of Public Economics*, 68(3), pp. 335-367.
- Devereux, M.P., R. Griffith and A. Klemm (2002). "Corporate income tax reforms and international tax competition", *Economic Policy*, 35, pp. 451-495.

-
- Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy* (Wokingham, Berkshire: Addison Wesley).
- Dunning, J. H. (1998). *American Investment in British Manufacturing Industry* (London and New York: Routledge).
- Eden, L. (2001). "Taxes, transfer pricing and the multinational enterprise", in A. M. Rugman, ed., *The Oxford Handbook of International Business* (Oxford: Oxford University Press).
- Eden, L. (2005). "Went for cost, priced at cost? An economic approach to the transfer pricing of offshored business services", *Transnational Corporations*, 14(2), pp. 1-52.
- Gorter, J. and A. Parikh (2003). "How sensitive is FDI to differences in corporate income taxation within the EU?", *De Economist*, 151(2), pp. 193-204.
- Grubert, H. (2003). "Intangible income, intercompany transactions, income shifting, and the choice of location", *National Tax Journal*, 56(1), pp. 221-242.
- Grubert, H., T. Goodspeed and D. Swenson (1993). "Explaining the low taxable income of foreign-controlled companies in the United States", in A. Giovannini, R.G. Hubbard and J. Slemrod, eds., *Studies in International Taxation* (Chicago and London: University of Chicago Press), pp. 237-270.
- Hall, P.A. and D. Soskice (2001). "An introduction to varieties of capitalism", in P.A. Hall and D. Soskice, eds., *Varieties of Capitalism: the Institutional Foundations of Comparative Advantage* (Oxford: Oxford University Press), pp. 1-68.
- Harris, D., R. Morck and B. Yeung (1993). "Income shifting in U.S. Multinational Corporations", in A. Giovannini, R.G. Hubbard and J. Slemrod, eds., *Studies in International Taxation* (Chicago and London: University of Chicago Press), pp. 277-302.
- Harzing, A.-W. (2001). "Of bears, bumble-bees, and spiders: the role of expatriates in controlling foreign subsidiaries", *Journal of World Business*, 36(4), pp. 366-379.
- Hines, J.R. (1996). "Altered states: taxes and the location of foreign direct investment in America", *American Economic Review*, 86, pp. 1076-1094.
- Hines, J.R. (1999). "Lessons from behavioral responses to international taxation", *National Tax Journal*, 52(2), pp. 305-322.
- Hines, J.R. and R.G. Hubbard (1990). "Coming home to America: dividend repatriations by U.S. multinationals", in A. Razin and J. Slemrod, eds.,

-
- Taxation in the Global Economy* (Chicago: The University of Chicago Press), pp. 161-200.
- Howenstine, N.G. and R. Troia (2000). "Foreign direct investment in the United States: new investment in 1999", *Survey of Current Business*, June, pp. 53-61.
- Jacque, L.L. and P.M. Vaaler (2001). "The international control conundrum with exchange risk: an EVA framework", *Journal of International Business Studies*, 32(4), pp. 813-832.
- Jones, G. and L. Gálvez-Muñoz (eds.) (2002). *Foreign Multinationals in the United States: Management and Performance* (London: Routledge).
- Kaufmann, D., A. Kraay and M. Mastruzzi (2005). *Governance Matters IV: Governance Indicators for 1996-2004* (Washington, D.C.: World Bank).
- Kogut, B. and H. Singh (1988). "The effect of national culture on the choice of entry mode", *Journal of International Business Studies*, 19(3), pp. 411-432.
- Kopits, G. F. (1972). "Dividend remittance behavior within the international firm: a cross-country analysis", *Review of Economics & Statistics*, 54(3), pp. 339-342.
- Lehmann, A. and A. Mody (2003). *International Dividend Repatriations* (Washington, D.C.: International Monetary Fund).
- Lintner, J. (1964). "Optimal dividends and corporate growth under uncertainty", *Quarterly Journal of Economics*, 78(1), pp. 49-95.
- Lundan, S. M. (2003). "Institutions, exclusivity and foreign investment", in H. P. Gray, ed., *Extending the Eclectic Paradigm in International Business* (Cheltenham: Edward Elgar).
- Lundan, S. M. (2006). "Reinvested earnings as a form of foreign direct investment: Evaluating the determinants of affiliate reinvestment", University of Maastricht, mimeo.
- Mataloni Jr., R. J. (1995). "A guide to BEA statistics on U.S. multinational companies", *Survey of Current Business*, 75(3), pp. 38-55.
- Mataloni Jr., R.J. (2000). "An examination of the low rates of return of foreign-owned U.S. companies", *Survey of Current Business*, 80(3), pp. 55-73.
- de Mooij, R.A. and S. Ederveen (2003). "Taxation and foreign direct investment: a synthesis of empirical research", *International Tax and Public Finance*, 10, pp. 673-693.

-
- Mudambi, R. (1998). "The role of duration in multinational investment strategies", *Journal of International Business Studies*, 29(2), pp. 239-262.
- Mudambi, R. (1999a). "MNE internal capital markets and subsidiary strategic independence", *International Business Review*, 8(2), pp. 197-212.
- Mudambi, R. (1999b). "Multinational investment attraction: principal-agent considerations", *International Journal of the Economics of Business*, 6(1), pp. 65-79.
- Oxelheim, L. and C. Wihlborg (1997). "Managing in the turbulent world economy: corporate performance and risk exposure", (Chichester: John Wiley).
- Peck, F.W. (1996). "Regional development and the production of space: the role of infrastructure in the attraction of new inward investment", *Environment and Planning A*, 28(2), pp. 327-339.
- Penrose, E.T. (1956). "Foreign investment and the growth of the firm", *Economic Journal*, 66, pp. 220-235.
- Quijano, A.M. (1990). "A guide to BEA statistics on foreign direct investment in the US", *Survey of Current Business*, February, pp. 29-37.
- Rugman, A.M. and A. Verbeke (2001). "Subsidiary-specific advantages in multinational enterprises", *Strategic Management Journal*, 22(3), pp. 237-250.
- Shin, H.-H. and R.M. Stulz (1998). "Are internal capital markets efficient?", *Quarterly Journal of Economics*, 113(2), pp. 531-552.
- Slemrod, J. (1990). "Tax effects on foreign direct investment in the United States: evidence from a cross-country comparison", in A. Razin and J. Slemrod, eds., *Taxation in the Global Economy* (Chicago and London: The University of Chicago Press), pp. 79-117.
- Swenson, D. (2001). "Transaction type and the effect of taxes on the distribution of foreign direct investment in the United States", in J. R. Hines Jr., ed., *International Taxation and Multinational Activity* (Chicago and London: University of Chicago Press).
- Yiu, D., and S. Makino (2002). "The choice between joint venture and wholly owned subsidiary: an institutional perspective", *Organization Science*, 13(6), pp. 667-683.
- Young, S., N. Hood and E. Peters (1994). "Multinational enterprises and regional economic development", *Regional Studies*, 28(7), pp. 657-677.