

# FDI, Export, and Capital Structure

## An Agency Theory Perspective

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### Abstract:

- This study investigates the impact of foreign direct investment (FDI) and export on capital structure for firms in emerging economies. The hypotheses are developed based on an agency theory perspective and are tested using a sample of 566 Taiwanese firms. We find that the behavior of multinational corporations (MNCs) with a high debt ratio is in line with agency theory predictions.
- Our findings show that: (1) MNCs in emerging economies, defined as those firms with at least one foreign subsidiary or some extent of FDI, have a higher level of debt than non-MNCs, which contrasts with the findings for MNCs based in developed countries; and (2) export intensity leads to a lower debt ratio, which has not received much attention in previous studies. We propose several factors related to the context of emerging economies to explain these contradictory findings.
- We also explore the interaction effect of the extent of FDI and export intensity on the capital structure of MNCs, and find that the impact is negative, which implies that both monitoring costs and agency costs rise dramatically for creditors when firms' international operations become overly complicated.

**Keywords:** Foreign direct investment (FDI) · Export · Agency theory · Internationalization · Capital structure · Emerging economies

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## Introduction

Multinational corporations (MNCs) benefit from geographical diversification through economies of scale and scope (Hitt et al. 1997). Firms that are located in relatively small home markets (i.e., emerging economies) may be forced to internationalize at an early stage to gain additional benefits from scale economies as compared to internationally diversified firms based in larger home markets (Glaum and Oesterle 2007; Hennart 2007). In addition, MNCs have monopolistic advantages related to research and development capabilities that enable them to outperform local firms in host countries (Kim and Lyn 1986); these advantages are reflected in the value of their future growth options.

Firms that engage in internationalization activities, whether they are located in developed countries or emerging economies,<sup>1</sup> exhibit higher demands for funding as compared to firms that restrict themselves to their domestic markets. The long-term financing problem encountered by MNC managers in developing or emerging economies is more complicated, since it encompasses multiple capital markets, capital control (e.g., foreign exchange repatriation), political risk, poor corporate governance and tax burden considerations. The paramount issue concerns how to obtain the long-term financing to pay for the international investment (export and FDI)—by bringing in additional owners or by borrowing the required funds. This issue, a major concern for MNC managers, is related to the capital structure of firms: the specific mixture of long-term debt and equity the firm uses to finance its operations. Managers must consider both the percentage of financing that should be borrowed and the least expensive sources of funds for the firm. As the expenses associated with raising long-term financing are often considerable, the various possibilities must be carefully evaluated. If capital structure is not taken into account, several negative situations can arise including a higher cost of capital and a greater risk of financial distress, both of which may threaten firms' profitability and even their survival. Therefore, it is necessary to explore the impact of FDI and export on firm financing behaviors and in terms of their capital structure (Harris and Raviv 1991).

Jensen and Meckling (1976) proposed the agency theory to explain variations across firms in terms of corporate financing decisions. The agency theory attempts to model the relationship that exists when one party, the "principal", delegates its duties to another party, the "agent". Conflicts between principals (creditors) and agents (shareholders) arise because the issue of debt gives shareholders an incentive to invest in high risk projects. If successful, these projects offer high returns, most of which will be accrued to the shareholders. However, if the projects fail, the creditors bear the consequences due to limited liability of shareholders. This is generally referred to as the "asset substitution effect" and is an agency cost of debt financing. Further, this asset substitution problem is more severe in MNCs, since they function in complex environments. These complicated operations increase creditor difficulties in terms of wholly controlling or monitoring the behaviors of agents (shareholders) (Burgman 1996); in turn, creditors anticipate that the risk of asset substitution will be higher. This kind of risk has been referred to as the "agency cost of debt" (Jensen and Meckling 1976). Therefore, the degree of international involvement is argued to be associated with the agency cost of debt and the firm's capital structure (debt ratio).

A number of studies have examined the relationship between internationalization and the capital structure of MNCs, which are firms with operations beyond their national borders that benefit from product and geographical diversification (Hitt et al. 1997). Some studies show that US MNCs have lower debt ratios as compared to those of domestic corporations (DCs) (Burgman 1996; Chen et al. 1997; Doukas and Pantzalis 2003; Fatemi 1988; Lee and Kwok 1988; Michel and Shaked 1986; Singh and Nejadmalayeri 2004), and that the financial leverage of MNCs increases with firms' level of internationalization (Chen et al. 1997; Chkir and Cosset 2001). For non-US firms, Kwok and Reeb (2000) found that internationalization is positively associated with financial leverage for emerging market-based firms, while Low and Chen (2004) discovered that internationalization exerts no impact on capital structure for non-US firms. Such contradictory findings illustrate the necessity of additional studies on emerging economies.

In an effort to clarify this issue, we outline two potential factors that contribute to these conflicting results. First, different measures of internationalization have been used across the various studies: the foreign sales ratio and foreign-pretax income ratio used in previous studies may or may not include export sales and foreign sales, which can lead to the inconsistent results outlined above (Lee and Kwok 1988). Therefore, we suggest defining the internationalization of a MNC according to its foreign market entry modes (i.e., foreign direct investment and export). In addition, a number of studies chose US-based firms as samples to shed light on how foreign direct investment (FDI) affects leverage ratios. However, the ways that leverage ratios are impacted by export, which is a popular choice for firms in emerging economies such as Hong Kong, Singapore, South Korea, and Taiwan, is less explored. Compared to firms based in more developed countries, the home markets of firms from emerging economies such as Taiwan are limited in terms of size and resources. As such, over the last 40 years, Taiwanese firms have emphasized an aggressive penetration of foreign markets. To illustrate, the value of exports from Taiwan increased from US\$94.3 billion in 1994 to US\$150.6 billion in 2003 (<http://www.mof.gov.tw/ct.asp?xItem=50314&ctNode=1774&mp=6>), and during the same period, the value of FDI rose from US\$2.58 billion to US\$8.56 billion ([http://www.moeaic.gov.tw/system\\_external/ctrl?PRO=PublicationLoad&id=83](http://www.moeaic.gov.tw/system_external/ctrl?PRO=PublicationLoad&id=83)).<sup>2</sup> As such, to properly examine the impact of internationalization on a firm's capital structure within emerging economies, it is necessary to assess the impact of FDI and export separately.

Second, special institutional environments common within emerging economies, including underdeveloped capital markets (Chen and Ho 2000; Khanna and Palepu 1997) and greater agency problems (Bebchuk et al. 2000) resulting from poor corporate governance (La Porta et al. 1998) should be taken into account. These unique institutional environments may affect local firms' capabilities to finance their operations, especially in terms of international expansion activities that are characterized by a high degree of risk, and thereby lead to varying associations between internationalization and capital structure. However, when firms in emerging economies expand internationally, they often gain access to sources of debt not available within their home market. Thus, MNCs from emerging economies with weak banking systems and underdeveloped debt markets are more likely to increase their debt (abroad) when they are able to borrow money in foreign countries. Keeping the above in mind, we posit that the issue of the relationship between

internationalization and capital structure has been less than adequately explored, especially in the case of emerging economies.

In addition, this study aims to shed some light on the relationship between firms' degree of internationalization and their capital structure based on an agency theory perspective: it considers the relative risk exposure and agency costs associated with the two entry modes (FDI and export) in the context of emerging economies, and more specifically of firms listed on the Taiwan Stock Exchange. To the best of our knowledge, no previous study has examined the effects of the extent of FDI and export on the debt ratio separately.

The remainder of this paper is organized as follows. The second section reviews the existing literature as a basis for the three research hypotheses. The third section describes the source of the data, the definitions of the variables and the research methodology. The fourth section discusses and interprets the empirical results, while the final section presents the conclusions and provides suggestions for future research.

## Theoretical Background and Research Hypotheses

Shapiro (1978) indicated that the major determinants of a firm's capital structure are agency costs and bankruptcy costs of debt, which have negative effects on a firm's debt ratio. As such, predicting the difference in the debt ratios between MNCs and DCs depends on how internationalization affects agency costs and the bankruptcy costs of debt. Specifically, the debt ratio is determined by whether the internationalization benefits outweigh the associated costs.

For nearly forty years, scholars have argued that MNCs provide diversification benefits to investors through their accumulation of cash flows from imperfectly correlated markets (Rugman 1976). Levy and Sarnat (1970) and Lessard (1973) also highlight the risk reduction benefits of international diversification. The reduced earnings variability is perceived as a source of financial strength and indicates a lower potential for bankruptcy to creditors, which in turn results in a lower cost of debt. Similarly, Agmon and Lessard (1977) indicate that MNCs have greater stability against volatile markets, while Fatemi (1984) posits that the benefits of international diversification reduce the present value of bankruptcy costs and allow for increased debt usage by MNCs. In sum, risk reduction due to international diversification expands debt utilization, and in turn results in a higher debt ratio for MNCs.

On the other hand, building on earlier work by Fama and Miller (1972), Jensen and Meckling (1976) proposed the agency theory to document the potential for agency problems based on conflicts of interest between principals (creditors) and agents (shareholders), as well as the resulting agency cost. As stated earlier, this kind of agency cost is a so-called asset substitution problem: levered shareholders have incentive to choose risky, negative net-present-value investments. Moreover, this issue is more severe in MNCs, since they must function in complex environments based on institutional differences, such as differences in customs, laws and culture, as well as differences in terms of economic development between the home country of a parent firm and the host countries of its subsidiaries (Wright et al. 2002). These complicated operations increase creditor difficulties in terms of wholly controlling or monitoring the behaviors of shareholders.

In other words, at higher levels of internationalization, creditors often bear increased risk and uncertainty regarding the actions of shareholders, and thus bear a higher agency cost of debt. As a result, a higher degree of international involvement is argued to be associated with a higher agency cost of debt and a lower debt ratio (Lee and Kwok 1988).

Previous empirical studies that investigated MNCs in Europe, Japan and the US (Burgman 1996; Chen et al. 1997; Fatemi 1988; Lee and Kwok 1988; Michel and Shaked 1986; Shapiro 1978; Singh and Nejadmalayeri 2004) found that MNCs have a lower debt ratio than that associated with DCs. These studies showed that the costs of internationalization outweigh the benefits of international involvement, which increase the agency cost of debt and lead to a lower debt ratio for MNCs.

Further, several studies have confirmed the positive relationship between the extent of internationalization and the debt ratio (e.g., Chen et al. 1997; Chkir and Cosset 2001) for MNCs. However, the relationship between export and the debt ratio has rarely been explored for firms in emerging economies. That being said, two studies have examined the issue of internationalization on capital structure for US MNCs and firms from emerging economies. Kwok and Reeb (2000) used the foreign asset ratio to measure the extent of internationalization (i.e., extent of FDI) and examined the relationship between internationalization and leverage using a sample size of 1320 firms from 32 countries (including 145 samples from 12 emerging economies). They proposed an upstream–downstream hypothesis whereby the relationship between internationalization and capital structure depends on the relative risk associated with an MNC's home country and the target country. Their findings confirmed a negative relationship between internationalization and financial leverage for US-based firms, in contrast with prior studies (Chen et al. 1997; Chkir and Cosset 2001). However, their results also showed that internationalization is positively associated with financial leverage for emerging-market-based firms.

In the second relevant study, the choice to employ a sample of 232 firms from 30 countries allowed Low and Chen (2004) to use a composite measure of internationalization and confirm the findings of Kwok and Reeb (2000) in terms of the effects of internationalization on leverage for US firms.<sup>3</sup> They found that firms that diversify across borders have lower leverage ratios than DCs, but failed to find any significant effect of internationalization on the capital structure of non-US firms.

We suggest that two factors might account for these contradictory results: both studies employed different measures and limited sample sizes. For example, Low and Chen (2004) used a measure incorporating both FDI and export activities that mixed foreign sales and export sales; hence, they were unable to distinguish the effect of different foreign market entry modes on a firm's capital structure. In addition, their sample size consisted of 232 firms across 30 countries, but only 47 firms were based in emerging economies. On the basis of the limited evidence available, we suggest that the issue has been less than adequately explored, especially in the case of emerging economies.

## Foreign Direct Investment and Capital Structure

MNCs face higher levels of risk with increased foreign involvement—specifically exchange rate risk, political risk and social risk. This amplified risk exposure and the more complicated operations associated with MNCs cause creditors to raise the agency

cost, and thereby lower their incentive to lend money to MNCs. In addition, the institutional environment of emerging economies is different from that of developed economies; for example, the capital market of an emerging economy such as Taiwan is less developed as compared to that in the US (Chen and Ho 2000). To illustrate, the corporate bond market in Taiwan is very small and illiquid, although significant efforts have been undertaken to develop the market. Hence, bank loans remain a major source of debt financing in Taiwan. Further, Bebchuk et al. (2000) argued that agency problems in emerging economies may be of an order of magnitude larger than those in developed economies, especially since emerging economies generally suffer from a lack of stockholder and creditor protection and have poorly developed legal systems (La Porta et al. 1998). This greater agency problem forces local creditors in emerging economies such as banks to demand adequate collateral when granting loans. As stated earlier, MNCs have monopolistic advantages (Kim and Lyn 1986) and these advantages are reflected in the value of their future growth options—however, they cannot be used as a pledge to obtain loans from banks. In view of the higher investment risk and underdeveloped capital market, MNCs in emerging economies tend to raise less local debt for their international expansion.

However, when firms in emerging economies expand internationally, they may gain access to sources of debt that are not available within their home market. Shapiro (1996) indicated that a good way to avoid currency exchange risks is to match revenues with expenditures from operations. Thus, MNCs may reduce investment risk by increasing debt denominated in foreign currencies. For this reason, many MNCs use less local debt, since the agency cost of debt for local creditors in home countries is relatively higher. By borrowing money from financial institutions in host countries, MNCs may not have to meet the expense of the higher cost of debt associated with an increasing agency cost of debt—the monitoring and audit costs faced by financial institutions in host countries are often lower than those in the home market, as the former can more easily assess the MNCs and supervise their operations.<sup>4</sup> Consequently, MNCs may prefer to raise more foreign currency denominated debt to hedge against exchange, political risks and social risks, and thereby reduce their investment risks (Kedia and Mozumdar 2003; Shapiro 1996). Moreover, a further hypothesis regarding the higher level of debt is the tax shield provided by debt: interest is an effective way to minimize local tax payments and withhold taxes upon repatriation.<sup>5</sup>

The FDI diversification service hypothesis states that to the extent international markets (especially capital markets) are segmented, MNCs may provide an international diversification service to their shareholders. This diversification service hypothesis has been cited as an economic motive for FDI (e.g., Adler 1974; Aggarwal 1980). However, previous studies (e.g., Jacquillat and Solnik 1978) have indicated that investors do not recognize the diversification service of MNCs. Therefore, MNCs must spend additional money to finance their FDI investment in the stock market and rely on debt financing to set up additional subsidiaries abroad. As a result, in line with the agency theory, we hypothesize that the debt ratio of MNCs will be higher than that of DCs, and that an increased level of international activity can be associated with a higher debt ratio.

*Hypothesis 1:* MNCs in emerging economies have a *higher* debt ratio than that associated with DCs.

*Hypothesis 2:* The extent of foreign direct investment for MNCs in emerging economies is positively related to their debt ratio.

### Export and a Firm's Capital Structure

Unlike MNCs in developed countries that tend to engage in extensive FDI, firms in emerging economies tend to rely heavily on exporting to serve foreign customers, similar to Japanese firms in the 1970s to 1990s (Geringer et al. 2000).

When firms expand their operations into international markets through exporting, local creditors most often find themselves unable to easily monitor selling activities abroad due to the complexity of the operations. Moreover, the agency cost of debt increases for local creditors with firms' internationalization growth, especially when these operations are located in emerging economies that are characterized by poor corporate governance (La Porta et al. 1998); as such, creditors become less motivated to lend additional funds to acquire fixed income (interest revenue) associated with higher investment risk. Similarly, if firms rely heavily on exporting, it is often difficult for these firms to borrow in foreign countries for two reasons: (1) low visibility in host countries increases the risk to the creditors in these countries; and (2) the agency cost of debt for creditors in host countries is high due to the high monitoring and audit costs.<sup>6</sup>

It has been argued that modern communication infrastructure (such as the internet) makes it easier to monitor overseas MNC operations. However, firm websites usually withhold sensitive information pertaining to market-specific or sales data. Though banks in different countries today are connected through various informational ties, they are not permitted to disclose confidential information about their clients without their consent. For example, according to Article 48 of the *Banking Law of the Republic of China*, "a bank shall keep confidential all information regarding deposits, loans or remittances etc. of its customers unless otherwise required by law or by order of the Central Competent Authority" (<http://law.moj.gov.tw/Eng/Fnews/FnewsContent.asp?msgid=231&msgType=en&keyword=banking+law>). Therefore, local banks in the home country may not gain access to information regarding their clients held by counterparts in host countries.

In addition, unlike banks in developed countries, which usually are MNCs, banks in developing countries tend to have limited operations abroad. For instance, the most internationalized bank in Taiwan is Mega International Commercial Bank, which had 17 overseas branches in 7 countries in 2003 ([http://www.megabank.com.tw/about/about04\\_02.asp](http://www.megabank.com.tw/about/about04_02.asp)). Moreover, even if banks have established branch offices in some host countries, operations may be limited to low risk transactions such as deposits, disbursements, and foreign exchange rather than high risk transactions such as bank loans. Therefore, local banks in emerging economies such as Taiwan have limited informational ties and are less able to monitor the behaviors of exporting firms. As such, export-based growth is associated with lower debt levels because firms are usually unable to raise debt both at home and abroad.

*Hypothesis 3:* Export intensity for firms in emerging economies is *negatively* associated with their debt ratio.

## Data and Methods

### Sample and Data Collection

We selected our sample firms from companies listed on the Taiwan Stock Exchange (TSE), as these firms are generally larger in terms of sales and more capable of adopting an international expansion strategy. Concerns regarding the significant amount of Generally Accepted Accounting Principles (GAAP) revisions that have taken place in Taiwan since 2004 led us to employ the year 2003 as our research period. Firms in regulated industries (finance and insurance) were excluded. Moreover, to avoid any impact of survivor bias (Hutzschenreuter and Voll 2008),<sup>7</sup> we added 23 cases of financial distress firms that had gone through financial difficulties related to mergers, delisting, liquidation, or bankruptcy. This sample was collected from the *Taiwan Economic Journal* (TEJ) Data Bank, a data bank similar to *Compustat*. Applying these filters left us with a sample of 566 firms, including 268 (47% of the total sample) from the electronic parts and component manufacturing industry.

We collected FDI and export sales data from corporate annual reports.<sup>8</sup> According to “The disclosure of segmental financial information” (i.e., Taiwan Financial Accounting Standard Board No. 20), firms were only required to report total export sales if they accounted for more than 10% of total revenues. Due to this data limitation, we might have underestimated the export intensity for some firms. After matching the corporate information with FDI and export information, 472 and 424 Taiwanese firms were found to have engaged in FDI and export activities in 2003, respectively. The number of foreign subsidiaries per firm ranged from 1 to 58, with an average of 4.39, and the number of host countries ranged from 1 to 20 with an average of 2.37.<sup>9</sup> We found that 74.03% and 91.52% of the sample firms had less than six overseas subsidiaries and six host countries, respectively. These ranges in FDI activity indicate that most of our sampled firms had a low level of FDI, while a few firms showed a relatively high extent of international involvement. In addition, we also accumulated some financial data pertaining to the debt ratio, size, profitability, earnings volatility, tangible assets, and growth opportunity of firms from the TEJ Data Bank.

On the basis of the agency theory and other studies, we postulated that a firm’s extent of FDI and its export intensity are two important explanatory variables with regard to capital structure (as measured by the debt ratio). Further, and consistent with prior studies (Chen et al. 1997; Chen 2004; Kwok and Reeb 2000; Michel and Shaked 1986; Ozkan 2001; Singh and Nejadmalayeri 2004), the present research study employed firm size, growth opportunity, profitability, earnings volatility, tangible assets, and industry effect as the control variables. Including these items greatly clarified the impact of the various forms of internationalization strategy on firm capital structure.

### Dependent Variable (Debt Ratio)

Most previous relevant studies (Burgman 1996; Chen et al. 1997; Chkir and Cosset 2001; Kwok and Reeb 2000; Low and Chen 2004; Singh and Nejadmalayeri 2004) have used the debt ratio as the proxy for the capital structure of a firm. We followed these studies and



employed the debt ratio to measure the capital structure of firms. Moreover, for the purpose of comparison with prior studies, we defined the debt ratio as long term debt divided by the sum of long-term debt plus the market value of equity (Burgman 1996; Chen et al. 1997; Chkir and Cosset 2001; Kwok and Reeb 2000).<sup>10</sup> We operationalized the market value of equity as the book value of preferred stock plus the multiplier of outstanding shares and the year-end closing stock price.

## Independent Variables

### *MNC Dummy*

Prior studies that examined firms from developed markets (Burgman 1996; Chen et al. 1997; Denis et al. 2002; Doukas and Kan 2006; Doukas and Pantzalis 2003; Kwok and Reeb 2000; Lee and Kwok 1988) used foreign sales as well as foreign income or foreign assets to distinguish between MNCs and DCs. We desired a better measure of the extent of internationalization, but the Securities and Futures Bureau in Taiwan only requires that firms disclose the number of foreign subsidiaries and host countries, while the disclosure of further information such as foreign sales as a percentage of total sales or the number of foreign plants is not mandatory. Needless to say, such a paucity of information hindered us in our efforts to provide a truly comprehensive measure of internationalization. Therefore, we followed prior studies (e.g., Doukas and Pantzalis 2003) to define MNCs<sup>11</sup> and classified a firm as an MNC if it had at least one foreign subsidiary; otherwise, it was classified as non-multinational (non-MNC).

### *Extent of FDI*

The most common measure of the extent of FDI applied by previous studies was the foreign sales ratio (Michel and Shaked 1986; Ruigrok and Wagner 2003; Shaked 1986) or the foreign pre-tax income ratio (Chen et al. 1997), as these types of data are widely available. However, Lee and Kwok (1988) and Burgman (1996) have noted that this measure potentially mixes export sales with foreign subsidiary sales. In addition, more recent research has employed the foreign asset ratio (Kwok and Reeb 2000; Reeb et al. 1998) or the foreign tax rate (Burgman 1996; Chkir and Cosset 2001; Lee and Kwok 1988) to measure internationalization. While these measures may more accurately reflect the depth of internationalization, they are lacking in terms of the depth and breadth of internationalization.

Regarding the measure of the extent of FDI, we followed Sullivan's (1994) recommendation to use two measures of a firm's FDI activities: the first is a count of a firm's number of overseas subsidiaries, expressed as a percentage of the maximum number of overseas subsidiaries; the second is a count of the number of countries in which a firm has overseas subsidiaries, expressed as a percentage of the maximum number of host countries with subsidiaries. In our sample, the two variables proved to be highly correlated ( $r=0.73$ ). Then, following the procedures of Sanders and Carpenter (1988) as well as Lu and Beamish (2004), we computed the average of the two ratio measures to obtain

a composite measure of the extent of FDI. Our final measure of the extent of FDI took on values ranging from 0 to 1.

### *Export Intensity*

To measure the extent of internationalization of Japanese firms, given that Japanese firms prefer to serve international markets by means of exporting, Geringer et al. (2000) chose to adopt export sales as a percentage of total sales. We opted to follow Geringer et al. (2000) and employed export sales as a percentage of total sales as the measure of export intensity.<sup>12</sup>

### Control Variables

#### *Firm Size*

The effect of firm size on the debt ratio is ambiguous, according to Rajan and Zingales (1995). Smith and Watts (1992) found that the debt ratio of larger firms was less affected by financial distress, because they have a higher level of diversification as compared to smaller firms. As such, large-sized firms should have a higher debt ratio. However, based on the asymmetric information theory (Myers and Majluf 1984), if size serves as a proxy for the financial information possessed by outside investors, the asymmetric information problem may prove to be less severe for larger firms. Thus, larger firms may prefer equity relative to debt, and size should have a negative impact on the debt ratio. To avoid any impact of firm size on the results and on comparisons with prior studies (Chen et al. 1997), this paper included firm size as a control variable measured by the logarithm of market value of common equity.

#### *Profitability*

Myers' (1984) "pecking order" theory argues that firms prefer not to borrow externally when internally-generated funds are available. Based on this theory, it is expected that firms' financing preferences follow this sequence: internally-generated funds, debt financing and issuance of equity. When firms are profitable, internally-generated funding from retained earnings is plentiful and can be used for operational expansion. As it is unnecessary for profitable firms to rely on funding from external sources, they should have a lower debt ratio. Further, based on the information asymmetry theory (Myers and Majluf 1984), internal funding is not likely to be underestimated by investors. As a result, profitability is very likely to affect debt financing decisions. The present study follows the prior literature (Chen et al. 1997; Kwok and Reeb 2000) and employs return on assets as the proxy for profitability. We measured return on assets as the ratio of earnings before interest after tax (EBIAT) to average total assets.

### *Earnings Volatility*

Before calculating their financial risk, firms must take operational risks into account to ensure that their total risk remains at an acceptable level. Firms with lower operational risk are better able to bear financial risk and thereby raise additional funding through debt financing. Hence, operational risk should have a negative association with financial risk (debt ratio). We referred to previous studies (e.g., Burgman 1996) and employed earnings volatility to reflect the operational risk of firms. We measured earnings volatility as the variance coefficient of earnings before interest and tax (EBIT) to avoid size bias. In other words, to measure earnings volatility, we used the standard error of EBIT to its mean over the past five years.

### *Tangible Assets*

Myers (1977) argued that the tangible assets of firms such as buildings, machinery and equipment can be used as collateral for bank loans. Therefore, if firms have tangible assets that can serve as pledges, they are more capable of proceeding with debt financing. In turn, we inferred that firms with greater mortgage assets had a comparatively higher debt ratio. In our study, tangible assets were measured using the ratio of net property, plant, and equipment (net fixed assets) to total assets (Singh and Nejadmalayeri 2004).

### *Growth Opportunity*

It is often argued that internationalization is motivated by the generation of growth opportunities through the creation of larger markets. Kim and Lyn (1986) suggest that MNCs often outperform local firms in host countries and enjoy greater opportunities for growth. Under these conditions, MNCs tend to carry less debt as the agency costs associated with the creditor-shareholder conflict are likely to be a positive function of a firm's growth opportunities. Hence, we determined that growth opportunity should have a negative relationship with the debt ratio. We followed previous research (Chen et al. 1997) to measure growth opportunity as the ratio of market value to book value of total assets.

### *Industry Effect*

We also followed previous research (Kwok and Reeb 2000; Singh and Nejadmalayeri 2004) to control for industry-wide differences in terms of firm debt usage. To retain an optimum level of total risk, firms in electronic parts and component manufacturing industries tend to reduce financial risk in order to offset higher operational risk. Thus, we used a dummy variable to measure the industry effect (1 for firms in the electronic parts and component manufacturing industry, and 0 otherwise) and expected that the industry effect would have a negative relationship with the debt ratio.

Table 1 summarizes the measures and expected signs of the variables we examined in this study.

Finally, we used multiple regression analyses to examine the relationship between internationalization and capital structure. In addition, we incorporated the effects of firm

**Table 1:** Measures and expected signs

Variables	Measures	Expected signs
<i>Dependent variable</i>		
Debt ratio	Long-term debt/(long term debt + preferred stocks + market value of common stocks)	
<i>Independent variables</i>		
MNC dummy	If the firm has a foreign subsidiary, MNC dummy = 1, and 0 otherwise	+
Extent of FDI	$\frac{1}{2} \times$ (percentage of the number of subsidiaries + percentage of the number of host countries)	+
Export intensity	Export sales/total sales	-
<i>Control variables</i>		
Firm size	Log(market value of common stocks)	+ or -
Profitability	EBIAT/average assets	-
Earnings volatility	Standard error of EBIT/mean of EBIT for past 5 years	-
Tangible assets	Net fixed assets/total assets	+
Growth opportunity	Market value of assets/book value of total assets	-
Industry effect	Electronics industry = 1, others = 0	-

size, profitability, earnings volatility, tangible assets, growth opportunity, and industry effect on capital structure within the empirical model. Moreover, because certain variables showed significant correlation, we standardized the variables and examined variance inflation factors (VIF) to ensure that multicollinearity did not lead to estimation errors.

## Results

### Descriptive Statistics

Table 2 presents the descriptive statistics and the correlation matrix for each variable. The average debt ratio and profitability of Taiwanese TSE-listed firms in 2003 was 18% and 5%, respectively. Compared to the findings of Kwok and Reeb (2000), Taiwanese firms had approximately the same debt ratio level as US firms (17.68%) and Japanese firms (16%), although this figure was lower than the average for firms in some emerging economies (21.99%). In addition, Taiwanese firms were more profitable than Japanese firms (2.53%), but less profitable than both US firms (6.84%) and emerging market firms (8.95%). The average export intensity equaled 43%, which was higher than the 21.3% found in Geringer et al. (2000), suggesting that Taiwanese TSE-listed firms exported more than Japanese firms. We also found that the fixed asset ratio of Taiwanese firms was 27%, indicating that 27% of total assets could be utilized as collateral for long-term debt.

We conducted t-tests to capture the differences between MNCs and DCs in terms of firm characteristics; the results are shown in Table 3. The debt ratio of MNCs (18%) was

**Table 2:** Descriptive statistics and Pearson correlations

Variables	Mean	Median	SD	1	2	3	4	5	6	7	8	9	10	11
1. Debt ratio	0.18	0.14	0.17											
2. Firm size	6.63	6.59	0.62	-0.29**										
3. Profitability	0.05	0.04	0.10	-0.47**	0.49**									
4. Earnings volatility	0.59	0.46	7.59	-0.04	0.03	0.02								
5. Tangible assets	0.27	0.24	0.18	0.39**	-0.06	-0.18**	0.02							
6. Growth opportunity	1.35	1.13	0.72	-0.42**	0.41**	0.64**	-0.01	-0.22**						
7. Industry effect	0.47	0.00	0.50	-0.31**	0.22**	0.16**	0.05	-0.31**	0.34**					
8. MNC dummy	0.00	0.45	1.00	-0.02	0.23**	0.16**	0.09*	-0.21**	0.04	0.21**				
9. Extent of FDI	0.10	0.08	0.10	-0.10*	0.44**	0.14**	0.03	-0.30**	0.08	0.23**	0.44**			
10. Export intensity	0.43	0.44	0.36	-0.29**	0.22**	0.23**	0.02	-0.23**	0.33**	0.52**	0.25**	0.30**		
11. Interaction of MNC dummy and export intensity	0.25	0.17	1.01	-0.04	-0.08	-0.09*	-0.05	-0.01	0.01	-0.02	-0.45**	-0.11**	-0.05	
12. Interaction of FDI and export intensity	0.30	0.14	1.09	-0.10*	0.10*	-0.01	-0.00	-0.13**	-0.00	0.07	-0.10*	0.38**	0.06	0.40**

Firm size is a log-transformed variable

MNC dummy, export intensity, interaction of MNC dummy and export intensity, and interaction of FDI and export intensity are the standardized variables

\*p < 0.05 and \*\*p < 0.01

**Table 3:** Mean test of variables between MNCs and DCs

Variables	MNCs	DCs	t-value
1. Debt ratio	0.18	0.19	-0.51
2. Firm size	6.70	6.31	5.64**
3. Profitability	0.05	0.01	3.81**
4. Earnings volatility	0.89	-0.91	2.11*
5. Tangible assets	0.25	0.35	-5.01**
6. Growth opportunity	1.37	1.29	1.02
7. Extent of FDI	0.12	0.00	11.46**
8. Export intensity	0.47	0.23	6.24**
Samples	472	94	

\* $p < 0.05$  and \*\* $p < 0.01$

lower than that of DCs (19%) and did not reach statistical significance. We also noted that MNCs had higher profitability than DCs, which is consistent with Chen et al. (1997). The higher profitability may have stemmed from greater sales to a broader market base and the lower production costs associated with reduced material and labor costs for firms with international operations. Further, the MNCs were significantly larger than the DCs. We also found that the fixed asset ratio of MNCs (25%) was less than that of DCs (35%), which reached statistical significance at 0.01. Also, it is important to note here that MNCs showed higher earnings volatility as compared to DCs, and the mean difference reached statistical significance at 0.05. However, no significant difference was found between MNCs and DCs in terms of growth opportunity.

### Empirical Results

Table 4 presents the empirical results. For all of the estimations, the largest VIF value was 1.98 (not reported in the table), which was lower than the recommended threshold of 10, suggesting that multicollinearity was not a severe threat to our models (Neter et al. 1996). Model 1 in Table 4 was statistically significant ( $F=49.988$ ,  $p < 0.01$ ) and shows that the control variables accounted for 34.2% of the variance in the debt ratio. Models 2 and 4 were required for hypotheses-testing, while Models 3 and 5 are discussed later.

As expected, the MNC dummy variable was significant and positively related to the debt ratio ( $t=4.57$ ,  $p < 0.01$ ). This suggests that the debt ratio of our MNCs was higher than that of the DCs, which is inconsistent with prior studies (Chen et al. 1997; Lee and Kwok 1988; Michel and Shaked 1986; Singh and Nejadmalayeri 2004), but offers support for Hypothesis 1. The extent of FDI also showed a significantly positive relationship with the debt ratio ( $t=3.57$ ,  $p < 0.01$ ). This supports Hypothesis 2 and echoes certain findings from previous studies on firms in developed countries and emerging economies (Chen et al. 1997; Chkir and Cosset 2001; Kwok and Reeb 2000). Furthermore, the estimate of export intensity was negatively and significantly different from zero at the 5% significance level, which supports Hypothesis 3.

Four of our control variables were significant and exhibited the anticipated signs; only earnings volatility and growth opportunity proved to be non-significant. Profitability had

**Table 4:** Multivariate analysis of FDI, export on firm's capital structure

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Hypothesis
Constant	0.30*** (4.14)	0.33*** (4.62)	0.33*** (4.61)	0.37*** (4.96)	0.38*** (5.11)	
Firm size	-0.02 (-1.41)	-0.02** (-2.15)	-0.02** (-2.14)	-0.04*** (-2.84)	-0.04*** (-3.01)	
Profitability	-0.55*** (-6.66)	-0.58*** (-7.15)	-0.59*** (-7.14)	-0.53*** (-6.42)	-0.54*** (-6.59)	
Earnings volatility	-0.00 (-1.04)	-0.00 (-1.43)	-0.00 (-1.43)	-0.00 (-1.12)	-0.00 (-1.15)	
Tangible assets	0.25*** (7.33)	0.27*** (7.98)	0.27*** (7.91)	0.28*** (8.03)	0.28*** (8.03)	
Growth opportunity	-0.02* (-1.89)	-0.01 (-0.87)	-0.01 (-0.86)	-0.01 (-1.07)	-0.01 (-0.99)	
Industry effect	-0.05*** (-3.54)	-0.04*** (-2.98)	-0.04*** (-2.97)	-0.04*** (-2.63)	-0.04*** (-2.62)	
MNC dummy		0.03*** (4.57)	0.03*** (4.00)			Supports H1
Export intensity		-0.02** (-2.19)	-0.02** (-2.18)	-0.02** (-2.20)	-0.02** (-2.39)	Supports H3
Interaction of MNC dummy and export intensity			-0.00 (-0.15)			
Extent of FDI (or # of subsidiaries, or # of overseas countries)				0.26*** (3.57)	0.34*** (4.42)	Supports H2
Interaction of FDI and export intensity					-0.02*** (-3.03)	
F	49.988***	41.786***	37.080***	40.217***	37.294***	
Adjusted R <sup>2</sup>	0.342	0.366	0.365	0.357	0.366	
$\Delta R^2$		0.026	0.000	0.017	0.010	
$F(R^2)$		11.530***	0.022	7.445***	9.185***	

\*p&lt;0.10; \*\*p&lt;0.05; \*\*\*p&lt;0.01

a significantly negative impact on the debt ratio, which provides further confirmation of previous study results (Chen et al. 1997; Chkir and Cosset 2001; Kwok and Reeb 2000; Titman and Wessels 1988). Consistent with Myers' (1984) "pecking order" hypothesis, we found that firms with higher profitability had large amounts of internally-generated funds that they used for their operations, as opposed to external debt financing. Moreover, ownership of additional tangible assets led to a higher debt ratio, as we expected (Chen 2004; Hovakimian et al. 2004; Singh and Nejadmalayeri 2004). We also concluded that ownership of tangible assets was vital for Taiwanese firms in terms of being able to acquire external funds from creditors, and that this further affected firms' capital struc-

ture. Firm size was negatively related to the debt ratio, which was in agreement with the asymmetric information theory (Myers and Majluf 1984) and previous findings (e.g., Chen et al. 1997). Further, the industry effect had a significantly negative effect on the debt ratio, thereby confirming that firms in the electronic parts and component manufacturing industry carry less debt to offset their higher operational risk and to keep total risk at an acceptable level. Finally, the estimated coefficient of earnings volatility was statistically insignificant and the impact of growth opportunity proved to be negative but insignificant, which both were inconsistent with previous results (Chen et al. 1997); this calls for further assessment of their impact on capital structure in terms of the context of emerging economies.

### Robustness Analyses

In this research study, we followed previous studies (Lu and Beamish 2004; Sanders and Carpenter 1988) in defining the extent of FDI as a composite measure that incorporates the number of foreign subsidiaries and host countries. To ensure that our results were not driven by our measure of the extent of FDI, we also included the number of foreign subsidiaries and the number of host countries to measure the extent of FDI in model 4. The results, not reported here, were consistent across the three equations.

### Discussion of Results and Managerial Implications

The purpose of this study is to examine the relationship among FDI, export and capital structure using an agency theory perspective for firms within emerging economies. The empirical findings support that: (1) FDI is positively associated with the debt ratio; and (2) export intensity is negatively associated with the debt ratio. Our results suggest that the relative risk exposure differences between FDI and export lead to different financing behaviors, implying that defining international involvement by means of foreign market entry modes (i.e., FDI and export) is adequate. Our findings also reflect the phenomenon of MNCs using higher foreign currency denominated debt as a hedging instrument (Kedia and Mozumdar 2003; Shapiro 1996) to reduce the investment risk associated with FDI, and thereby increasing the proportion of total debt financing. Further, we argue that developing countries usually sign tax treaties with a limited number of countries. Therefore, MNCs from developing countries are motivated to enjoy the tax shield associated with the increased use of debt.

Moreover, our results suggest that MNCs are poor tools for diversification and that investors do not recognize the diversification service provided by MNCs; therefore, MNCs often are forced to rely on debt financing to set up additional subsidiaries abroad, which is consistent with previous findings (e.g., Jacquillat and Solnik 1978). Finally, with the mandatory or voluntary implementation of International Financial Reporting Standards (IFRS) in a growing number of countries, operating assets abroad will be treated as local currency assets. It is local currency debt that serves as the first line of defense for protecting net asset values. Therefore, the application of IFRS regulations will provide a strong motive for MNCs to increase their debt, which will lead to higher leverage ratios.<sup>13</sup>



Our research findings may show additional significance and robustness in the future when the application of IFRS regulations has become commonplace. We now focus on these issues to substantiate our findings.

### The Interaction Effect of Export and FDI

Our study assesses the separate impacts of FDI and export on capital structure. In light of the fact that firms do engage in simultaneous FDI and export to serve foreign clients, we were uncertain about how the complications associated with the two modes would affect firms' capital structure. Surprisingly, no previous study had addressed this issue. Our exploratory results listed below shed some light on this area.

Models 3 and 5 in Table 4 illustrate the impact of the interaction of FDI and export on the debt ratio. Model 3 shows no association between the interaction of the MNC dummy and export intensity on the debt ratio, but Model 5 demonstrates the negative impact of the interaction of export intensity and the extent of FDI on the debt ratio. These results are understandable because, unlike the extent of FDI, the MNC dummy does not take into account the risk and complexity of managing subsidiaries in several host countries. Therefore, the following discussion is based on the estimating results for Model 5.

To understand how the interaction of FDI and export affects firm financing behavior, we split the samples into four groups based on their FDI and export intensity means. The numbers of cases for each group associated with a low debt ratio or a high debt ratio are shown in Table 5.<sup>14</sup> A Chi-square test shows that, except for group 2 (high FDI intensity and low export intensity), FDI\*EXP is indeed negatively associated with the debt ratio. This implies that if MNCs based in emerging economies want to further their degree of internationalization and use leverage more extensively, they should set up additional subsidiaries abroad and export less from home. Moreover, other means of financing such as internally-generated funds or equity financing may become necessary if firms rely too much on export or simultaneous export and FDI.

### Sources of Long-term Debt Financing

Even though our hypotheses are supported, we further examined the sources of MNCs' long term debt. To do so, for highly internationalized MNCs defined as firms belonging to the third quartile of the degree of internationalization (FDI), we randomly selected nine firms that experienced a significant FDI increase between 2002 and 2003. Then, we collected information regarding their long term debt. From Table 6, we see that Taiwan-

**Table 5:** Association between low/high levels of interaction variables and choices of debt ratio

	Low debt ratio	High debt ratio
Low FDI and high export (1)	88	54
High FDI and low export (2)	29	52
Low FDI and low export (3)	108	89
High FDI and high export (4)	103	43

Chi-Square (3,d.f.)=27.55 and p=0.000

**Table 6:** Detailed list of long-term debt for selected samples. Unit: US\$ thousand

Company name	# of foreign subsidiaries	# of host countries	Degree of FDI	Local bank financing	Overseas bank financing	Corporate bonds with common collateral	Corporate bonds without common collateral	Corporate bonds-with warrant and convertible	Europe convertible bond	Total long-term debt	Total assets
Great Wall Enterprise (2003)	21	3	0.2043	16,386	0	8,716	0	0	0	25,102	276,697
Great Wall Enterprise (2002)	17	2	0.1362	14,515	0	0	0	0	0	14,515	264,615
Makalot Industrial (2003)	9	5	0.2276	0	0	0	0	14,557	0	14,557	93,110
Makalot Industrial (2002)	8	4	0.1690	0	0	0	0	0	0	0	80,130
Yuen Foong Yu Paper Mfg (2003)	17	3	0.2724	48,161	0	145,264	0	0	0	193,425	882,584
Yuen Foong Yu Paper Mfg (2002)	16	3	0.2379	66,088	0	86,755	20,243	0	0	173,086	774,447
Cheng Shin Rubber (2003)	9	4	0.1776	91,017	18,511	0	0	0	0	109,528	800,450
Cheng Shin Rubber (2002)	6	2	0.1353	27,377	0	0	0	0	0	27,377	649,393
Wan Hai Lines (2003)	10	9	0.3112	62,642	705	0	0	0	0	141,904	1,061,450

Table 6: (continued)

Company name	# of foreign subsidiaries	# of host countries	Degree of FDI	Local bank financing	Overseas bank financing	Corporate bonds-common with collateral	Corporate bonds-common without collateral	Corporate bonds-warrant and convertible	Europe convertible bond	Total long-term debt	Total assets
Wan Hai Lines (2002)	8	7	0.2440	89,916	7,226	0	0	0	0	97,141	827,245
Test Rite International (2003)	16	9	0.3629	26,487	14,526	12,783	8,716	14,643	0	77,155	268,287
Test Rite International (2002)	13	8	0.3121	12,642	0	12,724	8,676	0	0	34,042	230,383
Lite-On Technology (2003)	60	13	0.8500	33,315	0	116,212	0	0	0	149,526	2,347,319
Lite-On Technology (2002)	53	13	0.7302	42,093	0	41,353	0	0	0	83,446	1,987,756
Prodisc Technology (2003)	6	5	0.1595	108,655	0	14,526	0	0	99,153	222,334	764,600
Prodisc Technology (2002)	3	3	0.0672	80,945	0	14,459	0	0	50,905	146,310	570,547
Quanta Computer (2003)	12	6	0.2707	19,790	0	0	0	0	448,307	468,097	3,884,623
Quanta Computer (2002)	9	5	0.1690	27,404	0	0	0	0	161,146	188,551	2,869,407

ese MNCs seem to prefer to borrow long term debt from foreign-owned banks within host countries as they expand internationally. This result suggests that foreign banks in host countries are better able to assess these MNC operations at lower monitoring costs, allowing the agency problem between shareholders and creditors to be mitigated. This also suggests that MNCs are not required to pay higher costs of capital to acquire funds. In addition, we found that MNCs may utilize convertible bonds or corporate bonds with collateral or warrants issued in the home country or in host countries to finance their operations. This signifies that convertible debt is associated with lower agency costs as compared to plain debt. Further, the conversion rights enable creditors to share in any positive wealth transfers to shareholders and to gain from any increase in risk. Therefore, creditors have a greater incentive to lend money to MNCs without worrying about higher agency costs, which lead to higher costs of debt.

For firms aiming to expand into international markets, our findings suggest that MNCs may consider raising funds from alternative channels such as debt from overseas banks in host countries, or bonds with convertible, warrant, or collateral provisions; in this way, they may lower the agency cost of debt and acquire funds at a lower cost. By choosing one of these options, MNCs can use foreign currency denominated debt to hedge the increased investment risk and, at the same time, avoid paying higher costs for debt financing.

#### Collateral Loans

Moreover, in this study, we find that the fixed assets ratio of MNCs is significantly lower than that of DCs, and our regression results show a positive relation between asset tangibility and the debt ratio. This evidence seems to reflect the importance of fixed assets as collateral for firms who wish to acquire bank loans—MNCs typically experience difficulty trying to borrow money due to a lack of collateral. This result appears to signify a specific and vital bank loan criterion for firms in emerging economies. To enhance their degree of internationalization, governments should derive mechanisms to guarantee loans to MNCs—future research should explore the use of intangibles or intellectual property rights as collateral, as well as their effectiveness.

#### Conclusions and Limitations

This study investigates the impact of international involvement on MNC capital structure, employing an agency theory perspective in the context of emerging economies through the use of a sample consisting of Taiwanese listed firms. We conclude that the behavior of MNCs with a high debt ratio is in line with the agency theory based predictions, which is inconsistent with previous findings (Burgman 1996; Chen et al. 1997; Fatemi 1988; Lee and Kwok 1988; Low and Chen 2004; Michel and Shaked 1986; Shapiro 1978; Singh and Nejadmalayeri 2004). In addition, among firms with international operations, the extent of FDI is positively related to the debt ratio, in line with Kwok and Reeb (2000) but contrasting with earlier studies (Chen et al. 1997; Chkir and Cosset 2001); however, export

intensity is negatively related to the debt ratio. We also find that higher international involvement by virtue of FDI and export interaction leads to lower debt utilization.

One limitation of our research is that we study a single country, which may not be representative of large, strategically important emerging economies. However, based on the agency theory and the particular context (an underdeveloped capital market and poor corporate governance), we derived our hypotheses and used Taiwan firms as the sample to test the hypotheses. In principle, therefore, the research findings could be applied to those countries that exhibit a similar context. Moreover, if a developing or emerging market is associated with more rigid foreign exchange control, weaker capital markets, and poorer corporate governance, then we would expect that the research findings would be even stronger.

In addition, it must be stated that each emerging economy has its own particular characteristics, such that the effect of internationalization on any firm's capital structure might not be identical with the findings in this study. In view of the growing importance of emerging economies, we suggest a closer examination of this relationship—one that compares our results with those from developed countries to obtain a firmer grasp of any significant differences pertaining to firm debt financing behaviors in countries with different levels of economic development. As the operation of firms is very complicated, we were not able to access certain information (e.g., the debt ratio of subsidiaries) through public sources. We therefore resorted to interviewing the executives of five listed firms to learn about their financing behaviors in China, the US or other developed countries. The interview findings show that most firms set up production subsidiaries in China and therefore demanded a higher level of funding. Due to tight foreign exchange control and high political risks, these firms chose to finance their operations through borrowing from local banks or foreign-owned banks in host countries. In contrast, most firms see the US and other developed countries as places to set up sales subsidiaries, which are associated with lower demands in terms of funding. They usually raise equity funding from the parent company or short-term debt from local banks in host countries if they have a long-term relationship with these banks. If additional data becomes available in the future, our interview findings can be examined empirically.

Subject to confirmation by future research on other countries, our findings have potentially important implications for both theory and practice. Theoretically, we find support for the agency cost of MNCs, which previous studies have been unable to uncover. By defining international involvement by foreign market entry modes, we have been able to disentangle the FDI and export effect from long-term financing behaviour. The research results also provide some management implications for MNCs of developing countries that plan to increase their levels of FDI. To reduce the monitoring and audit costs and cost of capital, they should raise long-term debt from foreign-owned banks or the banks in host countries. On the other hand, if MNCs based in emerging economies seek higher exporting activities, they should rely on internally generated funds or equity financing. Moreover, the interaction of FDI and export is indeed negatively associated with the debt ratio. Other means of financing such as internally generated funds or equity financing may become necessary if firms rely too heavily on export or simultaneous export and FDI.

In this paper, we use the agency theory to develop research hypotheses, and derive consistent results of the relationship between FDI and export and capital structure to sup-

port our hypotheses. However, other theoretical lens, such as hedging, tax planning, and cost of capital, can also be used to explain the capital structure of MNCs. Even though these issues are beyond the context of the current study, we suggest that future research examine the explanatory power of competing arguments.

Finally, research into MNC financial behavior requires the selection of an appropriate proxy for internationalization. Previous studies have used varying measures to determine the degree of internationalization. Unfortunately, a consensus is still lacking regarding the best or truest measure of internationalization. In this study, we employ a composite measure of FDI and export intensity to measure the degree of internationalization for Taiwanese firms. We acknowledge the limitation associated with these proxies and agree that a measure incorporating FDI activities (containing the performance, structural, and attitudinal attributes of MNCs as suggested by Sullivan (1994) may better capture the essence and complexity of internationalization; we also believe that future research will take this into account (Hennart 2007).

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## Endnotes

- 1 As in previous research (Kwok and Reeb 2000), the definition for “emerging markets” in this study follows that found in the International Monetary Fund’s 1999 *Capital Market Report*. The criterion for emerging markets is indicated on page 1 of the report.
- 2 In this study, we used FDI and export stock data rather than flow data to support our arguments.
- 3 The composite measure includes four facets of multinational corporations: geographic diversification, foreign sales/assets, exports, and the number of foreign subsidiaries.
- 4 A challenge to home country financial institutions is: how can they monitor the activities of the foreign subsidiaries of home country firms in foreign countries? We argue that a bank in a foreign country where a Taiwanese firm has a subsidiary can monitor activities with regard to subsidiary operations better than a bank at home. If an MNC uses its technological and operational links to grasp the operations of subsidiaries in different countries, then a bank in the country where the MNC is headquartered should be able to access this information and use it to evaluate the risk of the MNC. However, as we argued in the paper, poor corporate governance in emerging economies, such as Taiwan, enables some firms to manipulate their transactions with external or internal clients. The case of Procomp Information Ltd. is an example. In 2004, the CEO of the firm was prosecuted for swindling investors of US\$217.22 million by manipulating the intra-firm transactions with the firm’s foreign subsidiaries. We also interviewed a banker and were told that, because most Taiwanese banks do not have subsidiaries in foreign countries, these banks are not able to get full information pertaining to firms with international operations. However, in recent years, some governments in emerging economies have tried to enhance the quality of corporate governance. For example, the Taiwan Stock Exchange

Corporation (TSEC) and the GreTai Securities Market (GTSM), published the “Corporate Governance Best-Practice Principles for TSEC/GTSM Listed Companies” in 2002. The principles have been revised in 2003, 2005, 2006, 2008, 2009, and 2010, respectively. We thank a reviewer for bringing up this important issue.

- 5 As pointed out by a reviewer, a further hypothesis for the higher level of debt is the tax shield provided by debt. Interest is an effective way to minimize local tax payments and withhold taxes upon repatriation. Why do MNCs from developing countries and developed countries have different debt ratios? When MNC home countries have signed tax treaties with host countries, MNCs seem less likely to retain higher debt to enjoy the tax shield. We argue that developing countries usually have signed tax treaties with a limited number of countries. Therefore, MNCs from developing countries are motivated to enjoy the tax shield by increasing the use of debt. For example, from 1981 to 2009, Taiwan had signed tax treaties with only 16 countries/areas (e.g., Singapore, Australia, the UK, etc.) and shipping/air transportation tax treaty agreements with 14 countries/areas (e.g., Canada, the EU, the US, Japan, etc.). It is clear that Taiwan has yet to sign tax treaties with the major countries/areas hosting Taiwan MNCs, such as China, the US, Hong Kong, Central and South America. Taking into account the tax burden, Taiwan MNCs have a strong incentive to retain a higher level of debt to enjoy this tax shield benefit.
- 6 We agree that foreign banks with operations in Taiwan can usually convey information to their parent banks to support the financing of the subsidiaries of Taiwan companies as pointed out by a reviewer. However, based on statistics from the Banking Bureau, Financial Supervisory Commission, Executive Yuan, R.O.C. ([http://www.banking.gov.tw/Layout/main\\_ch/FscSearch\\_BankMain.aspx?path=1614&Type=R](http://www.banking.gov.tw/Layout/main_ch/FscSearch_BankMain.aspx?path=1614&Type=R)), as of April, 2010, 31 and 7 of the world’s 500 largest banks have established branch offices and representative offices in Taiwan, respectively. This means that, even if some foreign banks are able to assess the risk of Taiwanese MNCs more accurately, because most Taiwanese MNCs choose local banks as their main banks, these MNCs can provide less accurate information about their operations in foreign countries if they want to. We thank the reviewer for reminding us to discuss this issue.
- 7 We thank a reviewer for urging us to deal with this issue explicitly.
- 8 We hired two assistants to assist us in collecting data. The first assistant printed out the export sales and FDI information from corporate annual reports and coded the data, while the second assistant checked the data accuracy to avoid coding errors, as suggested by Hyland and Diltz (2002).
- 9 According to Lu and Beamish (2004), who used a sample of Japanese-based MNCs, the average number of overseas subsidiaries and the average number of host countries were 8.45 (ranging from 1 to 601) and 3.96 (ranging from 1 to 61). This indicates that the extent of FDI for Taiwanese firms is less than that of Japanese firms.
- 10 Market value of debt would be preferable since it is a more accurate measure of debt. However, to use market value, information regarding the maturity of the debts and the interest rates is required, which was not always available. Moreover, Bowman (1980) reported a large cross-sectional correlation between the market value and the book value of debt.
- 11 They used bi-dimensional constructs to classify MNCs—a firm was classified as multinational (MNC) when it had at least one foreign subsidiary and a foreign sales to total sales ratio of 10% or higher.
- 12 As pointed out by one reviewer, exports and FDI are as often seen as complements: a majority of exports take place among MNC affiliates. Based on statistics from the Ministry of Economic Affairs (paid website: <https://2k3dmz2.moea.gov.tw/gwweb/>), overseas production as a percentage of total exports is very high (e.g., 49.41% for the Information and Communication industry in 2003). Because many firms apply the model of “processing export orders in Taiwan-manufacturing in China-exporting from China,” exports and FDI complement each other for Taiwan MNCs.

- 13 Some emerging markets such as China, Hong Kong, and Singapore have started to employ the IFRS. Other emerging markets such as Taiwan and South Korea have gradually revised their GAAP standards to achieve high quality, understandable and enforceable global accounting standards (IFRS), in addition to scheduling the application of IFRS by 2013 and 2011, respectively. As such, the application of IFRS regulations will provide a strong motive for MNCs to load up on debt, which should lead to the gradual occurrence of the expected potential effect of IFRS in terms of MNC capital structure. We thank a reviewer for reminding us of the impact of IFRS.
- 14 The cross-tabulation results are the same if we replace the mean by the medium.

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