EFM Classification Codes: CORPORATE FINANCE (**230** - Securities Issuance), FINANCIAL INSTITUTIONS AND MARKETS (**570** - Money and Capital Markets), SPECIAL TOPICS (**750** - Law, Ethics and Finance)

What Makes Some Stock Markets More Attractive? An International Cross-Listing Analysis

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(First edition: 2008/5/11)
Preliminary draft. Please don't quote. Comments welcome.

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* The working paper is made possible by a generous grant from the financial support of the NSC Foundation (The grant number: NSC 96-2416-H-260-012-MY3). The views expressed in this paper are those of authors and do not necessarily represent those of the NSC. We thank the assistants of Chao-Lung Lien for the data-collection, and helpful comments from Professor Chung-Hua Shen, (National Taiwan University), and Professor Yu-Jane Liu (National Cheng-Chi University) at the earlier edition.

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Abstract

In this paper, we try to answer why some stock exchanges succeed in capturing more listings from abroad. We relate the cross-listing decisions (proxy by the percentage of foreign-listing firm number and trading value) to the characteristics of the destination exchanges and their countries. Assembling a sample of 37 cross-listed exchanges of 33 countries between 2001 and 2006, we find that companies appear more likely to cross-list in more liquid and larger price-earning ratio markets. Foreign firms are also more likely to cross-list in the developed countries with better investor protection, less financing obstacles, and more market capitalization to extend their funding capacity.

JEL: F23; F36; G15; G30; G39
Keywords: Stock Markets, Cross-listing

1. Introduction

As global capital markets become more integrated, firms can more easily access foreign capital markets by listing its shares on an exchange outside its home market, and investors can participate in initial public offerings abroad and trade shares cross border. This leads to the following question: What make some stock exchanges more attractive than others? Toward this end, we assemble a sample of 37 cross-listed exchanges for 33 countries between 2001 and 2006. Using the proxy by the percentage of foreign-listing firm number and trading value, our goal is to understand the key factors that make a firm choose to issue its equity on a major stock exchange rather than a local and familiar market, which is related to a variety of exchange-specific and country-level attributes.

Our motivation also stems from some financial news recently. Firstly, an important report by the Committee on Capital Markets Regulation from the support Treasury Secretary Henry Paulson of U.S. addressed that the changes in the U.S. regulatory environment post SOX (Sarbanes-Oxley Act, 2002) decreased the benefit of a U.S. cross-listing, particularly for countries that also have good governance standards, which much of the IPO's action moving to London. As measured by value of IPOs, the U.S. share declined from 50% in 2000 to 5% in 2005. Measured by number of IPOs, the decline is from 37% in 2000 to 10% in 2005. Secondly, after the Asian financial crisis, a general view that in the shift of Taiwan Security Exchange Council (TSEC) has been lost to the competitive advantage. Many local Taiwan firms are attracted to list in Hong Kong Exchange (HKE) that offers them for the best valuation, that is, the multiple of their earnings (for example, PE ratio: 18 of TSEC vs. 25 of HKE in 2005). The magnitude of PE multiple is determined by two factors: the cost of capital (the market price that the investors pay) and the current and future earnings (the earning that the investors get) will be reduced by market-specific risks, which include corporate governance actions. Managers of higher PE firms benefit more external funding because they can offer less outstanding shares or higher market price, thus their cost of capital will be lower.

Some related studies are motivated that by cross-listing in the U.S., firms can engage in higher levels of investors' protection and hence, partially substitute for their home-country weak institutions. First proposed by Coffee (1999, 2002) and Stulz

(1999), the "bonding hypothesis" captures this intuition and states that U.S. disclosure requirements, exposure to the SEC enforcement and the threat of litigation make it harder for controlling shareholders and insiders to extract private benefit of control at the expense of investors. Here, there exists an opposite argument in the practice and theory that the relationship between the net effect (benefits and cost) of corporate governance and cross-listing. Litvak (2007) examines the SOX's impact on foreign companies that are listed in their home country and cross listed in the U.S. Each firm in her 46-country sample, representing five continents and all major legal systems, is matched with a company in the same country that is not cross listed (hence, one subject to the Act and one not). By comparing stock returns over the period when SOX was being developed and put into law for two sets of firms, Litvak finds that investors expected the SOX to have negative effects, with the biggest losers being companies from countries that have good overall levels of disclosure (most of Europe and Canada). The findings support the view that other countries find it costly to follow the U.S. regulatory model as embodied in SOX.

Furthermore, some studies challenge the bonding hypothesis. In particular, Siegel (2005) reviews the SEC enforcement policy towards Mexican firms cross-listed in the U.S. and concludes that the enforcement is generally weak. Licht (2001, 2003) similarly puts forth that the SEC is inefficient to enforce corporate governance rules for foreign firms and questions the studies that find support for the bonding hypothesis. He argues that the valuation premium that cross-listed firms enjoy is consistent also with increased liquidity, visibility, analyst coverage or simply the co-existence of a bull market. So any of these other factors, he claims, could explain the premium beyond the bonding hypothesis. Bris, Cantale and Nishiotis (2005) make an effort to separate various cross-listing effects such as increased liquidity, governance, removal of barriers and greater financial flexibility and show that the effects of improving investor protection are economically small.

Overall, there is a large literature on international cross-listings (Karolyi, 1998). Much of the early work was built using the insights of international asset pricing models with barriers to international investment (Black, 1974; Stapleton and Subrahmanyam, 1977; Stulz, 1981; Errunza and Losq, 1985; Alexander, Eun and Janakiramanan, 1987). In these macro-view models, a firm located in a country that

is not fully integrated in the world markets typically faces a higher cost of capital because its risk has to be borne mostly by investors from its country. If the firm finds a way to make it less costly for foreign investors to hold its shares, these investors share the risk, the cost of capital falls and the firm's stock price increases. On the other hand, the number of non-US stocks listed on the US exchanges has recently been on the increase and, as a result, research into the market microstructure of American depositary receipts (hereafter, ADR) has recently gained much attention (Bacidore and Sofianos, 2002; Cheo and Sanjiv, 2003). Nevertheless, little attention has been paid to the choice of where to issue equity in a setup where companies completely by-pass their home market and list exclusively in a foreign country. In this paper, we address this question by asking which characteristics of exchanges and countries are most closely correlated with the cross-listing decision for an international sample. To our knowledge, our study provides the most comprehensive snapshot of overseas listings. For example, Pagano et al. (2002) only examine trends in European foreign listing from 1986 to 1997.

As evident from this review, there is a wide range of research studies on the development of local capital markets and the internationalization of equity markets. However, as far as we know, there is no study that analyzes which factors explain the internationalization of stock exchange activity relative to the development of local exchange activity and the implications of this migration abroad for local exchanges. Furthermore, while it is generally believed that trading is more liquid in international exchanges than in most local exchanges, no cross-country studies exist on the degree and determinants of liquidity of local shares in international markets. We believe that these issues are addressed for the first time in this paper. Our results also imply that countries do not face a choice between local and international exchanges: improving fundamentals will lead to more activity, but most of this activity will go abroad as better fundamentals also accelerate the degree of migration.

The benefits and costs of a foreign listing are likely to depend on the characteristics of the exchange where the company cross-listing and on the institutional features of the country where the exchange is located. In this paper, we investigate how the actual cross-listing choices of companies correlate with specific features of destination exchanges (liquidity, size of capitalization, PE ratio to proxy cost of

raising capital, structure form of exchange to proxy corporate governance, et al.) and destination countries (accounting standards, country governance, financial system, commonality of income-development and legal system, financing obstacles et al.). Our sample includes all the cross-listings affected in 2001-2006 by international companies present in the World Federal Exchange (hereafter, WFE) database. For the total sample of 33 countries and 37 exchanges, we consider cross-listings into 9 American exchanges, 20 European/African/East Asian exchanges, and 8 Asian/ Pacific exchanges. Sample details are discussed in Section 2.

The remainder of our paper proceeds as follows. Section 2 describes the sample construction process, and the descriptive statistics of the variables are also contained in this section. Section 3 presents the estimation methodology and Section 4 illustrates the main results for the relationships among the frequency of cross-listing firms number and trading value, the macro-country and micro-exchange level factors. Finally, Section 5 concludes.

2. Data, Sample Selection and the Basic Statistical Description

We track the openness of international stock exchanges by the ratio of foreign listings to the total listings of each market. This proxy captures its ability to attract companies from abroad. Foreign company is defined by WFE is that a company is considered foreign when it is incorporated in a country other than that where the exchange is located. However, the rules of cross-listing and various forms for global stock exchanges are very different. The stock market has three key functions: capital raising, listing, and trading activity. There are different alternatives to cross-list domestic stocks in international financial markets (Karolyi, 1998; and Pulatkonak and Sofianos, 1999). A traditional way is to cross-list the share at another exchange. European companies use this method of internationalization most often. A very popular way to internationalize among emerging markets' firms during the 1990s is through DR. These are foreign currency-denominated derivative instruments, issued by international banks like Bank of New York or Citibank, representing home securities held with a local custodian. For example, U.S. dollar denominated ADRs from some famous electronic companies of Taiwan, such as TSMC, UMC, Delta, trade at the New York Stock Exchange.

Since our study includes international cross-listings of all forms, including ordinary listings, ADR, and even GDR/GRS. Our cross-listing sample includes equities that are listed on exchanges either directly or as exchange-traded DR (for example Level II and III ADR in U.S.) and excluding other forms on OTC (over-the-counter), because the formers are the only foreign securities that are usually subject to the SEC's stringent disclosure and reconciliation requirements of the raising capital. Take the U.S. case as an example for details, almost all non-U.S. companies that list their shares on U.S. exchanges do so by creating various ADR. Level I ADR trade on the OTC Bulletin Board or as a "pink sheet" issue with limited liquidity, but they require only minimal SEC disclosure and no GAAP (General Accepted Accounting Principles) reconciliation. Level II and III ADR are exchange-listed securities and they require full SEC disclosure with Form 20-F, a "current events" Form 6K which can include extensive information and compliance with the exchange's own listing rules. Level III programs raise capital and must be associated with Form F-2 and F-3 filings for offerings. Finally, SEC Rule 144a issues raise capital as private placements to qualified institutional investors and, as a result, do not require compliance with GAAP. These 144a programs trade on the PORTAL system with very limited liquidity. Since our study defines the "foreign" listings from the WFE, only Level II and III ADR are our sample of cross-listing on U.S. exchanges of NYSE, NASAAQ, and AMEX exchanges.

On the other hand, ordinary listings and GRS represent important alternatives to ADR for cross-listings in the U.S. Ordinary listings require an exact replication of settlement facilities as for U.S. securities and go beyond Level II and Level III ADR in requiring full annual and quarterly reports prepared in accordance with U.S. GAAP. On the other others, a significant difference between ordinary listing and DR is that for the former, financial information prepared and adulated in accordance with GAAP. A GRS does not require an intermediary receipt like an ADR but does require a coordination of the transfer agent, clearance and settlement procedures in the U.S., home and other overseas markets (Karolyi, 2001). Disclosure standards are equivalent to Level II and III ADR. In our study of disclosure standards, we treat ordinary listings and GRSs as equivalent to exchange-listed ADR.

To study the distribution of overseas listings, we construct a comprehensive database of foreign listings as of 2001-2006 by surveying 37 major world stock exchanges.

Table 1 and Figure 1 show the ratio foreign listing to total listing firm number for all exchanges. All sample exchanges can be divided into three regions by WFE: [1]

(1)America (Country Number=7, Exchange Number=9): This sub-sample is grouped by ASE, NASDQ, NYSE, TSX Group (Toronto),Bolsa Mexicana de Valores, Bolsa de Comercio de Buenos Aires, Bolsa de Valores de Lima, Bolsa de Comercio de Santiago and Bolsa de Valores do São Paulo. The average ratio of cross-listing based on firm number is 10.69%. Figures show the foreign listing is prevalent on North American, the ratio is above 10%.

(2)Europe, Africa, East Asia (Country Number=18, Exchange Number=20): This sub-sample is grouped by Athens Exchange, Borsa Italiana SpA, Budapest Stock Exchange Ltd., Bolsasy Mercados Espanoles (BME Spanish Exchanges), Deutsche Börse AG, Euronext, Ljubljana Stock Exchange, London Stock Exchange, Bourse de Luxembourg, Malta Stock Exchange, OMX Exchanges Ltd., Oslo Børs, SWX Swiss Exchange, Warsaw Stock Exchange, Wiener Börse AG, Irish Stock Exchange, Istanbul Stock Exchange, Cyprus Stock Exchange, Stock Exchange of Tehran, Tel Aviv Stock Exchange, Cairo & Alexandria Stock Exchanges, JSE Securities Exchange, Stock Exchange of Mauritius. Note on this exchange grouping as followings: (1) Euronext is the operator of Amsterdam, Brussels and Paris in 2000, and mergers Lisbon exchange in 2002. (2) BME is the holding company of Barcelona, Bilbao, Madrid and Valencia exchanges. (3) OMX groups HEX Integrated Markets Ltd. of Finland and Stockholmsbörsen in 2004, and latter mergers Copenhagen Stock Exchange. In our paper, they are still presented separately rather than the integration into a single OMX group because of matching the country-specific factors. The average ratio of cross-listing based on firm number is 10.10%, and this figure is very similar to the former one of America-region. However, the variation of this group is very large. For example, the largest ratio of all sample is 82.64% for Luxembourg stock exchange, at the same time, the smallest ratio is 0.05% for Istanbul stock exchange.

(3)Asia/Pacific (Country Number=8, Exchange Number=8): This group includes

[1] In constructing our sample, we omit countries with unreliable or limited financial data: the CBOT of USA, Montreal exchange of Canada, and Osaka exchange of Japan. For each set of foreign listings, we also eliminate all inactive listings and those of investment funds or trusts.

Australian Stock Exchange, New Zealand Exchange, Bursa Malaysia, Hong Kong Exchanges and Clearing, Tokyo Stock Exchange, Philippine Stock Exchange, Singapore Exchange and Taiwan Stock Exchange Corp. The average ratio of cross-listing based on firm number, 2.98%, is the smallest among three regions. Although Tokyo stock exchange have a lot of listing (domestic) firms, however, it's nationalization degree (measured by the foreign-listing share, 1.39%) is lower than the New Zealand exchange (21.64%), Singapore exchange (17.78%), and Australian exchange (4.53%).

For explaining these key figures, we also exclude markets that provide no role other than that of corporate tax havens, such as the Cayman Islands, Bermuda, Jersey, or the Netherlands Antilles. Some exchanges that exist no foreign firm's listing at the time-period of 2001-2006 are also deleted, for example, the Shanghai Stock Exchange, National Stock Exchange of India, Korea Exchange, et al., in spite of their promising. Table 1 provides the aggregate foreign listing percentage data. To summary, this measure of 'outward orientation' varies enormously across exchanges, from around 83% in Luxembourg to almost zero in Santiago, Istanbul, Tel Aviv, Malaysia et al.; and ASE, NASDQ, Deutsche Börse AG, London Stock Exchange, fall in an intermediate range, around 10%. The focus of NYSE and Euronext are around 20%. The frequency distribution of overseas listings is comparable on the America group (mean=10.66%) and Europe, Africa, East Asia (mean=11.72%). Moreover, the Asia/Pacific exchanges are relatively insular, at least in our sample period.

Some interesting findings can be marked on Table 1. Panel B presents the exchange (organization) forms and their cross-listing percentage. The numbers of publicly listed exchanges are largest among five groups, and this group contains 19 exchanges, Australian SE, AMERICAS, TSX Group, London SE, New Zezland Exchange, Hong Kong Exchanges, Singapore Exchange, JSE, Bursa Malaysia, Athens Exchange, Lima SE, Santiago SE, Philippine SE, Deutsche Börse, Euronext, BME Spanish Exchange, Copenhagen, Stockholm, OM, totally share 8.12% cross-listing by firm-number based. The second order of cross-listing is the demutualized exchanges registered as private, limited, un-listed companies, for example, Nasdaq, NYSE, Borsa Italiana, Mexican Exchange, Taiwan SE Corp., Wiener Börse, Tokyo SE, Oslo Børs, Helsinki, and they share 11.64%. The

member-owned exchanges, for example, Tel aviv SE, Irish SE, Luxembourg have 38.04%, however, this figure is affected deeply by the Luxembourg case. The t-test is not significant comparing different exchange-structure, because of less sample number at some groups and their figure's variation.

The percentage of foreign listing number in the industrial countries is larger than that in the developing countries, 13.46% vs. 6.96%, respectively, and be significant at least 1% level. The above figure is reasonable. Panel D groups two extreme financial systems, and there is no significant difference for the foreign listing percentage between the market-based and bank-based of financial system. The same pattern is also found on the groups of common law (English-Origin) and civil law (French-Origin, German-Origin, and Scandinavian-Origin). Among all civil aw origins, the German-Origin exchanges have the highest percentage, 13.73%.

Insert [Table 1] and [Figure 1], about here

If the measure of outward orientation is based on the ratio of "trading value", which data is also provided by WFE, and their results are very similar to the above. Details by individual exchange as Table 1 will be abbreviated in this edition for the limited space. Table 2 only briefly shows the share distribution of firm number and trading value for overseas listings by calendar decade. Therefore, on these figures, most firms seem more outward oriented by year, especially in the 2006 of the sample period. One possible explanation is that world economies are more open and mutually integrated. Hence, it may have prompted companies to seek a listing abroad as a means of reaching foreign investors (Pagano et al., 2002). For comparison purposes by years, we also plot the aggregate number (value) ratio figures on Figure 2.

Insert [Table 2] and [Figure 2], about here

Particularly, we focus on four major exchanges: NYSE, Nasdaq and Amex of three U.S. exchanges, and London exchange of U.K. in Appendix I. The U.S. and U.K. are clearly the most active host markets, with 872 and 343, respectively (Appendix, Figure 1B), and the foreign-listing average ratio is 15.64% vs. 10.53% by the based of firm number. If the index is "trading value, then the U.K. exchange size of

foreign-listing trading is far large than the U.S. exchanges of that from 2001 to 2006. However, this trend is not increasing. As far as these figures (Figure 1D, 1E, 1F) are concerned, it doesn't support strong evidence that exchanges in the U.S. regulatory environment post SOX lost their competitiveness. Moreover, we also present on Hong Kong, Singapore, and Taiwan, three exchanges of Asian developing countries, and one major developed country of Tokyo stock exchange in Appendix II. It's surprised that the highest cross-listing ratio is Singapore exchange (14.78%), however, the largest capital market is Japan and it only share 1.39%. This figure also provides the evidence that the close-economy system in Japan remains a long time. At the same time, there is not far distance of foreign-listing share between the Hong Kong exchange and Taiwan exchange.

Insert [Appendix I] and [Appendix II] about here

3. The Econometric Modeling

The literature on cross-listing suggests a number of factors that may influence a firm's decision to list its equity abroad. Some studies emphasize that the decision to cross-list on a given exchange may also be related to characteristics of the country where that exchange is located and those of the exchange itself. The econometric modeling is as:

$$\text{Cross\_list}_{i,t} = a_{i,t} + b_1(\text{Exchange})_{i,t} + b_2(\text{Country})_{i,t} + b_3(\text{Control})_{i,t} + e_{i,t}$$

where, the explained variable, Cross_list (%), has two measurements for foreign listing share: listing number (*FC_N*%) and trading value (*FC_V*%). Here, we report the former proxy by greatest majority. The explanatory variables include: (1) Exchange-specific characteristics: Liquidity (proxy by turnover velocity of domestic shares, *Liq*1; and average daily turnover, *Liq*2), Stock market size (proxy by market capitalization, *Size*), cost of listing abroad (proxy by price earning ratio, *PE*), market concentration of 5% of the largest companies by market capitalization (*MC*), Stock exchange organization/structure (*SEO*). Section 3.1 discusses more details. (2) Country-specific characteristics: accounting standards of disclosure (*ASD*), investor protection and legal variables (proxy by anti-directors rights index, *ADRI*; creditor rights index, *CRI*; efficiency judicial system, *EJS*; and rule of law index, *RLI*), law

origins (*LO*), Cultural homogeneity (*CH*), and financing obstacles (*FO*). (3)Control variables: most are the economic fundamental, for example, inflation rate, GDP, the economic development (proxy by developed and developing countries), the rate return of certain stock exchange (RS_%), and the financial system (*FS*, dummy for bank-based or market-based). Overall, the above variables reflect the transaction theory to explain where is the favorite of foreign-listing. If the exchange has higher liquidity, larger market size, and well-function governance system, then the less transaction cost will attract some foreign-listing.

Section 3.2 discusses more details. Table 3 does summary their definition and data resources, and Table 4 show the basic summary statistics of all variables. For all, we are interested in both the domestic and foreign dimension. Getting data and documenting these various trends is not easy, however, especially as we want to be as comprehensive as possible and cover as many countries and as long a times series as possible.

Insert [Table 3], [Figure 3], and [Table 4] about here

3.1 Exchange-specific Characteristics and Cross-Listing Decisions

Liquidity There are two proxies: turnover velocity of domestic shares (*Liq*1), and average daily turnover (*Liq*2), respectively. The turnover velocity is the ratio between the turnover of domestic shares and their market capitalization. The value is annualized by multiplying the monthly moving average by 12. Furthermore, the average daily turnover is calculated by dividing the total value of share trading by the number of trading days during the year.

In theory, overseas listings may seek liquidity gains through listing abroad. Greater liquidity can attract more trading volume and translate into a lower cost of capital for the company concerned (Amihud and Mendelson, 1986; Brennan and Subrahmanyam, 1996). Baker et al. (1999) find that firms for cross-listing on the NYSE gain greater visibility than companies for cross-listing on the LSE. They measure visibility by the analyst following of the company. Some markets may be better than others in the production of liquidity, for instance because of a superior microstructure. For example, the competitive pressure from another exchange and

the greater turnover associated with a wider shareholder base can also narrow the spreads on the domestic market and raise its trading activity, as found by Kadlec and McConnell (1994), Noronha, Sarin and Saudagaran (1996), Foerster and Karolyi (1998), and Smith and Sofianos (1997). Other work finds that foreign firms that list in the United States achieve significantly lower bid-ask spread (e.g., Tinic and West, 1974; Foerster and Karolyi, 1998; Domowitz et al., 1998; Werner and Kleidon, 1996) or increases in domestic quotes (Noronha et al., 1996) and volatility (Barclay et al., 1990; Chan et al., 1996).

One would therefore expect cross-listing choices to be driven by the improvement for higher liquidity: companies from relatively illiquid exchanges should be especially likely to cross-list on more liquid exchanges. However, cross-listing may not always enhance liquidity, due to the potentially offsetting impact of market fragmentation, as in the models by Pagano (1989), Chowdry and Nanda (1991) and Madhavan (1995). Domowitz, Glen and Madhavan (1998) show that liquidity may suffer in both the domestic and the foreign market if inter-market information linkages are poor, and support this point with evidence concerning Mexican companies issuing ADRs.[2]

Papers have focused less on the factors determining trading behavior, although the liquidity of the stock market has been found to be a useful predictor of future economic growth (Levine and Zervos 1998). In part this reduced attention on trading may be because there are large differences across otherwise similarly developed countries in the degree to which stocks are traded. Some emerging markets, South Korea and Taiwan, for example, have much higher trading volumes than many developed countries, while trading in other emerging markets is much lower than that in most developed countries. These, presumably institutional-driven differences have made it more difficult to come up with explanatory factors for trading intensity. One of the few cross-country studies on trading is Domowitz, Glen, and Madhavan (2001a). They document the relations between turnover, equity trading costs, and volatility, and investigate the determinants of domestic trading. They show, among other things, that turnover is inversely related to trading costs, providing a possible

[2] To test if the competition or the fragmentation effect prevails, one can analyze indicators of home market liquidity after cross-listing, such as turnover volume, turnover ratios or bid-ask spreads on the domestic market. However, the reports of WFE only support the aggregation data.

explanation for the increase in turnover in recent years as direct costs (commissions, fees) have declined.

Cost of listing abroad, PE Baker, Nofsinger, and Weaver (1999) show that international cross-listings raise firm visibility, increasing analyst coverage and media attention. This is turn may lead to lower cost of capital, although they do not study this. However, it's not available of firm-level data of analysts' coverage, then the disclosure costs aspect is not be analyzed in this edition.

We use the price-earning ratio as the proxy. It is calculated by dividing the market capitalization by the total market earnings. Listing abroad also involves a variety of costs. There are direct costs, such as listing charges and fees for professional advice. Firstly, we try to calculate the firms' listing cost based on a certain exchange from the income-statement each exchange, because the opposite side of the fee income for exchange is the expense for listing firms. However, the reports of WFE only support the aggregate data of main four structure forms. Hence, we focus on the indirect proxy, PE. Companies would be more likely to cross-listing on a deep stock market. Since higher valuation of investors should translate into higher PE ratio, firms can raise less stock volumes or higher stock prices under the constant amounts of funding. One would also expect foreign listing firms to have higher PE ratios than comparable domestic companies, because that higher PE will proxy less cost of capital and transaction cost.

Stock market size, New capital raised Size will be the symbol of stock markets' significance in the national economy, which is measured by the market capitalization scaled by GDP. Companies may also be attracted by larger stock markets, insofar as they provide access to a larger pool of potential investors. Moreover, being listed on a large stock market may confer greater visibility and reputation upon a company. Bancel and Mittoo (2001), in a survey of 305 European companies listed on the foreign stock exchanges, report that the most important perceived benefit of a foreign listing is the increased visibility and prestige (57% of the respondents). We also use the variable of "new capital raised by shares (NCRS_%)", which is also scaled by GDP, to do robustness test. Indeed, size appears to matter positively.

Market concentration Doidge (2001) shows that following listing in the U.S.,

foreign firms' ownership becomes less concentrated with reduced family and management control and more public ownership. Changes in ownership concentration may have implications for the degree of trading as the free float is increased with foreign listing. We defined this ownership share as 5% of the largest companies by market capitalization compared with total domestic market capitalization and trading value.

Stock exchange organization/structure There are five groups: member-owned, demutualized, publicly listed, and associations, or mutuals. Appendix III provides more details. Krishnamurti, Sequeria, and Fangjian (2003) examine interrelationship between the organization structure of a stock markets, governance, and the quality of markets. They find good governance results in market dominance by utilizing the unique setting in India. India has two major stock markets, the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). These two exchanges adopt similar trading systems, trade essentially identical stocks, and follow the same trading hours. However, these two exchanges have different organizational structures: BSE is mutualized whereas NSE is demutulized. They proposed that demutulized exchanges are superior to mutualized in governance.

Traditionally, stock exchanges have been organized as non-profit, mutual/ membership associations. A recent trend has been conversion of mutualized exchanges into publicly owned corporations, which are themselves listed and traded on a stock exchange. Domowitz and Steil (1999) list several benefits of demutualized as compared to mutualized and stock exchanges. The primary driver for such benefits is the favorable governance structure associated with demutualized exchanges. Domowitz and Steil (1999) argue that members of mutualized stock exchanges have incentive to oppose innovations even if they increase the exchange's value. Since traditional stock exchanges are mostly regional monopolies, they could, in the extreme case, even oppose enhancements to quality of service they provide if such improvements are thought to diminish the welfare of the respective exchange members.

Further, the first split divides members into five broad legal categories by WFE, we can find demutualized exchanges still represent the largest legal group in 2003, but they are closely followed by member-owned limited companies and listed exchanges.

Moreover, several exchanges have changed their legal structure over the past years to member-owned status. About two-thirds of all exchanges report having a profit objective, with all demutualized and listed exchanges having profit as a business goal. The majority of member-owned exchanges and approximately half of the associations also report being for-profit; only the "other" legal form exchanges are all not-for-profit.

Insert [Appendix III] about here

3. 2 Country-specific Characteristics and Cross-Listing Decisions

The determinants of financial sector development have become a much-researched area lately. King and Levine (1993) La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), Rajan and Zingales (1998), Beck, Demirguc-Kunt, Levine, and Maksimovic (2001), Henry (2000a and 2000b), Bekaert, Harvey, and Llundblad (2001), Demirguc-Kunt and Levine (2001), and a number of others have analyzed the legal foundations of financial markets. They have also studied the relation of financial market development with macroeconomic variables, financial reform, and other country factors, and the relations among the development of the various parts of a financial system. The general finding is that the financial markets tend to develop as income per capita grows and financial reform progresses. Stock market development specifically has been shown to depend on a good legal system, particularly minority rights that are being enforced. Stock market development also appears to complement the development of other parts of the financial system and be complementary to other forms of finance in affecting growth, both at the aggregate level as well at the individual firm level. Catalan, Impavido, and Musalem (2000) examine the determinants of stock market development for OECD and some emerging markets, studying 27 countries in total. They find that, apart from macro stability and legal rights, the size of the institutional investor bases positively affects stock market development, and report evidence of a causal times series relation between institutional investors and stock market development. Clayton, Jorgensen, and Kavajecz (1999) find, studying 248 financial exchanges, that the main determinants for exchange formation are the degree of freedom in the country, the size of its economy, the availability of technology and the quality of its legal system. In this paper, we use the following variables:

Accounting standards of disclosure The listing location may also be affected by differences in the accounting regulation. By selecting a tightly regulated foreign exchange, a firm pre-commits to adhere to high standards of disclosure. Exchanges compete to attract listings by designing a regulatory environment that is expected to lower the cost of capital of their companies. Huddart, Hughes and Brunnermeier (1999) show that exchanges competing for trading volume engage in a "race to the top" regarding disclosure requirements. Cantale (1996) and Fuerst (1998) argue that firms signal quality by listing on strictly regulated markets. Similarly, according to Stulz (1999), companies from countries with poor legal standards can secure a lower cost of capital by subjecting themselves to tighter standards, thus reducing the agency cost of external finance.

Although listing in a country with better accounting standards allows the company to pre-commit to greater transparency and thereby reduce the monitoring costs of its shareholders and their required rate of return. However, this benefit does not come for free: switching to a different accounting system can have substantial costs. Biddle and Saudagaran (1989) and Saudagaran and Biddle (1992) find that stringent disclosure requirements deter the listing of foreign companies, and the companies surveyed by Bancel and Mittoo (2000) place them among the chief disadvantage for a cross-listing. Pagano, Randl, Roell, and Zechner (2001) find the cross-listing decisions are negatively correlated with differences between the accounting standards of the destination and home country, possibly an indication that the cost of adapting to more stringent accounting standards exceeds the benefit stemming from the added transparency vis-a`-vis investors. Fanto and Karmel (1997) suggest that current improvements in European regulatory standards are attracting U.S. institutional investors to stocks exclusively listed in Europe. Hence, the evidence on this point is at best mixed.

The second viewpoint supports that the stringent accounting standard of listing on a major exchange involves additional costs, but provides a credible signal of firm value, suggesting that listing in the U.S. would be worthwhile only for high-quality firms. Cheung and Lee (1995) and Fuerst (1998) argue that if stock markets differ in regulations and disclosure requirements, listing in the market choice may serve as a means to credibly convey information to investors about the firm's future prospects. These studies imply that the value of the signal to a disclosure of important private

information, which might benefits its rivals. A separating equilibrium may therefore exist in which high-quality firms issue shares in the market with more stringent disclosure requirements, while lower quality firms choose less demanding locations. It serves as a means to convey a relatively accurate signal of a firm value to customers and potential investors. On the other hand, since the costs of cross-listing include a large fixed cost element, they bear most heavily on small companies. Thus, they expect larger companies to be more likely to cross-list (Saudagaran, 1988).

There are two measurements in this paper: firstly, index created by examining and rating companies, Center for International Financial Analysis and Research' reports. A minimum of three companies in each country were studied. These survey-items of score fall into seven categories: general information, income statements, balance sheets, funds flow statements, accounting standards, stock data, and special items. Secondly, countries applying: (a)International accounting standards (IAS); (b)General accepted accounting standards/principles (GAAP); (c) both; (d) neither, which is from Barth, Caprio, and Levine (2006). Commonly, a cross-listing is accompanied by a need to conform to different financial disclosure standards. One may argue the negative effect if exchanges compete for new listings by adjusting their regulatory standards, this motive for cross-listing may diminish over time.

Investor protection, and legal variables Firms may seek to list abroad in order to reduce investor expropriation risk. The degree of shareholder and creditor protection against the misbehavior of companies' directors is largely determined by the law of the country of incorporation and by the way its courts interpret and enforce it. Moreover, subjecting to a better jurisdiction should imply better reputation in the capital market, more abundant outside equity finance and possibly lower cost of capital. La Porta et al. (1997, 1998) find that financing activity is significantly reduced in countries with poor investor protection systems. Lins et al. (2001) and Reese and Weisbach (2002) show that weaker shareholder protection in the domestic market may be one reason that why some non-U.S. firms cross-list in U. S. Doidge et al. (2003), Doidge (2003), and Kumar and Ramchand (2003) further argue that cross-listings can indicate lower agency costs for the controlling shareholder. Likewise, Doidge, Karolyi and Stulz (2004) show that cross-listed firms enjoy a valuation premium (larger Tobin's *q*) compared to their home country peers. They also find that this "cross-listing premium" is larger for firms located in weak

investors' protection countries and for those firms that list on U.S. exchanges.

One would indicate that firms from countries with less developed financial and legal systems will find it more beneficial to be listed in countries with higher investor protection. The proxy for corporate governance is "Anti-directors rights index (*ADRI*)", and "Creditor rights index (*CRI*)". *ADRI* is an index aggregating the shareholder rights. The index ranges from 0 to 6 and is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2)shareholders are not required to deposit their shares prior to the general shareholders' meeting; (3)cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5)the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median); or (6)shareholders have preemptive rights that can only be waved by a shareholders' vote. Creditor rights index (*CRI*) is an index aggregating different creditor rights. The index ranges from 0 to 4 and is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2)secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3)secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization.

Efficiency judicial systems, and Enforcement of law In addition to adequate legal rights, there is a need for an efficient judicial system to enforce these rights, or at least to serve as a credible threat. Hence, a strong system of legal enforcement could substitute for weak rules since active and well-functioning courts can step in and rescue creditors abused by the management. To address these issues, we examine the proxy for the law enforcement, namely estimates the efficiency of the judicial system as it affects business. The source of data is produced by the country risk rating agency Business International Corp. Scale is from zero to 10, and the lower scores mean lower efficiency levels. We expect the foreign-listing are more in the countries of relative efficient judicial system (*EJS*). Furthermore, "Rule of law index (*RLI*)" is also proxy the efficiency of judicial system in the country produced by the country-risk rating agency International Country Risk Guide. Scale from 0 to 6.

Lower scores indicate less tradition for law and order.

Reese and Weisbach (2000) study the relation between cross-listing and the quality of the corporate governance framework in the home country of the firm. They find that the weaker the framework at home, the more likely firms are to list abroad to attempt to protect the minority rights of shareholders. Listing abroad can thus be a tool for corporations to signal to their investors that they are more willing to protect minority rights as corporate governance rules are stronger abroad. Pagano, Panetta, and Zingales (1998) find similar results for European corporations. Doidge, Karolyi, and Stulz (20001) find evidence that corporate ownership and the agency costs related to dominant controlling shareholders can motivate cross-listings and be important for differences in the valuation of growth opportunities between local and global markets. Miller and Puthenpurackal (2000) find that by raising bonds abroad (in the U.S.), corporations certify to act in the interest of investors and thus lower their borrowing costs and increases shareholders' wealth.

Financing obstacles We use the World Business Environment Survey (WBES), a major cross-sectional firm level survey conducted in 80 developed and developing countries, which includes the assessment of growth obstacles as perceived by firms of different sizes and other firm-specific information. The WBES firm-level data consist of firm survey responses of over 10,000 firms in 80 countries, both developed and developing. The survey has a large number of questions on the business environment in which firms operate including assessment of growth obstacles that the firms face. We use survey responses on to what extent entrepreneurs perceive finance as an obstacle to growth while cross-listing. To explore the link between cross-listing and the financing obstacles we use the survey question: "How problematic is financing for the operation and growth of your business?" Answers vary between 1 (no obstacle), 2 (minor obstacle), 3 (moderate obstacle), and 4 (major obstacle).

Cultural homogeneity Companies may tend to cross-list in countries that are culturally similar to their home country in terms of language and institutions, because this reduces costs of communication with foreign investors and legal/ accounting costs. Grinblatt and Keloharju (2001) argue that investors are more likely to trade stocks of firms that share the investor's same language and cultural

background. Information flow is expected to be greater between countries with the same language or historical (e.g., colonial) ties. Sarkissan and Schill (2000) study a very large sample of cross-listing in many markets. They find evidence of a proximity effect, that is, geographical proximity and other affinity factors such as trade links and common language determine cross-listing. There are two very similar concepts as the cultural homogeneity: market proximity and geographic proximity that will be discussed by the literature.

Market proximity captures the influence of asymmetric information and/or psychological factors on investor portfolio choice (Gehrig, 1993; Brennan and Cao, 1997; and Kang and Stulz, 1997). Coval and Moskowitz (1999, 2001), Huberman (1999), Portes and Rey (2000), and Grinblatt and Keloharju (2001) all find that the cultural proximity of the market and assets as well as the geographic proximity has an important influence on investor stockholdings and trading. Geographic proximity has played the same function. Coval and Moskowitz (1999) and Grinblatt and Keloharju (2001) find that geographic proximity is positively correlated with investor holdings of firm equity. Although these tests focus primarily on domestic holdings of U.S. and Finnish firms, Coval and Moskowitz also provide some evidence that U.S. investor of equity holdings for five large foreign markets decrease with geographic distance from New York.

The great circle is a well-known distance measure to proxy the cultural homogeneity. It is the shortest path on the surface of a sphere between two points on that sphere. Coval and Moskowitz (1999) also use the great circle distance arithmetic in their calculation of the distance between each investor and firm location. Since their study was restricted to the continental U.S., adjustments for the great circle distance was less critical in their paper. In our paper, we use the simple measurement, and we define three “culturally homogeneous” groups: one including Austria, Germany, the Netherlands, and Switzerland; another including Belgium, France, Italy, and Spain; and a third including Great Britain and the United States (Sweden is not assigned to any group). For each cross listing, we construct an indicator that equals one if the destination and origin countries belong to the same group and zero otherwise.

3.3 Control variables

Return of stocks The total return is calculated by adding the annual stock price index performance and the gross dividend yield paid during a given year. We see the stock index as a controlling variable that a hot season of the stock market will increase the foreign-listing, because the firms' funding is easier, as Henderson, Jegadeesh, and Weisbach (2006) argue the "timing hypothesis".

***Economic Development* (*ED*), *GDP* (per capital)** These indicators are from the International Monetary Fund's statistics. We separated into "industrial countries" and "developing countries".

***Financial system* (dummy for *bank-based* or *market-based*)** As discussed by Allen and Gale (2000), countries differ in the structure of their financial system, and they show that firms in more developed countries have better access to external capital market. Demirgüc-Kunt and Levine (1999) had done a complete catalogue around world. The strong financial markets require ample legal protection for both shareholders and creditor. At a time of bankruptcy, however, these interests are in conflict. This helps to explain the greater relative reliance on debt financing in Europe and on equity financing in the US. Most companies in the world still borrow extensively from banks, and creditor banks have a natural comparative advantage in monitoring their corporate clients. For example, at the first signs of deteriorating corporate performance, the creditor bank may intervene in corporate management to help it better handle the problems of financial distress on the basis of its accumulated information. Such action on the part of creditor banks may provide a flexible, informal alternative to the roles the market plays in corporate control of bankruptcy proceedings.

3.3 Basic Summary Statistics of Explanatory Variables

The Panel B, C, D at Table 4 show the basic summary statistics of all explanatory variables by the exchange-specific, country-specific, dummy, respectively. Here, we can see almost variables have high variation since the worldwide exchanges show different institution design, law and customs. Table 5 presents the correlation matrix of these variables. Some variables exists the multicollinearity, such as GDP, Size, and ASD. It means the wealth-developed countries will have more large capitalization of stock markets, and always set up more higher standards of

accounting disclosure.

Insert [Table 4], and [Table 5] about here

4. Empirical Results

4.1 The results of OLS, GLS and Random effects for our balanced panel data

There are four specifications of the regression modeling at Table 6. The explained variable in Model I, III is the number percentage of foreign listing (*FC_N*%), and Model II, IV is the trading-value share of foreign listing (*FC_V*%). Moreover, the data type in Model I and II are the average ratio for six years each exchange, and are the panel type in Model III and IV for 37 individuals at the periods of 2001-2006. Here, the Hausman specification test rejects the null hypothesis and accepts the random effect model. Most results are consistent with the *t*-test for the basic summary statistics at Table 1. There are four main findings:

(1) The goodness of fit test (measured by Adj-*R* square, and Pseudo R^2 for panel data model) of all models seems to perform better for the explained variables used *FC_N*% than the one used *FC_V*% (0.368 and 0.407 for *FC_N*% in model I and III, vs. 0.125 and 0.407 for *FC_V*% in model II and IV, respectively). We confirm the results are due to the separation of trading values, and some outlier contributes sharp changes significantly. However, there is an interesting question, as we mention before, the London exchange is the most attractive and openness of foreign-listing than NYSE and NASDAQ are by the measurement of trading value (see Appendix I). But it's supported by the based on the foreign-listing firm number.

(2) As far as the exchange-specific factors are concerned, higher liquidity, proxy by the turnover velocity of domestic shares (*Liq*1) caused larger number proportions of foreign-listing. *PE* ratio which proxy the cost of capital, and managers can raise more external funding with less outstanding shares or higher market price which benefits the higher PE of firms.

(3) Among all corporate governance (*CG*) variables, only the index of anti-director rights has some influence to the foreign-listing relatively. This finding is not

consistent with the existed literature. We explain that directly CG measurement is not appropriate in the current edition, because finally CG should reflect the benefit to the foreign investor preference for reducing the information asymmetry, and cost of funding to these foreign firms for higher disclosure standards. However, firms preferred to cross-listing in the developed countries with less financing obstacles, and the coefficient is very significant at 1% level.

(4) The wealth effect still has a significant factor to the percentage cross-listing, hence, the countries with higher GDP, belonged to the market financial system and share more market capitalizations always attract the foreign firms, because these attributes reflect the deeper and broad stock market. Managers can extend their funding capacity in these open capital markets.

Finally, the exchange-specific factors seem to be more important than the country-specific factors, comparing the significant level of having explanatory power variables. This finding for policy-implication is the exchange can attract foreign firms to cross listing by the way of the design of trading mechanic design, for example the promoting of liquidity and reducing of listing cost, sine the changes of exchange-specific is easier than the country-specific.

Insert [Table 6] about here

4.2 Robustness Test and Further Discussion

One may concern about the following three questions: firstly, some exchanges set up alternative listing boards, especially for the small and medium business (SMB). Since SMBs have less financing channel, this type of listing boards would attract some SMB to listing aboard. Table 7 summary the foreign-listing number and trading value of SMB boards from the data of WFE. However, listing requirements of SMB are different from those of the main market, and we also find the foreign-listing percentage is very little and nearly to zero for mostly exchanges, then the omit ion of alternative boards will not change our basic results. On the other hand, this fact is consistent with the prediction of literature (Saudagaran, 1988; Saudagaran and Biddle, 1992; Sarkissian and Schill, 2003) that the large size of firms have higher motivation (and also have higher ability) to cross-listing to share

the benefits and reduce the costs of foreign-listing.

Insert [Table 7] about here

Secondly, some arguments insist that the "complete" process (function) of exchange is capital raising, listing and trading. Capital raised abroad, as we define *NCRS_*% (new capital raised by shares) similarity, thus refers to the sum of the amount of new equity financing which is obtained by using a non-domestic instrument, such as a foreign listing or an ADR, and any new equity issue abroad. Our analysis for the part of capital-raising is only the domestic raising amounts, because it's not available to distinguish from the foreign-listing amounts. We also trace some related reference and find, on capital raised abroad, that they use a combination of two different datasets. One comes from the Bank of New York, which covers capital raised though depositary receipts. The other database covers all operations of capital raised in international markets by firms and is compiled by Euromoney. This database provides a more comprehensive account of capital raised, because it includes DR programs and cross border listings. In the further study, we will use the number, trading value and raising amounts to study the degree of listing on international exchanges simultaneously. In fact, "Capital raised abroad" of the variable is more general, because it also captures capital raising without listing. We do not, however, consider the degree to which foreign investors hold shares traded in local markets as an indication of internationalization of the firm.[3]

Finally, stock is not the only type of capital-raising, and the amounts of bond-financing are also very huge. However, since our topic is "stock" exchanges, the analysis of bond-listing is not extension too much, and will be abbreviated in this edition for the limited space (the data is collected from WFE reports: Fixed-Income 2.1 - Value of bonds listed). One point can be extended and examined in the future about the the "timing hypothesis". Henderson, Jegadeesh, and Weisbach (2006) show the equity and bond are alternatives of capital raising, and the foreign-listing may choose the bond-financing at the period of low interest rate.

[3] It would be almost impossible to construct such a series because most countries do not distinguish between local and foreign investors in the domestic market. Similarly, we do not consider to what degree domestic residents hold domestic shares in the international markets (Classens, Klingebiel, and Schmukler, 2002; Classens, Klingebiel, and Schmukler, 2004).

5. Conclusions

In theory, finance literature also recognizes several alternative benefits of cross-listing. These include: overcoming investment barriers and reduction of investment risk by creating larger investor base (Foerster and Karolyi, 1999; Miller 1999), direct access to more developed capital markets (Lins et al., 2005), or signaling value associated with the willingness to comply with strong disclosure requirements (Fuerst, 1998). Pagano et al. (2002) and Reese and Weisbach (2002) document that companies from countries with weak legal protection for minority shareholders cross-list more often. Recent studies also suggest that cross-listing may be a vehicle to reduce information asymmetries between firm insiders and outsiders through more disclosure (Lang, Lins and Miller, 2003; Bailey, Karolyi and Salva, 2006). In this paper, we combine the above theory to proxy all possible variables , and try to answer why some stock exchanges succeed in capturing more listings from abroad.

This paper assembles a sample of 37 cross-listed exchanges for 33 countries between 2001 and 2006, and also relates the cross-listing decisions (proxy by the percentage of foreign-listing firm number and trading value) to the characteristics of the destination exchanges and their countries. We find that companies appear more likely to cross-list in more liquid and larger price-earning ratio markets. Foreign firms are also more likely to cross-list in the developed countries with better investor protection, less financing obstacles, and more market capitalization to extend their funding capacity.

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Table 1 The Basic Summary Statistics of Percentage of Foreign-listing Firm Number by Different Grouping (%)

Data source is from the annual reports of WFE, 2001-2006. %=(Number of foreign company)/(Number of foreign company+ Number of domestic company). All sample is separated by regions and countries (Panel A), exchange forms (Panel B), economic development (Panel C), finance systems (Panel D), and law origins (Panel E). However, there is one missing sample, Budapest_SE, on Panel B, C, D, and five missing samples, Budapest_SE, Euronext, Luxembourg_SE, OMX, Warsaw_SE, on panel E. The number in the parenthesis of t-test is the t value. ***, **, * is significant at 1%, 5%, and 10%, respectively.

Exchange-list	Mean	Median	Std. ev.	Max.	Min.
Panel A Regions and Countries (Total Country number=33, Total Exchanges number=37)					
A1: America (Country number=7, Exchange number=9; Sub-average: 10.39%)					
ASE	12.10%	11.28%	4.04%	16.89%	7.92%
NASDQ	10.51%	10.47%	0.24%	10.95%	10.25%
NYSE	19.10%	19.86%	1.82%	20.19%	15.44%
TSX Group	1.36%	1.05%	0.78%	2.93%	0.89%
Bolsa Mexicana de Valores	34.68%	43.51%	26.02%	60.60%	2.91%
Bolsa de Comercio de Buenos Aires	3.66%	3.69%	0.70%	4.72%	2.52%
Bolsa de Valores de Lima	13.46%	14.00%	1.65%	14.48%	10.13%
Bolsa de Comercio de Santiago	0.48%	0.41%	0.16%	0.81%	0.40%
Bolsa de Valores do São Paulo	0.62%	0.60%	0.22%	0.86%	0.29%
A2: Europe, Africa, East Asia (Country number=18, Exchange number=20; Sub-average: 10.10%)					
Athens Exchange	0.48%	0.45%	0.19%	0.69%	0.30%
Borsa Italiana SpA	3.61%	2.67%	2.52%	8.68%	2.04%
Budapest Stock Exchange Ltd.	1.32%	1.86%	1.03%	2.13%	0.00%
BME Spanish Exchanges	1.05%	0.99%	0.13%	1.19%	0.96%
Copenhagen Stock Exchange	3.91%	3.98%	0.28%	4.15%	3.61%
Deutsche Börse AG	10.50%	3.98%	11.61%	23.91%	3.61%
Euronext	19.88%	24.06%	9.85%	25.06%	0.00%
London Stock Exchange	13.37%	13.26%	2.67%	17.54%	10.53%
Bourse de Luxembourg	82.64%	81.93%	2.11%	86.15%	80.41%
OMX Exchanges Ltd.	3.15%	3.24%	0.20%	3.29%	2.92%
HEX Integrated Markets Ltd.	1.78%	1.94%	0.39%	2.07%	1.34%
Stockholmsbörsen	6.68%	6.56%	0.36%	7.09%	6.40%
Oslo Børs	12.44%	12.04%	1.29%	14.85%	11.24%
SWX Swiss Exchange	31.48%	31.04%	3.68%	36.17%	26.44%
Warsaw Stock Exchange	1.68%	1.33%	1.84%	4.53%	0.00%
Wiener Börse AG	15.73%	16.15%	1.89%	17.50%	12.39%
Irish Stock Exchange	18.47%	18.44%	2.18%	21.84%	15.71%
Istanbul Stock Exchange	0.05%	0.00%	0.13%	0.32%	0.00%
Tel Aviv Stock Exchange	0.51%	0.51%	0.33%	0.87%	0.15%
JSE Securities Exchange	5.66%	5.25%	1.31%	7.71%	4.14%

(Continued)

(Continued Table 1)

A3: Asia, Pacific (Country number=8, Exchange number=8; Sub-average: 2.98%)					
Australian Stock Exchange	4.53%	4.39%	0.43%	5.32%	4.14%
New Zealand Exchange	21.64%	22.18%	3.86%	25.64%	17.03%
Bursa Malaysia	0.39%	0.39%	0.03%	0.44%	0.35%
Hong Kong Exchanges and Clearing	0.92%	0.94%	0.17%	1.15%	0.68%
Tokyo Stock Exchange	1.39%	1.38%	0.27%	1.77%	1.03%
Philippine Stock Exchange	0.85%	0.85%	0.01%	0.87%	0.83%
Singapore Exchange	14.78%	13.70%	11.28%	34.89%	3.95%
Taiwan Stock Exchange Corp.	0.62%	0.72%	0.17%	0.74%	0.34%
t test: A1 vs. A2=1.025 (0.854); A1 vs. A3=2.852 (3.350*); A2 vs. A3=2.445 (3.276***)**					
Panel B Exchange (Organization) Forms (Total sample number=36)					
B1: Member-owned, limited companies (N =3)	38.04%	19.08%	36.44%	86.15%	0.15%
B2: Demutualized (but not listed) (N=9)	11.64%	10.44%	13.51%	60.60%	0.34%
B3: Listed exchanges (N=19)	8.12%	4.49%	8.44%	34.89%	0.30%
B4: Associations, mutuals (Assoc) (N=4)	11.31%	3.64%	14.28%	36.17%	0.29%
B5: Miscellaneous (N=1)	2.52%	2.54%	1.67%	4.53%	0.43%
t test: B1 vs. B3=2.774 (1.003); B2 vs. B3=1.157 (1.564); B3 vs. B4=-0.985 (-1.175)					
Panel C Economic Development (Total sample number=36)					
C1: Industrial Countries (N=24)	13.46%	10.43%	17.73%	86.25%	0.15%
C2: Developing Countries (N=10)	6.96%	2.17%	13.49%	60.60%	0.29%
C3: Miscellaneous (N=2)	16.09%	22.21%	10.79%	35.06%	2.92%
t test: C1 vs. C2=4.026 (4.856*)**					
Panel D Financial Systems (Total sample number=36)					
D1: Bank System (N=11)	8.12%	4.28%	7.43%	23.91%	0.30%
D2: Market System (N=18)	10.98%	7.40%	12.42%	60.60%	0.29%
Miscellaneous (N=7)	22.09%	2.92%	32.60%	86.15%	0.15%
t test: D1 vs. D2=0.875 (1.302)					
Panel E Law Origins (Total sample number=32)					
E1: Common vs. Civil law					
E11: Common Law (N=13)	9.72%	9.14%	8.16%	34.89%	0.15%
E12: Civil Law (N=19)	9.01%	2.91%	12.52%	60.60%	0.29%
t test: E11 vs. E12=0.425 (0.961)					
E2: The origin of English vs. French-Origin vs. German vs. Scandinavian					
E21: English-Origin (N=13)	9.72%	9.14%	8.16%	34.89%	0.15%
E22: French-Origin (N=10)	6.74%	0.98%	13.68%	60.60%	0.29%
E23: German-Origin (N=5)	13.73%	15.11%	12.08%	36.17%	0.34%
E24: Scandinavian-Origin (N=4)	7.45%	6.56%	4.58%	14.85%	1.34%
t test: E21 vs. E22=0.548 (1.740*); E21 vs. E23=-1.963 (1.795*); E21 vs. E24=1.262 (1.603)					

Table 2 The Basic Summary Statistics of Percentage of Foreign-listing Firm Number and Trading Value by Calendar Decade

Data source is from the annual reports of WFE, 2001-2006. The number in the parenthesis is the foreign share (%) of total listing-firm number (=15,546=(foreign firm number+ domestic firm number) for all exchanges on Panel A), or of total listing-firm of trading values (=26,443,877.73= (foreign firm trading value+ domestic firm trading value) for all exchanges on Panel B). Total Country number=33, and total Exchanges number=37

Year	America	Europe, Africa, East Asia	Asia, Pacific	Sum
Panel A Based on the Firm Number: Total listing-firm numbers and the share of foreign-listing				
2001	1,027 (6.61%)	1,155 (7.43%)	249 (1.60%)	2,431 (15.64%)
2002	981 (6.31%)	1,494 (9.61%)	235 (1.51%)	2,710 (17.43%)
2003	1,021 (6.57%)	1,387 (8.92%)	188 (1.21%)	2,596 (16.70%)
2004	1,117 (7.19%)	1,281 (8.24%)	186 (1.20%)	2,584 (16.62%)
2005	1,017 (6.54%)	1,188 (7.64%)	273 (1.76%)	2,478 (15.94%)
2006	1,169 (7.52%)	1,178 (7.58%)	400 (2.57%)	2,747 (17.67%)
Sum	**6,332 (40.73%)**	**7,683 (49.42%)**	**1,531 (9.85%)**	**15,546 (100%)**
Panel B Based on the Trading Value: Total listing-firm value and the share of foreign-listing (unit=USD millions)				
Year	**America**	**Europe, Africa, East Asia**	**Asia, Pacific**	**Sum**
2001	1,259,348.39 (4.76%)	2,972,058.73 (11.24%)	5,691.13 (0.02%)	4,237,098.25 (16.02%)
2002	954,617.47 (3.61%)	2,389,578.07 (9.04%)	7,125.28 (0.03%)	3,351,320.82 (12.67%)
2003	1,090,720.08 (4.12%)	1,817,296.22 (6.87%)	8,448.07 (0.03%)	2,916,464.37 (11.03%)
2004	1,596,759.19 (6.04%)	2,732,783.17 (10.33%)	14,194.64 (0.05%)	4,343,737.00 (16.43%)
2005	1,876,676.80 (7.10%)	3,110,770.00 (11.76%)	43,406.80 (0.16%)	5,030,853.60 (19.02%)
2006	2,533,543.20 (9.58%)	3,988,627.70 (15.08%)	42,232.80 (0.16%)	6,564,403.70 (24.82%)
Sum	**9,311,665.13 (35.21%)**	**17,011,113.89 (64.33%)**	**121,098.72 (0.46%)**	**26,443,877.73 (100%)**

Table 3 The definition and data source of all variables

Panel A: Explained Variables (Firm Number % or Trading Value % of Foreign-firm listing)
The percentage of cross-listing for the numbers of foreign company (*FC_N*%)
Definition: (Numbers of foreign company)/(Numbers of foreign company+ Numbers of domestic company), where foreign company is defined by WFE that a company is considered foreign when it is incorporated in a country other than that where the exchange is located.
Data Source: The annual reports (equity - 1.3, number of listed companies), WFE.
Value of share trading of foreign company (*FC_V*%)
Definition: (Trading value of foreign company)/(Trading value of foreign company+ Trading value of domestic company), where trading value is the total number of shares traded multiplied by their respective matching prices.
Data Source: The annual reports (equity - 1.5, total value of share trading), WFE.
Panel B1: Explanatory Variables of Exchange Characteristics
Liquidity: Turnover velocity of shares (*Liq*1)
Definition: This ratio is calculated in 2 steps: (1) we first calculate for each month the annualized ratio between the domestic share turnover and the domestic market capitalization, multiplied by 12 (=monthly domestic share turnover/month-end domestic market capitalization*12); (2) we add together, using moving average, the percentage ratios obtained in step 1, divided by 12.
Data Source: The annual reports (equity - 1.8, turnover velocity of domestic shares), WFE.
Liquidity: Number of average daily turnover (*Liq*2)
Definition: The average daily turnover is calculated by dividing the total value of share trading by the number of trading days during the year. The average value of trades is calculated by dividing the total value of share trading divided by the total number of trades in equity share.
Data Source: The annual reports (equity - 1.6, number of trading days, average daily turnover, and average value of trades), WFE.
Price earning ratio (*PE*)
Definition: The PE is calculated by dividing the market capitalization by the total market earnings. It concerns stocks included in the main index of the stock exchange, when possible.
Data Source: The annual reports (indicators - 4.3, average of price earning ratios, gross dividend yields, inflation rates, total market returns), WFE.
Stock market size (*Size_%*)
Definition: Market capitalization/GDP, where the market capitalization of a stock exchange is the total number of issued only common and preferred shares of domestic and foreign companies, multiplied by their respective prices at a given time (unit=millions). Then, this figure is scaled by GDP (unit=%).
Data Source: The annual reports (equity - 1.1, domestic market capitalization), WFE for market capitalization, and IMF/World Bank for GDP.
New Capital raised by shares (*NCRS_%*)
Definition: This variable indicates the amount of initial public offerings (IPO) representing the amount of money raised by shares issued by domestic companies entering the market, and secondary public offerings (SEO) representing the amount raised by domestic companies already listed. Then, this figure is scaled by GDP (unit=%).
Data Source: The annual reports (equity - 1.10, new capital raised by shares), WFE.

(Continued)

(Continued Table 3)

Market concentration (*MC*)

Definition: Market concentration of 5% of the largest companies by market capitalization compared with total domestic market capitalization and trading value.

Data Source: The annual reports (equity - 1.9, market concentration 5% most capitalized and most traded domestic companies), WFE.

Stock exchange structure (*SES*)

Definition: There are five groups by WFE:

(1) Member-owned, limited companies: The bourses are registered as private companies, generally with a paid-up share capital. Intermediaries are almost always the sole owners of the exchange, and their ownership and intermediation rights and activities are strongly linked.

(2) Demutualized: The private, limited companies are not listed. The demutualization of an exchange is a process by which a non-profit member owned organization is transformed into a for-profit shareholder corporation. Ownership is somewhat more open.

(3) Publicly listed exchanges: A bourse goes public when its shares are listed on the exchange it operates and are freely negotiable among investors.

(4) Associations, or mutuals: These member cooperatives generally have no share capital, and access to membership is restricted.

(5) Other legal status: For example, those which still have a government or semi-government agency structure and belong to the state.

Data Source: The cost and revenue survey of annual reports (member lists), WFE.

Analysts' coverage/ Disclosure costs: N. A. (in this edition)

The return of stocks (*RS*_%)

Definition: The total return of all listing firms of a certain exchange is calculated by adding the annual stock price index performance and the gross dividend yield paid during a given year. Here, broad indexes are, in general, market capitalization-weighted, including a large sample of listed domestic companies, as the all-share or composite indexes.

Data Source: The annual reports (equity – 4.1, broad stock market indexes, and indicators 4.3 - price earning ratio, gross dividend yield, total return), WFE.

Panel B2: Explanatory Variables of Country Characteristics

Accounting standards of disclosure (*ASD*)

Definition: There are two measurements: (1) Index created by examining and rating companies' 1990 annual reports on their inclusion or omission 90 items. These items fall into seven categories (general information, income statements, balance sheets, funds flow statements, accounting standards, stock data, and special items). A minimum of three companies in each country were studied. The companies represent a cross section of various industry groups; industrial companies represented 70%, and financial companies represented the remaining 30%. (2)Countries applying: (a)International accounting standards (IAS); (b)General accepted accounting standards/principles (GAAP); (c) both; (d) neither. A measure of accounting standards, specifically the 39 of companies balance sheets and income statements.

Data Source: International accounting and auditing trends, Center for International Financial Analysis and Research, LLSV (1998) for method (1), and Barth, Caprio, and Levine (2006) for method (1).

(Continued)

(Continued Table 3)

Anti-directors rights/ Shareholder protection index (*ADRI*)

Definition: An index aggregating the shareholder rights. The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2)shareholders are not required to deposit their shares prior to the general shareholders' meeting; (3)cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5)the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median); or (6)shareholders have preemptive rights that can only be waved by a shareholders' vote. The index ranges from 0 to 6.

Data Source: LLSV (1998).

Creditor rights index (*CRI*)

Definition: An index aggregating different creditor rights. The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2)secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3)secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4.

Data Source: LLSV (1998).

Efficiency judicial system (*EJS*)

Definition: Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk rating agency BIC. It may be taken to represent investors' assessments of conditions in the country in question." Average between 1980 and 1983. Scale from 0 to 10; with lower scores, lower efficiency levels.

Data Source: Business International Corp. (BIC). It may be taken to represent the investors' assessments of conditions in the country in question from 1980-2005.

Rule of law index (*RLI*)

Definition: Assessment of the law and order tradition in the country produced by the country-risk rating agency International Country Risk Guide. Average of the month of April and October of the monthly index between 1982 and 1995. Scale from 0 to 6. Lower scores indicate less tradition for law and order.

Data Source: International Country Risk (ICR) Guide, 1996.

Country income level: Economic development (ED), and Gross Domestic Product (*GDP*)

Definition: Two groups for economic development: (1) **Industrial Countries**: Australia, Australia, Belgium, Canada, Finland, France, German, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US. (2) **Developing Countries**: Argentina, Brazil, Chile, Hong Kong, India, Mexico, Singapore, South Korea, Taiwan, Thailand.

Data Source: IMF statistics yearbook and World Bank reports.

The financial system (*FS*)

Definition: Two groups for financial system: (1) Market-based: Australia, Brazil, Canada, Chile, Demark, Hong Kong, Indonesia, Mexico, Netherlands, Singapore, Sweden, Switzerland, Thailand, UK, US. (2) Bank-based: Argentina, Australia, Belgium, Finland, France, German, Greece, India, Ireland, Italy, Japan, New Zealand, Norway, South Korea, Spain, Taiwan.

Data Source: Demirgüc-Kunt and Levine (1999) and World Bank reports.

(Continued Table 3)

Law origins (*LO*)

Definition: (1) Common Law (English-Origin): Australia, Canada, Hong Kong, India, Ireland, New Zealand, Singapore, Thailand, UK, US. (2a) Civil Law I (French-Origin): Argentina, Belgium, Brazil, Chile, France, Greece, Indonesia, Italy, Mexico, Netherlands, Spain. (2b) Civil Law II (German-Origin): Austria, German, Japan, South Korea, Switzerland, Taiwan. (2c) Civil Law III (Scandinavian-Origin): Demark, Finland, Norway, Sweden

Data Source: LLSV (1998).

Financing obstacles (*FO*)

Definition: Using data based on self-reporting by firms may produce concerns that a firm facing the same obstacles will respond to questions differently in different institutional and cultural environments. It also provides information on the specific types of obstacles that firms face in financial contracting, such as collateral requirements, paperwork and access to long-term financing. Here, the questionnaire of 88 (label var "gcf": "General constraint—financing") is used. Answers vary between 1 (no obstacle), 2 (minor obstacle), 3 (moderate obstacle), and 4 (major obstacle).

Data Source: WBES (World Business Environment Survey) for over 10,000 firms in 69 countries, both developed and developing at the time period of 1999-2004.

Cultural homogeneity/proximity (*CH*)

Definition: Four groups: (1) Catholic Percentage of population that follows Catholic religion. Ranges from 0-100. (2) Muslim Percentage of population that follows Muslim religion. Ranges from 0-100. (3) Other religion Percentage of population that follows religion other than Catholic, Muslim, or Protestant. Ranges from 0-100. (4) Ethnolinguistic Fract. Probability that two randomly selected individuals in a country will speak the same language.

Data Source: (1)Easterly and Levine (1997). (2)Easterly and Levine (1997). (3)Easterly and Levine (1997). (4)Easterly and Levine (1997).

Panel C: Variables for Robustness Test

Value of bonds-listed (*VB*)

Definition: Data represent the number of bonds listed multiplied by their price (notional value or market value) at year-end.

Data Source: The annual reports (Fixed-Income - 2.1 Value of bonds-listed), WFE.

The foreign-listing number and trading value of small and medium enterprises markets (*SME*)

Definition: The SME operated by the exchange are usually dedicated to medium and small businesses; listing requirements are different from those of the main market. OTC markets, or national electronic markets, not operated and supervised by a recognized exchange are not included in the statistics. All items of SME have the same definitions as those presented in the equity and indicators sections above.

Data Source: The annual reports, WFE.

Table 4 The basic summary statistics of all variables

Explained Variables: (1)*FC_N*%: The percentage of cross-listing for the numbers of foreign company. (2)*FC_V*%: Value of share trading of foreign company. **Explanatory Variables of Exchange Characteristics:** (1)*Liq*1: Liquidity: Turnover velocity of shares; *Liq*2: Number of average daily turnover. We can't find two liquidity values for Helsinki and Stockholm. (2)*PE*: Price earning ratio. There are nine missing points for this variable, Oslo_Børs, Nasdaq, NYSE, Lima_SE, Copenhagen, Deutsche_Börse, Euronext, OMX, and Helsinki. (3)*Size*_%: Stock market size proxy by market capitalization, and scaled by GDP. (4)*NCRS*_%: New Capital raised by shares, and scaled by GDP. (5)*MC*: Market concentration. (6)*SES*: Stock exchange Structure, and there are five groups: member-owned, demutualized, publicly listed, and associations, or mutuals. (7)*RS*_%: The return of stocks. **Explanatory Variables of Country Characteristics:** (1)*ASD*: Accounting standards of disclosure. (2)*ADRI*: Anti-directors rights/ Shareholder protection index . The index ranges from 0 to 6. (3)*CRI*: Creditor rights index. The index ranges from 0 to 4. (4)*EJS*: Efficiency judicial system. Scale from 0 to 10; with lower scores, lower efficiency levels. (5)*RLI*: Rule of law index. Scale from 0 to 6. The values on the index of *ADRI*, *CRI* and *RLI* are missing at Budapest_SE, Euronext, Luxembourg_SE, OMX, and Warsaw_SE. (6)*GDP* proxy by country income level is not available only at Euronext and OMX. (7)*ED*: Economic development. 1=Industrial countries, 0=Developing countries. (8)*FS*: Financial system. 1=Market-based, 0=bank-based. (9)*LO*: Law Origins. 1=Common law (English-Origin), 0=Civil law (French-Origin, German-Origin, Scandinavian-Origin). (10)*FO*: Financing obstacles. 1=no, 2=minor, 3=moderate, 4=major. (11)*CH*: Cultural homogeneity/proximity.

Panel A Explained Variables / Cross_list					
	Mean	Medium	Std.	Max.	Min.
FC_N% (N=37)	11.57%	4.64%	16.52%	86.15%	0.15%
FC_V% (N=33)	7.95%	2.62%	13.75%	92.92%	0.01%
Panel B Explanatory Variables of Exchange Characteristics					
*Liq*1(N=37)	102.46%	67.12%	148.89%	910.30%	0.92%
*Liq*2(N=35)	5083.45	588.08	11450.70	56631.20	3.98
PE (N=29)	21.93	19.29	10.05	63.82	10.11
*SIZE*_% (N=35)	101354.1%	70422.4%	110674.%	961835.%	453.8%
*NCRS*_% (N=37)	2327.37%	950.90%	4378.77%	37822.4%	0.00%
MC (N=37)	64.10%	67.24%	19.31%	96.45%	0.62%
*RS*_% (N=33)	17.09%	18.65%	27.94%	168.30%	-34.60%
Panel C Explanatory Variables of Country Characteristics					
ASD (N=32)	65.21	65.00	9.99	83.00	38.00
ADRI (N=32)	3.46	4.00	1.25	5.00	1.00
CRI (N=32)	1.90	2.00	1.24	4.00	0.00
EJS (N=32)	8.50	9.50	1.95	10.00	4.00
RLI (N=32)	7.79	8.57	2.37	10.00	2.50
GDP (N=35)	1,451	237.94	3,004.324	10,958.62	26.20
Panel D Dummy Variables					
SES (N=36)	1(member-owned)=3, 2(demutualized)=9, 3(publicly listed)=19, 4 (associations, or mutuals)=4, 5(others)＝1.				
ED (N=36)	1(industrial countries)=24, 0(developing countries)=12				

(Continued)

(Continued Table 4)

FS (N=36)	1(market-based)=18, 0(bank-based)=11, other=7
FO (N=22)	1(no obstacle)=5, 2(minor obstacle)=7, 3(moderate obstacle) =4, and 4 (major obstacle)=6

Table 5 The correlation matrix

These figures are Pearson coefficient. *** is significant at 1%, ** is significant at 5%, and *** is significant at 10%.

	FC_N%	FC_V%	Liq1	PE	SIZE	MC	Liq2	GDP	Inflation	ADRI	ASD
FC_N%	1.000										
FC_V%	0.290***	1.000									
Liq1	-0.123**	-0.081	1.000								
PE	-0.114*	-0.126*	0.451***	1.000							
SIZE	0.151**	0.166***	-0.054	-0.070	1.000						
MC	-0.068	0.080	0.195***	0.001	0.078	1.000					
Liq2	0.075	0.002	-0.012	0.080	0.087	-0.078	1.000				
GDP	0.370***	0.056	0.334***	0.194***	0.198***	-0.038	-0.082	1.000			
Inflation	-0.120*	-0.062	-0.049	-0.085	-0.181***	-0.065	0.020	-0.394***	1.000		
ADRI	-0.278***	0.139**	0.013	0.131*	0.238***	-0.145**	0.0126	-0.030	-0.047	1.000	
ASD	0.025	0.193***	0.244***	0.076	0.376***	-0.026	0.002	0.562***	-0.271***	0.393***	1.000

Table 6 The empirical results of econometric panel regression

Explained Variables: (1)FC_N%: The percentage of cross-listing for the numbers of foreign company. (2)FC_V%: Value of share trading of foreign company. **Explanatory Variables of Exchange Characteristics:** (1)Liq1: Turnover velocity of domestic shares; Liq2: Number of trading days, average daily turnover, and average value of trades. (2)Size: Stock market size proxy by market capitalization. (3)PE: Price earning ratio. (4)MC: Market concentration. (5) SEO: Stock exchange organization/ Structure, and there are five groups: member-owned, demutualized, publicly listed, and associations, or mutuals. **Explanatory Variables of Country Characteristics:** (1)ASD: Accounting standards of disclosure. Countries applying IAS, GAAS or "both", "neither". (2)ADRI: Anti-directors rights index. The index ranges from 0 to 6. (3)CRI: Creditor rights index. The index ranges from 0 to 4. (4)RLI: Rule of law index. Scale from 0 to 6. (5)GDP. (6)ED: The Economic Development. 1=Industrial countries, 0=Developing Countries. (7)FS: The financial system. 1=Market-based, 0=bank-based. (8)LO: Law Origins. 1=Common law (English-Origin), 0=Civil law (French-Origin, German-Origin, Scandinavian-Origin). (9)FO: Financing obstacles.

Model	I (N=37) (y= *FC_N*%)	II (N=37) (y= *FC_V*%)	III (N=37*6y) (y= *FC_N*%)	IV (N=37*6y) (y= *FC_V*%)
Constant	1.226 (2.130)**	-2.256 (-3.521)***	-0.362 (-1.920)*	-1.775 (-2.437)***
*Liq*1	0.457 (1.787)*	0.325 (1.231)	0.464 (2.361)***	-0.571 (-0.179)
*Liq*2	0.269 (2.016)**	-1.226 (-0.362)	1.203 (2.000)**	-0.823 (-1.586)
PE	0.657 (1.995)**	0.625 (1.826)*	1.109 (3.205)***	1.210 (1.913)*
Size	1.226 (2.624)***	1.591 (2.725)***	1.462 (2.461)***	1.887 (2.359)***
NCRS_%	0.387 (2.002)**	0.445 (1.820)*	0.412 (1.998)**	0.601 (1.903)*
MC	-1.236 (-0.551)	-2.265 (-1.426)	0.101 (0.792)	1.544 (1.339)
SES (1=listed)	-0.218 (-1.367)	1.500 (1.607)	-1.206 (-1.093)	-0.957 (-0.681)
RS_%	1.356 (1.786)*	1.621 (1.862)*	0.997 (1.917)*	1.423 (1.005)
ASD	1.445 (1.752)	-2.006 (-0.005)	0.257 (1.264)	0.621 (1.243)
ASD (1=GAAP)	1.365 (0.635)	-0.652 (-1.226)	1.772 (0.938)	-0.553 (-0.981)
ADRI	2.758 (1.826)*	2.631 (1.523)	2.883 (2.290)***	1.127 (1.703)*
CRI	-0.775 (0.004)	2.519 (1.059)	1.627 (1.682)*	1.001 (0.003)
EJS	0.360 (1.703)*	0.364 (0.007)	0.775 (1.729)*	-0.249 (0.000)
RLI	1.369 (2.094)**	1.306 (0.422)	2.310 (1.806)*	1.028 (1.276)
ED (1=Industrial)	2.693 (3.221)***	2.448 (1.989)**	2.047 (1.850)*	1.937 (2.177)**
GDP	1.338 (2.759)***	3.219 (1.803)*	2.226 (3.021)***	1.541 (1.911)*
FS (1=Market)	1.235 (1.860)*	1.356 (1.703)*	0.369 (2.018)**	0.666 (0.3787)*
LO (1=Common)	0.362 (1.035)	-0.239 (-1.445)	-0.006 (-0.001)	-1.403 (-0.564)

(Continued)

(Continued Table 6)

LO (1=English)	1.023 (0.778)	-1.026 (-1.235)	0.569 (1.040)	-1.107 (-0.005)
FO (1=No obstacle)	-1.215 (-2.775)***	-0.957 (-2.018)**	-1.443 (-3.176)***	-2.295 (-1.890)*
CH (1=Homo)	0.326 (1.445)	0.000 (0.127)	1.001 (1.529)	-0.006 (-0.873)
Adj-R^2	0.368	0.125	0.407	0.169

Table 7 Robustness Test: The Percentage of Number and Trading Value for Stock Markets of Foreign-listing SME Firm

The small and medium enterprises (SME) markets operated by the exchange are usually dedicated to medium and small businesses; listing requirements are different from those of the main market. However, OTC markets, or national electronic markets, not operated and supervised by a recognized exchange are not included in WFE statistics. The items described in the tables of this section have the same definitions and examples than those presented in the equity and indicators sections above. (unit=%). The time-period is from 2002-2006 because of data available. The number in the parenthesis is the firm "number" or "trading value" of foreign-listing at the end sample year, 2006.

Exchange-list and SME board		Number Mean	Number Median	Trading Mean	Trading Median
A1: America (Exchange Number=3)					
Buenos Aires SE	PyME Board	0%(0)	0%	0%(0)	0%
Sao Paulo SE	SOMA	0%(0)	0%	0%(0)	0%
TSX Group	TSX Venture	0%(0)	0%	0%(0)	0%
A2: Europe, Africa, East Asia (Exchange Number=36)					
Athens Exchange	Atex Medium & Small Capitalization Category	0.52%(1)	0.52%	0.09%(4.7)	0.09%
Athens Exchange	New Market (NEHA)	0%(NA)	0%	0%(NA)	0%
BME Spanish Exchanges	Nuevo Mercado	5.84%(NA)	7.14%	0%(NA)	0%
Borsa Italiana	Mercato Expandi	0%(0)	0%	0%(0)	0%
Borsa Italiana	Nuovo Mercado	4.79%(NA)	4.65%	1.5%(NA)	1.19%
Cypurs SE	Alternative Market	0%(NA)	0%	0%(NA)	0%
Cypurs SE	Parallel Market	0%(NA)	0%	0%(NA)	0%
Cypurs SE	Investment Companies Market	0%(NA)	0%	0%(NA)	0%
Deutsche Borse	Entry Standard	11.45%(6)	11.45%	40.99%(1833)	40.99%
Euronext	Alternext	1.33%(2)	1.33%	0.15%(3.8)	0.15%
Euronext	Nouveau Marche	11.96%(NA)	12.18%	5.56%(NA)	2.31%
Helsinki	I List(Investors' List)	1.72%(NA)	1.72%	1.26%(NA)	1.26%
Helsinki	NM List (New Market)	0%(NA)	0%	0%(NA)	0%
Helsinki	Prelist	0%(0)	0%	0%(NA)	0%
Irish SE	Irish Enterprise Exchange	10.93%(4)	15.38%	2.3%(17.9)	1.04%
Irish SE	Exploration Securities Market	0%(NA)	0%	0%(NA)	0%
Irish SE	Developing Companies Market	0%(NA)	0%	0%(NA)	0%

(Continued)

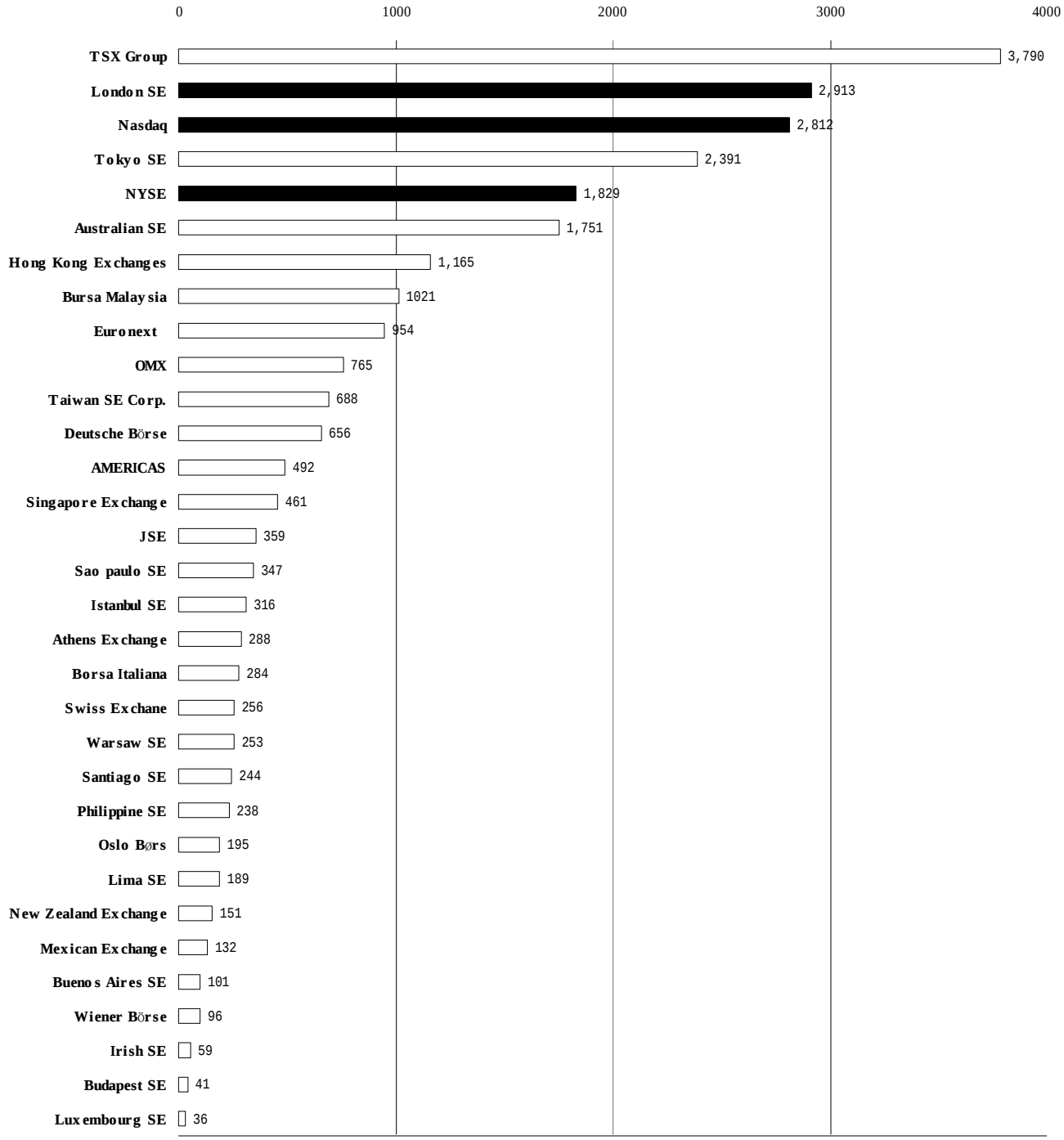
(Continued Table 7)

Irish SE	ITEQ(The Technology Market of the ISE)	0%(NA)	0%	0%(NA)	0%
Istanbul SE	Second National Market	0%(0)	0%	0%(0)	0%
Istanbul SE	Watch List Companies Market	0%(NA)	0%	0%(NA)	0%
Istanbul SE	New Economy Market	0%(0)	0%	0%(0)	0%
JSE	Alternative Exchange	0.9%(1)	0%	0.05%(0.2)	0%
JSE	Development Capital Market	0%(0)	0%	0%(0)	0%
JSE	Venture Capital Market	5.05%(1)	5.05%	0%(0)	0%
Ljubljana	Free Marker	0%(NA)	0%	0%(NA)	0%
Ljubljana	Semi-official market	0%(NA)	0%	0%(NA)	0%
London SE	AIM	12.17%(306)	11.36%	NA%(NA)	NA
Mauritius SE	Development & Enterprise Market	0%(0)	0%	0%(0)	0%
OMX	First North	0.62%(1)	0.62%	15.5%(813.1)	15.50%
OMX	Helsinki List(Investors' List)	0%(NA)	0%	0%(NA)	0%
OMX	Helsinki NM List(New Market)	0%(NA)	0%	0%(NA)	0%
OMX	Baltic l-list(Investors' List)	0%(NA)	0%	0%(NA)	0%
Warsaw SE	Parallel and Free Markets	0%(NA)	0%	0%(NA)	0%
Warsaw SE	Unofficial Market	0%(NA)	0%	0%(NA)	0%
Warsaw SE	SiTech	3.4%(2)	3.13%	0.12%(39.4)	0.02%
Wiener Borse	Semi-official market and Third Market	20.63%(8)	22.22%	16.39%(31.6)	11.31%
A3: Asia, Pacific	**(Exchange Number=13)**				
Bombay SE	Indonext	0%(0)	0%	0%(0)	0%
Bursa Malaysia	Second Board	0%(0)	0%	0%(0)	0%
Bursa Malaysia	Mesdaq Market	0%(0)	0%	0%(0)	0%
Hong Kong Exchanges	Growth Enterprise Market	0%(0)	0%	0%(0)	0%
Korea Exchange	Kosdaq	0%(0)	0%	0%(0)	0%
New Zealand Exchange	New Zealand Alternative Market	0%(0)	0%	0%(0)	0%
Osaka SE	New Market "Hercules"	0.29%(1)	0%	0.06%(67.3)	0%
Philippine SE	SME Board	0%(0)	0%	0%(0)	0%

(Continued)

(Continued Table 7)

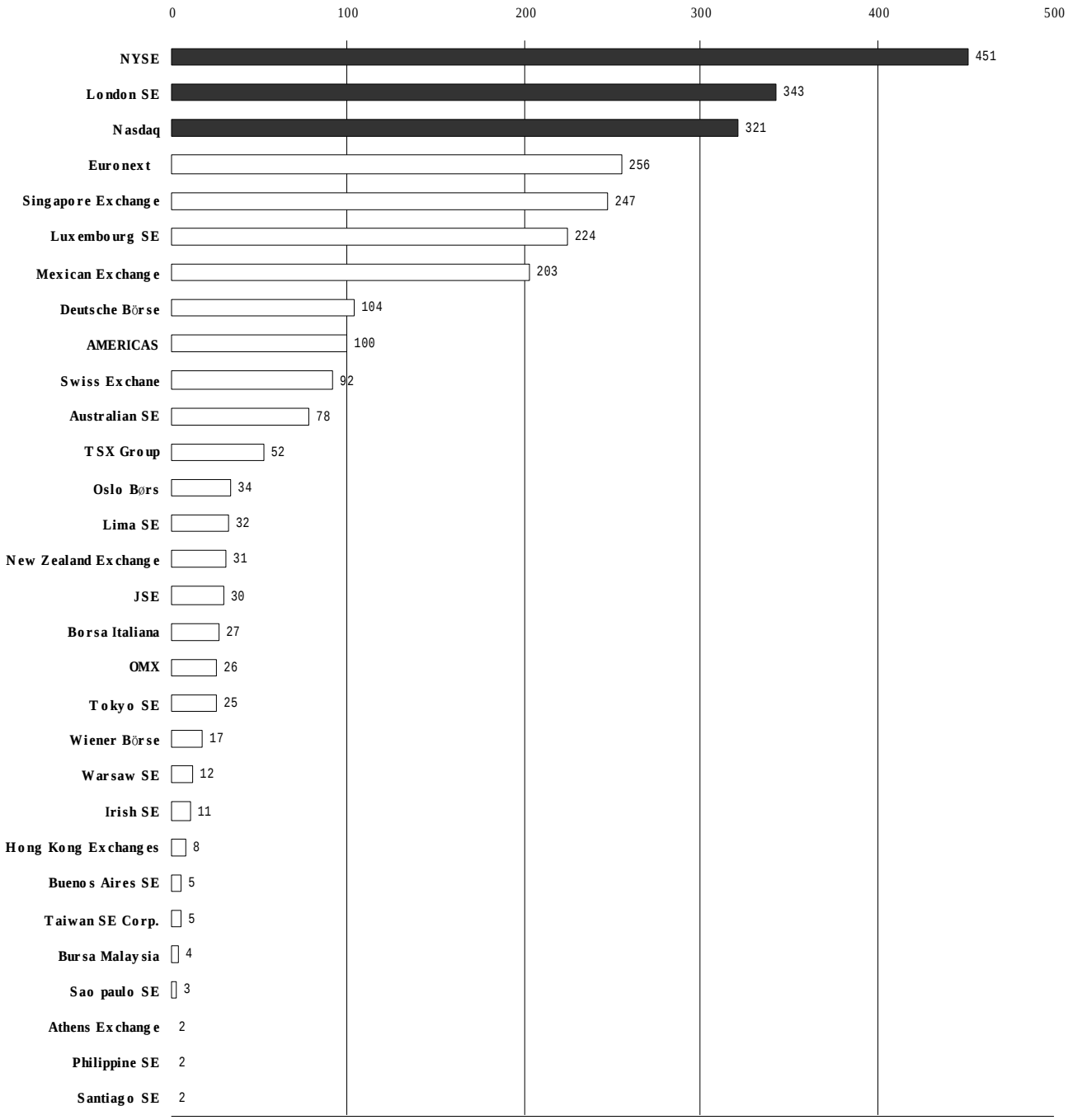
Philippine SE	Second Board	0%(NA)	0%	0%(NA)	0%
Shenzhen SE	Small & Medium Enterprises Board	0%(NA)	0%	0%(NA)	0%
Singapore Exchange	Sesdaq	10.8%(40)	4.35%	NA%(NA)	NA
Thailand SE	Market for Alternative Investment (MAI)	0%(0)	0%	0%(0)	0%
Tokyo SE	Mothers	0.51%(2)	0.66%	0.38%(677.9)	0.30%
Total Number of foreign-listing SME Firm in 2006		0+332(88.53%)+43(11.47%)=375			
Total trading value of foreign-listing SME Firm in 2006		0+2743.7(78.64%)+745.2(21.36%)=3488.9			



(a) The number of domestic listing firms for exchanges

Figure 1 Proportion of foreign companies (No. of foreign companies listed on domestic exchange/total no. of companies listed on domestic exchange, N=37)

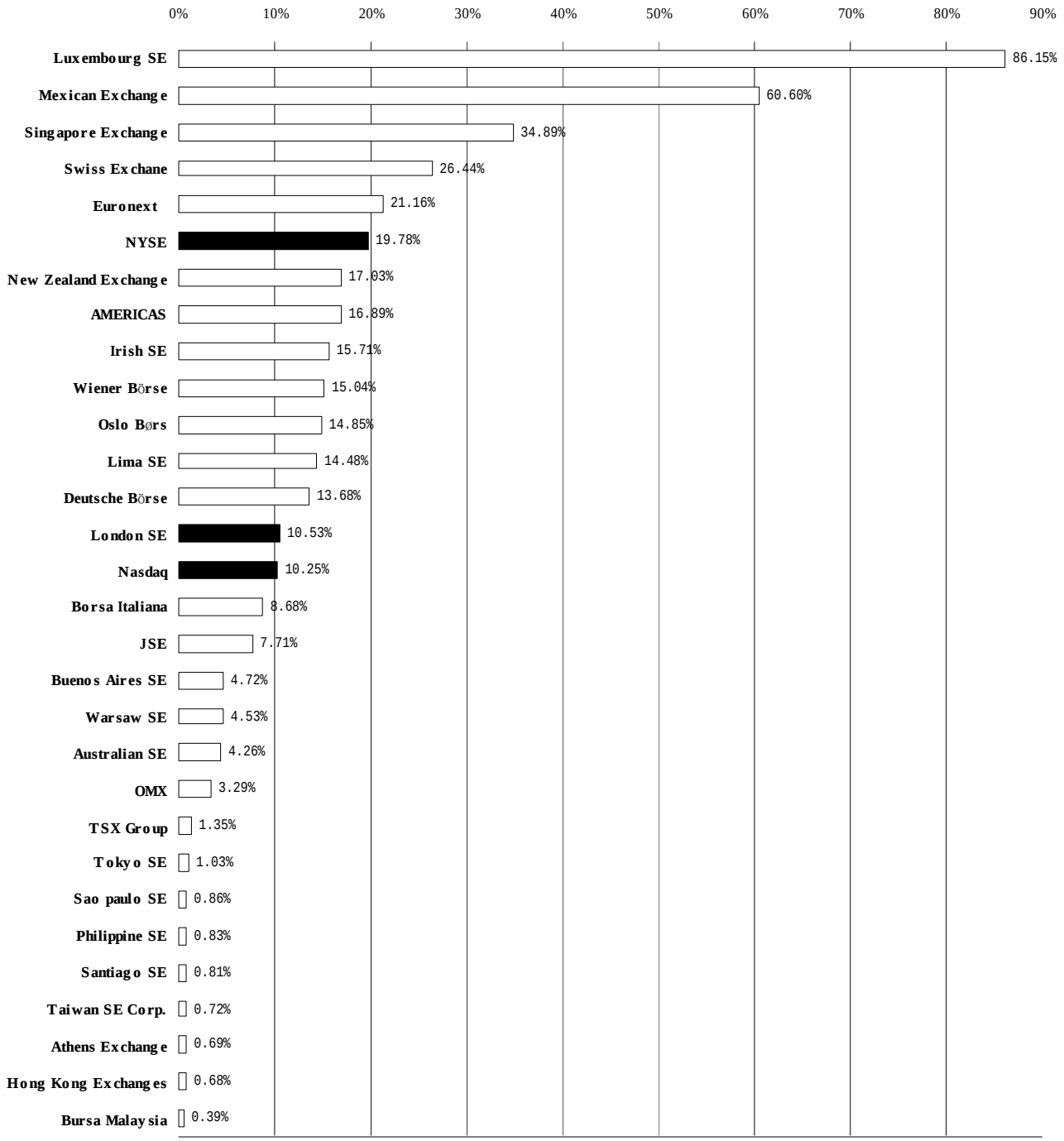
Data Sources: WFE 2006 annual report. Notes: There are 4 exchanges (BME, Copenhagen, Helsinki and Stockholm) was merger into OMX in 2004 and 1 exchange (Tel avis SE) is no date.



(b) The number of foreign listing firms for exchanges firms

Figure 1 Proportion of foreign companies (No. of foreign companies listed on domestic exchange/total no. of companies listed on domestic exchange, N=37)

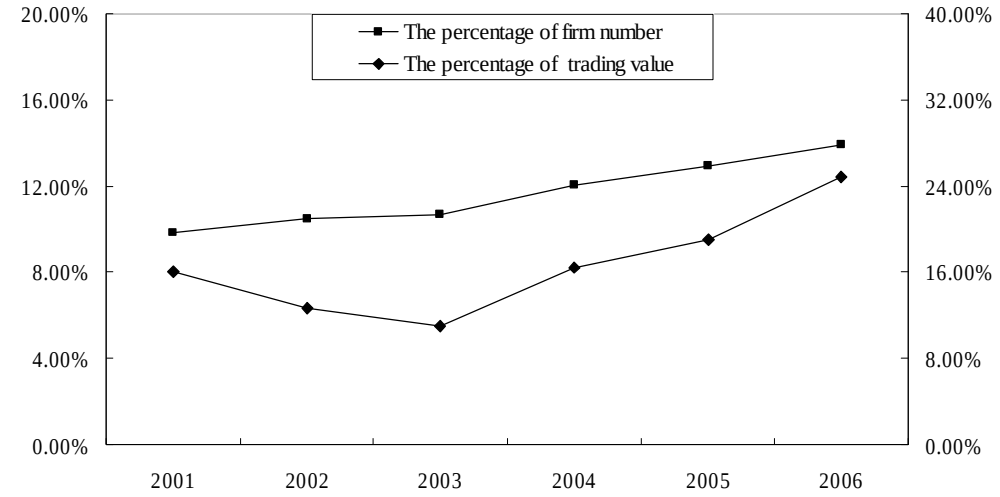
Data Sources: WFE 2006 annual report. Notes: There are 4 exchanges (BME, Copenhagen, Helsinki and Stockholm) was merger into OMX in 2004.

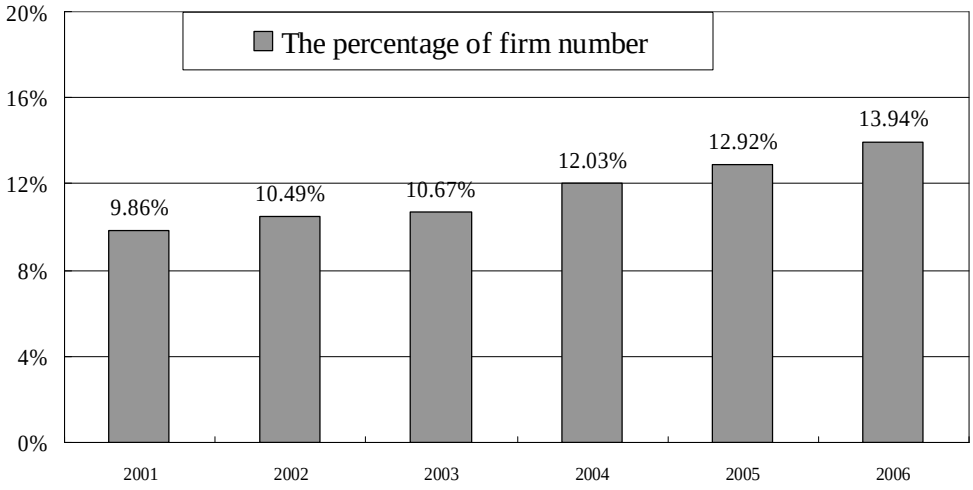


(c) The number of foreign listing firms / (domestic+foreign) listing firms (%)

Figure 1 Proportion of foreign companies (No. of foreign companies listed on domestic exchange/total no. of companies listed on exchange, N=37)

Data Sources: WFE 2006 annual report. Notes: (1)There are 4 exchanges (BME, Copenhagen, Helsinki and Stockholm) was merger into OMX in 2004.





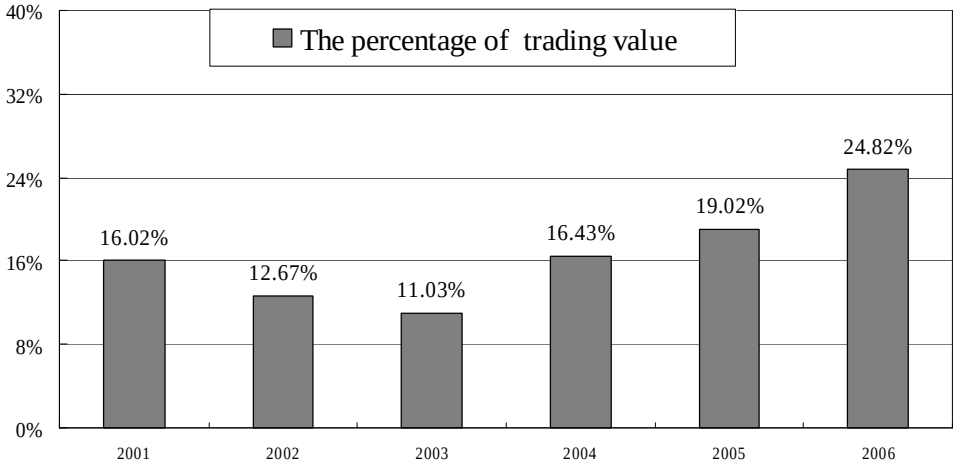
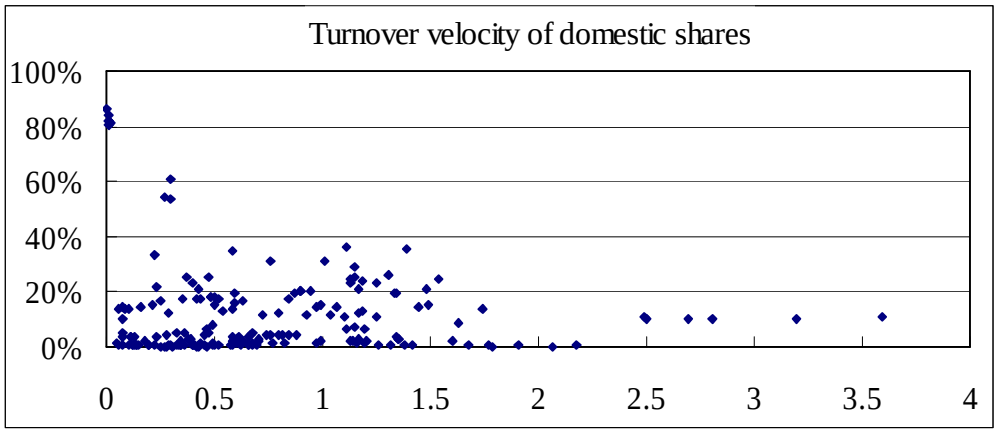
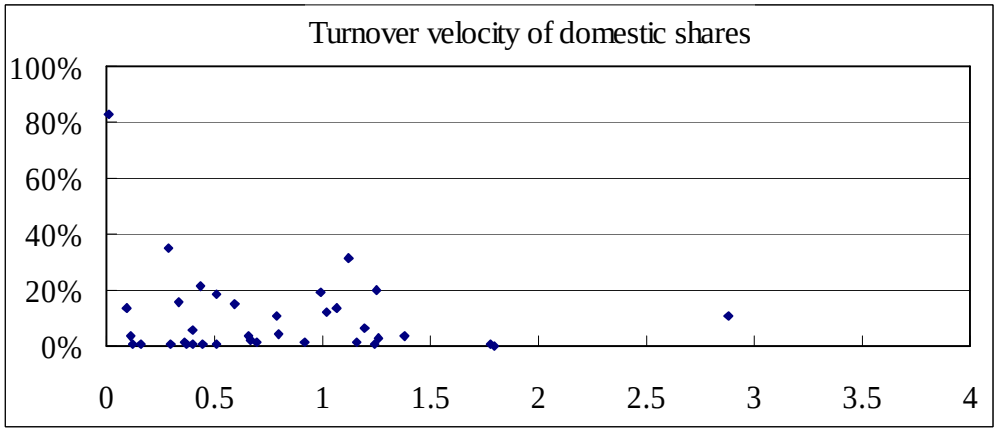


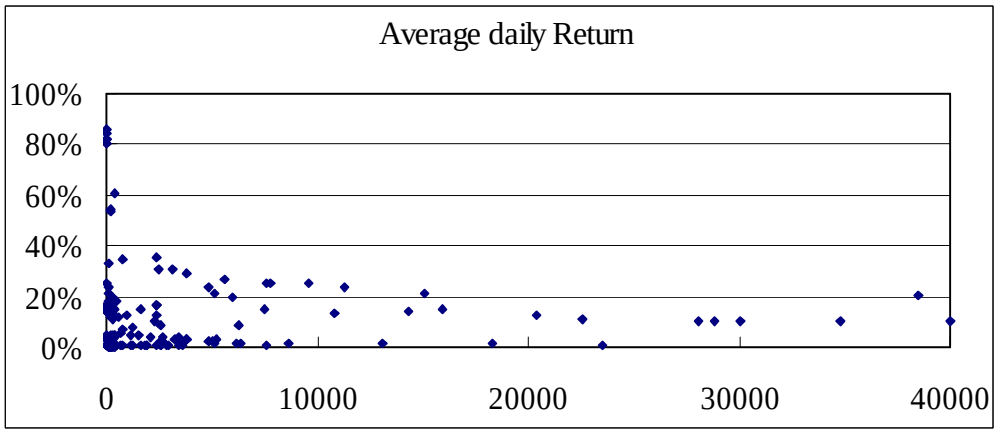
Figure 2 The percentage of firm number (at the left hand) and trading value (at the right hand) of foreign listing firms for exchanges around world by year

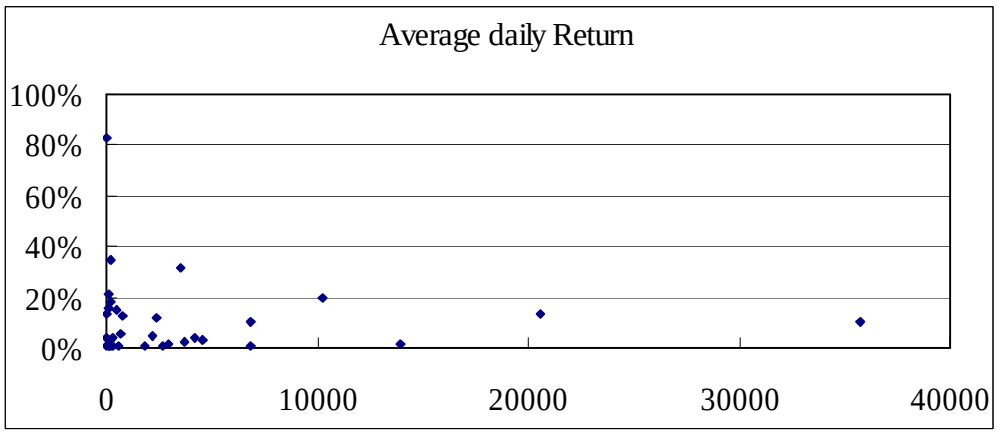
(3a) Liquidity: Turnover velocity of shares (*Liq*1): Panel and Aggregated Data



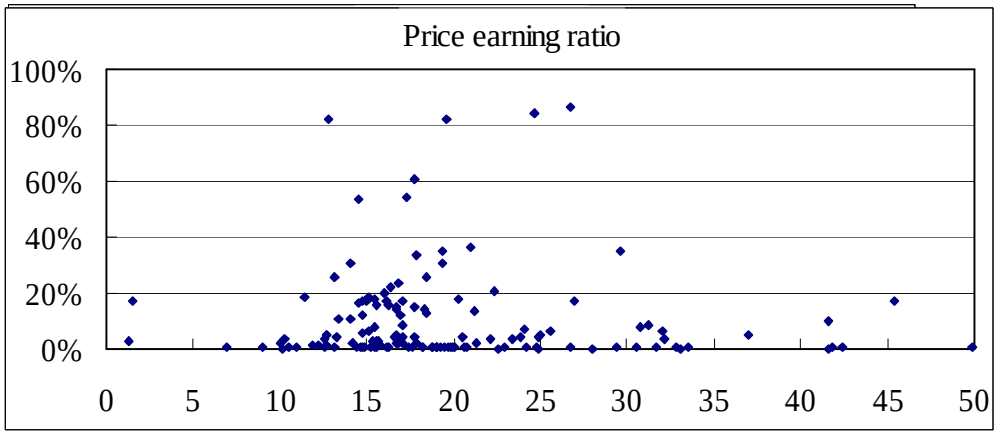


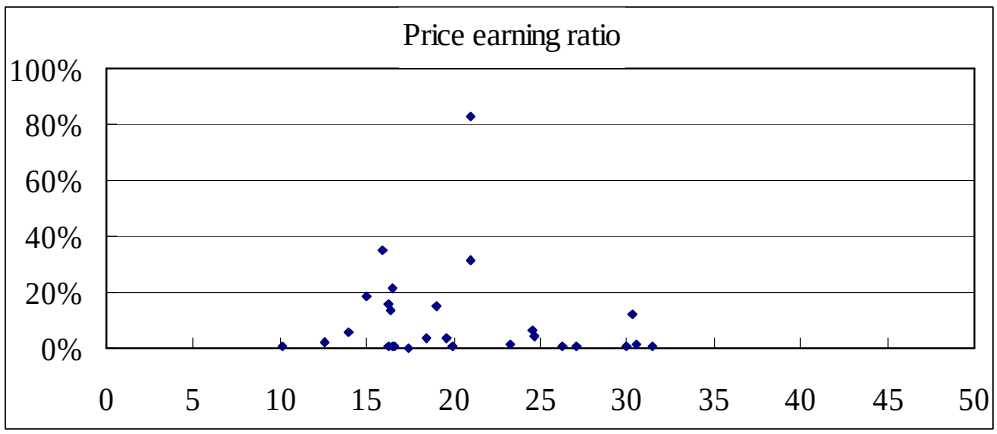
(3b) Liquidity: Number of average daily turnover (*Liq*2): Panel and Aggregated Data

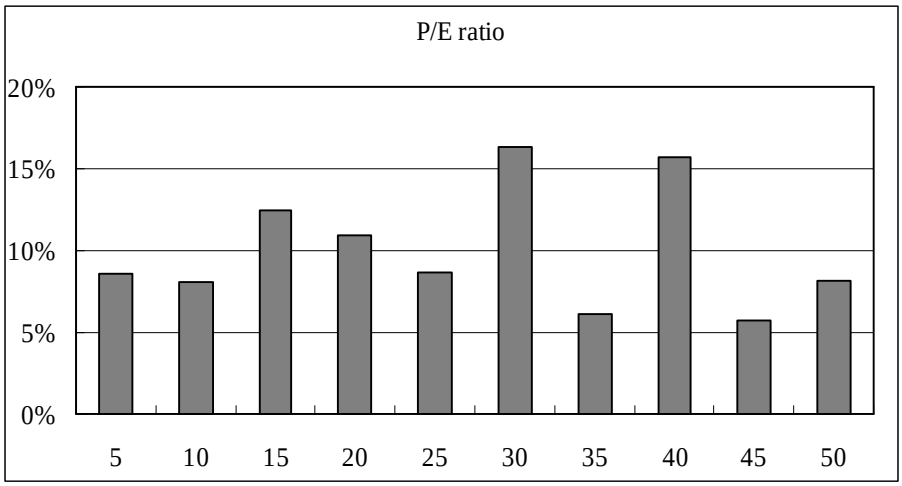




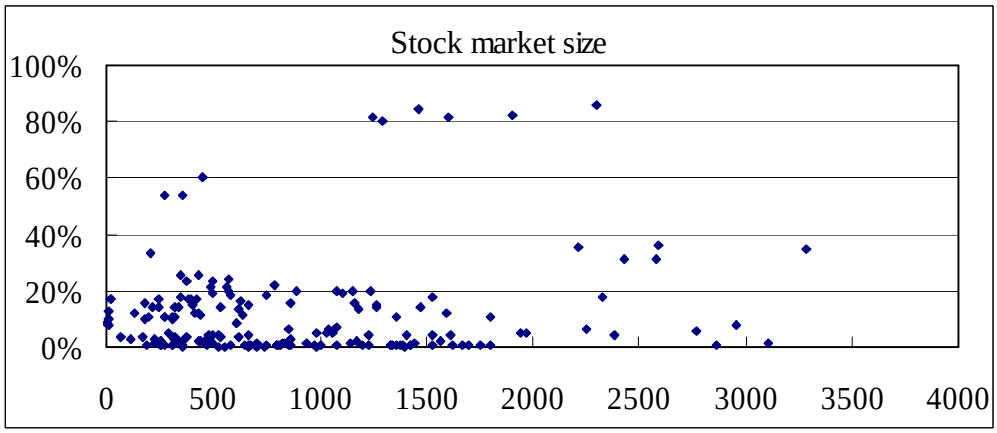
(3c)Price earning ratio (*PE*): Panel and Aggregated Data

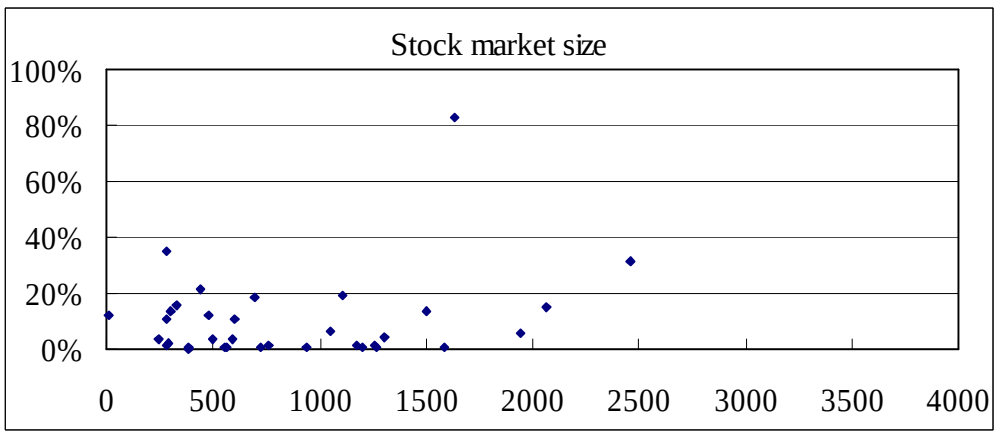




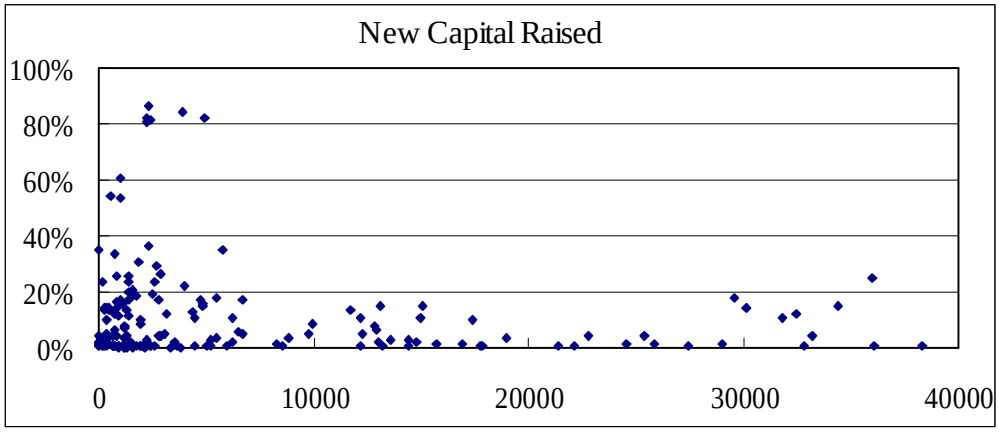


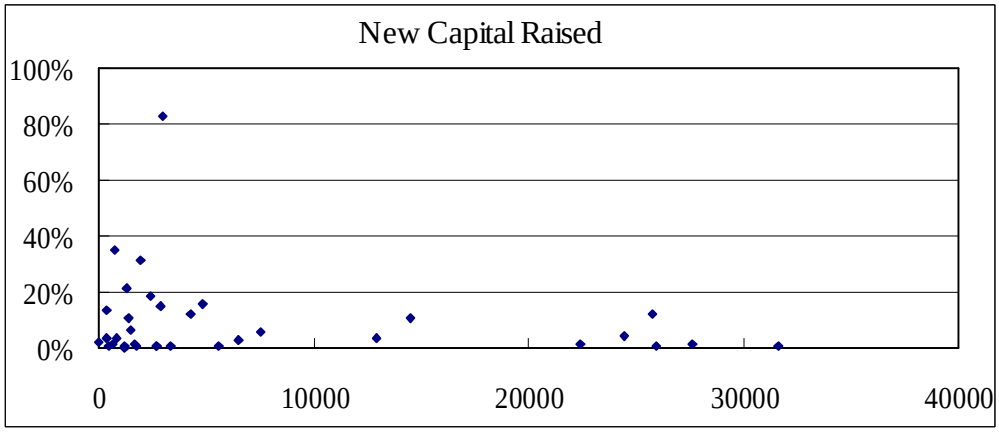
(3d) Stock market size (*Size*_%): Panel and Aggregated Data



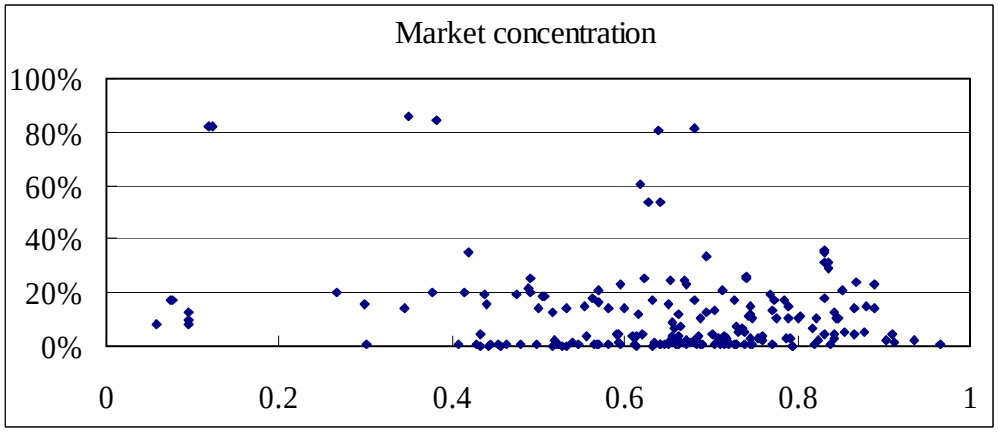


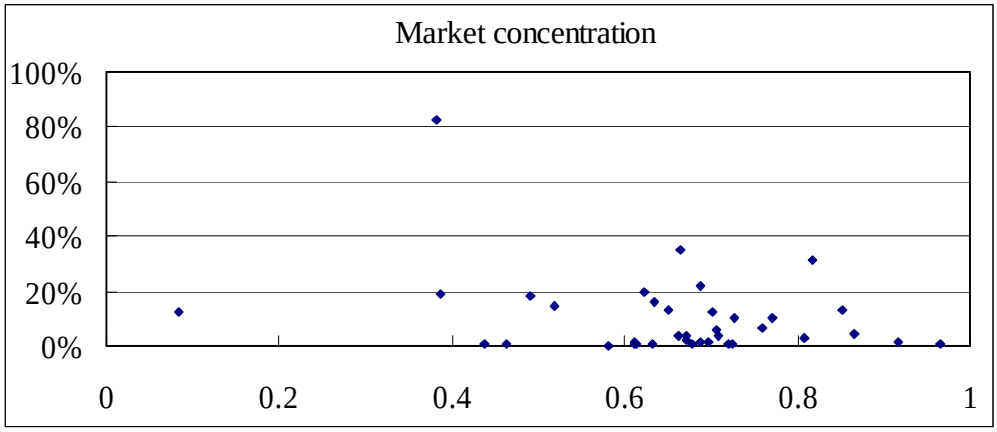
(3e) New Capital raised by shares (*NCRS_%*): Panel and Aggregated Data





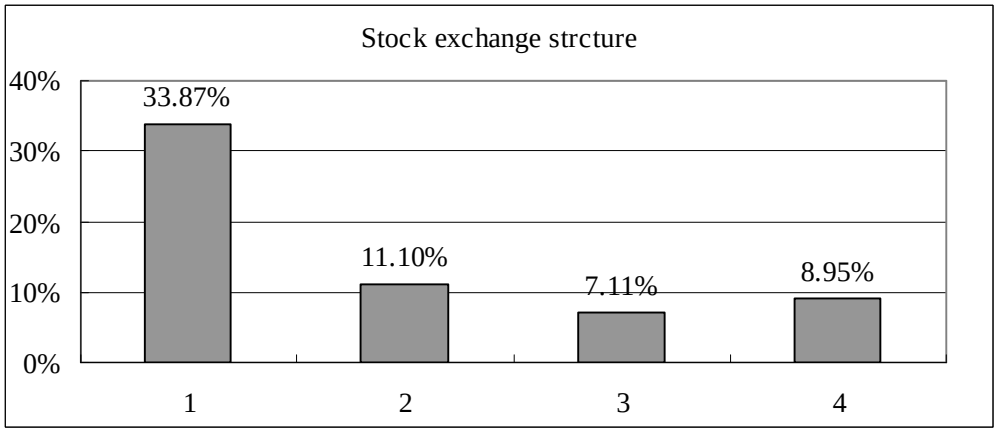
(3f)Market concentration (*MC*): Panel and Aggregated Data



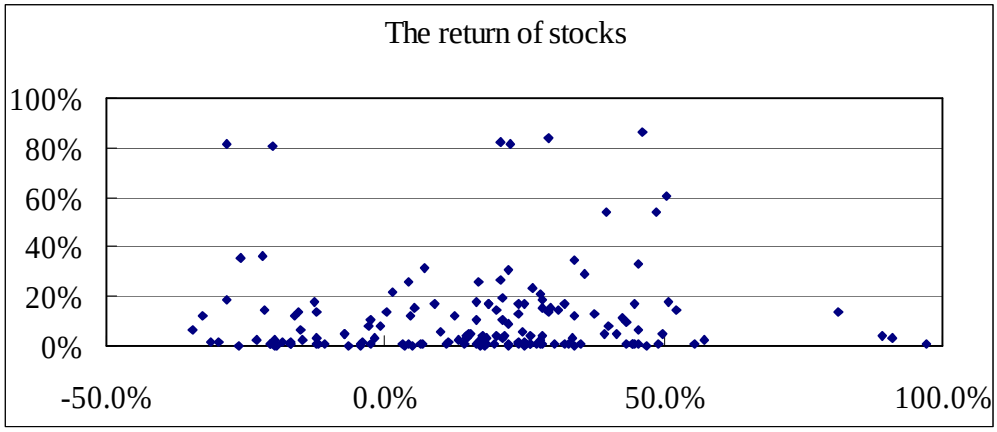


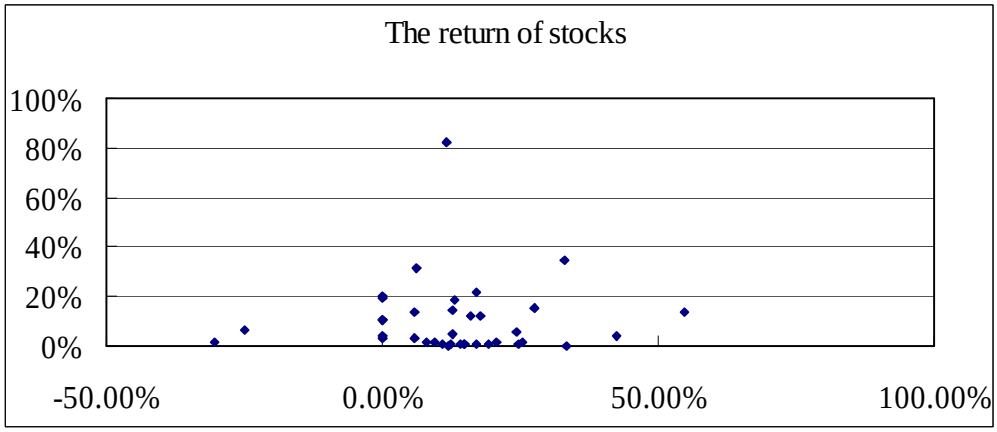
(3g) Stock exchange structure (*SES*): Exchange-level Aggregated Data

The Structure of Exchange: 1:Member-owned, limited companies (N=2); 2:Demutualized (but not listed) (N=8), 3:Listed exchanges (N=15), 4: Associations, mutuals (Assoc) (N=3). Notes: based on the lists of "*The cost and revenue survey of annual reports, 2006*".

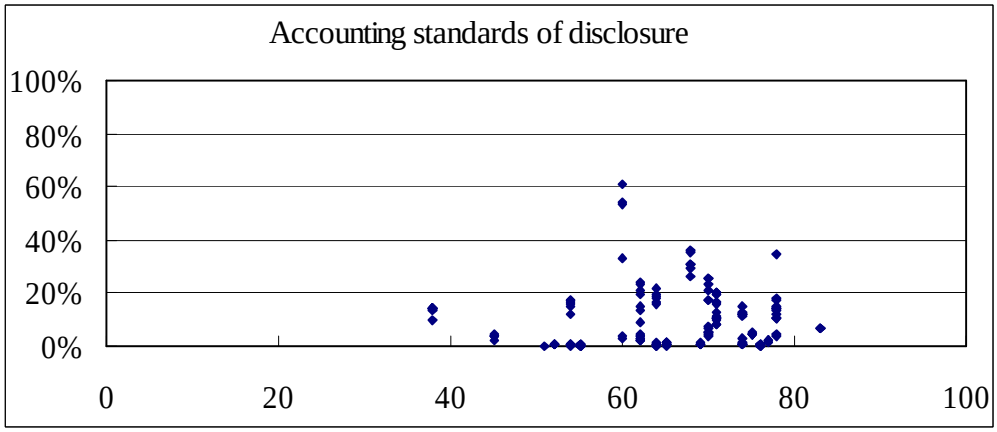


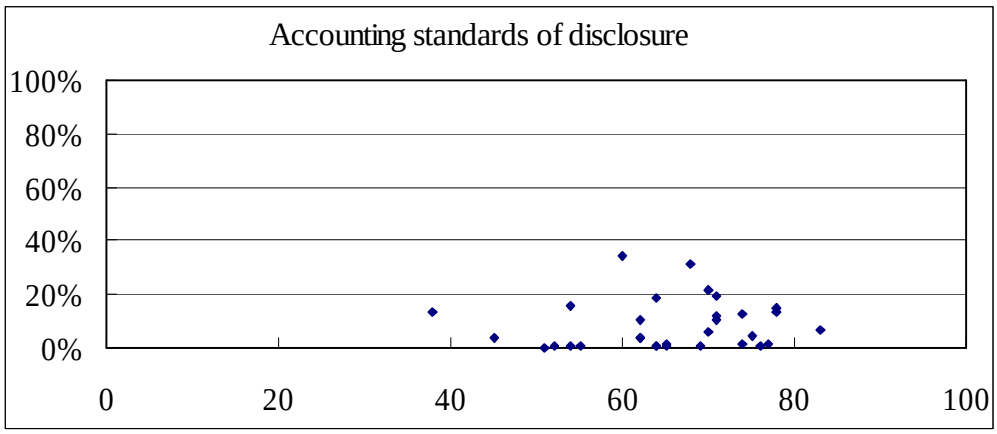
(3h)The return of stocks (*RS*_%): Panel and Aggregated Data



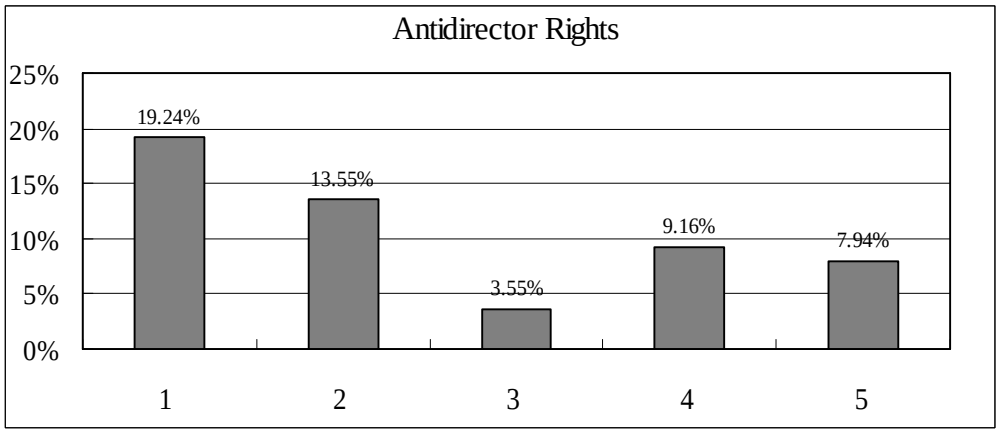


(3i) Accounting standards of disclosure (*ASD*): Panel and Aggregated Data

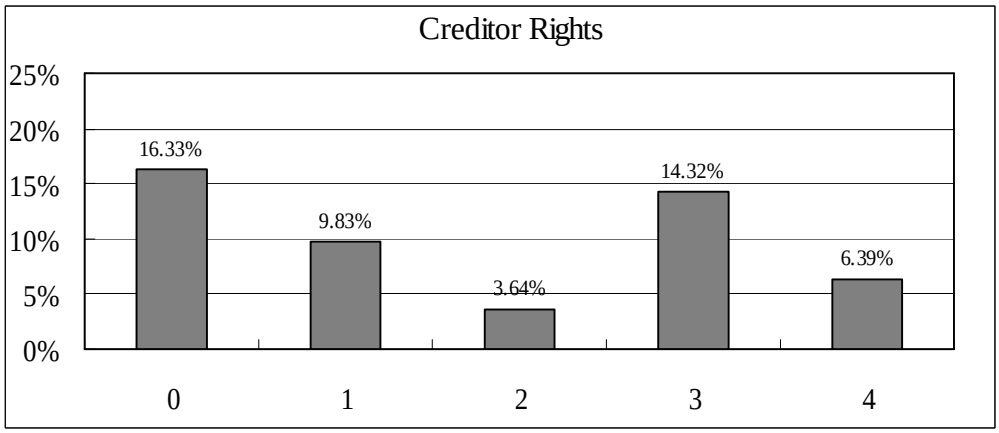




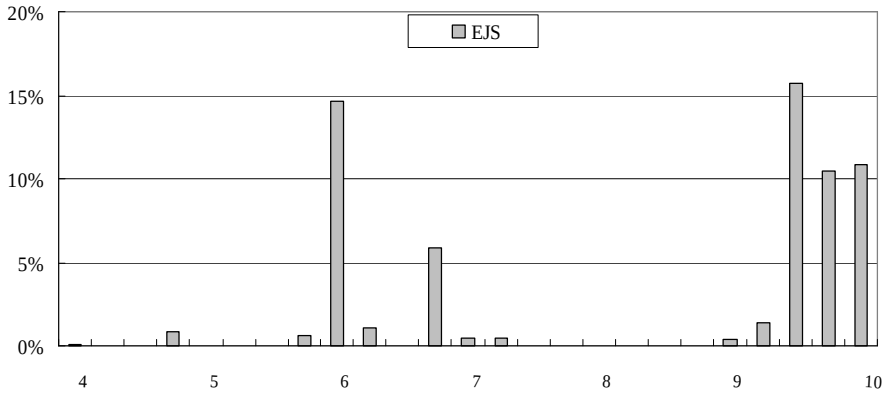
(3j) Anti-directors rights/ Shareholder protection index (*ADRI*): Exchange-level Aggregated Data



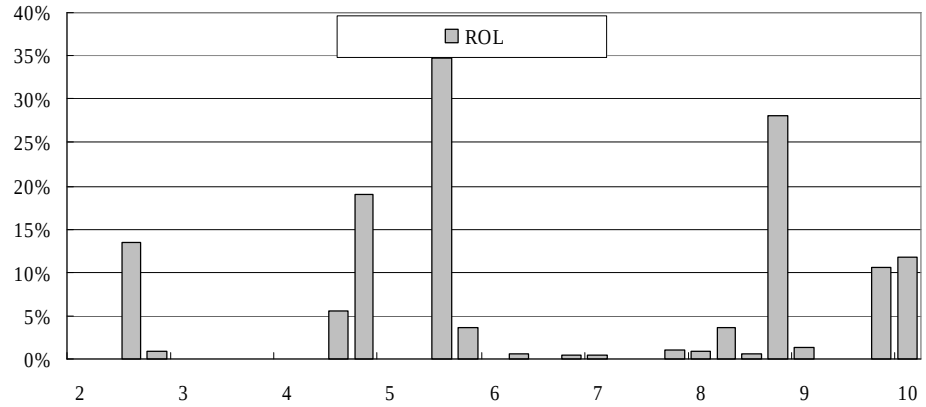
(3k) Creditor rights index (*CRI*): Exchange-level Aggregated Data



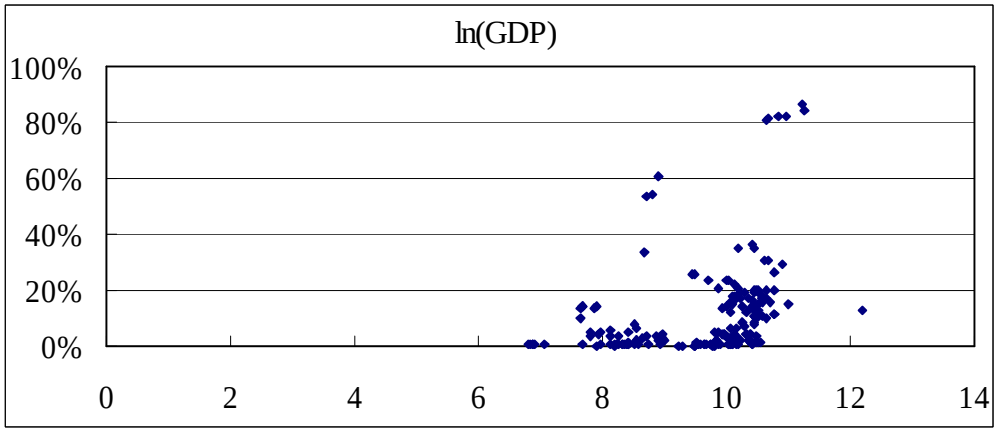
(3l) Efficiency judicial system (*EJS*): Exchange-level Aggregated Data

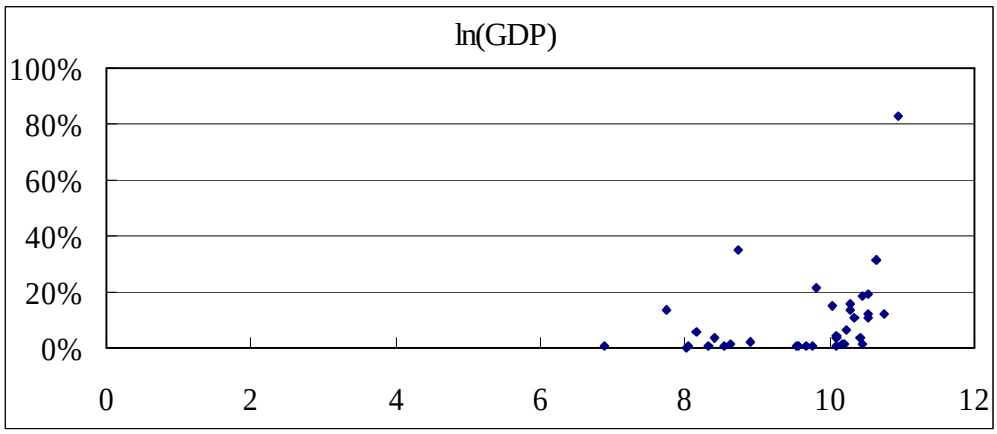


(3m) Rule of law index (*RLI*): Exchange-level Aggregated Data

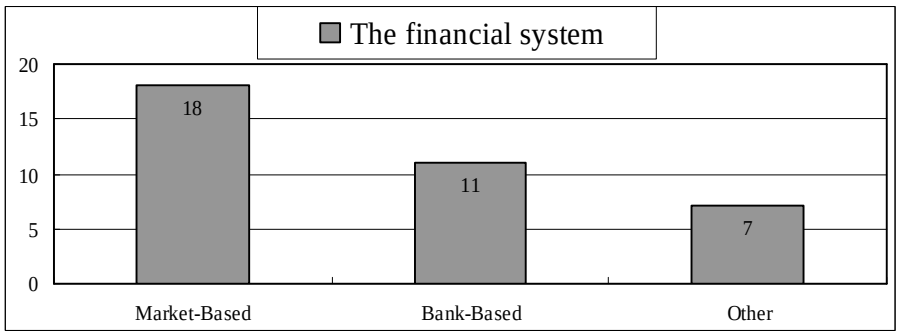


（3n）Gross Domestic Product (*GDP*): Panel and Aggregated Data

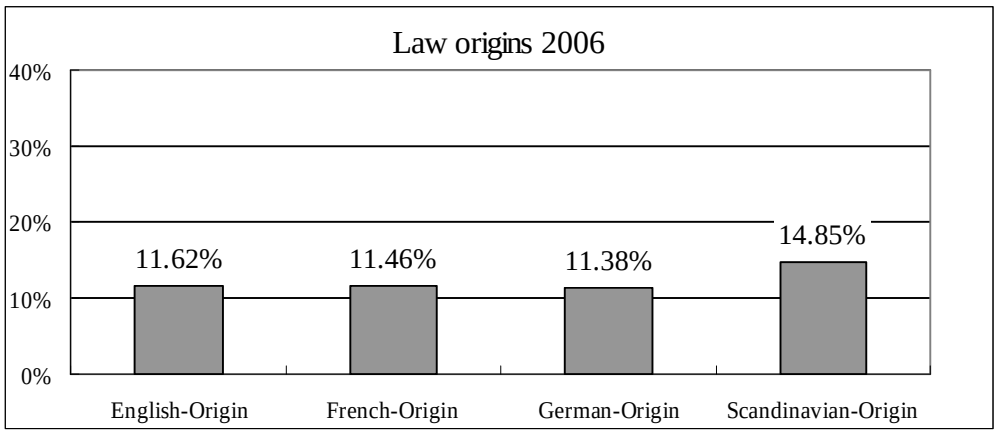




(3o)The financial system (*FS*): Panel and Aggregated Data



(3p) Law origins (*LO*): Exchange-level Aggregated Data



(3q)Financing obstacles (*FO*): Exchange-level Aggregated Data

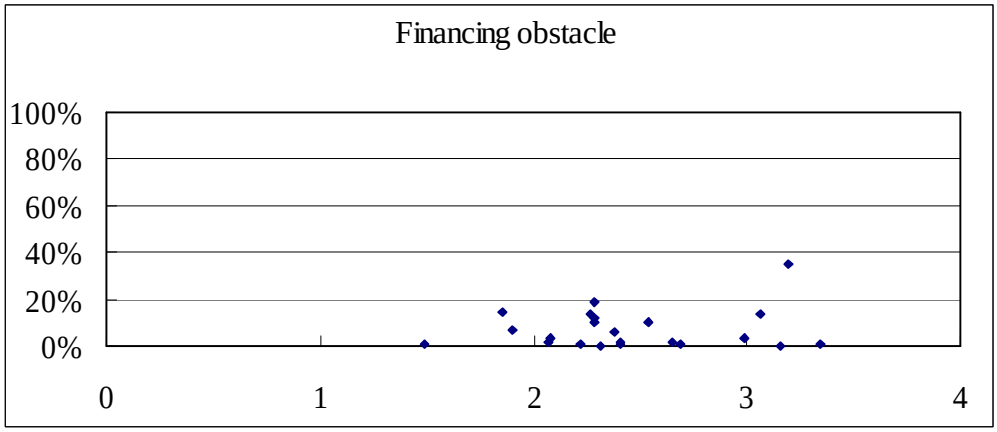


Figure 3: The relationship between the foreign-listing share and some key explanatory variables

Notes: 1.Total sample is 37 exchanges and 6 years. 2. Figure (3a), (3b), and (3c) is processed by the omitting the outlier that upper 5% in the series of their variables.

Appendix I: The foreign-listing number/value for the major exchanges (US and UK)

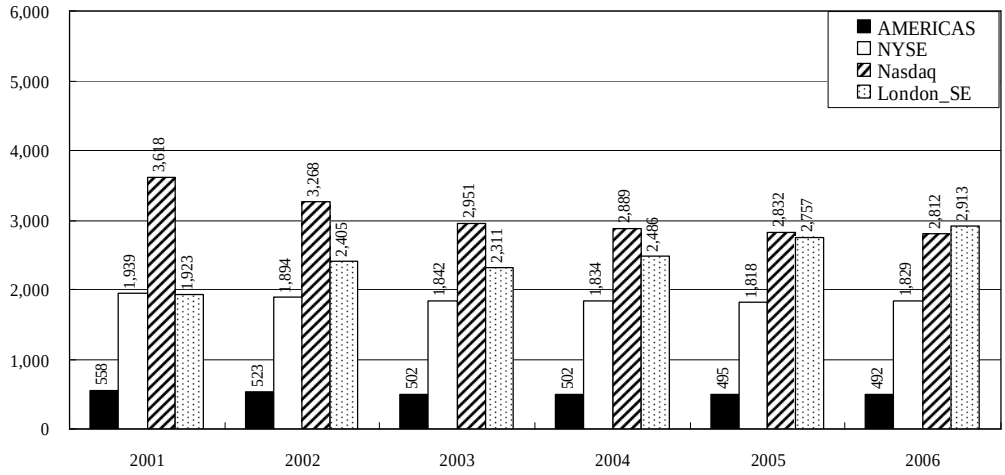


Figure 1A Domestic firms numbers of USA (AME, NASDAQ, NYSE) and UK (London)

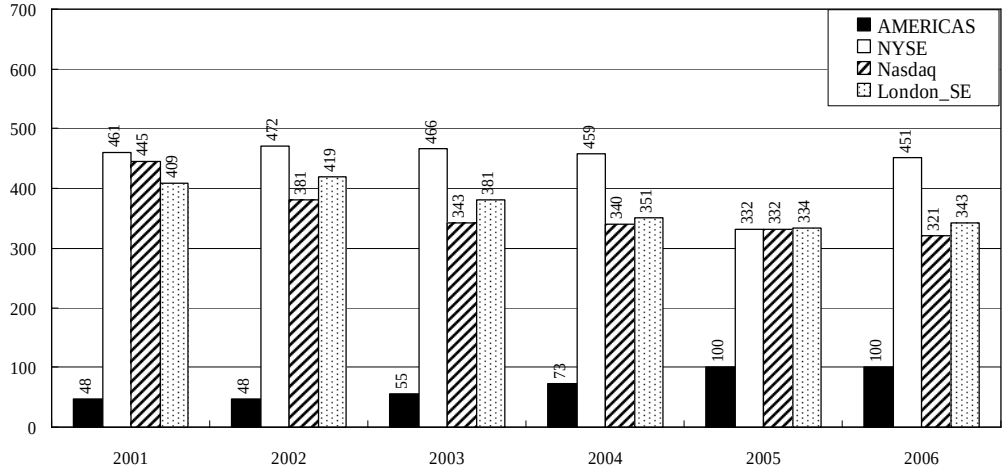


Figure 1B Foreign firms numbers of USA (AME, NASDAQ, NYSE) and UK (London)

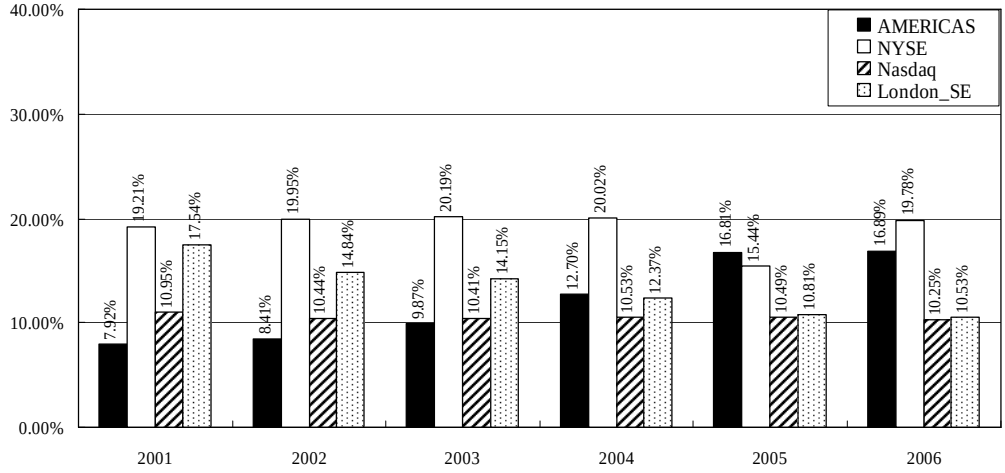


Figure 1C The % of foreign-listing of USA (AME, NASDAQ, NYSE) and UK (London)

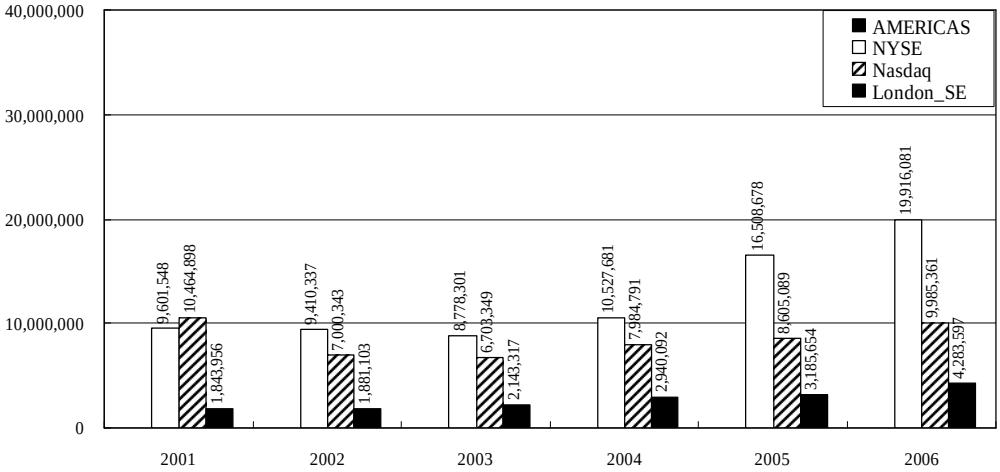


Figure 1D Domestic firms value of USA (AME, NASDAQ, NYSE) and UK (London)

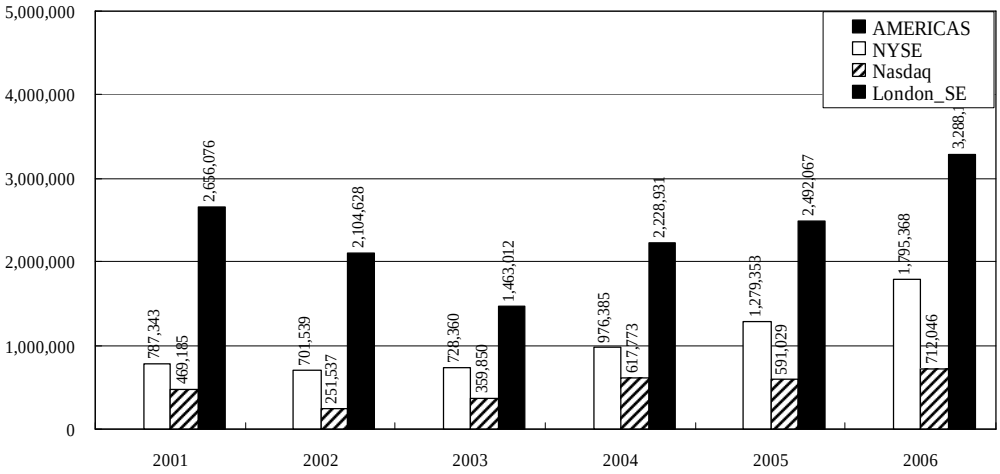


Figure 1E Foreign firms value of USA (AME, NASDAQ, NYSE) and UK (London)

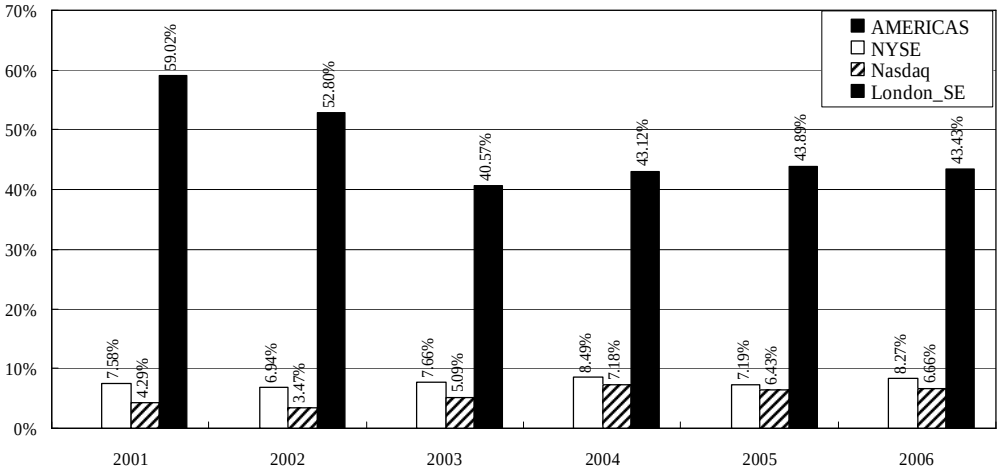


Figure 1F The % of foreign-listing of USA (AME, NASDAQ, NYSE) and UK (London)

Appendix II: The foreign-listing number for the major exchanges (Asia)

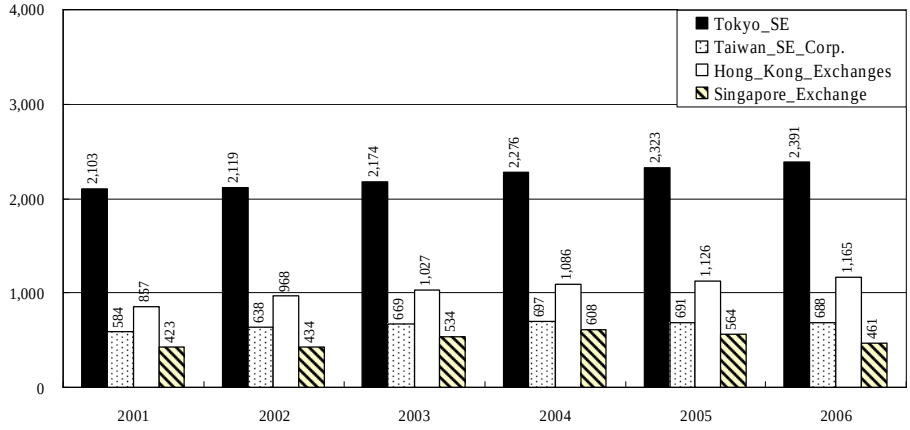


Figure 2A Domestic firms numbers of Hong Kong, Singapore, Tokyo, and Taiwan

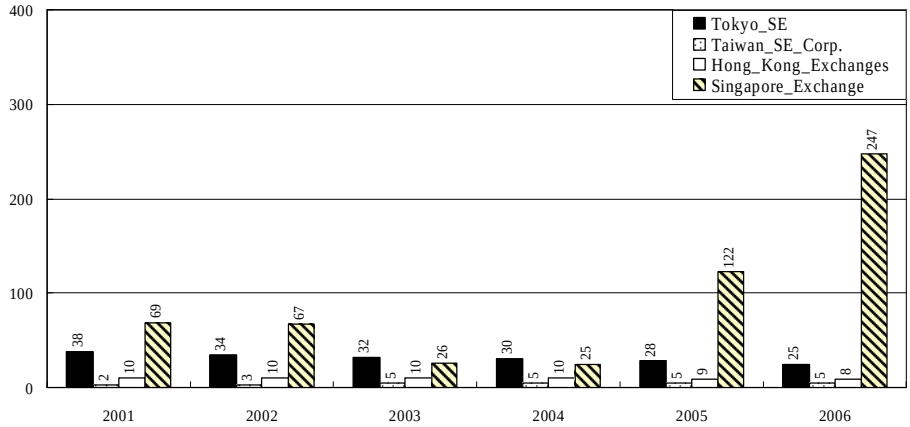


Figure 2B Foreign firms numbers of Hong Kong, Singapore, Tokoy, and Taiwan

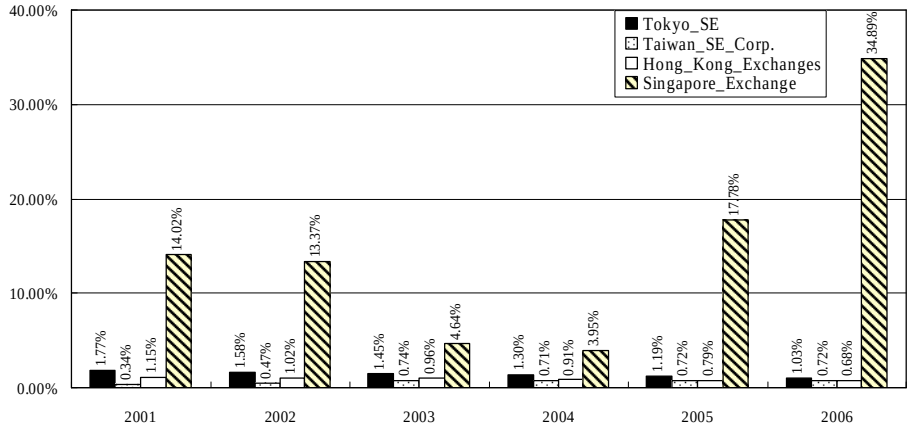


Figure 2C The % of foreign-listing of Hong Kong, Singapore, Tokoy, and Taiwan

Appendix III: The organization/structure of stock exchange

Notes: based on the lists of "*The cost and revenue survey of annual reports, 2006*". The underline parts are our sample in this paper.

Organization Type
Member-owned, limited companies (Member)
Bursa Malaysia, Luxembourg Stock Exchange, Chicago Board Options Exchange, New York Stock Exchange, Colombo Stock Exchange, Shenzhen Stock Exchange, Irish Stock Exchange, Tel Aviv Stock Exchange, Jakarta Stock Exchange, Wiener Börse AG, Ljubljana Stock Exchange
Demutualized, but not listed exchanges (Demut)
American Stock Exchange, Mexico Stock Exchange, BME Spanish Exchanges, NASDAQ, Borsa Italiana SpA, National Stock Exchange of India Ltd., Bourse de Montréal, Osaka Securities Exchange, Budapest Stock Exchange Ltd., Oslo Børs Copenhagen Stock Exchange, Taiwan Stock Exchange Corp., HEX Integrated Markets Ltd., Tokyo Stock Exchange
Listed exchanges (Listed)
Athens Exchange, London Stock Exchange, Australian Stock Exchange, New Zealand Exchange, Bolsa de Valores de Lima, Philippine Stock Exchange, Bolsa de Comercio de Santiago, Singapore Exchange, Deutsche Börse AG, Stockholmsbörsen Euronext TSX Group, Hong Kong Exchanges & Clearing
Associations, mutuals (Assoc)
JSE Securities Exchange, South Africa, Bolsa de Valores do São Paulo, Korea Stock Exchange, Shanghai Stock Exchange, BSE The Stock Exchange Mumbai, SWX Swiss Exchange
Other legal group exchanges (Other)
Bolsa de Comercio de Buenos Aires, Stock Exchange of Tehran Istanbul Stock Exchange, Stock Exchange of Thailand, Malta Stock Exchange, Warsaw Stock Exchange