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THE EFFECTS OF INTERNATIONAL EQUITY CROSS-LISTING ON INVESTOR PROTECTION AND FIRM VALUE

By

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SUMMARY

In this thesis, I examine issues pertaining to equity cross-listing in the United States and the United Kingdom. Specifically, I examine two issues, namely the effects of an international equity cross-listing on domestic investor protection, and firm value. First, in Chapter 3, I examine the effects of listing in the U.S. on the level of domestic investor protection for non-U.S. firms. Others have examined whether non-U.S. firms can 'completely' bond to the U.S. governance regime (like U.S. firms do), as the legal bonding hypothesis predicts. In general these studies conclude that bonding to the U.S. regime is 'incomplete'. Implicit in this is the belief that domestic/ordinary shareholders are also protected, although this has not been examined. I explicitly examine this issue. My results suggest that the ordinary shareholders of non-U.S. cross-listed firms do enjoy additional protection under the U.S. governance regime.

In the remainder of the thesis, I examine the valuation effects of listing abroad. I build upon the cross-sectional work of Doidge, Karolyi, and Stulz (2004) and Kristian-Hope, Kang, and Zang (2005), and examine the effects of listing abroad over time for Irish, Emerging, and both Emerging and Developed firms, respectively. My results suggest the following. In Chapter 4 I find that Irish firms that exchange cross-list experience an increase in value after listing abroad. This contrasts notably with the calendar year valuation discount reported by Doidge, Karolyi, and Stulz (2004) for Irish cross-listed firms. In contrast, Level 2/3 exchange-traded Emerging market firms are worth more than non-cross-listed firms in calendar time, but not necessarily in event time. The results outlined in Chapter 5 suggest that listing in the U.S. does not enhance value. After listing in the U.S., these firms are no longer worth more than non-cross-listed firms. Finally, in Chapters 6 and 7, I examine the valuation effects of listing for non-exchange traded issues. I find that trading in the U.S. via a non-exchange issue does not enhance value. The result holds irrespective of how I classify firms. Finally, I extend the later by examining the valuation effects of listing for non-exchange traded firms, on a country-by-country basis. I find that listing does enhance value for firms from certain countries.

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CONFERENCES AND PUBLICATIONS

Chapter 3 titled "Cross-Listing in the U.S. and Domestic Investor Protection" has been presented at a Department of Economics Internal Seminar (2003), the NUIM Postgraduate Colloquium 2003, Money Macro Finance (MMF) Annual Conference 2004, Cass Business School, City of London University, London, and the 3rd INFINITI Conference on "Real and Financial Channels of Financial Integration", hosted by IIIS Trinity College Dublin and the Quarterly Review of Economics and Finance (QREF), 2005.

The paper was presented at the MMF under the heading "Are the domestic investors of cross-listed firms better protected?"

A shorter version of Chapter 3 is published in the Quarterly Review of Economics and Finance, 2006, 46, 413-436.

I have presented Chapter 4 titled "Are cross-listed Irish firms worth more?" at the NUIM Postgraduate Colloquium 2004.

A shorter version of Chapter 4 is currently being revised for resubmission to the Journal of Multinational Financial Management.

Chapter 5, "Does cross-listing in the U.S. really cause value?" has been presented at IIIS Miniconference on International Financial Integration, November 2004, The Emerging Markets Finance Conference 2005, Cass Business School, City of London University, London, The Irish Accounting and Finance Annual Conference (IAFA), Limerick 2005, and The Global Finance Conference hosted by IIIS, Trinity College Dublin, and the Journal of International Money and Finance (JIMF), Trinity College Dublin, 2005, and the NUIM Postgraduate Colloquium 2005.

A shorter version of Chapter 5 is being prepared for submission.

Chapter 1: Introduction

Over the course of the last three decades, there has been an increased tendency on the part of large firms to initiate and sustain, in addition to a domestic listing, a foreign equity listing. In many respects, the growing tendency of international listings has mirrored the attractiveness of intranational listings for U.S. firms over the course of the last century (See Ule (1937), Van Horne (1970), Dharan and Ikenberry (1995, DI Hereafter), Cheng (2005) for a very recent study, and McConnell, Dybevik, Haushalter, and Lie (1996) for an overview). In addition, the data suggests that the United States has become the most attractive location for a secondary equity listing (See Pagano, Roell, and Zechner (2002, PRZ Hereafter)), although familiarity, measured in terms of great circular distance (GCD), and economic and cultural ties exherts a sizable influence on the international listing choice of firms (See Sarkissian and Schill (2004, SS Hereafter)). For example, this so called 'proximity preference' is evident in the listing behaviour of both Canadian and Irish firms who list predominantly the U.S, and the U.K., respectively. Over the course of the same period (1986-2005), European stock exchanges experienced a sharp decline in the number of foreign lists (including U.S. firms listed abroad).

In the interim period, the growing tendency on the part of international firms to list in the U.S., and in some respects, the increased incidence on the part of other global exchanges to lose their share of foreign lists, has attracted considerable attention from both academics and practitioners alike. As a direct consequence, our understanding of the international cross-listing market has been enhanced considerably. For example, we now have a better understanding of the type of firms that cross-list internationally (e.g. Claessens, Klingebiel, and Schmukler (2003, CKS Hereafter), PRZ (2002)) and those that do not (e.g. Barzuza, (2005), Doidge, Karolyi, Lins, Miller, and Stulz (2005, DKLMS Hereafter)), the motives for cross-listing (e.g. Bancel and Mittoo (2001, BM Hereafter)), and the valuation implications thereof (e.g. Miller, (1999), Doidge, Karolyi, and Stulz (2004, DKS Hereafter), Kristian-Hope, Kang, and Zang (2005, KKZ, Hereafter), King and Segal (2004, KS Hereafter), and Mittoo (2003)). In the case of the later, the academic community

has uncovered a new hypothesis that has served to better explain both the observed listing trends that occurred in the 1990's, and the valuation implications thereof. This new legal bonding hypothesis (See Coffee (1999, 2002), Stulz (1999), Reese and Weisbach (2002, RW Hereafter), DKS (2004)) has served to challenge the 'conventional wisdom' (See Karolyi (2005)). The 'conventional wisdom' asserted that the valuation benefits of listing (i.e. enhanced valuation, lower cost of capital) were explained within the context of at least mildly segmented international capital markets (See Alexander, Eun, and Janakiramanam, (1987, 1988, AEJ Hereafter), Errunza and Losq (1985, EL Hereafter), Stulz, (1981)).

The legal bonding hypothesis, stemming from the 'law and finance' literature of LaPorta, Lopez-de-Silanes, Shleifer, & Vishny (1997, 1998, 2002, LLSV Hereafter), contends that a firm cross-lists on U.S. exchanges in order to bond themselves to the U.S. governance and regulatory regime[1]. In the subsequent period, two questions stemming from the predictions of the legal bonding hypothesis have dominated academic research[2]. First, a considerable amount of research has been devoted towards examining whether non-U.S. firms are able to 'completely' bond to the U.S. governance regime (i.e. as domestic U.S. firms do). The consensus finding appears to be that bonding to the U.S. governance regime is 'incomplete' for non-U.S. firms (e.g. Licht, (2002), Lang, Raedy, Wilson, (2006, LRW Hereafter), Burns and Francis (2006, BF Hereafter)), and at best, exchange listing in the U.S. provides only 'reputational bonding' (e.g. Siegel (2005), KS (2004)). Nevertheless, both Barzuza (2005) and KS (2004), using theoretical and empirical approaches, respectively, show that the desire on the part of firms to 'signal low private benefits' (See Barzuza, (2005), Barzuza, Smith, Valladares (2006, BSV Hereafter)) is sufficient to generate a 'cross-listing premium' (See KS (2004), DKS (2004)). Stulz (2005, pg. 1632) concludes that even give the 'incompleteness' of legal bonding for international firms, listing in the U.S. endows firms with "…. monitoring that otherwise would not have taken place".

[1] Consistent with this, given the introduction of the Sarbanes-Oxley Act in 2002, the increased incidence of cross delisting remains consistent with the predictions of the bonding hypothesis (See Witmer (2005), and Marosi and Massoud (2006)).

[2] In Chapter 2 I outline the theoretical predictions underpinning the legal bonding hypothesis.

Second, researchers have attempted to examine whether this commitment on the part of non-U.S. firms to provide fuller disclosures under the U.S. regime enhances value? DKS (2004) outline a theoretical model grounded in a standard principal-agency framework. They demonstrate that the valuation gains from listing, what they term the 'cross listing premium' is increasing in both the host level of investor protection (given that after listing in the U.S., the ability of the manager/controlling shareholder to consume private benefits of control is greatly reduced) and the investment opportunity set of the firm. They quantify that exchange listed Level 2/3 ADRs are endowed with a 'cross-listing premium' of 37%. Non-exchange traded firms i.e. Level 1 and Rule 144a firms are not. These finings are reinforced in DKS (2006) and KKZ (2005). In the next chapter, I outline a detailed review of the cross-listing literature, and present a detailed analysis of the international cross-listing market.

In this thesis I examine issues relating to both areas. First, while bonding to the U.S. regime appears to be 'incomplete', what remains ambiguous is whether the U.S. governance regime offers any protection to the ordinary shareholders of cross-listed firms. For example, Aggarwal, Dahiya, and Klapper (2005, p.3, ADK Hereafter) suggest "ADR holders have better legal standing of the underlying security as the ADRs are purchased in the U.S", without offering any proof of such. I examine whether the ordinary shareholders i.e. the holders of the underlying security enjoy any incremental protection under the U.S. governance regime.

To examine this issue, I employ the agency models of dividends, introduced by LLSV (2000), and examined in a dynamic setting by Liu (2002). I examine the ordinary dividend payout of cross-listed firms around a cross listing in the U.S. My choice of variable is motivated by the fact that (1) dividend payout is increasing in the level of investor protection (See LLSV (2000)) and, consequently (2) changes in external investor protection are associated with changes in firm dividend payout (e.g., Liu (2002)), once I control for firm, industry and country level determinants of dividend payout. Furthermore, my choice of dependent variable enables us to isolate the impact of cross listing on the domestic/ordinary shareholders (as against the ADR

shareholders) of cross-listed firms. My results suggest that listing in the U.S., via a Level 2/3 exchange traded depositary receipt confers additional protection on the ordinary shareholders of these firms. I also find that the investors of non-exchange Level 1 firms are also better protected. On further examination, I find that this additional protection stems, not from protection offered under the U.S. governance regime, but in terms of enhanced firm-level governance. The results are consistent with the bonding hypothesis.

Second, I devote the remainder of the thesis to analysing the valuation effects of cross listing. In doing so, I seek to answer the following questions; first, I examine whether cross-listed Irish firms are worth more? I am motivated by an irregularity that arises in the work of DKS (2004). Specifically, and in contrast to the predictions of their model, their summary statistics (See DKS (2004) Table 1, pg. 223) suggest that Irish exchange-traded firms (Level 2/3) are worth less than their counterpart non-cross-listed firms. It may well be the case that Irish exchange traded firms that list-abroad are not necessarily worth more than their counterpart non-cross-listed firms. Either way, it is not necessarily clear as to whether listing causes value for listed Irish firms. Given the predictions of the model presented by DKS (2004), *a priori* one would expect that the greatest gains to an international listing accrue to those firms that trade as Level 2/3 exchange-traded depositary receipts. I examine this issue further using a panel of Irish firms in Chapter 4. My results are in line with my prior expectations.

Next, I extend the cross-sectional approach of DKS (2004), and others (e.g. Lang, Lins, and Miller (2003, LLM Hereafter), KKZ (2005)) and examine the evolution of the 'cross-listing premium' over time using a number of panel selection correction estimators. However, and most importantly I, unlike DKS (2004, 2006), examine the valuation effects of listing in calendar time, as they do, but also in event time. Their results suggest that cross-listed firms are worth on average 16.5% more than non-cross-listed firms in 1997, and this 'cross listing premium' reaches 37% for exchange-traded depositary receipts. In subsequent analysis (See DKS (2006)), they show the 'cross listing premium' persist over time (1997-2004).

I employ valuation metrics i.e. Tobin's q, and control explicitly for self-selection bias. Previous studies on the benefits of listing using event studies have been either, too short (e.g. Miller, (1999)), or have failed to control for self-selection bias. In his synopsis of Mittoo (2003), Heidle (2003, pg. 1664) concludes, "As with all event studies, the analysis in this paper suffers from a potential self-selection bias". In fact Mittoo (2003, pg. 1659) explicitly acknowledges this shortcoming in her conclusion, "...long-term performance is generally difficult to measure and our results should be interpreted with some caution because of several limitations of our methodology. First, benchmarking performance with market indexes as done in our study could lead to serious biases and measurement problems". Similar accusations can be directed towards much of the earlier work on the valuation effects of international cross-listings (e.g. Miller, (1999)). In fact, in my approach, I incorporate the suggestions of Mittoo (2003, pg. 1659), who assets that "Ideally, performance of sample firms should be benchmarked with that of control firms matched by industry, book-to-market value, and firm size". In Chapter 5, I match firms with an (almost) identical probability of cross listing based upon propensity scores, and calculate the average effect of the treatment on the treated (ATT) up to five years post-listing. In addition, I estimate firm fixed effects, pooled ordinary least squares (with Mundlak (1978) corrections), and two-stage treatment-effects models (See Li and Prabhala (2005, LP Hereafter)).

My results suggest that there are no long-term valuation benefits to listing in the U.S. In fact, I find that the valuation benefits from exchange cross listing in the U.S. are immediate, but transitory. Consequently, like Clarkson, Nowland and Ragunathan (2006, pg. 17, CNR Hereafter), I conclude that "there is no such thing as a cross listing premium".

In Chapters 6 and 7, I turn my attention towards the study of non-exchange traded depositary receipts. In Chapter 5, my results suggest that listing in the U.S. does not cause value for non-exchange traded firms domiciled in emerging markets. However, there is some weak evidence to suggest that non-exchange traded firms domiciled in low-disclosure regimes may gain some value from listing in the U.S. I use this finding to motivate the analysis presented in

Chapter 6. More specifically, I extend my sample to include both developed and emerging market firms. Using a sample of non-exchange traded firms from 39 countries; I find that the results from Chapter 5 generally hold for a much larger sample of firms. Furthermore, I show that while the absolute value of non-exchange traded firms differs substantially across different sub-categories of firms in the post-listing period, the conclusions drawn for the entire sample of firms still apply. Listing in the U.S. does not cause value for non-exchange traded firms. In fact, I find that trading in the U.S. via Rule 144a private placements greatly reduces value for emerging market firms.

Finally in Chapter 7, I examine the valuation effects of listing for non-exchange traded depositary receipts on a country-by-country basis, because of the tendency of previous studies to generalize. My results suggest that listing in the U.S. via a Level 1 depositary receipt program causes value for firms from Mexico, Netherlands, and New Zealand, and lower (relative) value for firms from Brazil, Chile, China, Colombia, Germany, Hong Kong, Italy, Japan, Phillipines, Poland, Sweden, and Turkey. For Rule 144a firms, I document only 4 statistically significant 'cross listing premia': Chile, Peru, Portugal, and Switzerland. In contrast, France, Germany, Norway, India, Finland, Singapore, Spain, and the U.K. experience the greatest losses. The results suggest that listing in the U.S. via a non-exchange program does cause value for some firms. Chapter 8 concludes.

Chapter 2: Literature Review

2.1 Introduction

The globalization of equity markets over the course of the last three decades has been clearly visible in the number of firms that have sought, in addition to a domestic listing, an international listing of their stock[3]. Since 1984, the U.S. has experienced a dramatic increase in the number of non-U.S. firms that have sought an international listing either as a direct 'ordinary' list (largely Israeli and Canadian firms) or via depositary receipt issues. At present, ten percent of firms registered with the Securities and Exchange Commission (SEC) are non-U.S. firms based in 60 countries, seventeen per cent of New York Stock Exchange firms are foreign, and at the end of 2003 approximately 1,200 foreign firms were registered with the SEC. Internationally (including the U.S.), the number of firms with at least one international listing has fallen to just over 2,632 at the end of 2004 after reaching a high of 4,703 in 1997 (See International Federation of Stock Exchanges). This fall can be attributed to a number of economic and political reasons (e.g. equity market bubble, introduction of the Sarbanes-Oxley Act[4]). This rise in the number of listings has attracted considerable interest on the part of the economics, accounting, and finance academic communities.

Over the course of the last decade, the "conventional wisdom" as to why firms cross-list internationally, summarized originally by Karolyi (1998), has been challenged. In fact, the emergence of this new legal bonding hypothesis, has prompted Karolyi (2005) to document this

[3] A related, but earlier literature focuses on the benefits of intra-national (as opposed to international listings) (See Ule (1937) for some of the earliest literature in this area). Interestingly, these earlier studies document no significant medium to long-term benefits to intra-national listings. The typical finding suggested that the pre-listing run-up in value was more than offset by a fall-off in value, post-listing. Interestingly, Cheng (2005) re-examines the valuation effects of intra-national listings (NASDAQ to NYSE or AMEX to NYSE). They document that this 'post-listing drift' is confined to a small subset of firms moving from NASDAQ to AMEX (e.g. DI (1986)).

[4] With the introduction of the Sarbanes-Oxley Act, firms listed in the U.S. were obligated to provide even greater disclosures. The SOX amended the Securities and Exchange Act of 1934, and provided for a tightening up of the rules that govern financial disclosure and internal controls. In essence the act established a new level of governance for public accounting firms. For an overview see Berger, Li and Won (2004) and Ribstein (2003). Smith (2005), Witner (2006), and Marosi and Massoud (2006) all find evidence that suggests that the introduction of the Sarbanes-Oxley Act precipitated an increase in the number of voluntary ADR delists. Liu (2004) examines solely the market reaction to involuntary foreign firm delists from the U.S. The latter finds that delisting leads to a permanent drop in stock price in the region of 4.5%, a result they deem consistent with the downward sloping demand curve hypothesis.

shift in emphasis away from the traditional market segmentation (e.g., Black (1974), Stapleton and Subrahmanyam (1977, SS Hereafter), AEJ (1987, 1988), Stulz (1981), EL (1985)) and liquidity (e.g., Amihud and Mendelson (1986, AM Hereafter)) hypotheses towards this new governance-based explanation of listing. The legal bonding hypothesis (e.g. Coffee (1999, 2002), Stulz (1999), Doidge (2004, 2005), DKS (2004), Barzuza (2005)) has proven to be quite successful in explaining the trends in, the decision to cross-list (and not to e.g. Barzuza (2005), BSV (2006) and DKLMS (2005)), and the cross-sectional valuation effects of cross-listing, that both the market segmentation and liquidity hypothesis failed to explain (See Karolyi (2005, pg. 12-13) and DKS (2004) for an overview of the criticisms of the market segmentation and liquidity hypotheses). In its simplest form, the legal bonding hypothesis states that by exchange cross listing in the U.S., a firm can externally finance their growth opportunities by committing to adhere to the U.S. governance regime. Interestingly, while it has been shown that the ability of foreign firms to bond to the U.S. regime is 'incomplete' (See Licht (2003), Siegel (2005) for arguments against the legal bonding hypothesis and LRS (2006) for a comparison of foreign cross-listed firms to U.S. firms), exchange listing in the U.S. does, nevertheless serve to reduce firms capital constraints/lower their cost of capital (See RW (2002), Khurana, Pereira, and Xiumin (2004), and Eaton, Nofsinger, and Weaver (2003)), enhance their information environment (See LLM (2002)), resulting in a cross-listing premium (See DKS (2004), KS (2004), and KKZ (2005)). Barzuza (2005) contends that even if bonding to the U.S. is 'incomplete', the ability of firms to benefit from listing in the U.S. stems from their ability to credibly signal to U.S. investors low private benefits of control. This suggests that reputational bonding (i.e. incomplete bonding), as opposed to legal bonding (i.e. complete bonding) is sufficient to generate post-listing benefits for foreign firms.

The legal bonding hypothesis stems from the "Law and Finance" or "Law matters" literature with the pioneering work of LLSV (1998). Abstracting from the traditional law and economics view that private contracting is sufficient to protect investors, the authors demonstrate

how legal protection and especially enforcement (See Harvey, Lins and Roper (2005)) is a fundamental determinant for the protection of minority investors. Furthermore, they show that the ability of the legal system to adequately protect minority shareholders is a characteristic of common law (as opposed to civil/code law) jurisdictions only. In addition to their seminal work, subsequent work has shown that common law countries are characterised with highly developed, deep (liquid) capital markets, with corresponding dispersed equity ownership. Common law firms are less capital constrained (i.e. a lower cost of capital, (e.g. Hail and Leuz (2003, HL Hereafter)) larger and more highly valued (See also Demerguc-Kunt and Maksimovic (1998, DM Hereafter)). These characteristics form the basis of the arguments put forward by those who champion the legal bonding hypothesis.

The importance of cross listing, especially for those firms domiciled in civil law jurisdictions is highlighted by the "Law and Finance" literature. The ability of firms with sizable investment opportunity sets to finance these growth opportunities are by and large constrained by underdeveloped domestic legal and capital institutions. These constraints are further reinforced by stern opposition to legal convergence reform in these countries (See Bekeart and Harvey (2003) for a discussion). Cross-listing internationally provides a remedy for those firms wishing to finance their growth opportunities with external finance (See Lins, Strickland, and Zenner (2005, LSZ Hereafter), RW (2002))[5]. By listing abroad, a firm can subject itself to the strong securities and enforcement laws of the host country, by effectively "renting" or "piggybacking" the host countries legal and governance regime. In effect, cross-listed firms "opt-in" to the securities legislation of the host country, but do not "opt-out" of their domestic market regime, as is the case in the truest sense of the opt-out theories of securities regulation (e.g. Fox (2003)). The distinction is worth noting. It implies that cross listing abroad in a country with

[5] Other remedies are available to firms. These suggest that firms can engage in cross-border strategic alliances (e.g., Siegel (2006), Bris and Brisley (2006, BB Hereafter), seek political favour (e.g., Leuz and Oberholzer-Gee (2006, LO Hereafter)), or commit themselves to greater protection of their minority shareholders by improving their internal firm-level governance (e.g., Klapper and Love (2003, KL Hereafter); Durnev and Kim (2005, DK Hereafter)). Specifically, Siegel (2006) notes that rather than utilizing listing in the U.S. as a bonding device, relational contracting with foreign multinational firms can serve a similar role.

superior protection afforded to minority investors, may endow the domestic investors of cross-listed firms with incremental investor protection, and a consequent appreciation in firm value. I devote my energies in this thesis towards answering both questions. Interestingly my results are consistent with recent work suggesting that, given the sizable costs associated with cross-listing, the valuation benefits of such are greater, not for emerging market firms, but for firms from high investor protection jurisdictions (See DKS (2004a) for a theoretical and empirical overview, and KKZ (2005)).

This increased tendency for firms to list abroad has attracted considerable interest on the part of the economics, finance, and accounting academics and practitioners to (1) explain why and which kind of firms list abroad? (2) Examine the valuation implications of listing abroad (if they do exist), and finally, (3) identify the sources of the valuation effects of listing. To begin with, the extant literature has suggested a number of reasons as to why firms list abroad. These include; (1) enhanced liquidity (e.g. AM (1986)), (2) reduced investment barriers (e.g. AEJ (1987, 1988), EL (1985), Stulz (1981)), (3) reduced agency costs/private benefits of control (e.g. Coffee (1999, 2002), DKS (2004), Doidge (2004, 2005), DKLMS (2005), Barzuza (2005), RW (2002)), (4) enhanced externally financed growth (e.g. RW (2004), LSZ (2005) (5) an enhanced information environment (e.g. Cantale (1996), Feurst (1998), Moel (1999)), and (6) enhanced investor awareness and investor base (e.g. Merton (1987)). Interestingly, the importance of each motive appears to differ across geographical regions (See BM (2001)). Second, there exists a sizable literature, commonly referred to as 'migration studies' that contrast those firms that cross-list, relative to those that refrain form listing (e.g. PRZ (2002), Durand and Tarca (2002), CKS (2003), for an Irish study of U.K. listed Irish firms, see Buckland and Mulligan (1996, BM Hereafter)). Finally, I examine whether cross listing is the U.S. is value enhancing? Over the course of the last two decades, researchers have adopted two distinct approaches; standard event study methodology (e.g. Foerster and Karolyi (1999, FK Hereafter), Miller (1999), Serra (1999), Mittoo (2003), Bohl and Korzcak (2005)).

Second, there has been a recent emphasis on using standardized valuation metrics (See DKS (2004), KS (2003, 2004), KKZ (2005)). In this thesis I adopt the latter approach.

In the next section, I outline the theoretical underpinnings, and predictions of the legal bonding hypothesis. I then outline the 'mechanics' of cross listing. Finally, I examine whether the governance and valuation predictions of the bonding hypothesis, are borne out in empirical studies.

2.2 Why do firms cross-list abroad?

In this section, I outline the legal bonding hypothesis. First, I outline the theoretical underpinnings of the legal bonding hypothesis. Then, I outline and discuss the empirical literature relating to the predictions of the bonding hypothesis. Given the content of my thesis, I pay particular attention towards issues relating to investor protection, and firm value.

Legal Bonding Hypothesis and Private Benefits of Control

The decision of firms to cross-list international, involves in effect a trade-off between the consequent increase in the value of the firm, and the simultaneous loss in private benefits that accrue to the insiders/controllers of the firm. The extant literature has outlined how, given sizable growth opportunities, a firm will cross-list internationally (under a stricter legal regime) when the loss in private benefits associated with listing under a stricter regime is more than offset by an increase in value of the controlling manager/insiders stake in the firm. Implicitly, this implies that on average those firms who cross-list are those with both sizable growth opportunities and low private benefits of control[6], given that large control blocks are valuable. In fact, Barzuza (2005) identifies two markets for controlling shareholders; the market for publicly traded shares (cross-listing), and the market for controlling blocks i.e. control. Those firms that refrain from cross listing, signal, not their low private benefits, but their ability to extract sizable, and ultimately valuable private benefits of control (See also BSV (2006)). Non-surprisingly, the probability of exchange cross listing is decreasing in the level of control rights (See DKLMS (2005)). Along

[6] Dyck and Zingales (2004) provide an excellent review on private benefits of control.

similar lines, Wojcik, Clark, and Bauer (2004) outline that European firms cross-listing in the United States have higher corporate governance ratings relative to firms that do not cross-list. Doidge (2005) documents a significant fall in private benefits (measured using dual-class shares), post-listing, but in line with Ayyagari (2006) he documents no shift in ownership structure from concentrated to dispersed. This argument forms the basis of theoretical models proposed by Barzuza (2005), and joint theoretical/empirical papers by DKS (2004), Melvin and Valero-Tonone (2003, Hereafter MV) and BSV (2006). I return to a description of these models in later sections.

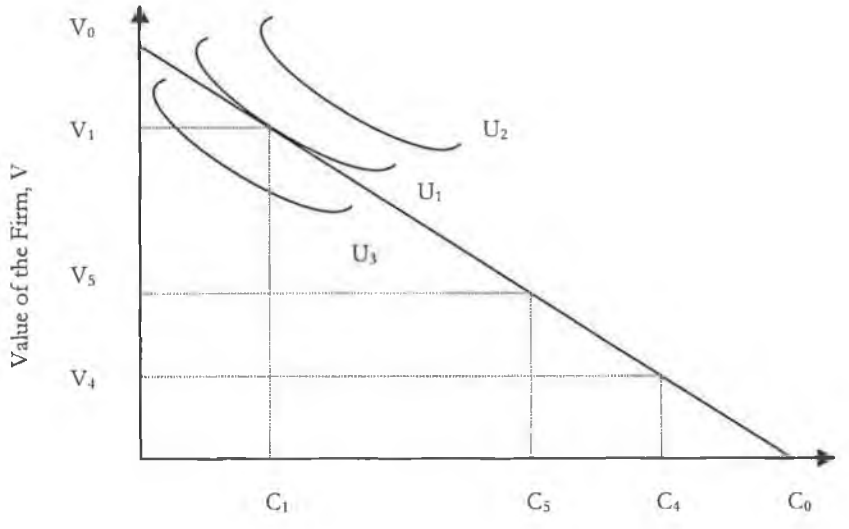
The ability of firms to finance their growth opportunities externally is largely contingent upon their ability to return this capital to investors, rather than consume this investment privately. This argument forms the basis of the formal definitions of corporate governance outlined by Shleifler and Vishny (1997), and Denis and McConnell (2004). The ability of controlling insiders to consume private benefits is decreasing in the strength of minority shareholder rights. In effect, private benefits of control are lower in common law jurisdictions. Private benefits of control are control rights that exceed cash flow rights. They accrue to those that control corporations (e.g. managers, controlling shareholders, insiders), but not to minority shareholders. Control benefits can take many forms. These include non-pecuniary benefits (e.g. Demsetz and Lehn (1985)).

Next, I outline the theoretical foundations of the legal bonding hypothesis. Much of the following is drawn from Jensen and Meckling (1976) and Douma and Schreuder (2002). I begin with the standard principal-agent relationship, resulting from the separation of ownership and control. The model outlined below is the simplest model given that I ignore risk-preferences and assume symmetric information between the principal and the agent. However, the model remains fruitful in furthering our understanding of the potential effects of managerial bonding. The absence of risk and asymmetric information does not prevent us from presenting the most salient issues. Although simplistic, the lessons that we learn from this model (and other agency type models) form the basis of cross-listing models by MV (2003), DKS (2004), BSV (2006) and Barzuza (2005). All of the afore mentioned, model the benefits that accrue to firms that

exchange-list in the U.S., in terms of higher value, as a result of enhanced managerial bonding and outside monitoring, given sizable growth opportunities (See Stulz (2005)).

The model is as follows: I begin with a manager who owns all of the company shares. This is depicted in Figure 1.

Figure 1: Consumption of Private Benefits and Firm Value



As a result of his dominant position the manager is faced with the following conflicting objectives; he can maximize the value of the firm by investing in positive net-present value positions and refrain form engaging in 'on-the-job' consumption, or he can consume private benefits (i.e. what is now termed in the literature, private benefits of control (See Grossman and Hart (1988)). Private benefits of control can be defined as any additional benefits that accrue to the manager (agent) of the firm over and above his cashflow rights (control rights >cashflow rights)[7]. These additional private non-shared benefits can take the form of anything from private use of the company jet to outright theft. I assume here that the consumption of additional private benefits by the manager only serves to reduce the value of the firm. In Figure 1, the

[7] Benos and Weisbach (2004, BW Hereafter) review the literature on cross listing and the private benefits of control.

present value of on-the-job consumption, C is plotted against firm value, V. The relationship between private benefits of control and the value of the firm is presented here to be constant i.e. a one unit increase in private benefits reduces the value of the firm by one unit. This is depicted by the line segment $[V_0C_0]$ where $[V_0C_0]$ represents all combinations of private benefits and firm value i.e. the managers (agent) budget constraint with slope -1. Thus, if the manager (agent) consumes C_4 private benefits, the value of the firm is V_4 (i.e. the consumption of private benefits reduces the value of the firm by $V_0 - V_4$). If the manager refrains from consuming private benefits, the value of the firm is maximized at V_0.

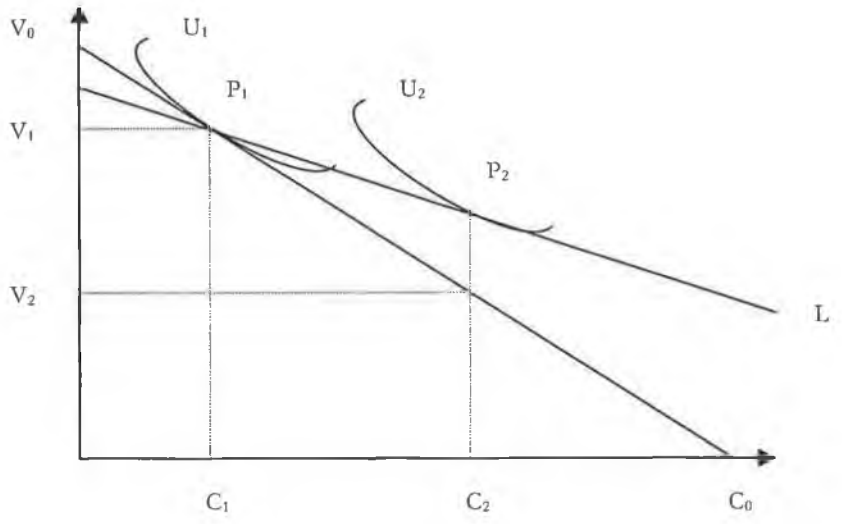
The manager will choose the optimal levels of V and C that maximize their utility, depicted in Figure 1 as indifference curves where $U_2 > U_1 > U_3$. The manager maximizes his utility along U_1 at point P corresponding to firm value V_1 and private benefits C_1.

Next I take the analysis a step further. I begin by relaxing the assumption of zero outside ownership. Thus, I assume that the manager sells a fraction of his shares $(1-\alpha)$ to outsiders (the distinction between the type of outsider does not matter here. For example, these outsiders may be individual (minority) investors and/or institutional investors. I deal with this later in the analysis). For example, let $\alpha = 70$ per cent. In this instance, if the manager consumes an additional $1 of private benefits, the value of the firm is reduced by exactly $1. However, the manager's personal wealth is only reduced by 70 cents and the wealth of outside shareholders by 30 cents. In this case the manager will spend a certain amount on private consumption such that the marginal utility of an additional $1 of private consumption is equal to the marginal utility of an additional 70 cents of personal wealth. Thus, the manager will spend more on private benefits.

In the next section I analyse just how much more private benefits the manager will consume. The manager of the firm derives utility from two sources: pecuniary and non-pecuniary benefits. Examples of non-pecuniary benefits are contributions to charity etc. The following is drawn heavily from De Matos (2003). Let's define the present value of the firm as

$\overline{V}$ and let F denote the market value of the managers' expenditures on non-pecuniary benefits. This in turn reduces the effective value of the firm: $V = \overline{V} - F$ (1). The manager holds a fraction α of the shares of the firm. His utility is described by the real function: $U(\alpha V, F)$, which is increasing and concave in both arguments. Given an optimal choice of F it is obvious that (a) the utility of the manager decreases as new equity is issued and (b) the effective value of the firm decreases. I can easily show that the decline in the value of the firm is imposed entirely on the manager (through a fall in his/her utility). For a fixed level of α, the optimal value $F^*(\alpha)$ is obtained by maximizing the utility: $\max_F U[\alpha(\overline{V} - F), F]$, where $F^*(\alpha)$ must satisfy the following first-order condition: $-\alpha U_1 + U_2 = 0$. Let $\xi(\alpha)$ denote the optimal value of the utility, or: $\xi(\alpha) \equiv U[\alpha(\overline{V} - F^*(\alpha)), F^*(\alpha)]$. Using the FOC $\xi(\alpha)$ is a monotonic increasing function of α, since: $d\xi(\alpha) = (-\alpha U_1 + U_2)dF^* + Vd\alpha = Vd\alpha$. This implies that as α increases, the optimal utility of the manager increases. Thus, if the firm issues equity and α is reduced, the utility of the manager decreases. His/her decrease in utility stems from the fact that the manager bears all the reduction in value as new equity is issued. Given (1) it follows that $dV = -dF$. As value increases with α and decreases in F, it suffices to show that the value of the firm increases as F decreases. This follows since $\frac{dF}{d\alpha}$ can be obtained by differentiating the FOC and using the envelope theorem. It follows that: $\frac{d^2U}{dF^2}\frac{dF}{d\alpha} = U_1$. By assumption $U_1 > 0$ and since these derivatives are calculated at the optimum, $\frac{d^2U}{dF^2} < 0$, leading to, $\frac{dF}{d\alpha} < 0$. Thus, as equity is issued, the effective value of the firm decreases. I can show this graphically using Figure 2.

Figure 2



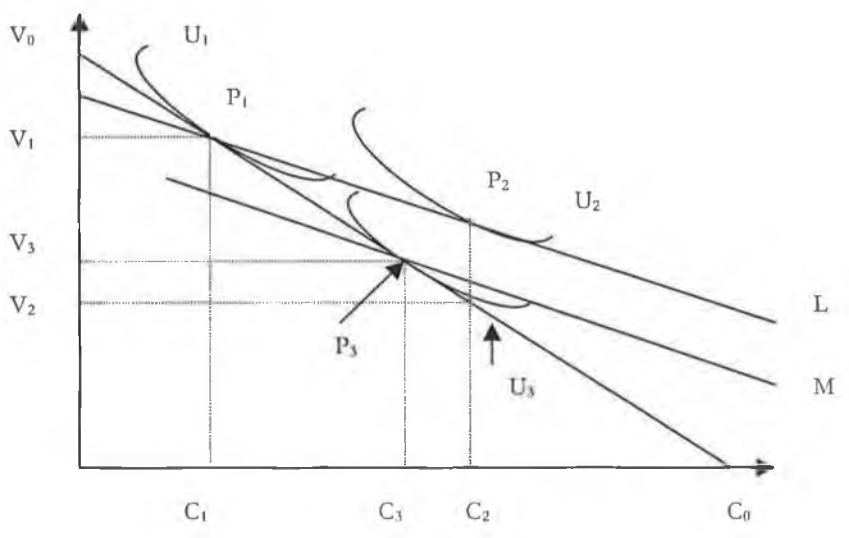
Present Value of on-the-job consumption, C

Post equity issuance, the amount the manager spends on private benefits is a function of all possible combinations of personal wealth (derived from his stake in the firm i.e. shared benefits of control) and on-the-job consumption. This in turn is dependent on the price that the manager can receive for the shares from the outsiders, and this price depends on whether the outsiders know ex-ante that the manager will consume additional private benefits, ex-post. If the outsiders are not aware of this possibility (this is a strong assumption given the cross-country differences in investor rights (See LLSV (1998)), and the cross-firm differences in firm-level governance (See DK (2004), KL (2003)), they will be willing to pay 30 per cent for a 30 per cent stake in the firm. In this instance, the budget constraint now facing the manager is outlined in Figure 2 as L with slope -0.70. Here, the manager can trade \$1 of consumption for 70 cents of personal wealth (changes in the value of the firm. Hence the incentive for increased on-the-job consumption has risen i.e. the optimal value F' of the non-pecuniary benefits has risen). This new budget constraint must pass through point P_1 where at such a point the manager consumes C_1 and his personal wealth is V_1 (30 per cent of V_1 is in cash and the other 70 per cent of V_1 in

equity/shares). At point P_2 there is an indifference curve tangential to budget constraint L, at which the manager consumes C_2 in private benefits. Consequently, the value of the firm is reduced to V_2. At this point the value of the outsiders' stake (who paid 30 per cent of V_1 for their shares) is now worth only 30 per cent of V_2 and not V_1.

I now turn to the situation where outsiders are not so naïve ex-ante. In this instance the outsiders are aware of the probability that ex-post, the manager will increase his consumption of private benefits. Let's further suppose that the outsiders know the exact shape of the manager's indifference curves as outlined in Figure 3.

Figure 3



Present Value of on-the-job consumption, C

With such knowledge the outsiders will try and find a point P_3 such that P_3 lies not on L but on V_0C_0 and the indifference curve at this point has slope of $-\alpha$. At P_3 the marginal utility for the manager of an additional \$1 of private benefits is equal to the marginal utility of an additional 70 cents in personal wealth. At this point they are only willing to pay 30 per cent of V_3 for the shares, and not 30 per cent of V_1 as before. Consequently, the manager's budget curve now

becomes line segment M with slope -0.70. Here, the manager will consume private benefits totalling C_3 where $C_3 < C_2$. The value of the firm is V_3 and the outsiders neither gains nor loses from purchasing the shares. The personal wealth of the manager is now V_3 which is made up of a fraction $(1-\alpha)$ in cash and the remainder α in shares and his wealth is reduced by $V_1 - V_3$ and the present value of private benefits is increased by $C_3 - C_1$. The result is a decrease in the managers level of utility as he is now on a lower indifference curve U_3 where $(U_3 < U_1)$. Thus from this analysis it is clear that no manager will ever sell a fraction of his stake in the company, unless there are other motivations, not presented here that may induce him to do so. These include: (1) the manager may prefer to have a certain portion of his wealth in cash and/or (2) he/she may see an opportunity for investment that he cannot finance out of his own investment.

In the preceding analysis I ignored the possibility that the outsiders may **monitor** the behaviour of the manager. Monitoring devices can take many forms. These normally include the use of external auditors (the use of the strategic audit has become prominent in recent times), the use of a board of directors (board size, composition, independence, and board equity ownership are fundamentally important issues here), and monitoring by institutional investors i.e. shareholder activism. Furthermore, the behaviour of managers can be incented: through the use of incentive mechanisms, outsiders can align the interests of management with theirs i.e. shareholder value (of course this ignores the claims of other stakeholders of the firm, but it remains consistent with the Freidmanite view of the firm (See Allen (1992))[8]. The ability of outsiders (and at least in theory boards of directors) to incent the behaviour of managers has almost always taken the form of effectively designed CEO compensation packages (e.g. Stock options). In addition, the task of outsiders to align the interests of management with theirs is largely helped by an active market for corporate control (although this is not very effective in some countries e.g. Germany). The greater the level of effective monitoring, the lower the level of on-the-job consumption of private benefits by the manager.

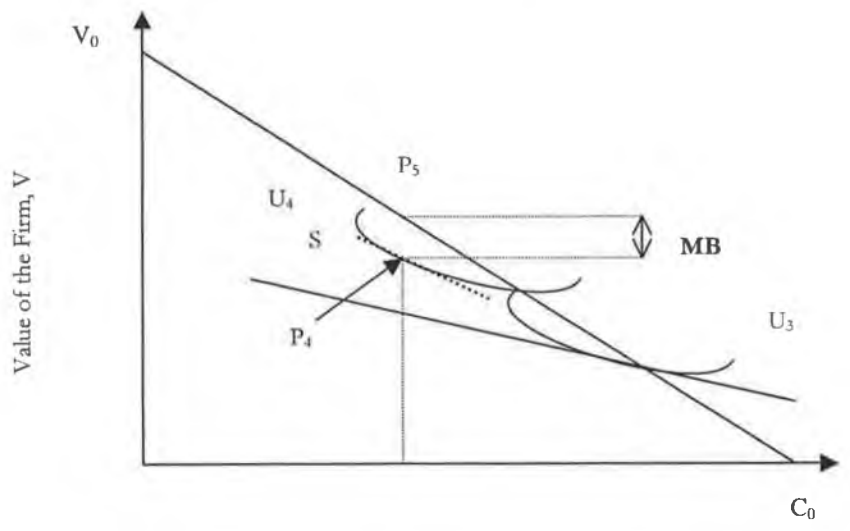
[8] "Few trends could so thoroughly undermine the foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for shareholders as possible", Milton Friedman.

In addition, the manager and not the shareholders/outsiders can take the initiative to behave in the best interests of the shareholders. Why? The reasoning is simple. If the manager can convince i.e. send a credible signal[9] to outsiders that before selling a fraction of his equity that he will consume less than C_3 of private benefits, he will be able to sell his shares for a greater amount than 30 per cent of V_3. If he consumes less, this increases the value of the firm, which is fully captured by the manager. Thus it is in the interest of the manager to **bind** himself. In both instances i.e. monitoring and bonding, the level of private benefits is reduced. In the case of monitoring, the outsiders take the initiative; in the case of **managerial bonding**, the management take the initiative.

Jensen and Meckling (1976) define bonding as the "costs or liabilities that an agent or an entrepreneur will incur to assure investors that it will perform as promised, thereby enabling them to market its securities at a higher price". In one of the earliest empirical references to bonding, Gordon (1988) outlines how domestic U.S. firms can lower its cost of capital by listing on the NYSE. Like monitoring, bonding also involves additional costs. Bonding and monitoring costs are borne by the managers. By consuming less than C_3 the management increase their utility. However, the additional spending on monitoring and bonding reduces the value of the firm (This line of reasoning implies that if the costs of listing/bonding are large, it remains possible that the post-listing valuation benefits of listing may, in the extreme, not materialise. I return to this point later in the thesis). Consequently, the budget constraint of the manager is no longer represented by $[V_0C_0]$ but by the S curve outlined in Figure 4. Along S there exists an optimal amount to be spent on monitoring and bonding, which is given by point P_4. Here, the management spend an amount MB (equal to the vertical distance P_5P_4) on monitoring and bonding costs. The management's level of utility is now U_4, higher than U_3 but lower than U_1

[9] It is important to note the distinction between signaling and bonding. In the case of bonding the controlling shareholders/managers commit to protect their investors. Signaling may not actually entail this commitment. However, bonding entails signalling. For a discussion see Ribstein (2005).

Figure 4



Present Value of on-the-job consumption, C

2.3 The International Depositary Receipt Market

In this section I outline the mechanism by which international, non-U.S. firms can list in the United States. Like United States firms, international firms can list directly on U.S. exchanges as 'Ordinary Lists'. However, the conditions required of firms to initiate an 'Ordinary' listing in the U.S. are such, that the majority of foreign firms list in the U.S. as American Depositary Receipts. Thus, absent Canadian and Israeli firms, the majority of international firms trade in the U.S. as American depositary receipts.

Depositary Receipts (American Depositary Receipts (ADR's), Global Depositary Receipts (GDR's) and European Depositary Receipts (EDR's)) are negotiable certificates that represent the equity or debt of a non-U.S. company. American Depositary Receipts (ADR's) are "Hatchecks" for foreign securities that provide U.S. ADR holders' both investment and dividend liquidity not available through direct investments in non-U.S. securities. For example, the legal framework in the United States prevents certain Institutions from owning foreign securities not

listed in the United States. No such restrictions exist for depositary receipt issues. Consequently, the share of ADR's held by U.S. investors has risen substantially over the course of the last decade. For example, the Bank of New York (2003) show that in a sample of 2,469 institutions, 74% (1,839) invest in depositary receipts. In addition, Edison and Warnock (2004, EW Hereafter) and Ammer, Holland, Smith, and Warnock (2005) analyse the portfolio holdings of U.S. investors, and find that U.S. exchange listing foreign firms enjoy a considerable weighting in U.S. investors portfolios. EW (2004) estimate that the U.S. share of ownership of foreign cross-listed firms is 27 percent. Comparable non cross-listed firms are less widely held by U.S. investors (7 percent). Since 1980, the share of foreign equities in U.S. portfolios has risen from just under 2%, to almost 14% in 2004. The figure now stands at just under 16% (third quarter 2005). Depositary Receipts can also trade on non-U.S. markets. For example, Depositary Receipts can also trade in London, Luxembourg or the Euromarket, either via an exchange listing or trade over-the-counter.

Global Depositary Receipts (GDR) provides the company with the ability to raise capital either in the United States or on European markets. For an excellent review of Global Depositary Receipt programs see Karolyi (2003). These depositary receipt structures are virtually identical in terms of a legal, operational and technical viewpoint.

American Depositary Receipts

An American Depositary Receipt is a certificate that represents equity ownership, on the part of the holder, of a non-U.S. Company. American Depositary Receipts were the first depositary receipt program, established by the predecessor of J.P. Morgan Chase. In 1927, Selfridges Stores, a U.K. company became the first ADR created. The creation of the American Depositary Receipts were necessitated due to the introduction of law in Britain, prohibiting British companies from registering shares overseas without a British based transfer agent. American Depositary Receipts (ADR's) were created to satisfy U.S. investor demand for overseas

equities. As such they created the situation whereby U.S. investors could invest in overseas securities without suffering the illiquidity and dividend conversion expenses of direct foreign ownership. ADR's bestow on the holder, dividend payments denominated in U.S. Dollars. The first exchange-listed ADR was initiated in 1928 with the British American Tobacco depositary receipt program on the American Stock Exchange. The first French and Austrian ADRs were established in 1928, with Germany following suit in 1929. Irelands first ADR was established when Elan Corporation established a Level 3 listing in 1984. ADR's assumed their present form in 1955, when the Securities and Exchange Commission established Form S-12, for registration of all depositary receipt programs. Form F-6 subsequently replaced this, which is still relevant today.

There exist several different types of American Depositary Receipt Programs, differing in terms of their trading locale, and in their disclosure and regulatory obligations. Specifically, there are five types of programs: unsponsored programs, sponsored Level 1, Level 2, Level 3, and private placement Rule 144A's (Table 2.1 provides an overview)[10]. Unsponsored programs are created by one or more depositary banks in response to market demand. They do not involve a formal agreement between the depositary bank and the company. Since 1983, the SEC has required that all new ADR programs be sponsored. Consequently, the vast majority of ADRs are sponsored. Sponsored depositary receipt programs involve a formal agreement, known as a deposit agreement, between the company and the depositary bank. Australian and South African

[10] There also exist other structures, similar to American Depositary Receipts that provide a means for U.S. investors to hold non-U.S. equities. These include, New York Shares (NYS), primarily initiated by Dutch firms, and Global Registered Shares (GRS's). The New York Share (NYS) program was established in 1954, and is used by, inter alia Royal Dutch Petroleum, and Unilever NV. They offer many of the benefits of Depositary Receipts but they are less efficient in terms of cross-border settlement, and in their registration process. They are not registered under the 1933 Securities Act, further reducing their appeal among U.S. investors. Daimler Chrysler AG established the first Global Registered Share (GRS) in 1998. GRS are advantageous in that they offer cheap cross-border settlement, but they are expensive to issue, and provide no greater liquidity (See Karolyi (2003)). Furthermore, they trade without an ADR Ratio (the price of an ADR = ordinary shares converted to U.S. dollars at the prevailing exchange rate, adjusted for the appropriate ADR ratio, plus transaction costs. More precisely, this ratio implies that each ADR is backed by a specific number of local shares. This allows each ADR to trade in a U.S. dollar price range competitive with the issuers U.S. peer group. Furthermore, trading in ADR's is largely done through Intra-market trade i.e. depositary receipt to depositary receipt trading, rather than conversion of ordinary shares to ADR's. It is estimated that intra-market trade, accounts for 95% of total ADR trading. For example, the ADR Ratio for AIB is 1:2 on the NYSE, while Bank of Ireland is 1:4).

mining companies were the first to established them in the 1950's. Unlike, unsponsored issues, they are exclusive to one depositary receipt bank. Furthermore, unsponsored and sponsored depositary receipt programs cannot exist simultaneously, due to price differentials between the two.

The U.S. stock market structure is multi-tiered, and hierarchical in terms of the attractiveness of each exchange, and in terms of the benefits (and costs) that accrue to firms that list on these exchanges. At the National level, the two established exchanges, NYSE and AMEX, and the NASDAQ occupy the peak of this hierarchal structure. There are also a number of smaller regional exchanges. Finally, the lowest tier is made up of three major over the counter markets, the over the counter bulletin board (OTCBB), the 'Pink Sheets', and, the PORTAL. The OTCBB was established by the NASD in 1988, and are generally comprised of those equities that are not listed or traded on NYSE, AMEX or NASDAQ. Rule 144A private placements and Regulation S are quoted on PORTAL (Private Offerings, Resales, and Trading through Automatic Linkages was established in 1990). Level 1 issues trade over-the-counter as pink-sheet issues on NASDAQ. Level 2/3 issues trade either on the NYSE/AMEX or NASDAQ.

Furthermore, a final distinction can be made between Level 1 and Level 2, and Level 3 and Rule 144A's issues. Level 1, and Level 2 issues involve no capital raising provisions. In this instance, ordinary shares are converted into depositary receipts. In contrast, Level 3 and Rule 144A's issues provide for capital raising. A Level 3 issue bestows on the holder the ability to make a public issue of shares in the United States. Rule 144A are capital raising programs, whereby securities are privately placed to Qualified Institutional Buyers.

Sponsored Level 1 ADR

A Level 1 issue is the simplest and cheapest way for non-U.S. firms to access U.S. and non-U.S. capital markets. They trade over-the-counter and also on some exchanges outside of the U.S. Unlike, Level 2/3 programs, Level 1 firms are not obliged to reconcile their accounting

procedures to U.S. G.A.A.P. or to file periodic reports with the Securities and Exchange Commission. In this regard, a Level 1 program allows the firm access to the U.S. capital markets, without the costs associated with accounting and legal compliance, and the scrutiny associated with SEC regulation and from financial analysts. They require minimal SEC registration, and are exempt form the SEC's reporting and accounting obligations under Rule 12g3-2(b). They provide instead, an English translation of financial statements prepared according to home country accounting practices. Unlike Level 2/3 issues who commit to provide fuller disclosures under U.S. G.A.A.P., the perceived benefits of listing, such as a reduced cost of capital, greater liquidity, and an enhanced information environment, are unlikely to be realised. Interestingly, Durand, Tan, and Tarca (2005, DTT Hereafter) provide some evidence to suggest the contrary. In a sample of 119 Level 1 firms from seven countries (Hong Kong, UK, Australia, Japan, South Africa, Germany, and Brazil), 30% of the firms experienced at least one favourable change in accounting variables and market measures. Numerous studies (e.g. Sarr (2001)) have found that the primary factor deterring firms from establishing exchange-listed ADR's have been the costs associated with compliance to U.S. G.A.A.P. In this regard it is not surprising that of the total number of depositary receipt programs, Level 1 issues dominate the list. The Bank of New York (2003) provides evidence to suggest that such programs can constitute 5 to 15% of the firms' investor base.

Level 2 and Level 3 capital raising ADRs

Level 2 and Level 3 capital raising programs facilitate non-U.S. firms that wish to list on an organised exchange in the United States. Level 2 issues are sponsored, public depositary receipts that do not provide for capital raising in the U.S. Level 3 provisions facilitate the issuance of new stock in the United States[11].

[11] Most of this increase in Level 2/3 issues has been concentrated in NYSE listings - the NYSE share of ADR listings (among exchange listings) has risen from 17% in 1985 to 65% in 1999. Over the same period, NASDAQ's share of Depositary Receipt Listings declined alarmingly, from 77% in 1985 to 34% in 1999. The American Stock

Unlike Level 1 and Rule 144A firms, a Level 2/3 issue obligates the firm to adhere to sizable disclosure, regulatory, and legal requirements. An exchange-listed issue necessitates the firm to conform and adhere to U.S. G.A.A.P., become subject to greater Securities and Exchange Commission scrutiny, and, become subject to civil liability under Section 18 of the 1934 Securities & Exchange Act. In addition, the Sarbanes-Oxley Act of 2002 requires that CEO's and CFO's must personally certify that information in each year filed under form 20-F is accurate and free from material misstatements and omissions, and that the financial statements and other financial information in the report fairly present, in all material respects, the issuer's financial position, results of operations and cash flows. (See Bank of New York (2003)). Finally, a Level 2/3 issue exposes the firms to the scrutiny of 'Reputational Intermediaries'. These include, financial analysts, underwriters, bond rating agencies, auditors, and institutional investors.

Private Placement SEC Rule 144a/Regulation S ADRs.

A Rule 144A depositary receipt program facilitates access to U.S. and non-U.S. markets through a private placement of sponsored depositary receipts to Qualified Institutional Buyers (QIB's). Like Level 1 issues, they do not require compliance with U.S. G.A.A.P. or SEC registration. Under Regulation S, a company can offer a depositary receipt program to non-U.S. investors. It is not uncommon for firms to establish a Level 1 ADR in connection with a 144A Program.

2.4 Trends in the U.S. and Global Depositary Receipt Market

In this section I examine the international cross-listing market over the course of the last decade. I pay particular attention to the U.S. cross-listing market, but I also present some global cross-listing statistics. All information is obtained from a variety of sources: Bank of New York,

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Exchanges share has fallen from 5% to 1% over the same period - it now accounts for only two depositary receipt listings.

Citibank, JP Morgan-Chase, and Deutsche-Bank. For International non-U.S. cross-listings, I source all data from the International Federation of Stock Exchanges.

Figure 2.1 outlines the total number of depositary receipt programs from 1996 to the end of 2005. This figure displays the number of exchange-listed Level 2/3, the number of Level 1, and the number of global depositary receipts. A number of features are noteworthy. First, the number of Level 2/3 exchange-traded issues has fallen off over the last few years, after accelerating throughout the 1990's. In fact, in recent times, the number of firms that have cross-delisted has increased substantially. For example, Witmer (2006) identifies a total of 140 foreign delists (both voluntary and involuntary) from U.S. markets over the period from 1990 to 2003. Incidentally, 39% of the total number of delists occurred in 2002 and 2003, the period after the imposition of the Sarbanes-Oxley Act. Consequently, the share of Level 2/3 issues as a percentage of total depositary receipts has also decreased. Second, but for some stagnation at the start of the decade, the total number of Level 1, and global depositary receipts has continued to increase over this period. Interestingly, for the first time the number of global depositary receipts has surpassed the number of Level 1 issues, to become the leading depositary receipt program (See Bank of New York 2006). In Figure 2.2, I present the total number of sponsored depositary receipts by country. The list is dominated by India 10% (185), the United Kingdom 8% (154), Australia 6% (119), Taiwan 6% (108), Hong Kong 6% (107), and Russia 5% (103).

Figure 2.3 plots the number of new depositary receipts. The trends outlined in Figure 2.3 are consistent with those documented in Figure 2.1. First, the number of new Level 2/3 programs has declined dramatically in recent years. The total number of new exchange-listed issues initiated over the course of the last four years remains less than the total number of new programs created in 2000 alone. Coupled with an increase in the number of Level 2/3 delists, this explains the trends outlined previously. In contrast, the number of new Level 1 programs has been pretty constant. Finally, while the number of new global depositary receipt programs has oscillated over time, in 2005 the number of newly created GDRs was 82, the largest number of depositary receipts created

by any depositary receipt level last year. The majority of new global depositary receipt programs in 2005 were initiated on the Luxembourg stock exchange.

Figure 2.4 outlines the 'host' exchange for all new exchange-traded depositary receipt programs initiated in 2005. Luxembourg accounted for 43% (35), NASDAQ 23% (19), London 19% (15), and the New York Stock Exchange 11% (9). Other global exchanges accounted for the remaining 4% (3). I outline in Figure 2.5, the annual amount of capital raised by international and U.S. listed depositary receipts. After four lackluster years, the amount of capital raised both in the U.S., and internationally, improved considerably in 2005. For example, in the U.S., $15 billion in capital was raised by non-U.S. firms in 2005, compared to just $6 billion in 2004, and $5 billion in 2003. The amount of capital raised in the U.S. by non-U.S. firms peaked in 2000 at $24.75 billion. Not surprisingly, the same year saw the largest number of new Level 2/3 issues. For International depositary receipts, 2005 represented the largest amount of capital ever raised internationally.

In Table 2.3, I present a more detailed analysis of the American depositary receipt market. I source from the Bank of New York at the end of 2005, a complete list of depositary receipts by country. For each, I outline the total number of cross-listed firms. I then proceed by calculating the percentage of the total number of cross-listed firms, listed under each ADR level. For example, of the total number of cross-listed Argentinean firms (22), the majority of these firms trade as exchange traded ADRs (i.e. 14/63.64%). In contrast, the vast majority of Australian firms cross-list over-the-counter as Level 1 American depositary receipts. Similar preferences are evident for firms from Austria, Belgium, Brazil, Hong Kong, Japan, Norway, New Zealand, Russia, Singapore, South Africa, and Thailand. At the end of 2005, all Malaysian U.S. cross-listed firms were Level 1 over-the-counter issues. On the other hand, firms from Chile, China, France, Ireland, Israel, Italy, Netherlands, Spain, Sweden, Switzerland, and the U.K. exhibit a greater tendency to exchange cross-list. Finally, firms from Colombia, Greece, Hungary, India, South Korea, Poland, Portugal, Russia, Taiwan, and Turkey display a preference for a private placement issue. KKZ (2005) find

that there is a lower tendency on the part of firms domiciled in low disclosure countries to exchange cross-list because of the smaller net benefit they receive from listing.

Figures 2.6-2.17 present the number of domestic and foreign lists on global exchanges over the course of the last decade. In Figures 2.6-2.7, I outline the number of domestic and foreign lists for the New York Stock Exchange, and NASDAQ, respectively. In the remaining figures, I present data for the London, Japanese, Australian, Singapore, Toronto, German, Italian, Luxembourg, Switzerland, and South African stock exchanges. In addition to the outlined figures, I present in Table 2.2, the composition of total lists for all global stock exchanges over the last decade. For three separate time periods (i.e. 1995, 1999, and 2002) I outline, for all stock exchanges, the total number of lists and the number of domestic and foreign firms that make up this total. Finally, I calculate the percentage of foreign to domestic lists on each exchange.

With few exceptions, the number of foreign firms listing abroad on global exchanges has fallen over the last decade. This trend has been particularly evident on European exchanges. In fact, PRZ (2002) document that during the 1990's, the number of foreign firms listed on European exchanges has demonstrated an inverse-U shaped trend. This contrasts notably with the increase in foreign lists on the New York Stock Exchange over the same period (although in recent times the number of foreign lists on the NYSE has fallen). The percentage of foreign firms listed on the London stock exchange has fallen from 21.22% in 1995, to 16.81% in 2002. Similar trends are manifest in Spain, Luxembourg, Paris, Germany (Deutsche-Borse), Switzerland, and Vienna. There are notable exceptions: the Peruvian (Lima), the Norwegian (Oslo), Australia, and Singapore stock exchanges, all experienced an increase in the number of foreign listings over the same period. Over the same period, the Irish stock exchange has increased its allocation of foreign firms from 9 in 1995, to 14 in 2002, although the figure stood at 19 in 1999.

Finally, in Table 2.4, I outline the geographical pattern of international cross-listings. The data is sourced directly from Karolyi (2005). The 'host' country destination of all of their internationally listed firms is outlined. Both PRZ (2002), and SS (2004) have examined the

distribution of international listings by country. Their findings, which are evident from Table 2.4, are as follows; first, they identify a 'proximity preference' in the decision of firms to list internationally; firms tend to list internationally on geographically close markets. For example, the majority of Australian firms tend to list in New Zealand, Irish firms list predominantly on the London stock exchange, and Canadian firms tend to trade almost exclusively in the United States.

2.5 Literature Review

In this section, I examine the empirical literature relating to the legal bonding hypothesis. I pay particular attention to two distinct areas. First, I examine the governance implications of listing in the U.S. for non-U.S. firms. Next, I review the extant literature that examines the valuation effects of listing abroad.

The analysis presented in Section 2.2 is the starting point for models developed by MV (2003), DKS (2004), Barzuza (2005) and BSV (2006). For example, the model of MV (2003) is built on the assumptions of managerial ownership and expropriation of shareholders (private benefits). A standard assumption in all of the models is that expropriation is costly to the manager and that it varies with the level of investor protection in the country. Consequently, an increase in minority shareholder protection will reduce the optimal amount of expropriation by the manager. The wealth of the manager is comprised of his legal cash flow rights, and his expropriated cash flow from investors, which is decreasing in the level of investor protection. In MV (2003), this is given by: $W_i = \gamma_i(1-e_i)C_i + e_iC_i[1-p(m,e_i)]$ where γ_i is the controlling shareholder of firm i's legal cash rights, e_i represents the fraction of cashflow expropriated by the controlling shareholder of firm i, and C_i is the expected discounted cash flows of the firm. Given that expropriation is costly, a share represented by $p(m,e_i)$ is lost. Consequently, the controlling shareholder/manager only receives $e_iC_i[1-p(m,e_i)]$. By cross listing on a U.S. exchange the management bonds himself/herself to maximizing shareholder and firm value, at the expense of reduced personal private benefits. This implies that listing in the United States reduces the

amount by which the manager can expropriate, given that expropriation is decreasing in the level of investor protection. This does not preclude the possibility that the manager does not gain from listing. The authors show that this signal by management to credibly commit to zero expropriation of their shareholders enhances the firms' ability to finance their growth opportunities, as a result of a lower cost of capital and a large pool of investors in the U.S. As a result, the cashflow to the controlling insider is given by: $W_i^A = \gamma_i(1-e_i^A)(C_i^A + G_i) + e_i^A(C_i^A + G_i)[1-p(m,e_i^A)]$, where superscript A represents post-listing in the United States, and G_i is the enhanced future discounted cash flows from growth. Consequently, a firm will cross-list on a U.S. exchange if the loss in private benefits (C) experienced by the manager is more than offset by an increase in the value of his equity stake in the firm (i.e. shared benefits of control) i.e. if $G_i > C_i\alpha_i - C_i^A$. Thus firms with sizable growth opportunities are more likely to cross-list[12]. In fact, this theoretical prediction has been ratified by numerous empirical 'migration' studies (e.g. PRZ (2002), and CKS (2003)).

DKS (2004) present almost identical arguments. They show that the management (corporate insiders) of a firm will only cross-list in the U.S. if they believe that their net benefit of doing so is positive (i.e. loss in private benefits from enhanced monitoring is offset by an increase in their wealth owing to an increase in firm value from listing). They begin by showing that the controlling shareholder can (but not without cost) divert a fraction of the firms' resources to himself and the cost of diversion is increasing in the level of investor protection. The controlling shareholder receives (pre-listing): $k(C - fC - \frac{1}{2}bf^2pC) + fC$, where k represents the controlling shareholders equity ownership in the firm, f represents the share of cash flows C that he diverts/expropriates, p is the level of investor protection, the cost of diversion is given by $\frac{1}{2}bf^2pC$, and the total gain to the controlling shareholder is given by: $kC + \frac{1}{2}\frac{(1-k)^2}{bpk}C$, where

[12] In their empirical section, they show that the rivals of cross-listed firms experience a negative price effect when their competitors list in the U.S. This implies that listing in the U.S. is value enhancing for cross-listed firms. I examine the valuation effects of listing in the next section.

the first term represents the dividends received by the controlling shareholder, and the second corresponds to the net private benefits of control if the firm does not exchange-list in the U.S. Next, let z and p_{us} represent the firms' growth opportunities, and the level of investor protection in the U.S., respectively. If the firm exchange cross-lists in the U.S., the cash flow that accrues to the controlling shareholder is given by: $k(C+z)+\frac{1}{2}\frac{(1-k)^2}{bp_{US}k}(C+z)=k(C+z)+v(p_{US})(C+z)$. The firm will cross-list in the U.S. if the net benefits from doing so are positive i.e. the growth opportunities from listing in the U.S. are greater than the loss in private benefits. Finally, they address, the valuation implications of listing in the U.S. The value of the firm is contingent on whether the firm lists in the U.S. or not. If the firm does not list, its value is given by: $q=C-fC-\frac{1}{2}bf^2pC$, and $q=C+z-f_{US}(C+z)-\frac{1}{2}bf_{US}^2p_{US}(C+z)$, where z and p_{us} are as before, and firm value is proxied by Tobin's q (q). Given that firms in high investor protection countries are worth more (See LLSV (2002)), and value is increasing in growth opportunities (z), the cross-listing premium (i.e. the difference between listed and non-listed firms) is given by: $\phi=z+\frac{1+k}{k(1-k)}[v(p)-v(p_{US})(C+z)]$, which is increasing in z. In empirical work, they show that firms that are cross-listed in the U.S. are worth on average 16.5% more than their counterpart non-cross-listed firms, using Tobin's q as the valuation metric. This 'cross-listing premium' reaches 37% for exchange-listed non-U.S. firms. I return to a discussion of the valuation effects of listing in Section 2.6.

Finally, Barzuza (2005) and BSV (2006) identify both a market for cross listing (as identified by DKS (2004) and MV (2003)), and a market for corporate control. The essential difference between the model outlined by Barzuza (2005) and BSV (2006), and the previously mentioned models, is that case of the latter, the decision not to list is not necessarily a signal of low growth opportunities, but a signal of valuable private benefits. They show that the decision to cross-list on a U.S. exchange, or to remain on less-regulated domestic markets signals

information on the ability of firms to extract private benefits. The controlling insiders of those firms that cross-list can extract only limited private benefits ex-ante. In contrast, the controlling insiders of those firms that **do not** cross-list can, by not listing, signal their ability to extract sizable private benefits. Thus, their controlling block remains valuable to any prospective buyers. The model proves fruitful, in not only furthering our understanding of why not all firms cross-list (e.g. of all of the international firms that meet the entry requirements to list in the U.S., only 10% do so), but is also explains the apparent positive price reaction upon cross-listing in a regulatory regime that offers considerable concessions to non-U.S. firms. The model posits that the positive price reaction is due not to the adoption of the U.S. governance regime (which is 'incomplete'), but to a signalling on the part of the controlling shareholders of low private benefits.

In the models proposed by both MV (2003), and DKS (2004), they explicitly assume that the ability to expropriate is weaker (i.e. $e_i^A < e_i$) given the adoption of p_{US} i.e. the level of investor protection in the U.S., assuming that $p_{US} > p$.[13] Given z, this manifests into a cross-listing premium, which they assume is inversely related to the firm's domestic level of investor protection. I test this proposition later. In what follows I discuss the obligations required of foreign firms who adopt p_{US}.

Cross-listing in the United States via a direct list or a Level 2/3 depositary receipt compels the firm to comply with U.S. reporting and regulatory laws. Bonding to the U.S. governance regime obligates the firm to: conform to, and reconcile their accounting procedures to U.S. G.A.A.P. Level 1, and Rule 144a issues are not required to do so. Reconciliation to U.S. G.A.A.P. and a commitment to provide fuller disclosures endows significant economic benefits on the firm. For example, Lang, Ready, and Yetman-Smith (2003, Hereafter LRYS) find that

[13] This assumption does not necessarily hold for all countries. For example, Yehezkel (2005) argues that compared to the U.S., legal enforcement and status is just as onerous in Israel. Consequently, they argue that the decision taken by Israeli firms to list in the U.S. are driven by concerns other than the desire to bond to the U.S. regime. This is in line with the findings of Blass and Yafeh (2002, BY Hereafter) who using a sample of Israeli cross-listed firms show that these firms signal their superiority over non-cross-listed firms, not through bonding, but by the level of costs involved in cross listing. Sarkissian and Schill (2004) show how the decision to list can also be unrelated to bonding. They suggest that the decision to list can also be influenced by cultural characteristics and proximity preferences.

non-US firms cross-listed in the U.S. have higher quality accounting information, measured in terms of earnings management and timely loss recognition, relative to non-cross listed firms. In a follow up study, LRW (2006) conduct a similar analysis but, unlike LRYS (2003), they compare their sample of foreign cross-listed firms to a matched sample of U.S. firms (the matching is simple two dimensional matching where firms are matched on Industry and growth/size). Interestingly, they report that U.S. firms have higher accounting quality than cross-listed firms, when they measure accounting quality in terms of the same employed in the earlier study. Their results does not question the effectiveness of the bonding hypothesis, as pointed out by Leuz (2005), but suggests that bonding to the U.S. regime is 'incomplete' for foreign firms. Second, firms must register and file periodic forms with the Securities & Exchange Commission (SEC). Registration is completed on form 20-F, under the Securities Act of 1934. Form 20-F requires the firm to reconcile their home level accounting standards to U.S. G.A.A.P. Furthermore, capital-raising Level 3 ADR's must also register the securities on form F-1 under the Securities Exchange Act of 1933. Rule 144a firms are exempt under 12g3-2(b). Registration with the SEC also exposes the firm to possible SEC enforcement.

Finally, a U.S. cross listing also changes the firms' legal liability. An exchange-traded issue becomes subject to civil liability under Section 18 of the 1934 Securities & Exchange Act. Coffee (1999) outlines how a U.S. cross listing entails a sizable litigation risk. In connection, Seetharaman, Gul, and Lynn, (2002), outline how auditors of UK exchange-listed firms, cross-listed in the US, charge a higher fee, to compensate them for the greater litigation risk associated with the U.S. legal regime. Although enforcement can prove to be difficult, Doidge (2005) cites how the SEC can discipline firms by de-registering shares and suspending trading of the ADRs. The findings of LRYS (2003) suggest that the increased enforcement, and litigation environment, adopted by non-US cross-listed firms is, at a minimum, a sufficient threat to ensure they fulfil their obligations. In a sample of Mexican cross-listed firms, Tribukait (2002) finds evidence consistent with this. The U.S. Security Laws, are not only designed to improve firm disclosure

and financial reporting, but are also designed to mitigate the effects of the separation of ownership and control. Coffee (1999) points out that such laws are also designed to reduce firm agency costs by placing substantive obligations on controlling insiders. This achieved by imposing ownership disclosure, insider trading, tender offer, and 'Going Private' rules on controlling shareholders/management.

Cross-listing in the U.S. also exposes firms to the added scrutiny of 'Reputational Intermediaries' (Coffee (1999)). These include financial analysts, U.S. underwriters (for capital raising Level 3 issues), debt rating agencies, international auditors, and institutional investors. The extant literature demonstrates how each can be effective in monitoring controlling shareholders/management activity. For example, LLM (2004) document that analysts add most, in their role of monitors, when they cover firms with poor internal governance. Furthermore, their analysis suggests that analysts can help to partially overcome the negative effects of poor external governance. In an earlier study, LLM (2003) find that a U.S. cross listing is associated with increased analyst coverage, and greater earnings forecast accuracy, with analyst coverage greater for exchange-listed ADRs. Leuz (2003) outlines how increased analyst following relies exclusively on the act of listing; a cross-listing is associated with increased analyst following, but enhanced disclosure is required for greater forecast accuracy. Baker, Nofsinger, and Weaver (2002) demonstrate how a non-domestic cross listing is associated with enhanced firm visibility; the authors define visibility as the extent to which analysts follow a firm, and the amount of a firms' news coverage. Their results show that an international cross listing is associated with increased firm visibility. Furthermore, firms that cross-list on the NYSE enjoys greater visibility than their counterparts that list on the London Stock Exchange. Fan and Wong (2005) outline how the big-five auditors fulfill an important monitoring role in East Asia, thus providing an important governance mechanism.

The legal bonding hypothesis is, however, not without its critics. One of its most vocal critics suggests that the role of U.S. institutions has been exaggerated on a number of issues (See

Licht (2003)). He argues that the SEC has adopted a more conciliatory/accommodating attitude towards foreign firms, suggesting that the enforcement laws of the SEC as applied to foreign firms have been loosely applied. Siegel (2005) concludes that the SEC has not been very active in enforcing regulations with foreign firms, and concludes that cross listing in the U.S. is at best described as a functional convergence reform (i.e. reputational bonding) as opposed to legal convergence reform (i.e. legal bonding). Three recent papers support his assertion. First, KS (2004) using a sample of Canadian cross-listed firms conclude that listing in the U.S. provides, at best reputational bonding. In addition, recent studies by BF (2006), and LRW (2006) conclude that the ability of foreign firms to legally bond to the U.S. regime is 'incomplete'. Specifically, LRW (2006) show that the accounting quality of foreign firms that reconcile their accounting procedures to U.S. G.A.A.P. is inferior to a matched sample of U.S. firms who fully adopt U.S. G.A.A.P. While the study does not challenge the effectiveness of legal bonding for foreign firms (See Leuz (2006) for the reasons why in his discussion paper), it does nevertheless, highlight the inability of foreign firms to fully adopt the U.S. governance regime. Finally, BF (2006, pg. 1) concludes that the tendency for foreign firms not to use equity-backed takeovers suggests, "Cross-listing in the U.S. does not provide complete bonding".

Market Segmentation and Liquidity Hypotheses.

In the early literature the benefits of an international cross listing were explained almost entirely in terms of the predictions of the market segmentation hypothesis. Given market frictions i.e. regulations, information asymmetries and transaction costs, the arguments put forward by Stapleton and Subrahmanyam (1977, SS Hereafter), AEJ (1987, 1988), Stulz (1981), EL (1985), using standard asset pricing models, suggested that given at least mildly segmented markets, firms that cross-list could overcome those barriers. Consequently, for firms that cross-list internationally, the resulting lower cost of capital results in an expansion in their non-domestic shareholder base. The subsequent increase in the firms' non-domestic shareholder base ensures that the risk of the

firm is globally, rather than domestically shared. Greater risk sharing reduces the risk premium required by investors to hold the firms stock. However, the majority of the gains from greater risk sharing are likely to be borne by exchange, and not non-exchange traded ADRs. Finally, their findings suggest that Level 1 ADRs do not experience a large increase in U.S. participation; the corresponding increase in ownership by U.S. investors is a mere 5 percent. Interestingly, in earlier work, Holland and Warnock (2003, HW Hereafter), using a sample of Chilean U.S. listed firms, show how access to international capital is short-lived i.e. earlier cross-listed firms are replaced by newly listed firms in the portfolios of U.S. investors. In addition, cross listing internationally exposes firms to more liquid capital markets, but increased liquidity is by no means guaranteed. For example, Pagano (1989) and Chowdry and Nanda (1991) outline how liquidity may suffer in both markets if inter-market information linkages are poor. Baruch, Karolyi and Lemmon (2003) examine the distribution of trading volume of firms trading on multiple markets. Their analysis suggests that the trading volume of a firm on an individual exchange is related to the correlation between the cross-listed asset returns and the returns of other assets traded on that market. This is in line with Barauch and Saar (2004). Finally, consistent with Karolyi (2003), Halling, Pagano, Randl, and Zechner (2004) find support in favour of the "flow back" phenomenon: after listing abroad, trading volume migrates from the foreign to the home market, resulting in a negligible share of total trade remaining abroad.

There is also a growing literature that examines the impact of international cross-listings on home market liquidity. Moel (2000) outlines how overall domestic market liquidity is negatively impacted upon when firms cross-list on international capital markets. Furthermore, Levine and Schmukler (2003) demonstrate how firm migration to international equity markets has a negative spillover effect on domestic firm liquidity.

Interestingly, Chari and Henry (2004) argue that these segmentation theories have no lasting effects on firm value. Consequently, all else equal, valuation will not change around the time of listing.

2.6 Cross-Listing and Firm Value

In Chapters 4-7, I focus on examining the valuation effects of cross-listing for foreign firms listed in the U.S. In general, researchers have adopted two methodological/econometric techniques. First, the vast majority of studies have concentrated on applying traditional event study methods. Ideally, using announcement day returns (and not listing day returns), researchers have attempted to examine the valuation effect of listing by calculating market-adjusted returns around the time of listing. The most widely cited papers are outlined in Panel A of Table 2.5. The general finding from these studies is that cross-listed firms experience a run-up in value, followed by a fall-off thereafter. While in many instances, the three-day announcements returns (i.e. [-1, 0, +1]) around the time of listing are significant for exchange traded firms, and in some instances non-exchange traded firms (e.g. Miller (1999)), the long-run returns tend to be negative. However, standard event study methods suffer from two potential flaws: first, a failure to sufficiently account for self-selection bias. Second, Kothari and Warner (2005) highlight the limitations of long-horizon event study methods. As a result, in more recent times, researchers have advocated the use of standardised valuation metrics.

In Panel B, I outline the most widely cited papers that seek to answer the question by using valuation metrics. LLM (2003), DKS (2004), and KKZ (2005) apply treatment effect models (treatment effects in the case of the first two, and two-stage least squares in the case of the latter) to a cross-section of foreign firms cross-listed in the U.S. They find that exchange-traded firms tend to be worth more, but find no valuation effect for non-exchange traded depositary receipts. For example, DKS (2004) find that exchange-traded (Level 2/3) depositary receipts are worth on average 37% more than their counterpart non-cross-listed domestic counterparts. They coin the phrase 'cross listing premium' to denote this valuation difference. Finally, using a panel of Canadian firms that list as 'ordinaries' in the U.S., KS (2004) using standard random effects regressions conclude that listing is associated with enhanced value for

these firms. They relate this valuation premium to reputational, rather than legal, bonding given the similarities of the U.S. and Canadian regulatory regimes. It would appear that listing in the U.S. causes value for non-U.S. firms.

However, the jury is still out. For example, Smith (2005, p. 3) concludes that, "Unresolved, however, is the question of whether or not cross-listing creates value by subjecting cross-listed firms to U.S. regulatory system oversight". In large part, the criticisms of the afore-mentioned valuation studies centre, not on the econometric techniques that they apply, but on the cross-sectional nature of their data. Rather than examine the valuation effects of listing in event time (as event studies do), these studies do so in calendar time. While cross-listed firms may be worth more than non-cross-listed firms at any point in (calendar) time, this does not suggest that listing in the U.S. causes value for non-U.S. firms. In Chapters 4 to 7, I examine the valuation effects of cross listing in both calendar and event time. Our results highlight the importance of doing both.

Table 2.1: American Depositary Receipts Characteristics.

	Level 1	Level 2	Level 3	SEC Rule 144a
Primary Exchange	OTC 'Pink Sheets'	NYSE, AMEX, or NASDAQ	NYSE, AMEX, or NASDAQ	PORTAL
Accounting Standards	Home Country	U.S. GAAP	U.S. GAAP	Home Country
U.S. Reporting Requirements	Exempt Rule 12g3-2(b) Compliance[2] *Securities Act of 1934*	Form 20-F[3] & Form 6-K *Securities Act of 1934*	Form 20-F (Annual) & Form 6-K. *Securities Act of 1934*	Exempt Rule 12g3-2(b) Compliance or Rule 144a
SEC Registration	Exempt	Full Registration	Full Registration	Exempt
Equity Issuance	Existing Shares only (Public Offering)	Existing Shares only (Public Offering)	New Equity Capital (Public Offering[4])	New Equity Capital (Private Offering to QIB's[1])
Time to Completion	10 Weeks	10 Weeks	14 Weeks	16 Days
Costs	≤$25,000	$200,000-700,000	$500,000-2,000,000	$250,000-500,000

(1) - Qualified Institutional Buyers (QIB's) are investors eligible to participate in the Rule 144a Market. The SEC defines these primarily as institutions that manage at least $100 million in securities including banks, savings and loans, insurance companies, investment companies, public employee benefit plans, employee benefit plans under ERISA, or an entity owned entirely by qualified investors. Also included are registered broker-dealers owning and investing, on a discretionary basis, $10 million in securities of non-affiliates.
(2) - Under certain circumstances, the SEC exempts non-US corporations wishing to trade their shares in the US from the full reporting burden. The Information Supplying Exemption, also known as Rule 12g 3-2(b), can be obtained by those non-US corporations that are not seeking a listing on a national exchange and are not intending to launch a public offering of their securities.
(3) - A Form 20-F is filed as a registration statement/annual report by issuers of Level II or III sponsored ADR/GDR. It is a comprehensive report of all material business activities and financial results and must comply with US GAAP. The Form 20-F consists of four parts. Part I requires a full description of the issuers business, details of its property, any outstanding legal proceedings, taxation and any exchange controls that might effect security holders. Part II requires a description of any securities to be registered, the name of the depositary bank for the DR's and all fees to be charged to the holders of DR's. Part III contains information on any defaults upon senior securities. Part IV requires various financial statements to be submitted.
(4) - Foreign Issuers planning a public offering in the US via a Level III ADR must register the proposed new securities by filing Form F-1.

Table 2.2: Domestic and Foreign Listings on Global Stock Exchanges 1995-2002.

		2002				1999				1995			
Time Zone	**Exchange**	**Total**	**Domestic**	**Foreign**	**For (%)**	**Total**	**Domestic**	**Foreign**	**For (%)**	**Total**	**Domestic**	**Foreign**	**For (%)**
N. America	AMEX	571	523	48	**8.41**					791	725	66	**8.34**
	Bermuda	54	22	32	**59.26**	45	22	23	**51.11**				
	Cdn Venture					2,358				1,515			
	Chicago	4	4	0		8	8	0		287	287	0	
	Mexico	169	163	6	**3.55**	190	186	4	**2.11**	185	185		
	Montreal					129	128	1	**0.78**	550	540	10	**1.82**
	NASDAQ	3,649	3,268	381	**10.44**	4,829	4,400	429	**8.88**	5,127	4,766	361	**7.04**
	NYSE	2,366	1,894	472	**19.95**	3,025	2,619	406	**13.42**	2,242	1,996	246	**10.97**
	Toronto	1,287	1,252	35	**2.72**	1,456	1,409	47	**3.23**	1,258	1,196	62	**4.93**
S. America	B. Aires	114	110	4	**3.51**	125	124	1	**0.80**	149	149	0	
	Lima	230	198	32	**13.91**	239	227	12	**5.02**	243	242	1	**0.41**
	R de Janeiro					514	513	1	**0.19**	570	569	1	**0.18**
	Santiago	246	245	1	**0.41**	282	282	0		282	282	0	
	Sao Paulo	412	410	2	**0.49**	487	486	1	**0.21**	544	543	1	**0.18**
Europe	Amsterdam					387	233	154	**39.79**	346	184	162	**46.82**
	Athens	314	313	1	**0.32**	262	262	0		186	186	0	
	Barcelona					500	496	4	**0.80**	324	320	4	**1.23**
	Bilbao					275	273	2	**0.73**	249	248	1	**0.40**
	Brussels					268	146	122	**45.52**	279	150	129	**46.24**
	Budapest	49	48	1	**2.04**								
	Copenhagen	201	193	8	**3.98**	242	233	9	**3.72**	252	242	10	**3.97**
	D. Borse	934	715	219	**23.45**	851	617	234	**27.50**	1,622	678	235	**25.74**
	Euronext	1,114	1,114										
	Helsinki	149	147	2	**1.34**	150	147	3	**2.00**	73	73	0	
	Irish	76	62	14	**18.42**	103	84	19	**18.45**	89	80	9	**10.11**
	Istanbul	289	288	1	**0.35**	286	285	1	**0.35**	205	205	0	
	Italian	295	288	7	**2.37**	270	264	6	**2.22**	254	250	4	**1.57**
	Lisbon					125	125	0		169	169	0	
	London	2,272	1,890	382	**16.81**	2,274	1,826	448	**19.70**	2,502	1,971	531	**21.22**
	Luxembourg	245	48	197	**80.41**	277	51	226	**81.59**	283	55	228	**80.57**
	Madrid					727	718	9	**1.24**	366	362	4	**1.09**
	Malta	13	13	0		7	7	0					
	Oslo	203	179	24	**11.82**	215	195	20	**9.30**	165	151	14	**8.48**

		2002				1999				1995			
Time Zone	**Exchange**	**Total**	**Domestic**	**Foreign**	**For (%)**	**Total**	**Domestic**	**Foreign**	**For (%)**	**Total**	**Domestic**	**Foreign**	**For (%)**
	Paris					1,144	968	176	**15.38**	904	710	194	**21.46**
	Spanish Exchanges	3,015	2,986	29	**0.96**								
	Stockholm	297	278	19	**6.40**	300	277	23	**7.67**	223	212	11	**4.93**
	Swiss	398	258	140	**35.18**	412	239	173	**41.99**	449	216	233	**51.89**
	Tel-Aviv	624	622	2	**0.32**	654	653	1	**0.15**	654	652	2	**0.31**
	Valencia												
	Vienna	129	109	20	**15.50**	114	97	17	**14.91**	148	109	39	**26.35**
	Warsaw	216	216	0		221	221	0		65	65	0	
Africa, M. East	South Africa	451	429	22	**4.88**	668	644	24	**3.59**	638	612	26	**4.08**
	Tehran	307	307	0		277	277	0		142	142	0	
	Ljubljana	135	135	0		130	130	0					
Asia, Pacific	Australian	1,421	1,355	66	**4.64**	1,287	1,217	70	**5.44**	1,178	1,129	49	**4.16**
	Colombo	238	238	0		237	237	0					
	H.K.	978	968	10	**1.02**	708	695	13	**1.84**	542	518	24	**4.43**
	Jakarta	331	331	0		276	276	0		237	237	0	
	Korea	679	679	0		712	712	0		721	721	0	
	Kuala Lumpur	861	858	3	**0.35**	752	749	3	**0.40**	526	523	3	**0.57**
	Mumbai	5,650	5,650	0									
	NSE India	916	916	0									
	New Zealand	199	150	49	**24.62**	171	114	58	**33.72**	175	135	40	**22.86**
	Osaka	1,312	1,312	0		1,281	1,281	0		1,222	1,222	0	
	Philippine	234	232	2	**0.85**	226	225	1	**0.44**	205	205	0	
	Shanghai	715	715	0									
	Shenzhen	508	508	0									
	Singapore	501	434	67	**13.37**	399	354	45	**11.28**	272	250	22	**8.09**
	Taiwan	641	638	3	**0.47**	462	462	0		347	347	0	
	Thailand	398	398	0		392	392	0		416	416	0	
	Tokyo	2,153	2,119	34	**1.58**	1,935	1,892	43	**2.22**	1,791	1,714	77	**4.30**
	Total			**2,335**	**11.26**			**2,829**	**12.91**			**3,508**	**14.60**

Table 2.3: Intra-Country ADR Composition (Excluding Reg S/ GDR Issues).

Country	Level 1	%	Level 2/3	%	Portal	%	Total
Argentina	1	4.55	14	**63.64**	7	31.82	22
Australia	99	**76.15**	25	19.23	6	4.62	130
Austria	16	**80**	1	5	3	15	20
Belgium	3	**75**	1	25	0	0	4
Brazil	46	**53.49**	36	41.86	4	4.65	86
Chile	2	8	20	**80**	3	12	25
China	16	40	17	**42.50**	7	17.50	40
Colombia	3	3.33	1	11.11	5	**55.56**	9
Denmark	4	**44.44**	4	**44.44**	1	11.11	9
Finland	2	20	5	**50**	3	30	10
France	20	32.79	35	**57.38**	6	9.84	61
Germany	26	**50**	22	42.31	4	7.69	52
Greece	4	23.53	5	29.41	8	**47.06**	17
Hong Kong	109	**92.37**	8	6.78	1	0.85	118
Hungary	3	25	1	8.33	8	**66.66**	12
India	1	1.54	11	16.92	53	**81.54**	65
Ireland	7	30.43	13	**56.52**	3	13.04	23
Israel	6	40	8	**53.33**	1	6.67	15
Italy	14	29.79	23	**48.94**	10	21.28	47
Japan	121	**75.63**	34	21.25	5	3.13	160
Korea	3	7.32	7	17.07	31	**75.61**	41
Malaysia	17	**100**	0	0.00	0	0.00	17
Mexico	36	**44.44**	28	34.57	17	20.99	81
Netherlands	18	38.30	26	**55.32**	3	6.38	47
Norway	9	**47.37**	7	36.84	3	15.79	19
New Zealand	4	**57.14**	3	42.86	0	0	7
Peru	4	**40**	2	20	4	**40**	10
Philippines	6	**40**	3	20	6	**40**	15
Poland	3	17.65	1	5.88	13	**76.47**	17
Portugal	2	22.22	3	3.33	4	**44.44**	9
Russia	48	**67.61**	5	7.04	18	25.35	71

Country	Level 1	%	Level 2/3	%	Portal	%	Total
Singapore	22	**81.48**	2	7.41	3	11.11	27
South Africa	54	**72**	12	16	9	12	75
Spain	4	22.22	10	**55.56**	4	22.22	18
Sweden	7	35	12	**60**	1	5	20
Switzerland	9	33.33	12	**44.44**	6	22.22	27
Taiwan	0	0	6	12.77	41	**87.23**	47
Thailand	15	**88.24**	0	0	2	11.76	17
Turkey	6	27.27	1	4.55	15	**68.18**	22
U.K	83	43.23	103	**53.65**	6	3.13	192

Source: Bank of New York.

Table 2.4: Geographical Pattern of International Cross-Listing.

	Australia	*Austria*	*Belgium*	*Canada*	*Denmark*	*France*	*Germany*	*H.K.*	*Ireland*	*Italy*	*Japan*	*Luxem.*	*Malaysia*	*Neth.*	*New Zeal.*	*Norway*	*Peru*	*Singapore*	*S. Africa*	*Spain*	*Sweden*	*Switz.*	*U.K.*	*U.S.A.*	***Total***
Australia				3			1				3	1			27			2					7	18	62
Austria						1	4																		5
Belgium						1	1					2		5								1			10
Brazil												3												14	17
Canada	2		3			3	2											1	1			6	4	126	148
Chile																								8	8
Czech Rep.																								4	4
Denmark																						1	2	1	4
Finland						1	2														3		2	2	10
France			4	1			6				1			3							2	3	6	18	44
Germany	11	4				7				2	9	5		6				1		2	1	18	8	9	83
H.K.											1					1		6					1	2	11
India												42											13		55
Ireland																							17	5	22
Italy						3	4													1				6	14
Japan		1	4	1		21	41					15		15				3				9	18	20	148
Luxembourg							1																1		2
Mexico																								4	4
Netherlands		3	7			3	14				1	3						1			1	10	8	14	65
New Zealand	13																							3	16
Norway					1		1							1							2	1	5	5	16
Peru																								1	1
Philippines												5						1						1	7
Poland												1											4		5
Portugal																								1	1
Singapore	1											2													3
South Africa			5			2	2					3										1	8	6	27
Spain																								1	1
Sweden		1	1				3				1							2				3	4	7	22
Switzerland		1	1			1	6				2			1									1	4	17

	Australia	*Austria*	*Belgium*	*Canada*	*Denmark*	*France*	*Germany*	*H.K.*	*Ireland*	*Italy*	*Japan*	*Luxem.*	*Malaysia*	*Neth.*	*New Zeal.*	*Norway*	*Peru*	*Singapore*	*S. Africa*	*Spain*	*Sweden*	*Switz.*	*U.K*	*U.S.A.*	***Total***
Taiwan												14						1					7	1	23
Thailand												1													1
Turkey												1											3		4
U.K	3		4	3		5	5	1	6		4	1	1	6	1			4						42	86
U.S.A.	6	2	26	6		32	38				22	1		57		1	1				5	64	81		352

Table 2.5: Valuation effects of cross-listing abroad.

Panel A: Event Studies	Market						Performance (CAR, %)	
Reference	Foreign	Home	Time-Period	Events	Event Period	Skip Period	Pre-Listing	Post-Listing
Alexander et al., (1988)	USA	Global	1969-1982	34	+/- 36 Months	None	10.6	-17.5
Foerster & Karolyi, (1993)	USA	Global	1976-1992	56	+/- 12 Months	One Week	25.4	-26.3
Jayaraman et al., (1993)	USA	Global	1983-1988	95	+/- 1 Month	None	15.1	-11.1
Lau et al., (1994)	Global	USA	1962-1990	346	+6 Months/-1 Week	None	0	-7.9
Foerster & Karolyi, (1999)	USA	Global	1976-1992	153	+/- 12 Months	One Week	17.0	-12.0
Miller, (1999)	USA	Global	1985-1995	183	+/- 1 Month	None	0	-34.7
Errunza & Miller, (2000)	USA	Global	1985-1994	126	+/- 36 Months	12 Months	10.3	-1.1
Foerster & Karolyi, (2000)	USA	Global	1982-1996	333	+36 Months/-12 Months	One Month	18.0	-11.7
Korzcak & Bohn, (2005)	USA	Global	1995-2004	33	-100/+200 Days	-	15.96	6.49
Mittoo (2003)	USA	Canada	1976-1990 1991-1998	56 108	+36 Months/-12 Months	-		

Panel B: Valuation Metrics	Market							
Reference	Foreign	Home	Time-Period	Sample (ADR)	Countries	Metric	Estimator	Performance
Lang, Lins, & Miller, (2003)	USA	Global	1996	235	28	Tobins *q*	RE/TE	Premium
King & Segal, (2004)	USA	Canadian	1990-2001	206	1	Tobins *q* ,BM & EP	Panel (RE)	Premium
Doidge et al., (2004, 2006)	USA	Global	1997, 1997-2004	713	40	Tobins *q*	RE/TE	Premium
Kristian-Hope et al., (2005)	USA	Global	2000	744	36	Tobins *q*	OLS, 2SLS	Premium

Figure 2.1: Total Sposored Depositary Receipts 1996-2005

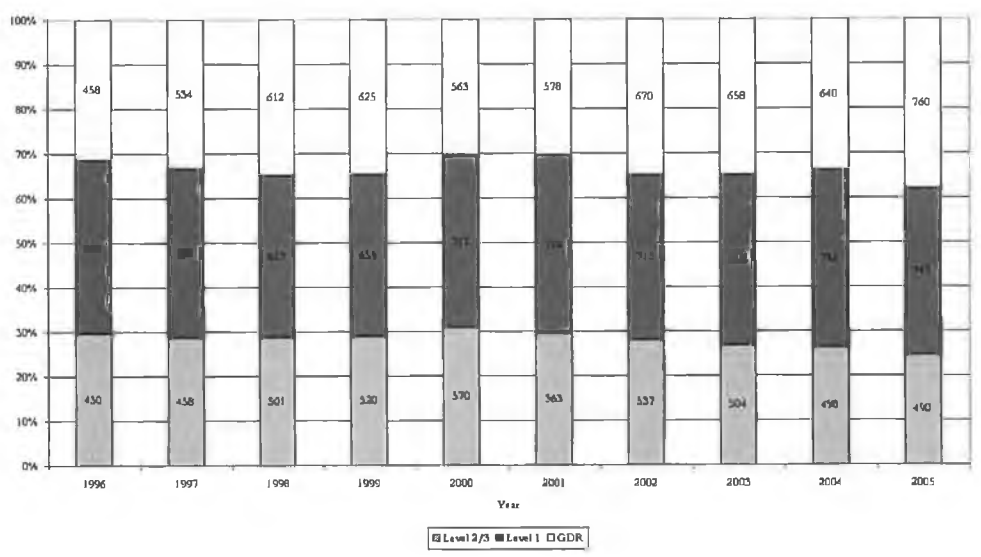


Figure 2.2: Total Sponsored DR's by Country 2005

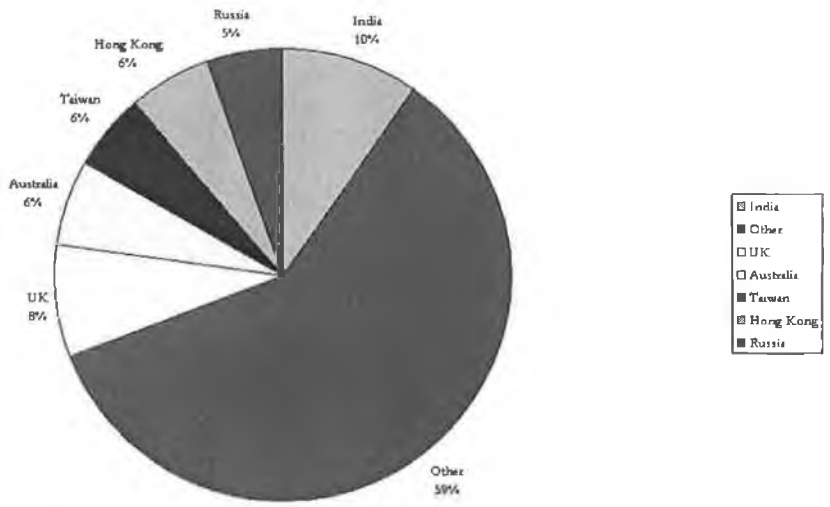


Figure 2.3: New Sponsored Depositary Receipts 1996-2005

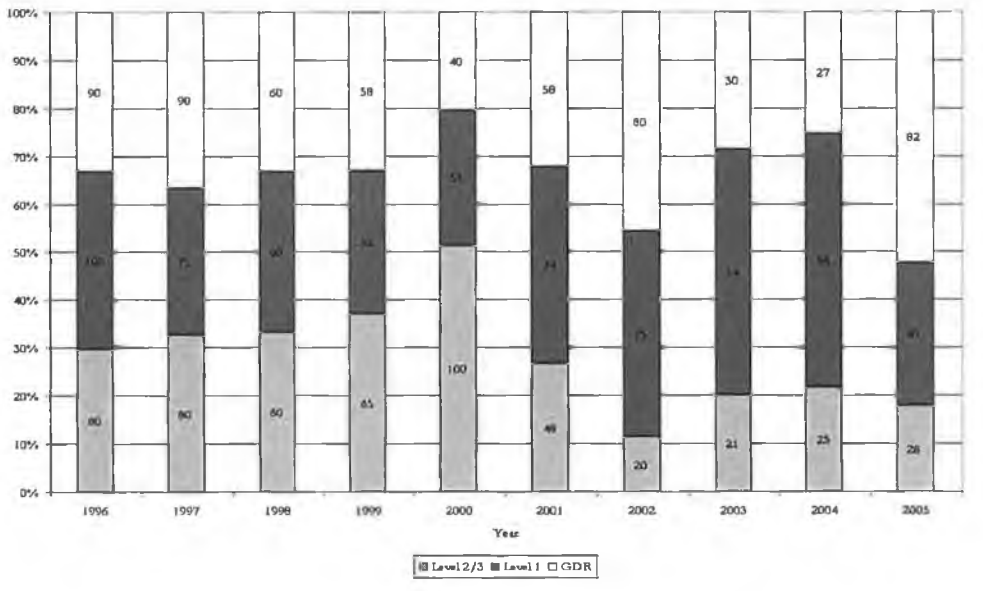


Figure 2.4: New Exchange Listed Depositary Receipts 2005

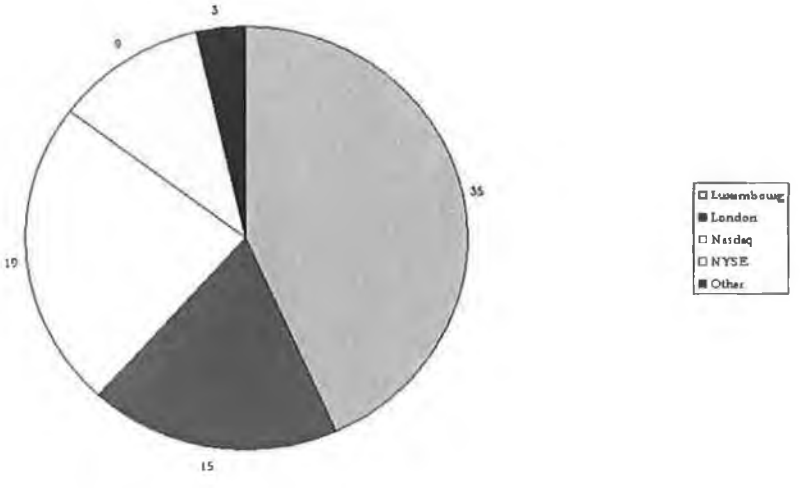


Figure 2.5: Annual DR Capital Raised ($Billions)

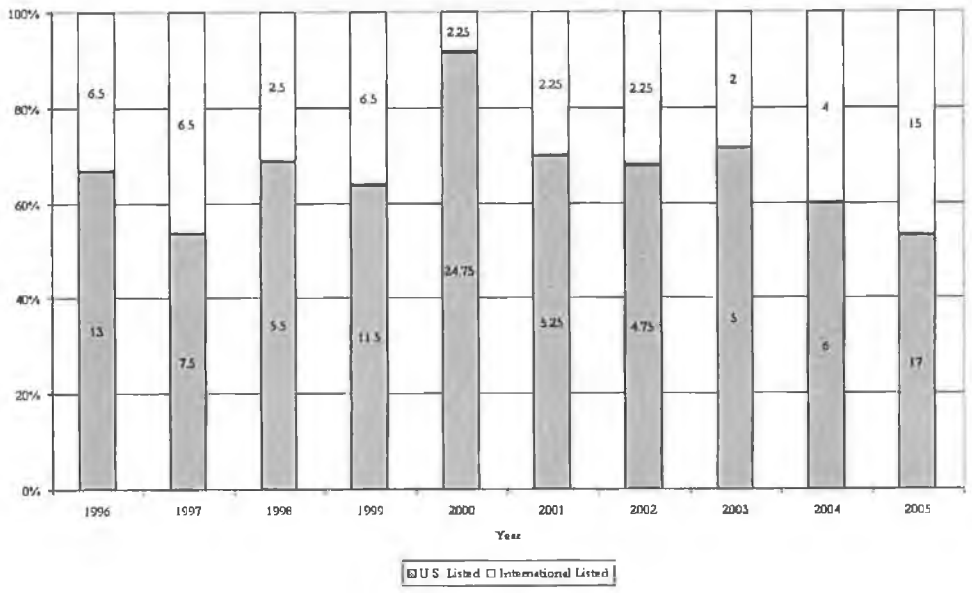


Figure 2.6: NYSE Domestic and Foreign Lists 1960-2004

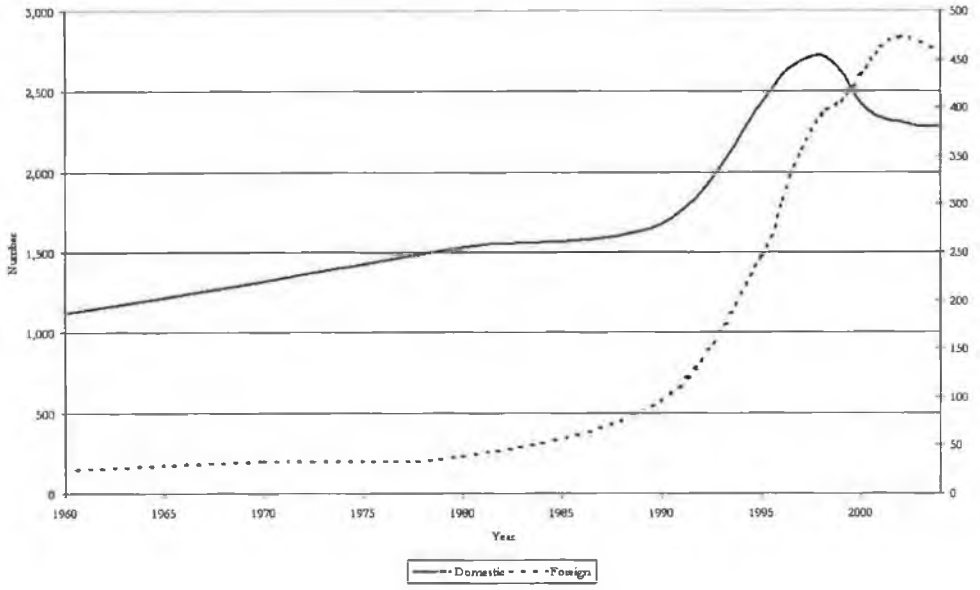


Figure 2.7: Nasdaq Domestic and International Lists 1995-2002

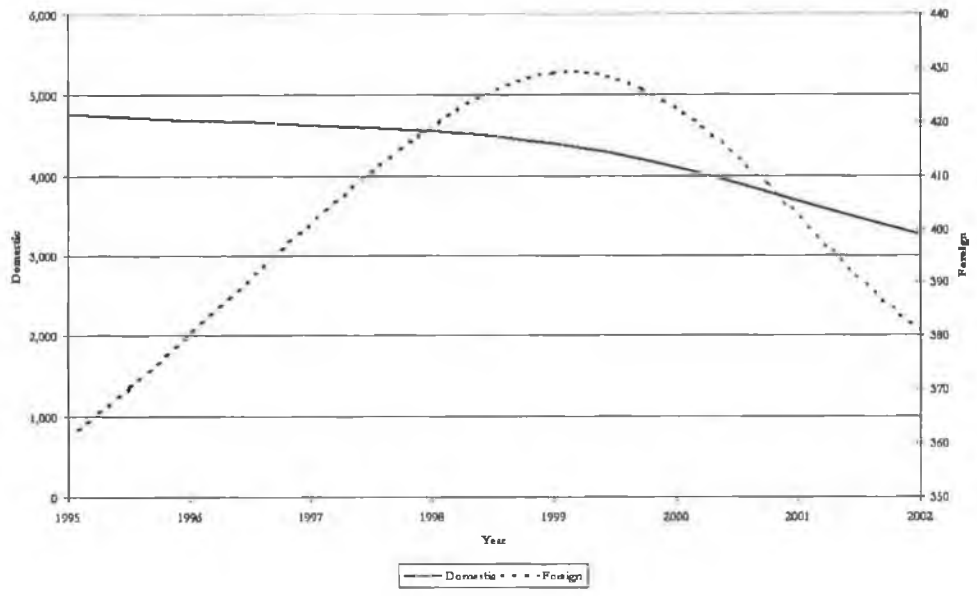


Figure 2.8: London Stock Exchange Domestic and International Lists 1995-2002

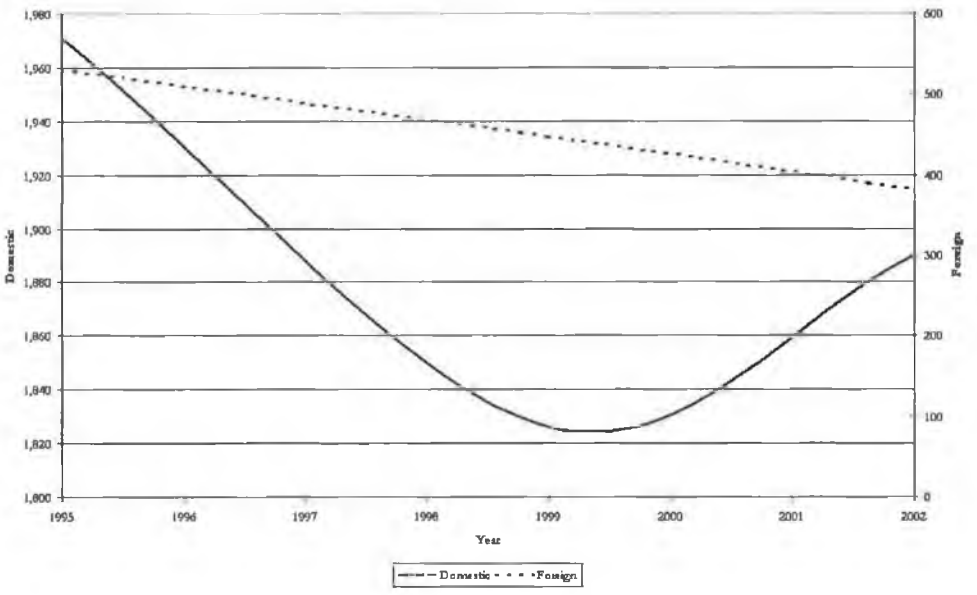


Figure 2.9: Japan Domestic and International Lists 1995-2002

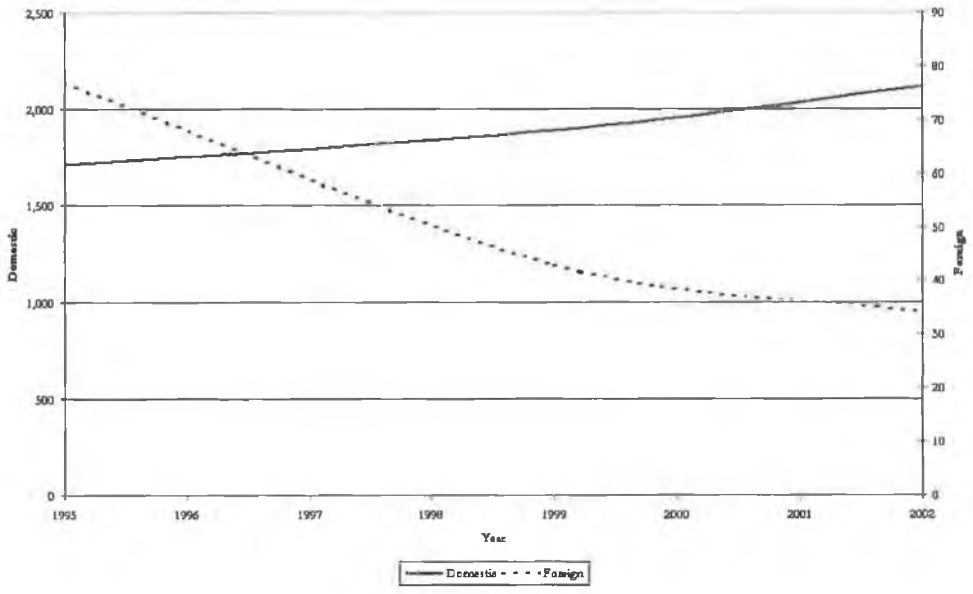


Figure 2.10: Australia Domestic and International Lists 1995-2002

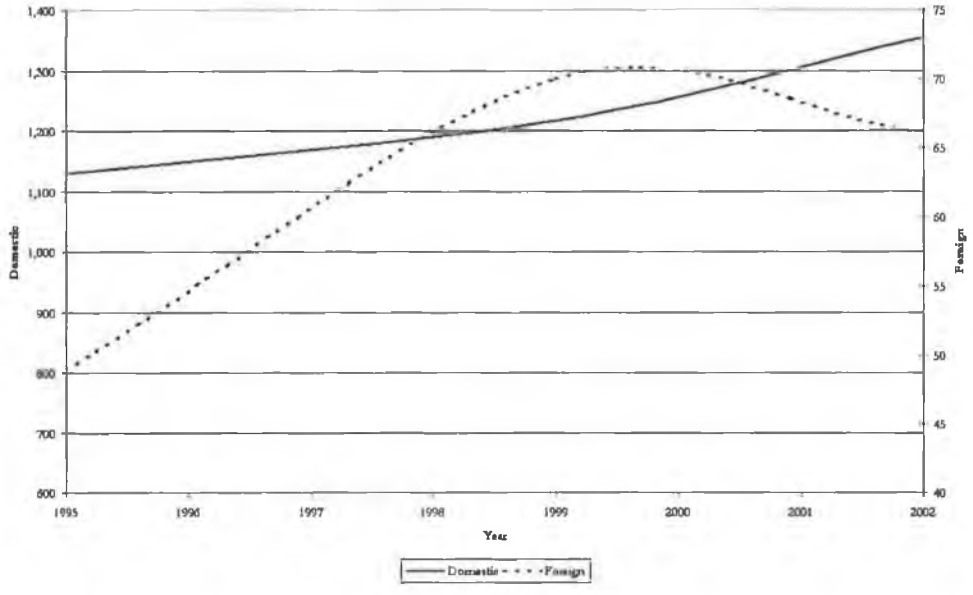


Figure 2.11: Singapore Domestic and International Lists 1995-2002

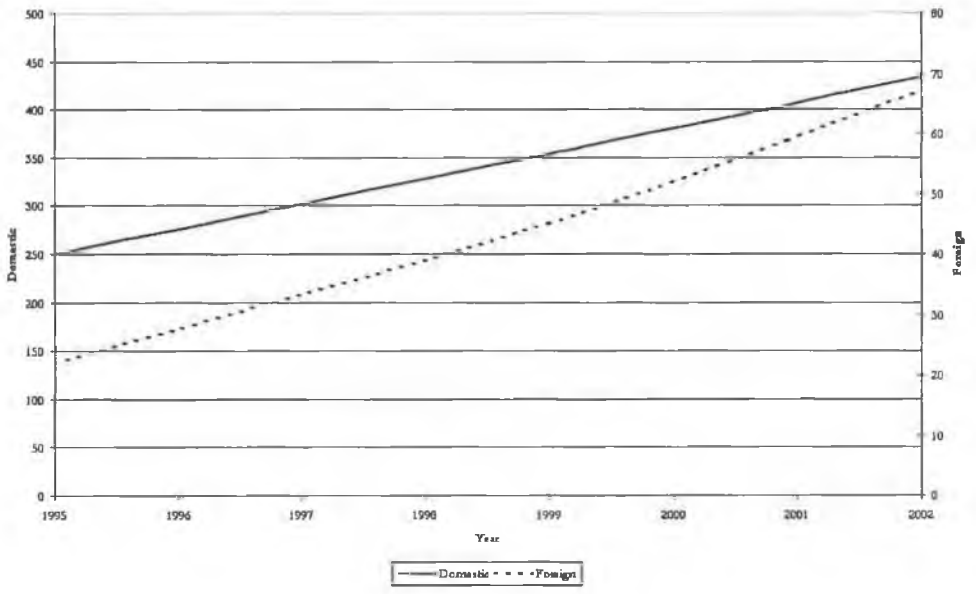


Figure 2.12: Toronto Domestic and International Lists 1995-2002

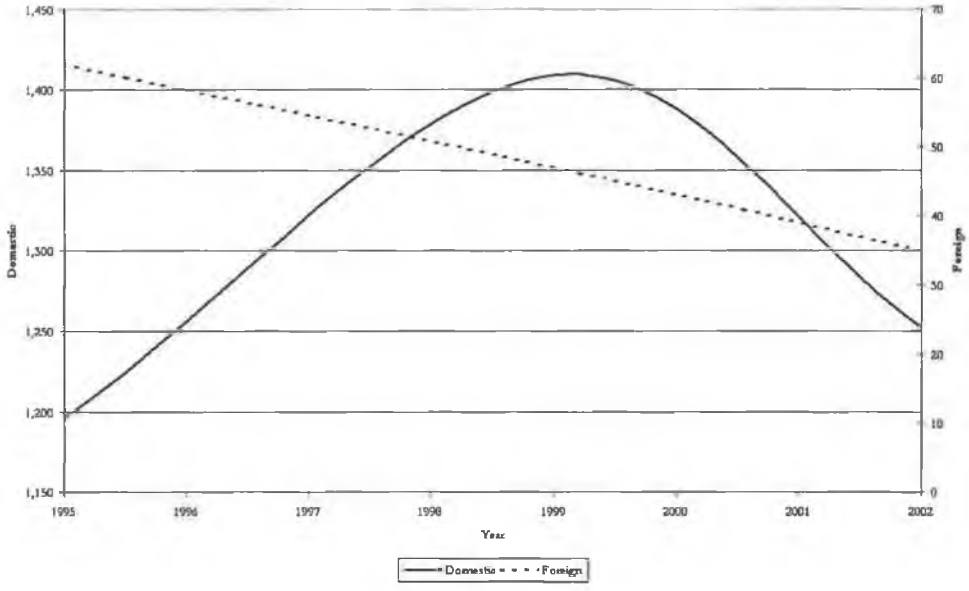


Figure 2.13: Germany Domestic and International Lists 1995-2002

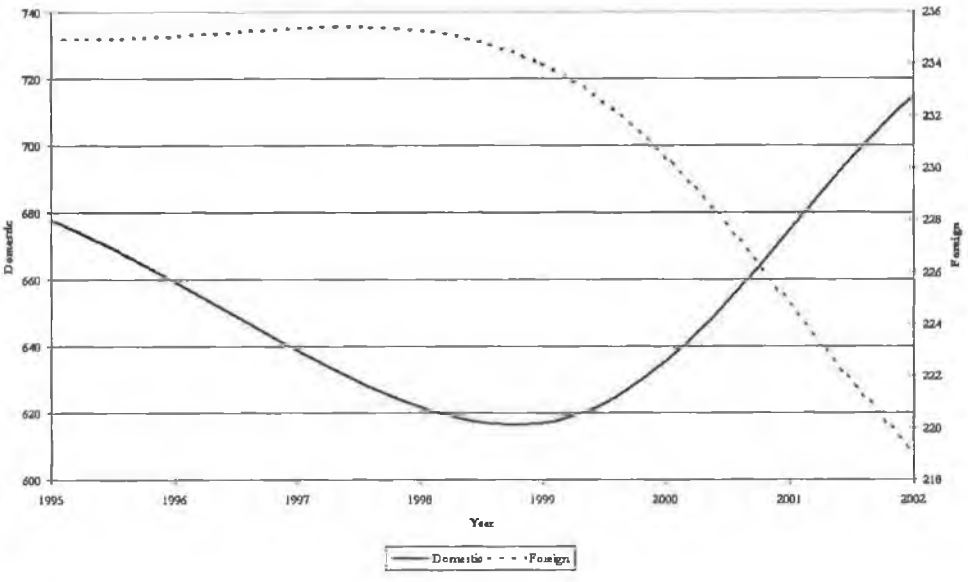


Figure 2.14: Italy Domestic and Foreign Lists 1995-2002

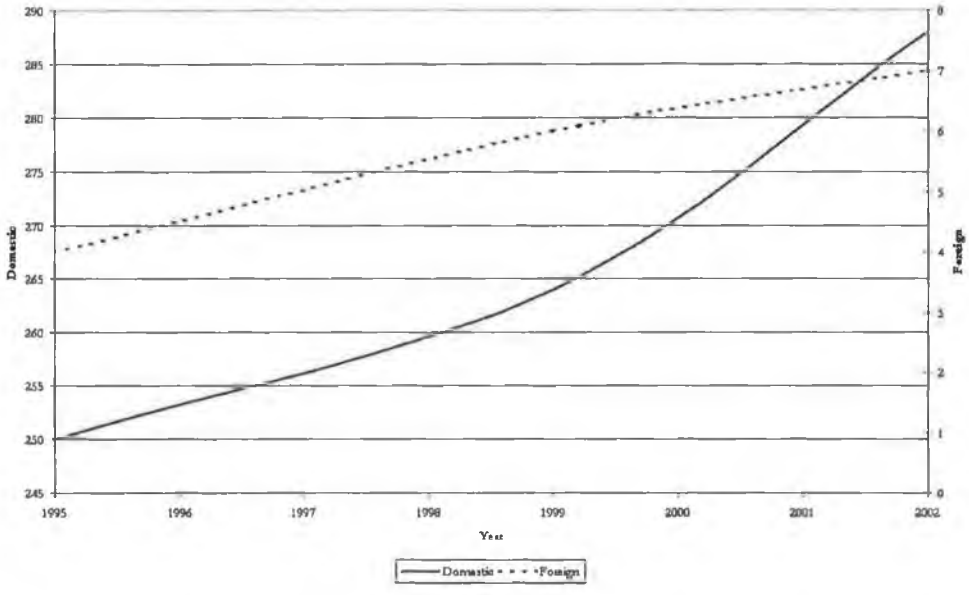


Figure 2.15: Luxembourg Domestic and International Lists 1995-2002

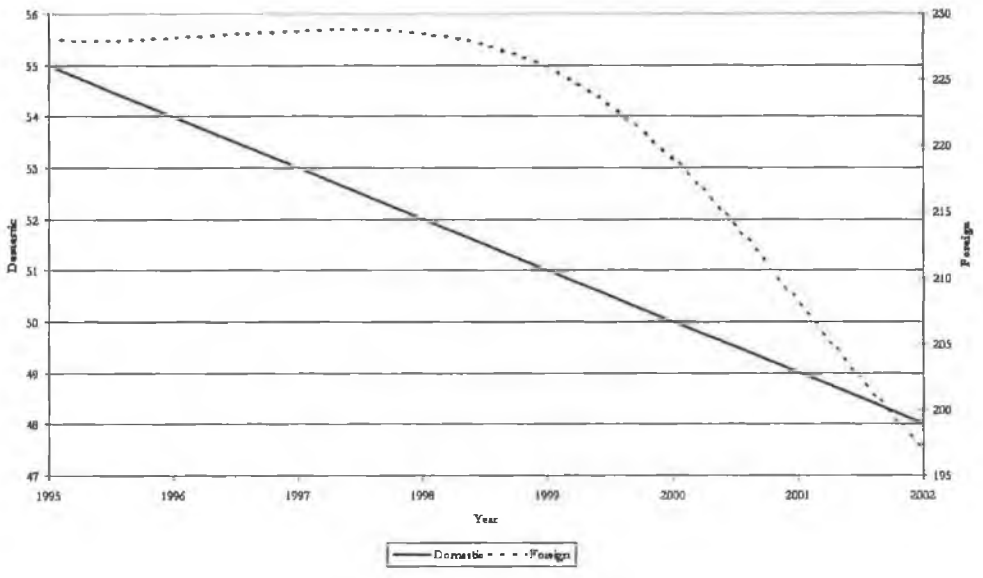


Figure 2.16: Switzerland Domestic and International Lists 1995-2002

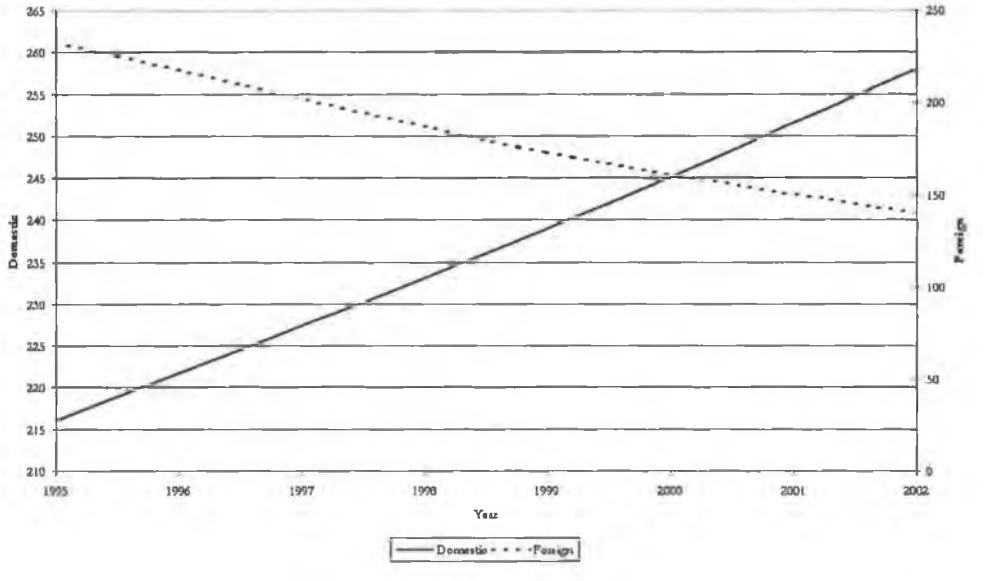
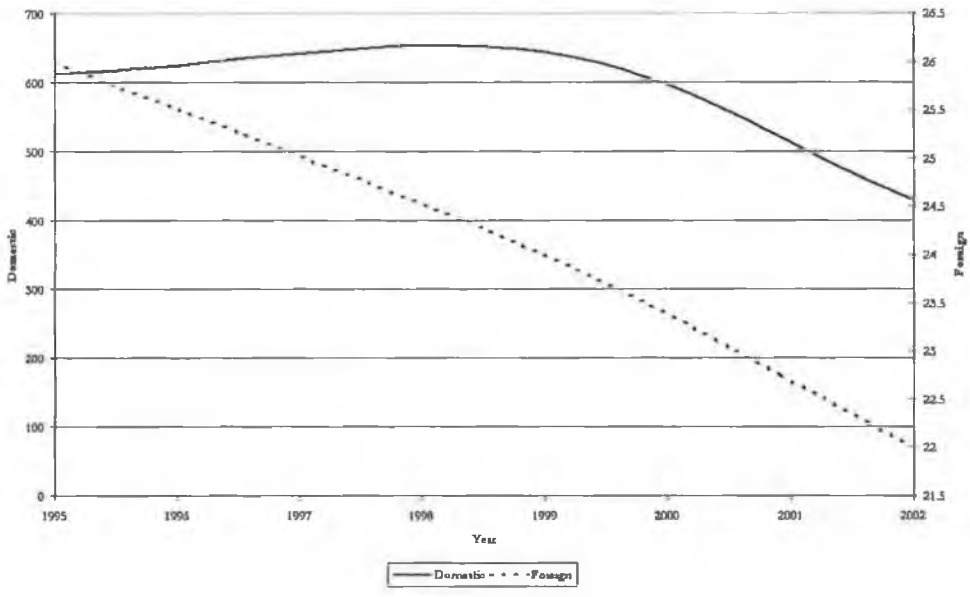


Figure 2.17: South Africa Domestic and International Lists 1995-2002



Chapter 3: Cross-Listing in the United States and domestic investor protection

3.1 Introduction

The ability of firms to finance investment opportunities, over and above retained earnings is largely contingent on the effectiveness of their domestic legal system to sufficiently protect minority shareholders. The extant literature suggests that where the providers of capital are sufficiently protected, their required return is lower resulting in a lower cost of both debt and equity capital for firms (e.g., HL (2003)). Consequently, high-growth firms domiciled in countries characterised by poor legal institutional frameworks, and thus poor investor protection, are very often constrained in their attempts to finance their growth opportunities externally (e.g., DM (1998)). Absent effective legal reform, many firms engage in substitute strategies designed to fund their investment opportunity set. For example, the extant literature suggests that such firms can engage in cross-border strategic alliances (e.g., Siegel (2006)), seek political favour (e.g., Siegel (2006); LO (2003)), or commit themselves to greater protection of their minority shareholders by improving their internal firm-level governance (e.g., KL (2003), DK (2005)). Furthermore, a firm can substitute their domestic level governance for the superior disclosure and regulatory regime of the United States by cross listing on a U.S. exchange or NASDAQ (e.g., Coffee (1999, 2002), Stulz (1999), RW (2002), Doidge (2004), DKS (2004)). Consequently, the ability of firms to finance their growth opportunities through domestic financing, post-listing in the U.S., suggests a commitment on the part of firms to better protect their investors[14]

[14] Ribstein (2005) outlines other alternatives to cross listing. These include certification, a sale without listing and local incorporation. In addition, a related literature outlines how domestic exchanges have in response to sizable migrations of firms to U.S. capital markets improved their governance requirements. Dewenter, Kim, Lim, and Novaes (2005, DKLN Hereafter) and Carvalho and Pennacchi (2005) examine the impact of enhanced stock exchange governance regulations on firm value using Korean and Brazilian exchanges, respectively. They show that improved exchange governance enhances firm value. In a similar vein, Krishnamurti, Sequeira, and Fangjian (2003) using the two major Indian stock exchanges demonstrate how demutualized exchanges are superior to mutualized exchanges in terms of governance.

By 'opting-in' to the U.S. governance regime, these firms endeavour to encourage investment in their firm by committing to adopt the reporting obligations of domestic U.S. firms. As such, the legal bonding hypothesis suggests that at least in terms of investor protection, investors should be indifferent between investing in domestic U.S. firms or non-U.S. American depositary receipts. However, this line of reasoning has been questioned within the literature. For example, its most vocal critics (e.g., Siegel (2005), Licht (2003, 2004)) consistently argue that the number of SEC actions against ill-behaved foreign firms has been few, and Licht (2003) goes so far as to suggest that the enforcement laws put in place by the SEC remain largely 'illusionary' for non-U.S. firms, as non-U.S. firms are subjected to a less stringent regime than that laid out for U.S. firms. In connection, Siegel (2005) outlines that over the period from 1995 to 2001 the SEC took legal action against just five foreign firms[15]. So while it appears that the holders of ADRs are not as well protected as are the holders of domestically listed U.S. firms, they do enjoy the benefits of 'Reputational Bonding' from listing in the U.S. (e.g., KS (2004), Siegel (2005)) i.e. enhanced monitoring from financial analysts, underwriters, auditors. In support Stulz (2005, p. 1632) concludes that "Although this monitoring [from listing in the U.S.] may at times seem weak and tentative, it is monitoring that otherwise would not have taken place". Finally, DKLMS (2005) conclude that such monitoring acts as a sizable deterrent preventing many firms from cross listing.

I examine whether cross-listing in the U.S. affords additional protection to those investors who have already made the investment decision and invested in the firm i.e. the ordinary shareholders, as opposed to those investors that invest post-listing i.e. ADR holders. The majority of non-U.S. firms that 'opt-in' to the U.S. governance regime do not 'opt-out' of their domestic regime. So while it is clear that the ADR holders are protected, although not to the same extent as those investors that hold U.S. firms, it is not altogether clear as to whether the holders of the firms' ordinary shares enjoy the same level of additional investor protection. In

[15] Joos (2003, p. 396) concludes that "At the very least, empirical work suggests that the effectiveness of the bonding role of the SEC regulation presents an empirical question rather than an established fact".

fact, ADK (2005, p.3) suggest, "ADR holders have better legal standing compared to holders of the underlying security as the ADRs are purchased in the U.S". I examine whether the ordinary shareholders i.e. the holders of the underlying security enjoy any incremental protection under the U.S. governance regime.

In order to examine whether cross listing in the U.S. provides incremental protection for minority/ordinary shareholders, I follow the approach advocated by BW (2004, p. 229). They argue that, given that regulatory bonding in the U.S. is unobservable to the researcher, "the issue of economic importance is whether managers and investors perceive cross-listings to have incremental protection or not. To examine this proposition, the appropriate approach is not to count SEC actions and debate whether they are important or not. Rather it is to examine the data for empirical implications of the hypothesis that cross-listings provide incremental protection, and therefore serve as a device enabling managers of non-U.S. firms to commit to protect the interests of their minority shareholders".

I examine the ordinary dividend payout of cross-listed firms around a cross-listing in the U.S. Our choice of variable is motivated by the fact that (1) dividend payout is increasing in the level of investor protection (e.g., LLSV (2000)) and, consequently (2) changes in external investor protection are associated with changes in firm dividend payout (e.g., Liu (2002)), controlling for firm, industry and country level determinants of dividend payout. In addition, the choice of dependent variable is motivated by our desire to isolate the impact of cross-listing on the domestic/ordinary shareholders (as against the ADR shareholders) of cross-listed firms. I employ the ordinary dividend payout of firms to achieve this goal. The agency models of dividends do not rely on specific rights per se, but rest on the premise that country laws and/or governance practices allow minority shareholders greater rights in general. I argue that firms may only be reluctant to pay lower dividends if they perceive that their minority investors will accept lower dividends for improvements in investor protection, as dividend cuts are costly. Minority/ordinary shareholders are more likely to accept lower dividends post-listing if they are

compensated for reduced dividends with enhanced protection from listing in the U.S. Easterbrook (1984) outlined how governance practices and dividends are substitutes for one another. I argue that the additional protection afforded to minority investors from listing in the U.S. derive not only from additional general rights per se, but also from a reduced ability of controlling insiders to consume private benefits (e.g., Barzuza (2005), Doidge (2004), DKLMS (2005)).

Using a sample of 496 cross-listed firms from forty countries, I find that exchange-listed firms pay significantly lower dividends, post-listing, and this finding is robust to the inclusion of firm, industry and country controls. This result is consistent with the notion that these investors are better protected under the U.S. regime. In line with my expectations I find no evidence that the ordinary shareholders of Rule 144a firms benefit from incremental protection, post-listing. Interestingly, my results suggest that the minority investors of Level 1 firms are better protected. Although inconsistent with the legal bonding hypothesis, I show that these firms consistently establish a reputation for better protection of their investors by paying out a greater proportion of their earnings as dividends. Consequently, their ability to pay lower dividends post-listing may well result from a voluntary commitment on the part of these firms to protect their investors that is credible given their reputation for fair treatment. In support of this argument I find that the firm-level governance of Level 1 firms, as measured by the number of closely held shares improves in the post-listing period. I find no such effect for Rule 144a-traded firms.

My results have also important implications for the agency models of dividends. I find support for both the outcome and substitution models of dividends. More specifically, I find that in all cross-sectional periods, and over the full sample period, dividend payouts are significantly higher in countries where minority investors enjoy greater legal protection. In addition, and in line with Liu (2002), Zhang (2005), and Hwang, Park, and Park (2004, HPP Hereafter), I document support in favour of the substitute model of dividends: governance improvements substitute for dividends as a mechanism of controlling the agency costs associated

with free cash flow. This finding is also consistent with the evidence that inter alia, improved governance helps explain why dividend payouts have been falling over time (e.g., Fama and French (2002), and DeAngelo, DeAngelo, and Skinner (2003))[16]. This of course suggests that the relation between dividend payouts and governance is non-constant and as such purely cross-sectional tests are biased towards acceptance of the outcome model of dividends. My results suggest that both are not directly competing against one another.

3.2 Data

I begin by obtaining a complete list of depositary receipts from the Bank of New York (www.adrbny.com) and cross-reference this list with data sourced from Deutsche Bank (www.adr.db.com), JP Morgan (www.adr.com) and Citibank (wwss.citissb.com/adr). From each I am able to obtain the names, listing dates, the firms' country of origin, and the type of depositary receipt, as of July 2003. I also source a list of direct listings, for which the legal requirements of cross listing are essentially the same as those for exchange-listed depositary receipts from the official website of the NYSE and NASDAQ. For firms with joint and simultaneous depositary receipt listings (Level 1/Portal Programs) I classify these firms as Level 1 programs. If a firm has multiple depositary receipt programs, with different start dates, I classify this firm according to its earliest depositary receipt program, and ignore any subsequent programs. Finally, I include on sponsored depositary receipt programs.

To be included in the final sample, (1) I only include those firms for which data relating to both variants of our dependent variable is available, and (2) exclude firms with either, missing (entirely) pre or post listing dividend payout data. This 'Narrow' sample approach is necessary to ensure that any conclusions that I make are not due to a significant change in our sample makeup around the cross-listing date. I obtain the non-cross listed sample from the country lists provided by Datastream. From each, I exclude all firms with a U.S. listing, and include only

[16] Interestingly, Ikenberry and Julio (2004) document a rebound in this trend. They show that since 2000 the proportion of U.S. firms paying cash dividends has increased and relate much of this shift to the maturity hypothesis.

those firms in our sample with data available on all our control variables. (3) Like Liu (2002), but unlike LLSV (2000), I include firms from countries with mandatory dividend requirements (Brazil, Chile, Colombia, and Greece). I exclude all financial firms.

Finally, I exclude certain observations due to probable data errors; negative net sales or revenues, negative market-to-book assets, and negative dividends paid. In common with LLSV (2000), and Liu (2002), I eliminate possible outliers in our dependent variable(s) by removing the top 1% of outliers. Due to possible errors in scaling the data with net sale or revenues, I also eliminate outliers from each of our covariates by eliminating the top and bottom 1% of observations.

After imposing these requirements, my final sample, outlined in detail in Table 3.1 is comprised of 3,418 firms from 40 countries: 496 trade in the U.S., either as depositary receipts or directly on U.S. Exchanges. The remaining 2,922 firms are non-cross-listed. I provide, the percentage that each country (i.e. number of firms) contributes to the total number of firms in each depositary receipt level, and in each non-cross-listed sample. For example, my non-cross-listed sample is dominated firms from Brazil (7.60%), Japan (23.41%) and the United Kingdom (11.02%). In contrast, 18 countries contribute less than 1% each of our non-cross-listed sample. The majority of Level 1 issues are from Hong Kong (13.25%), the United Kingdom (11.54%), Australia (5.98%), Brazil (5.56%), India (5.56%) and South Africa (5.13%). Firms from the U.K. (20.69%), France (6.90%) and Japan (6.90%) dominate the exchange-traded sample. Non-surprisingly, the vast majority of direct listings in the U.S. are Canadian firms (97.37%). Finally, India (26.00%) and Taiwan (20.00%) make up the majority of firms that trade on the Portal under Rule 144a.

I begin by reporting some summary payout measures for both cross-listed and non-cross-listed firms. The results are presented in Table 3.2. For both variants of our dependent variable (Dividends-to-earnings and Dividends-to-cashflow), I calculate mean and median payout ratios over the full sample period. I outline summary measures for all cross-listed and non-cross-listed

firms, and then further sub-divide the representative categories into firms originating from both high and low investor protection countries. Firms are characterised as either high or low investor protection firms according to their countries anti-directors right index (See LLSV (1998)).

At this point it is important that I make the distinction between payout ratios in calendar as opposed to event time. In Figures 3.1-3.12, I plot the time series behaviour of all firms in calendar time (which are averaged over the sample period and presented in Table 3.2). Consequently, any interpretations made subsequently concern the level of the divided payout, and not changes in dividend payout that results from changes in domestic investor protection. In the next section, I examine the change in dividend payout, resulting from a hypothesised change in domestic investor protection. The relationship around the event date may be very different to the relationship that holds in calendar time. Consequently, I may find support in favour of both the outcome and substitution models of dividends: the outcome model in calendar time, and the substitution model in event time. Liu (2002) provides similar arguments in her paper.

First, Level 1 firm's payout a higher percentage of their earnings as dividends than both exchange-listed and Rule 144a firms in calendar time (as opposed to event time). Second, non-cross-listed firms also pay out more dividends than both exchange-listed firms and Rule 144a firms, but pay slightly less (in terms of median payout) than Level 1 firms. These results are replicated when dividends-to-cashflow is employed as our dependent variable. Interestingly, the earlier relations are largely replicated for Level 1, Level 2/3, and Rule 144a firms from both high and low investor protection countries. The results for low investor countries are especially interesting. They show that Level 1 firms pay higher dividends than both exchange-listed and Rule 144a firms. This result may be driven by anti-directors rights measure differences within the low investor protection class or it may point to a relation between firm-level governance and dividend payout. To examine this issue further, I plot the time series behaviour of dividend-payout for cross-listed and non-cross-listed firms over the full sample period. The results are reported in Figures 3.1-3.12. In Figures 3.1 and 3.2, I outline the time-series behaviour of

dividend-payout by depositary receipt level. In the remaining figures, I classify cross-listed firms in accordance with their depositary receipt level, and their host countries level of investor protection. The Figures suggest that the findings from Table 3.2 are largely replicated in each cross-section. For example, in almost every year, dividend payouts are greater in those countries where investors are better protected. When I separate firms by depositary receipt level, I show that this relationship is unaffected. Finally, the earlier findings for Level 1 firms are replicated in Figures 3.4, 3.5, 3.6, 3.7, and 3.10. As before, Level 1 firms from high and low investor protection countries pay significantly higher dividends than their exchange-listed and Portal counterparts. Consistent with LLSV (2000), dividend payout is increasing in the level of investor protection. In addition to their findings, I show that this relationship has persisted over time.

In Tables 3.3(a) and 3.4(a), I present summary statistics for dividends-to-earnings and dividends-to-cashflow, respectively. I calculate dividend payout ratios for the non-cross-listed (column 2) and cross-listed samples (column 3) over the full sample period. I calculate mean and median (in brackets) dividend payout ratios for both the pre and post-listing periods. I replicate this analysis for each different depositary receipt level. Canadian and U.K. direct listings are included as Level 2/3 issues. The results for Level 1, Level 2/3 and Rule 144a firms are outlined in columns 5, 6, and 7 of Tables 3.3(a) and 3.4(a), respectively. I begin by concentrating on some of the results from Table 3.3(a). First, Level 1 firm's payout a higher percentage of their earnings as dividends than both exchange-listed and Rule 144a firms. This relation holds pre and post-listing. Second, non-cross-listed firms pay out a greater proportion of their earnings as dividends than both exchange-listed and Rule 144a firms, but pay slightly less than Level 1 firms. These results are replicated when dividends-to-cashflow is employed as our dependent variable (See Table 3.4(a)).

Next I examine the change in median dividend payouts for each depositary receipt level by country in Tables 3.3(b) and 3.4(b). For each variant of our dependent variable, I outline the median payout differential between cross-listed and non-cross-listed firms, pre and post-listing. I

repeat the analysis for Level 1 firms, Level 2/3 exchange-listed firms and for firms that trade under Rule144a on the Portal. The significance of the median differential is calculated using the Mann-Whitney test statistic. In addition, I present for each depositary receipt level, before-after estimates of the change in dividend payout. This is outlined in the third sub-column for each depositary receipt level.

I begin by discussing the results using dividend-to-earnings as the dependent variable. The aggregated payout ratios suggest that Level 1 firms pay slightly higher dividends, Level 2/3 firms pay lower dividends, and Rule 144a firms pay higher dividends, post-listing. I find that of the 30 countries with Level 1 listings, exactly half pay lower dividends, post-listing (15/30), 40% pay higher dividends (12/30), and 10% remain unchanged (3/30). I find that of the 28 countries with Level 2/3 issues, 57% (16/28) pay lower dividends post-listing, 11 of the 28 pay higher dividends and 1 remains unaltered. Finally, for Rule 144a firms, 10 of 19 pay higher dividends, while 9/19 pay lower dividends, post-listing. The results using dividend-to-cashflow, outlined in Table 3.3(b) mirrors those of dividend-to-earnings. For example, 14 of 28 pay lower dividends, while 13/28 pays higher dividends. The conclusions for the whole sample are the same as those outlined when I employ dividend-to-earnings as our dependent variable.

In the next section I test the agency models of dividends in a dynamic setting by, allowing investor protection to change for at least a subset of our sample i.e. for Level 2/3 cross-listed firms. I hypothesize that if cross listing in the U.S. is associated with enhanced protection for the domestic investors of Level 2/3 listed firms; I should observe a change in ordinary dividend payout.

3.3 Econometric Specification

In this section I outline the empirical methodology. I compare the change in ordinary dividend payout for cross-listed firms relative to non-cross-listed firms around the cross-listing date. This is motivated by the fact that regulatory bonding in the U.S. is unobservable to the

researcher. By examining the change in ordinary dividend payout, I seek to isolate the impact of cross listing by controlling for firm, industry and country level determinants of ordinary dividend payout. Next, I allow this effect to vary across the different listing types using a simple dummy variable specification, and use this change in dividend payments made to ordinary shareholders to make inferences about how domestic investor protection has changed, post-listing.

To estimate the effect of cross listing on the ordinary dividend payout of firms, the following regression specification is followed:

$$div_{it} = \beta_0 + X_{it}\beta_1 + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 PORTAL_{it} + \gamma_t + \alpha_i + \upsilon_{it} \quad (3.1)$$

$$div_{it} = \beta_0 + X_{it}\beta_1 + \delta_1 OTC * AD_{it} + \delta_2 EXCH * AD_{it} + \delta_3 PORTAL * AD_{it} + \gamma_t + \alpha_i + \upsilon_{it} \quad (3.2)$$

Where div_{it} is the ordinary dividend payout of firm *i* in year *t*. I employ two different measures of ordinary dividend payout. First, I employ the traditional measure of dividend payout, dividends-to-earnings. $(Div/Earn)_{it}$ is defined as ((Dividends per Share / Earnings per Share) * 100). The second measure, dividends-to-cashflow $(Div/CF)_{it}$ is defined similarly. OTC_{it}, $EXCH_{it}$ and $PORTAL_{it}$ are dummy variables that identify whether an individual firm *i* is cross-listed in the United States at time t either as a Level 1, Level 2/3 depositary receipt, or under SEC Rule 144a on Portal. $\delta_1, \delta_2, \delta_3$ are parameters to be estimated. In the two-way fixed effects specification, these parameters estimate the 'causal' effect of cross listing on ordinary dividend payout within firms that change from not listing to listing i.e. the within estimates. X_{it} is a vector of time-varying firm and time-invariant country level variables (rather than include country fixed effects). γ_t are time fixed effects, and υ_{it} is a standard idiosyncratic disturbance term. In Equation 3.2, I interact each depositary receipt dummy variable with the anti-director rights measure provided by LLSV (1998). In this specification, AD is 1 if the firm originates in a country where investors are poorly protected (i.e. Anti Directors Rights <3). This specification allows me to measure the governance effects of cross listing for firms from countries where the protection afforded to investors is poor. The sign

of the coefficients $\delta_1, \delta_2, \delta_3$ and the significance of such are ambiguous. The coefficients on OTC, Portal should be insignificant in line with the predictions of the legal bonding hypothesis. However, the sign of the coefficient for exchange-listed firms is less clear. The reasoning is as follows: given the considerable underdevelopment of legal institutions in some countries (See LLSV (1998)), the prevailing wisdom suggests that the incremental investor protections from listing in the U.S. should thus on theoretical grounds be greater for these firms. On the other hand, DKS (2004a) conclude that country and firm governance are actually complementary to one another. As such, voluntary firm governance improvements are more effective in countries where country governance is already effective. Mitton (2004) using a sample of emerging market firms finds additional support in favour of this proposition. Thus, the incremental governance benefits of listing in the U.S. for 'emerging market' firms may not be as effective due to poor governance at home[17]. α_i is unobserved firm level heterogeneity. I test whether these effects should be treated as fixed or random by employing the standard Hausman (1978) test. The results (along with the Mundlak (1978) test) suggest that both the X_{it} and α_i are correlated i.e. $Cov(X_{it}\alpha_i) \neq 0$. Consequently, we estimate a two-way fixed effects model outlined in Equations 3.1 and 3.2.

3.4 Standard Error Diagnostics

Next I test for the presence of a firm and time effect in the data. To do so, I employ the 'intuitive' approach of Petersen (2005). The Petersen (2005) approach is as follows. Lets begin by assuming that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \varsigma_i + \gamma_t + \eta_{it}$, and $X_{it} = \pi_i + \mu_t + \nu_{it}$ i.e. with a firm $(\varsigma_i + \pi_i)$ and time effect $(\gamma_t + \mu_t)$ in both the disturbance term and the independent variables. This test procedure is also adopted in Chapters 4-7.

[17] In a similar vein, KKZ (2005) document that firms domiciled in a low disclosure regime experience a smaller net benefit to listing on an organized exchange (relative to firms domiciled in high disclosure regimes). The authors do not explore empirically the reasons for such, but they do suggest a number of possible explanations. In connection, Khurana, Pereira, and Xiumin (2004) outline that developed market firms exhibit greater external financed firm growth, relative to emerging market firms, post-listing.

The approach is as follows. First, I test for the presence of a firm effect i.e. ς_i & π_t. For each specification, I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering), (2) White-Huber (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, but not within-group clustering, and finally (3) Rogers (1993) standard errors clustered by firm. White-Huber (1980) standard errors serve as my benchmark in testing for arbitrary within group correlation. In the remaining columns of each table, I compute the ratio of the Roger's (1993) (clustered by firm) to ordinary least squares standard errors $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, and the ratio of Roger's (1993) (clustered by firm) to White-Huber (1980) standard errors $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$. Second, I test for the presence of a time effect. I present standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering), (2) White-Huber (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by time (year). In the remaining columns of each table, I compute the ratio of the Rogers (1993) (clustered by year) to ordinary least squares standard errors $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, and the ratio of Rogers (1993) (clustered by year) to White-Huber (1980) standard errors $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$.

In a final set of tests I present Rogers (1993) standard errors clustered by firm. In addition, I include time fixed effects to absorb the time effect. I compare these standard errors to (1) ordinary least squares (with no heteroscedastic or within group clustering), (2) White-Huber (1980) standard errors i.e. heteroscedastic consistent standard errors. Finally, in the remaining columns of each table, I compute the ratio of the Rogers (1993) (clustered by firm, with time fixed effects) to

ordinary least squares standard errors $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, and the ratio of Rogers (1993) (clustered by firm) to White (1980) standard errors $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$.

The decision rules are as follows. First, if the Rogers (1993) standard errors clustered by firm (time) are dramatically different than the White-Huber (1980) standard errors, then there is a significant firm (time) effect in the data. It is worth noting that in the presence of both firm and time effects, Rogers (1993) standard errors are robust.

I present standard error estimates using each estimator for the following independent variables: dummy variables for Level 1 [OTC], Level 2/3 [EXCH], and SEC Rule 144a [PORTAL] firms. I include the following firm level controls; market-to-book of assets [MBA], profitability [ROE], size [Log of Total Assets], debt [Debt], free cash flow [FCF], and a dummy for firms that pay an ADR dividend [ADR Dividend]. Dividends-to-earnings is employed as the dependent variable. I report similar findings when I employ dividends-to-cashflow as the dependent variable. I begin by testing for a firm effect. The results are presented in Table 3.5.

The results indicate a sizable firm effect in the data. I document significantly smaller standard errors for both ordinary least squares and heteroscedastic-adjusted i.e. White-Huber (1980) standard errors. The sizable differences between the Roger's (1993) and White-Huber (1980) standard errors indicate the presence of a sizable firm effect. For example, Rogers (1993) standard errors are double the White-Huber (1980) standard errors for [EXCH], [Debt], [FCF]. For the remaining independent variables, Rogers (1993) standard errors are also considerably larger.

I test for the presence of a time effect in Table 3.6. I estimate Rogers (1993) standard errors clustered by time (year), and compare these standard errors to ordinary least squares, and ordinary least squares with a heteroscedastic correction i.e. White-Huber (1980) standard errors. The ratio of Rogers (1993) to ordinary least squares, and White-Huber (1980) are outlined in the remaining columns i.e. $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$.

By and large, the results from Table 3.6 do not lend support to the presence of a significant time effect in the data. For example, except for the [ROE] standard errors, there appears to be little variation in the estimated standard errors across the different estimators. Specifically, the ratio of Rogers (1993) to White-Huber (1980) standard errors $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$ is unity or close to unity for the remaining independent variables.

I outline in Table 3.7, Rogers (1993) standard errors clustered by firm. I include time fixed effects to account for the contemporaneous correlation. I compare these standard errors to ordinary least squares and White-Huber (1980) standard errors.

The results from Table 3.7 are in line with expectations (i.e. the results are common to corporate finance panel data sets); both ordinary least squares and White-Huber (1980) standard errors are considerably smaller than the Rogers (1993) standard errors. In addition, tests adopted from Baum (2001), Drukker (2003) and Wiggins (2003) suggest that the idiosyncratic errors are not independent and identically distributed. Consequently in all specifications, my reported standard errors are robust to both heteroscedasticity and arbitrary within-group correlation using Rogers (1993) standard errors clustered by firm.

In my second empirical specification, I use a Tobit model to control for data censoring given that dividend payout is left censored at zero. The results of the Hausman (1978) test suggest that the individual specific effects are correlated with the regressors. Unlike the fixed effects model, it is impossible within the Tobit specification to eliminate the α_i by differencing them out. Furthermore, the unobserved effects cannot be conditioned out of maximum likelihood. Consequently, there exists no fixed effects Tobit model. In order to overcome this I adopt the approach of Wooldridge (2002). He shows that one can use a general Chamberlain (1984) style model by specifying the unobserved heterogeneity as a function of firm level means of included regressors, as specified by Mundlak (1978) so: $\alpha_i = \overline{X_i}\zeta + a_i$, where $\overline{X_i} = \frac{1}{T}\sum_{s=1}^{T} X_{it}$. The

means of time-invariant regressors are excluded. The firm level means are substituted into equations (3.1) and (3.2) yielding the following:

$$div_{it} = \beta_0 + X_{it}\beta_1 + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 PORTAL_{it} + \overline{X_i}\zeta + \upsilon_{it} \quad (3.3)$$

$$div_{it} = \beta_0 + X_{it}\beta_1 + \delta_1 OTC * AD_{it} + \delta_2 EXCH * AD_{it} + \delta_3 PORTAL * AD_{it} + \overline{X_i}\zeta + \upsilon_{it} \quad (3.4)$$

Equations 3.3 and 3.4 are estimated using Pooled Tobit (e.g., Wooldridge (2002)). In all specifications the regression standard errors are robust to non-normality, heteroscedasticity and arbitrary within-group correlation (e.g., Hardin (2005)). I present results for the pooled Tobit model in Tables 3.8-3.10 and use the fixed effects estimates (unreported) to validate the results I report for the pooled Tobit model.

The vector of firm level controls, X_{it} includes the following: (1) firms investment opportunity set (market to book of assets) (e.g., Rozeff (1982)) (2) profitability of assets in place (ROE). Return on Equity is calculated as earnings per share divided by book growth per share (3) firm size (Total Assets (Log)) (4) free cash flow (FCF), (e.g., Jensen (1986)) (5) operating and financial leverage (Cost of Goods Sold (COGS) and Debt), (e.g., Fazzari, Hubbard, and Petersen (1988)) and (6) earnings volatility (EPS) (e.g., Fama and French (2002a)) is calculated as the variance of the previous three years earnings per share. To conserve space, in Tables 3.10-3.12 I present results using only MBA, size and profitability as firm-level controls. The results are not affected when I include the remaining firm-level control variables.

I outline summary statistics for all of our dependent and independent variables by listing type in Tables 3.8-3.9. Table 3.8 presents mean and median summary statistics for our full sample, all cross-listed, and non-cross-listed firms, respectively. Finally, in the last column of Table 3.8, I test for any significant mean and median difference between the two samples. First, I find that non-cross-listed firms tend to pay higher dividends than cross-listed firms over the entire sample period. Both the mean and median difference (for both dividends-to-earnings and

dividends-to-cashflow) is highly statistically significant. Furthermore, and in line with other studies, cross-listed firms tend to be larger (measured in terms of total assets), more profitable (measured by return on equity), and have greater growth opportunities (as measured by the market-to-book of assets) than non-cross-listed firms (See CKS (2003)). Civil law firms (i.e. firms with low country levels of governance) have a high tendency to cross-list, but not exchange cross-list. For example, the majority of Civil law firms trade over-the-counter as Level 1 pink-sheet issues. This is in line with KKZ (2005).

I present in Table 3.9 summary statistics for each different depositary receipt level. In the remaining columns of Table 3.9, I present both t and z-statistics to test for the significance of the mean and median difference, respectively between each set of cross-listed firms. Interestingly, both Level 1 and Rule 144a firms pay out more earnings and cashflow as dividends than Exchange traded firms. Exchange-listed firms tend to be larger, more profitable, and have greater growth opportunities than Rule 144a firms. The median exchange-listed firm also tends to be less indebted. Similar differences exist between exchange-listed and Level 1 firms, although there exists no significant differences in profitability and debt. When I compare both the non-exchange listed firms, I find that the median Level 1 firm tends be have greater growth opportunities, are more profitable, and are less indebted. Both sets of firms tend to be of similar size. Interestingly, Level 1 firms tend to have the highest propensity to pay ADR dividends. Finally, in our representative sample, there appears to be a greater tendency on the part of both common and civil law firms to trade as Level 1 firms i.e. the mean value of both the Common and Civil Law dummy variables are significantly higher for firms that list as Level 1 issues relative to the other ADR levels. The results for common law firms are not necessarily at odds with what I would have expected. For example, KKZ (2005) suggest that given the costs associated with exchange cross listing, high disclosure/common law firms are more likely to exchange cross-list. However, when firms are ranked in terms of their legal origin, English common law firms tend to exchange cross-list. This is exactly what I document.

In Table 3.16, I outline correlation coefficients and deal explicitly with concerns relating to multicollinearity by computing variance inflation factors. The correlation coefficients are by and large of the correct sign. For example, $(\text{Div}/\text{Earn})_{it}$ is positively related to profitability (ROE) and size, and negatively related to both volatility of earnings and growth opportunities (MBA). Surprisingly, both $(\text{Div}/\text{Earn})_{it}$ and $(\text{Div}/\text{CF})_{it}$ are negatively related to free cash flow, although neither is significant. The small variance inflation factors suggest that multicollinearity is not a significant problem in our data set. I employ two country dummies to control for variations in dividend payout across legal regimes: a simple 0/1 dummy for legal origin; 1 if the country employs common law, and 0 otherwise (civil law). I also account for cross-country differences in investor protection; I classify those firms as firms from high investor protection countries if their anti-director score is equal to or greater than the median value of 3 (See LLSV (1998)). I control for payout differences across industries by classifying each firm according to their primary standard industry classification code. Hence, I form seven industry dummies; (1) agriculture, fishing, and forestry (2) mining and construction (3) manufacturing (4) transportation, communications, electric, gas and sanitary services (5) wholesale and retail trade (6) services and (7) public administration. I exclude all finance, insurance, and real estate firms (SIC beginning with 6).

I repeat the analysis by including American depositary receipt dividends as a covariate in each specification. ADR dividends are ordinary share dividends paid to the holders of ADRs, converted to U.S. Dollars at the prevailing spot exchange rate. I have no prior beliefs on the sign of the coefficient. For example, cross-listed firms with a history of paying dividends may also be those to pay a dividend to their ADR shareholders. Furthermore, I find that the inclusion of ADR dividends does not alter my main conclusions. All ADR dividend data is sourced from The Bank of New York (www.adrbny.com). All variables employed in our empirical analysis are defined in Table 3.15.

3.5 Results

In Tables 3.10-3.13, I present the results estimating the effect of cross listing on the ordinary dividend payout of cross-listed firms. In Tables 3.10 and 3.12, I present the pooled Tobit results corresponding to Equation 3.3 for Dividends-to-Earnings and Dividends-to-Cashflow, respectively. In Table 3.11 and 3.13, I employ interaction variables to assess the impact of cross listing on the dividend payout of firms originating from countries where minority investors are poorly protected. In both tables, I outline regression results with the cross-listing dummies only (Column 1), the cross-listing dummies with firm level controls (2), and in (3) and (4) I include the ADR dummies and the firm level controls with country level governance variables. In column (3), I employ the LLSV (1998) anti-director rights measure, and in column (4) I include a dummy variable to signal if a firm is domiciled in a common law jurisdiction. Both variables are expected to impact positively on dividend payout (e.g., LLSV (2000)). These findings are robust to the inclusion of dividends to cashflow as our dependent variable. In addition to reporting the coefficient estimates, I also report the marginal effects at the means of each variable. For the dummy variables the marginal effects are calculated as the discrete change in F(x) as the dummy variable x changes from 0 to 1.

The first major result from Table 3.10 is that exchange-listed firms pay significantly lower dividends, post-listing. This finding is robust to the inclusion of firm and country controls (and industry controls in the case of the pooled Tobit model). This finding is important given that those firms that cross-list are very often those with sizable growth opportunities, proxied here by market to book of assets. I show that even after including this control, exchange-listed firms pay significantly lower dividends, post-listing. Thus this result is not driven by the sizable investment opportunity set of cross-listed firms. This result is in line with the results reported by Mitton (2004) for a sample of emerging market cross-listed firms and suggests that firms substitute dividends for improved firm-level governance. This result is also consistent with the findings of Liu (2002), who outline how functional convergence measures initiated are associated with lower dividend payouts.

This finding for Level 2/3 listed firms suggests that rather than compete with one another, the outcome and substitute models of dividends are not mutually exclusive. Rather, this result suggests a role for both in explaining the relationship between investor protection and firm dividend payout. Like Liu (2002), my results suggest that cross-sectional tests are biased towards an acceptance of the outcome model of dividends. I find that the outcome model dominates in calendar time. In contrast, I find that in event time firms substitute dividends for enhanced governance.

In all specifications, the country and firm level controls are highly significant and have the expected sign. For example, larger and profitable firms pay higher dividends, while firms with sizable growth opportunities retain a sizable amount of earnings, rather than pay dividends. In line with my expectations, firms from common law countries with efficient legal and institutional frameworks pay significantly higher dividends (See LLSV (2000)). Finally, I also document that firms that pay an ADR dividend also pay larger dividends suggesting a possible clientele effect.

In Table 3.11, I examine the impact of cross listing on dividend policy for firms from countries with a poor record for protecting minority investors. Comparing Tables 3.10 and 3.11 the results suggest that although the magnitudes of the Tobit estimates are broadly similar, their significance is not as strong when compared to the results in Table 3.10. This suggests that the benefits to listing may not be as great for firms from poor-investor protection countries, consistent with the notion that firm and country governance improvements are in fact complementary to one another.

The results for Rule 144a firms are consistent with theory. The results from Tables 3.10-3.11 suggest that cross listing in the U.S. confers no additional protection benefits for the ordinary shareholders of these firms. In almost all specifications Rule 144a firms do not significantly change the amount that they pay to their ordinary shareholders. The results for Level 1 firms are very interesting. In all regression specifications these firms pay significantly lower dividends, post-listing, a result consistent with the notion that like exchange-listed firms, these firms substitute dividends for enhanced governance. However, this result warrants further

discussion. Level 1 firms are exempt from becoming 'reporting' companies under the terms of their depositary receipt agreement. Consequently, our finding that these firms pay sizable and significantly lower dividends post-listing is inconsistent with any of the predictions of the legal bonding hypothesis. In the next sub-section I attempt to shed more light on this finding.

I report in Tables 3.12 and 3.13 our regression results using Dividends-to-Cashflow as our dependent variable. The results are largely in line with those outlined when I employ Dividends-to-Earnings.

3.6 Firm-Level Governance

The findings for Level 1 firms may be consistent with the notion of reputational bonding: both KS (2004) and Siegel (2005) document that even absent effective legal bonding, a firm can still voluntarily bond themselves to fair treatment of their minority investors[18]. In addition, the evidence from Section 3.2 suggests that Level 1 firms, from both strong and weak investor protection countries, establish a strong reputation for the protection of investors by paying a greater proportion of their earnings as dividends, relative to both exchange-listed and Portal firms, and this relation holds in the pre and post-listing periods. Consequently, the ability of Level 1 issues to pay lower dividends post-listing may result from voluntary measures initiated by them post-listing e.g. firm level governance improvements (e.g., DK (2005)) and/or as a direct result of their reputation for fair treatment of minority shareholders. In fact Pinegar and Ravichandran (2004, p.8) in their study of Rule 144a/Reg S firms suggest as much when they conclude, "the reputation of the issuer may be as important as ownership concentration or the legal environment in protecting minority shareholders rights". The valuation premiums that Level 1 firms generate post-listing are also consistent with the notion that some of these firms

[18] Reputational bonding refers to bonding as a result of increased monitoring from reputational intermediaries e.g. analysts, underwriters, and auditors. A large literature suggests that it is only exchange-traded firms that benefit from reputational bonding after listing in the U.S. (e.g. LLM (2003)). Consequently, firm level improvements for non-exchange traded firms are more likely to be driven by voluntary initiatives on the part of the firm.

benefit from reputational bonding, post-listing (e.g., DTT (2005))[19]. Consistent with this argument, Aggarwal, Klapper, and Wysocki (2005, p. 2942) conclude in their study of U.S. Institutional Investor foreign portfolio allocations "U.S. funds allocate a larger proportion of their assets to firms with listed ADRs and unlisted ADRs that have better accounting and disclosure policies. Unlisted ADR firms have higher allocations only when they also adopt high quality accounting disclosures".

To examine whether non-exchange listed firms (Level 1 and Rule 144a) voluntarily commit to bond themselves to fair treatment of their minority shareholders through improved firm-level governance, I proxy for firm-level governance using the number of closely held shares and examine its behaviour around a cross-listing. A fall in the number of closely held shares implies an improvement in firm-level governance. Numerous papers have employed closely held shares to proxy for firm-level governance (e.g. HW (2003)). From my original sample of 496 cross-listed firms, I am able to source data on Closely Held Shares for 214 Level 1 firms, 137 Level 2/3 (including ordinary lists) and 49 Rule 144a Portal firms from Worldscope. The results are outlined in Table 3.14.

In Table 3.14, I outline for each depositary receipt level, the median value of closely held shares in the two years prior to listing, and on the list year. In the subsequent rows, I calculate the change in closely held shares between the five year post-listing **(1, 2, 3, 4, 5)** period and the two years pre-listing **(-2, -1)**. For example, **Δ(3,-1)** refers to the change in closely held shares one year prior to listing to three years post-listing. In the case of Level 1 firms this change is negative, implying an improvement in firm-level governance. In the remaining rows of Table 3.14, I outline the median value of closely held shares in the pre and post-listing period. The difference is outlined in the final row.

I begin by discussing the results for Level 1 firms. My findings suggest that non-exchange listed Level 1 firms improve their firm level governance in the post-listing period. The

[19] I return to this issue in much greater detail in Chapters 6 and 7.

number of shares closely held is lower in almost every period post-listing, relative to the two years pre-listing. For example, the number of shares closely held by Level 1 firms is almost 33% lower three years post-listing relative to the year prior to listing. I find the opposite for Rule 144a firms; in every period post-listing, I find that the level of closely held shares is greater than in the pre-listing period (column 4). Interestingly, the results for both Level 1 and Rule 144a firms are consistent with our findings reported in section 3.2: Level 1 firms consistently pay higher dividends relative to both Level 2/3 exchange-listed firms, and Rule 144a firms. As such these firms establish a reputation for fair treatment of their investors by paying out a sizable proportion of their earnings as dividends. Interestingly, the results for Level 2/3 exchange listed firms are mixed.

3.7 Concluding Remarks

The ability of firms to finance their investment opportunity set externally is largely contingent on the effectiveness of their domestic legal system to protect the interests of their minority shareholders. In a country characterised by poor legal protection of investors, firms are very often constrained in their attempts to fund their growth opportunities. To rectify this, a number of firms have over the last decade sought to substitute their home level governance for the superior governance of the U.S. by listing on an organised U.S. exchange. RW (2002) document that post-listing, exchange-listed ADRs, capitally constrained at home pre-listing, were no longer post-listing. This suggests that the domestic investors of these investors are better protected post-listing. I test this proposition.

In order to do so I employ the agency models of dividends introduced by LLSV (2000). I examine the ordinary dividend payout of cross-listed firms around a cross listing in the U.S. The choice of variable is motivated by the fact that (1) dividend payout is increasing in the level of investor protection and, consequently (2) changes in external investor protection are associated with changes in firm dividend payout, controlling for firm, industry and country level determinants

of dividend payout. I hypothesis that if the investors of exchange-listed firms are better protected, they are more likely to accept lower dividends. I argue that ordinary shareholders are compensated for this reduced dividend payment with enhanced protection.

Using a sample of 496 cross-listed firms from forty countries, I show that exchange-listed firms pay significantly lower dividends post-listing, and this finding is robust to the inclusion of firm, industry and country controls. This result is consistent with the notion that these investors are better protected under the U.S. regime. In line with my expectations I find no evidence that the ordinary shareholders of Rule 144a firms benefit from incremental protection, post-listing. Interestingly, my results suggest that the minority investors of Level 1 firms are better protected. Although inconsistent with the legal bonding hypothesis, I show that these firms consistently establish a reputation for better protection of their investors by paying out a greater proportion of their earnings as dividends. Consequently, their ability to pay lower dividends post-list may well result from a voluntary commitment on the part of these firm to protect their investors that is credible given their reputation for fair treatment. I present evidence to suggest that these firms improve their firm level governance post-listing. The payment of substantially higher dividends by these firms suggests a commitment on their part to bond to fair treatment of their ordinary shareholders.

Finally, my findings outline the importance of testing the agency models of dividends both cross-sectionally, and across time. Like Liu (2002), I find empirical support for both models; dividend payouts are larger in countries where investors are better protected. In addition I show that this relationship has persisted over time. Second, and consistent with the findings of Liu (2002), I show that governance reforms are associated with lower firm dividend payouts. Liu's (2002) findings suggest that country functional convergence reforms (as opposed to legal reforms) substitute for dividends in controlling the agency costs associated with free cash flow. My findings suggest that governance reforms initiated at the level of the firm, and not the country, are effective

reforms. This suggests that cross listing in the U.S. does enhance the protection of the domestic investors of those firms that list.

Table 3.1: Sample Description

Country	NCL	%	Level 1	%	Level 2/3	%	Rule 144a	%	Ordinary	%	Total CL	Sample
Argentina	17	0.58	0	0.00	5	2.87	0	0.00	0	0.00	5	22
Australia	86	2.94	14	5.98	8	4.60	1	2.00	0	0.00	23	109
Austria	23	0.79	9	3.85	0	0.00	0	0.00	0	0.00	9	32
Belgium	22	0.75	2	0.85	1	0.57	0	0.00	0	0.00	3	25
Brazil	222	7.60	13	5.56	7	4.02	1	2.00	0	0.00	21	243
Canada	112	3.83	0	0.00	0	0.00	0	0.00	37	97.37	37	149
Chile	25	0.86	0	0.00	4	2.30	0	0.00	0	0.00	4	29
China	22	0.75	3	1.28	5	2.87	0	0.00	0	0.00	8	30
Colombia	25	0.86	0	0.00	0	0.00	1	2.00	0	0.00	1	26
Denmark	33	1.13	0	0.00	1	0.57	0	0.00	0	0.00	1	34
Finland	31	1.06	4	1.71	3	1.72	1	2.00	0	0.00	8	39
France	134	4.59	12	5.13	12	6.90	0	0.00	0	0.00	24	158
Germany	129	4.41	8	3.42	7	4.02	2	4.00	0	0.00	17	146
Greece	17	0.58	1	0.43	0	0.00	0	0.00	0	0.00	1	18
Hong Kong	65	2.22	31	13.25	3	1.72	2	4.00	0	0.00	36	101
India	46	1.57	13	5.56	6	3.45	13	26.00	0	0.00	32	78
Ireland	20	0.68	2	0.85	0	0.00	0	0.00	0	0.00	2	22
Israel	66	2.26	0	0.00	0	0.00	0	0.00	0	0.00	0	66
Italy	51	1.75	6	2.56	8	4.60	1	2.00	0	0.00	15	66
Japan	684	23.41	15	6.41	12	6.90	1	2.00	0	0.00	28	712
Malaysia	66	2.26	4	1.71	0	0.00	0	0.00	0	0.00	4	70
Mexico	33	1.13	4	1.71	11	6.32	1	2.00	0	0.00	16	49
Netherlands	19	0.65	5	2.14	8	4.60	0	0.00	0	0.00	13	32
Norway	22	0.75	4	1.71	3	1.72	1	2.00	0	0.00	8	30
New Zealand	34	1.16	1	0.43	1	0.57	0	0.00	0	0.00	2	36
Peru	56	1.92	0	0.00	1	0.57	2	4.00	0	0.00	3	59
Phillipines	22	0.75	4	1.71	0	0.00	1	2.00	0	0.00	5	27
Poland	63	2.16	3	1.28	0	0.00	0	0.00	0	0.00	3	66
Portugal	29	0.99	1	0.43	2	1.15	1	2.00	0	0.00	4	33
Russia	0	0.00	0	0.00	1	0.57	0	0.00	0	0.00	1	1
South Africa	23	0.79	12	5.13	5	2.87	2	4.00	0	0.00	19	42
Singapore	66	2.26	10	4.27	0	0.00	1	2.00	0	0.00	11	77
South Korea	44	1.51	5	2.14	5	2.87	4	8.00	0	0.00	14	58
Spain	83	2.84	1	0.43	3	1.72	1	2.00	0	0.00	5	88
Sweden	28	0.96	2	0.85	7	4.02	1	2.00	0	0.00	10	38
Switzerland	7	0.24	2	0.85	4	2.30	2	4.00	0	0.00	8	15

Country	NCL	%	Level 1	%	Level 2/3	%	Rule 144a	%	Ordinary	%	Total CL	Sample
Taiwan	27	0.92	8	3.42	5	2.87	10	20.00	0	0.00	23	50
Thailand	28	0.96	8	3.42	0	0.00	0	0.00	0	0.00	8	36
Turkey	120	4.11	0	0.00	0	0.00	0	0.00	0	0.00	0	120
UK	322	11.02	27	11.54	36	20.69	0	0.00	1	2.63	64	386
TOTAL	**2,922**	**100%**	**234**	**100%**	**174**	**100%**	**50**	**100%**	**38**	**100%**	**496**	**3,418**

In this table I outline the final sample by country and cross-listing level. N (NCL) is the number of firms by country not cross-listed in the United States. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a ADRs trade on PORTAL; Level 1 ADRs trade over-the-counter as pink sheet issues, and Level 2/3 trade on the NYSE or NASDAQ. Ordinary Shares are shares that list directly in the United States

Table 3.2: Dividend Payout Levels by ADR Classification (Mean [Median])

	Domestic	Level 1	Level 2/3	Rule 144a
Dividends-to-Earnings				
Full Sample	38.00	35.92	32.20	34.64
	[30.29]	[32.98]	[25.31]	[27.56]
Low Anti-Director	35.55	31.73	32.89	33.48
	[29.84]	[30.94]	[31.35]	[18.25]
High Anti-Director	39.05	35.92	31.61	32.17
	[30.53]	[32.85]	[22.56]	[23.62]
Dividends-to-Cashflow				
Full Sample	20.42	20.22	16.14	17.69
	[14.21]	[18.34]	[11.89]	[13.00]
Low Anti-Director	16.46	14.95	13.88	8.28
	[11.69]	[13.13]	[12.22]	[5.46]
High Anti-Director	21.66	20.84	16.42	18.54
	[14.93]	[18.23]	[11.31]	[13.90]
Significance Tests [High vs. Low]				
Dividends-to-Earnings				
Mean	-3.23***	-2.54**	0.42	0.022
Median	-6.93***	-2.22**	2.73***	-0.554
Dividends-to-Cashflow				
Mean	-15.88***	-8.89***	-4.61***	-3.87***
Median	-16.26***	-6.94***	-0.765	-4.43***

In this table I report mean and median dividend payout levels for non-cross-listed firms and cross-listed firms over the full sample period. Dividends-to-cashflow and dividends-to-earnings are employed as our payout proxies. Both are defined in the appendix. Dividend payouts for all cross-listed firms are calculated over the full sample period for each firm, which includes both the pre and post-listing period. For both cross-listed and non-cross-listed firms I report both t and Z statistics for the mean and median difference between high and low investor protection countries, respectively. *, **, *** represents significance at the 10, 5, and 1% level, respectively.

Table 3.3(a): Dividend-to-Earnings for cross-listed and non cross-listed firms

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
Argentina	17.23	61.10	66.96	58.54	-	-	66.96	58.54	-	-
	(0.00)	(71.48)	(83.19)	(69.53)	-	-	(83.19)	(69.53)	-	-
Australia	66.43	50.20	47.26	52.29	53.35	54.72	43.19	47.43	14.22	65.91
	(66.12)	(53.33)	(46.36)	(58.44)	(53.29)	(60.70)	(39.36)	(52.94)	(5.88)	(56.75)
Austria	40.06	39.93	41.41	38.35	41.41	38.35	-	-	-	-
	(37.07)	(31.92)	(31.95)	(30.72)	(31.95)	(30.72)	-	-	-	-
Belgium	37.35	41.08	38.88	47.57	38.68	45.65	39.12	60.97	-	-
	(31.23)	(38.85)	(34.53)	(45.78)	(33.64)	(44.93)	(37.95)	(60.97)	-	-
Brazil	23.84	30.36	28.86	31.53	30.29	31.24	26.31	29.34	-	14.53
	(18.18)	(26.76)	(24.32)	(28.06)	(25.35)	(26.91)	(22.90)	(34.59)	-	(0.00)
Canada	24.31	17.97	23.49	13.24	-	-	23.49	13.24	-	-
	(18.46)	(8.98)	(14.53)	(0.00)	-	-	(14.53)	(0.00)	-	-
Chile	48.19	48.76	61.97	45.15	-	-	61.97	45.15	-	-
	(41.65)	(48.38)	(58.96)	(44.88)	-	-	(58.96)	(44.88)	-	-
China	34.81	27.70	13.04	34.50	30.97	26.17	0.00	40.40	-	-
	(38.08)	(19.00)	(0.00)	(28.57)	(22.88)	(0.00)	(0.00)	(32.69)	-	-
Colombia	41.29	49.72	0.00	59.66	-	-	-	-	0.00	59.66
	(38.46)	(68.53)	(0.00)	(71.56)	-	-	-	-	(0.00)	(71.56)
Denmark	24.38	19.04	22.60	18.87	-	-	22.60	18.87	-	-
	(19.96)	(16.95)	(22.60)	(16.87)	-	-	(22.60)	(16.87)	-	-
Finland	36.64	35.71	31.01	42.56	33.43	42.69	27.27	35.94	27.52	51.49
	(34.53)	(32.79)	(28.57)	(39.65)	(30.68)	(42.91)	(27.25)	(32.39)	(22.22)	(38.75)
France	34.18	27.31	26.77	27.95	29.72	34.12	22.91	16.43	-	-
	(28.67)	(29.46)	(28.19)	(32.45)	(30.43)	(36.31)	(24.89)	(14.11)	-	-
Germany	44.76	36.33	37.87	33.75	38.51	35.35	43.22	33.41	1.72	28.76
	(44.08)	(37.02)	(38.24)	(32.16)	(37.48)	(32.63)	(40.38)	(31.26)	(0.00)	(33.43)
Greece	53.07	33.65	33.65	-	33.65	-	-	-	-	-
	(49.11)	(29.23)	(29.23)	-	(29.23)	-	-	-	-	-
Hong Kong	40.56	40.65	45.12	36.87	47.61	38.30	28.48	28.92	10.13	2.91
	(40.24)	(41.13)	(46.34)	(34.78)	(48.00)	(36.38)	(21.97)	(17.61)	(0.00)	(0.00)
India	32.07	26.40	24.61	27.13	28.86	27.24	14.17	16.23	30.07	28.73
	(26.35)	(22.83)	(21.40)	(23.36)	(26.89)	(25.46)	(13.63)	(9.04)	(30.46)	(22.83)
Ireland	30.34	12.94	11.93	15.07	11.93	15.07	-	-	-	-
	(26.32)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-	-	-	-
Israel	24.22	-	-	-	-	-	-	-	-	-
	(14.13)	-	-	-	-	-	-	-	-	-
Italy	38.21	35.22	29.97	38.84	20.14	40.14	38.47	41.13	15.57	9.84
	(34.84)	(33.31)	(27.88)	(33.89)	(0.00)	(32.39)	(45.12)	(36.17)	(13.95)	(10.24)
Japan	33.52	31.13	31.92	30.08	31.56	35.15	31.66	24.22	45.11	15.68

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
	(27.47)	(24.87)	(26.82)	(22.59)	(26.22)	(28.40)	(27.66)	(16.54)	(39.21)	(14.52)
Malaysia	36.73	35.92	36.47	34.54	36.47	34.54	-	-	-	-
	(30.98)	(27.42)	(28.88)	(23.18)	(28.88)	(23.18)	-	-	-	-
Mexico	19.21	27.53	27.97	27.24	40.42	40.61	23.20	20.83	31.37	41.31
	(14.48)	(20.91)	(20.91)	(20.70)	(29.02)	(50.25)	(15.03)	(18.75)	(27.69)	(24.13)
Netherlands	35.43	27.69	26.05	29.61	30.72	32.67	23.05	27.79	-	-
	(34.48)	(32.22)	(31.61)	(32.79)	(33.95)	(31.98)	(31.13)	(33.00)	-	-
Norway	22.23	56.06	48.77	61.22	55.34	62.16	-	58.60	39.38	60.79
	(18.86)	(50.38)	(40.62)	(55.44)	(52.08)	(54.34)	-	(69.79)	(33.93)	(51.72)
New Zealand	48.51	60.83	73.02	31.57	0.00	0.00	97.37	78.92	-	-
	(48.00)	(76.36)	(84.41)	(0.00)	(0.00)	(0.00)	(93.68)	(78.92)	-	-
Peru	19.56	41.52	39.32	43.20	-	-	49.66	35.15	32.86	47.59
	(0.00)	(44.75)	(32.14)	(45.07)	-	-	(38.53)	(44.75)	(22.21)	(58.42)
Philippines	13.74	13.74	8.86	16.47	9.02	16.18	-	-	5.95	17.18
	(0.00)	(3.46)	(0.00)	(6.61)	(0.00)	(0.00)	-	-	(5.95)	(7.89)
Poland	13.90	4.81	2.96	5.86	2.96	5.86	-	-	-	-
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-	-	-	-
Portugal	35.24	39.38	28.27	46.78	18.43	21.37	47.96	47.47	42.76	56.59
	(32.97)	(47.56)	(26.97)	(50.20)	(18.32)	(13.92)	(49.01)	(47.85)	(42.76)	(55.97)
Russia	-	23.07	0.00	28.83	-	-	0.00	28.83	-	-
	-	(3.54)	(0.00)	(13.16)	-	-	(0.00)	(13.16)	-	-
South Africa	43.61	37.30	40.36	32.51	33.43	25.91	51.94	47.06	27.77	39.87
	(38.68)	(37.06)	(38.99)	(34.45)	(35.42)	(32.69)	(47.00)	(34.95)	(21.12)	(37.63)
Singapore	42.36	36.54	41.53	32.59	41.49	33.79	-	-	41.82	24.83
	(37.90)	(31.04)	(36.69)	(30.15)	(36.96)	(30.92)	-	-	(26.17)	(22.78)
South Korea	28.95	29.67	37.72	23.14	41.48	18.65	30.61	18.83	37.70	34.09
	(24.03)	(22.61)	(36.52)	(12.99)	(33.68)	(10.25)	(30.91)	(16.27)	(42.30)	(23.47)
Spain	36.35	43.21	53.37	29.88	27.34	5.34	61.58	34.81	37.96	32.19
	(33.58)	(43.27)	(49.56)	(41.85)	(14.96)	(0.00)	(52.57)	(43.24)	(37.16)	(23.44)
Sweden	35.22	31.65	40.22	27.11	39.63	27.63	42.98	25.71	0.00	37.17
	(33.87)	(33.51)	(40.54)	(30.61)	(46.73)	(35.51)	(39.57)	(28.92)	(0.00)	(35.05)
Switzerland	14.62	28.24	29.73	25.87	35.68	33.63	25.44	23.61	22.12	20.19
	(13.63)	(31.51)	(30.93)	(32.15)	(34.78)	(35.00)	(18.75)	(30.13)	(21.17)	(16.48)
Taiwan	25.45	23.77	22.29	24.61	20.87	26.59	0.40	0.00	44.69	31.76
	(22.00)	(0.00)	(0.00)	(0.00)	(0.00)	(22.56)	(0.00)	(0.00)	(41.08)	(8.84)
Thailand	37.21	24.29	26.33	22.90	26.33	22.90	-	-	-	-
	(37.42)	(22.89)	(32.04)	(19.74)	(32.04)	(19.74)	-	-	-	-
Turkey	34.48	-	-	-	-	-	-	-	-	-
	(30.18)	-	-	-	-	-	-	-	-	-
UK	42.85	37.21	33.99	40.44	35.39	42.59	32.72	38.87	-	-

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
	(32.82)	(34.46)	(31.89)	(39.18)	(32.39)	(40.57)	(31.66)	(36.79)	-	-
TOTAL	**35.51**	**33.44**	**33.96**	**32.96**	**36.06**	**35.70**	**32.26**	**29.94**	**29.32**	**32.43**
	(30.69)	**(31.34)**	**(31.92)**	**(30.67)**	**(33.92)**	**(34.36)**	**(30.52)**	**(25.66)**	**(23.98)**	**(27.55)**

In this table I outline mean (median) Dividends-to-Earnings (%) for non-cross-listed and cross-listed firms for the full sample period. All firm level data is sourced from Worldscope and Datastream. Dividends-to-Earnings (%) are defined in the appendix. For cross-listed firms, I calculate payout ratios for the pre and post-listing period. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a issues trade as private placements on PORTAL; Level 1 firms trade over-the-counter as pink sheet issues, and Level 2/3 issues trade on U.S. exchanges. All payout ratios are calculated after removing the top 1% of observations to remove possible outliers.

Table 3.3(b): Median Dividends-to-Earnings payout differentials.

Country	Cross-List	Cross-List		Level 1 OTC			Level 2/3			Rule 144a		
	CL-NCL	Pre-NCL	Post-NCL	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre
Argentina	**71.48*** **	**83.19*** **	**69.53*** **	-	-	-	**83.19*** **	**69.53*** **	(13.66)	-	-	-
Australia	**(12.79)*** **	**(19.7)*** **	**(7.68)*** **	**(12.83)*** **	**(5.42)*** **	7.41	**(26.76)*** **	**(13.18)*** **	13.58	**(60.24)*** **	(9.37)	50.87
Austria	(5.15)	(5.12)	(6.35)	(5.12)	(6.35)	(1.23)	-	-	-	-	-	-
Belgium	**7.62** *	3.30	**14.55** *	2.41	**13.70** *	11.29	6.72	29.74	23.02	-	-	-
Brazil	**8.58*** **	**6.14** *	**9.88*** **	7.17	**8.73*** **	1.56	4.72	**16.41** *	11.69	-	(18.18)	-
Canada	**(9.48)*** **	(3.93)	**(18.46)*** **	-	-	-	(3.93)	**(18.46)*** **	(14.53)	-	-	-
Chile	6.73	**17.31** *	3.23	-	-	-	**17.31** *	3.23	(14.08)	-	-	-
China	**(19.08)** *	**(38.1)*** **	(9.51)	(15.20)	(38.08)	(22.88)	**(38.08)*** **	(5.39)	32.69	-	-	-
Colombia	30.07	(38.46)	33.10	-	-	-	-	-	-	(38.46)	33.10	71.56
Denmark	(3.01)	2.64	(3.09)	-	-	-	2.64	(3.09)	(5.73)	-	-	-
Finland	(1.74)	**(5.96)** *	**5.12** *	(3.85)	**8.38** *	12.23	**(7.28)** *	(2.14)	5.14	(12.31)	4.22	16.53
France	**0.79*** **	**(0.48)** *	3.78	1.76	**7.64** *	5.88	**(3.78)*** **	**(14.56)*** **	(10.78)	-	-	-
Germany	**(7.06)*** **	**(5.84)*** **	**(11.92)*** **	**(6.60)** *	**(11.45)** *	(4.85)	(3.70)	**(12.82)** *	(9.12)	**(44.08)*** **	**(10.65)** *	33.43
Greece	**(19.88)*** **	**(19.9)*** **	**(49.11)*** **	**(19.88)*** **	**(49.11)*** **	(29.23)	-	-	-	-	-	-
Hong Kong	0.89	**6.10** *	(5.46)	**7.76*** **	(3.86)	(11.62)	(18.27)	(22.63)	(4.36)	**(40.24)*** **	**(40.24)*** **	-
India	**(3.52)*** **	**(4.95)*** **	**(2.99)** *	0.54	(0.89)	(1.43)	**(12.72)*** **	**(17.31)*** **	(4.59)	4.11	(3.52)	(7.63)
Ireland	**(26.32)*** **	**(26.3)*** **	**(26.32)*** **	**(26.32)*** **	**(26.32)*** **	-	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-	-	-	-
Italy	(1.53)	**(6.96)** *	(0.95)	**(34.84)*** **	(2.45)	32.39	10.28	1.33	(8.95)	**(20.89)*** **	**(24.60)*** **	(3.71)
Japan	**(2.60)*** **	(0.65)	**(4.88)*** **	(1.25)	0.93	2.18	0.19	**(10.93)*** **	(11.12)	11.74	**(12.95)** *	(24.69)
Malaysia	(3.56)	(2.10)	(7.80)	(2.10)	(7.80)	(5.70)	-	-	-	-	-	-
Mexico	**6.43*** **	**6.43** *	**6.22** *	**14.54*** **	**35.77*** **	21.23	0.55	4.27	3.72	13.21	**9.65** *	(3.56)
Netherlands	**(2.26)*** **	**(2.87)*** **	**(1.69)** *	(0.53)	(2.50)	(1.97)	**(3.35)*** **	**(1.48)** *	1.87	-	-	-
Norway	**31.52*** **	**21.76*** **	**36.58*** **	**33.22*** **	**35.48*** **	2.26	-	**50.93*** **	-	**15.07*** **	**32.86*** **	17.79
New Zealand	28.36	**36.41** *	(48.00)	**(48.00)*** **	**(48.00)*** **	0.00	**45.68*** **	30.92	(14.76)	-	-	-
Peru	**44.75*** **	32.14	**45.07*** **	-	-	-	38.53	**44.75** *	6.22	22.21	**58.42*** **	36.21
Phillipines	3.46	0.00	6.61	0.00	0.00	0.00	-	-	-	5.95	**7.89** *	1.94
Poland	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00	-
Portugal	14.59	(6.00)	**17.23** *	**(14.65)** *	(19.05)	(4.40)	16.04	**14.88** *	(1.16)	9.79	**23.00*** **	13.21
Russia	-	-	-	-	-	-	0.00	13.16	13.16	-	0.00	-
South Africa	**(1.62)*** **	0.31	**(4.23)*** **	**(3.26)*** **	**(5.99)*** **	(2.73)	**8.32*** **	(3.73)	(12.05)	**(17.56)*** **	(1.05)	16.51
Singapore	**(6.86)** *	(1.21)	**(7.75)*** **	(0.94)	**(6.98)*** **	(6.04)	-	-	-	(11.73)	**(15.12)** *	(3.39)
South Korea	(1.42)	**12.49*** **	**(11.04)*** **	**9.65*** **	**(13.78)*** **	(23.43)	6.88	(7.76)	(14.64)	18.27	(0.56)	(18.83)
Spain	**9.69** *	**15.98*** **	8.27	(18.62)	**(33.58)** *	(14.96)	**18.99*** **	9.66	(9.33)	3.58	(10.14)	(13.72)
Sweden	(0.36)	**6.67** *	**(3.26)*** **	12.86	1.64	(11.22)	**5.70** *	**(4.95)*** **	(10.65)	**(33.87)** *	1.18	35.05

Country	Cross-List	Cross-List		Level 1 OTC			Level 2/3			Rule 144a		
	CL-NCL	Pre-NCL	Post-NCL	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre
Switzerland	**17.88*** **	**17.30*** **	**18.52*** **	**21.15*** **	**21.37*** **	0.22	**5.12** **	**16.50*** **	11.38	**7.54*** **	2.85	(4.69)
Taiwan	**(22.00)** **	**(22.00)** **	**(22.00)** **	(22.00)	0.56	22.56	**(22.00)*** **	**(22.00)*** **	0.00	**19.08*** **	(13.16)	(32.24)
Thailand	**(14.53)*** **	**(5.38)** **	**(17.68)*** **	**(5.38)** **	**(17.68)*** **	(12.30)	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-	-	-	-
UK	**1.64*** **	**(0.93)*** **	6.36	**(0.43)*** **	7.75	8.18	**(1.16)*** **	**3.97** **	5.13	-	-	-
TOTAL	**0.65*** **	**1.23**	**(0.02)*** **	**3.23*** **	**3.67** **	**0.44**	**(0.17)*** **	**(5.03)*** **	**(4.86)**	**(6.71)*** **	**(3.14)*** **	**3.57**

In this table, I calculate for each ADR Level the **Median** dividend payout difference between cross-listed and non cross-listed firms, in both the pre and post-listing period. Dividend-to-Earnings is employed as our payout proxy, and is defined in the appendix. Furthermore, I outline for each ADR Level the difference in dividend payouts, pre and post-listing. I test the equality of medians between cross-listed and non cross-listed firms using the Mann-Whitney test (Z-Statistic). *, **, *** represents significance at the 10, 5, and 1% level, respectively. All firm level data is sourced from Worldscope and Datastream. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a issues trade as private placements on PORTAL; Level 1 firms trade over-the-counter as pink sheet issues, and Level 2/3 trade on U.S. exchanges.

Table 3.4(a): Dividend-to-Cashflow for cross-listed and non-cross-listed firms

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
Argentina	11.07	27.52	20.51	30.12	-	-	20.51	30.12	-	-
	(0.00)	(19.35)	(25.40)	(18.29)	-	-	(25.40)	(18.29)	-	-
Australia	51.71	27.83	28.48	27.43	31.37	28.41	28.01	26.09	6.13	26.23
	(41.23)	(26.45)	(21.15)	(28.66)	(23.58)	(29.41)	(22.31)	(28.38)	(4.92)	(20.89)
Austria	16.86	15.16	10.90	19.58	10.90	19.58	-	-	-	-
	(10.62)	(13.56)	(10.32)	(17.07)	(10.32)	(17.07)	-	-	-	-
Belgium	15.72	14.62	13.80	17.13	15.28	18.64	11.83	6.57	-	-
	(12.35)	(13.33)	(12.33)	(18.70)	(13.81)	(19.71)	(11.94)	(6.57)	-	-
Brazil	13.72	14.24	13.16	15.01	15.03	16.02	10.19	14.85	-	5.35
	(4.21)	(10.23)	(8.26)	(10.66)	(8.83)	(10.58)	(7.69)	(13.00)	-	(0.00)
Canada	14.83	9.15	11.98	6.72	-	-	11.98	6.72	-	-
	(9.48)	(5.26)	(7.61)	(1.91)	-	-	(7.61)	(1.91)	-	-
Chile	38.99	39.64	57.35	34.14	-	-	57.35	34.14	-	-
	(30.53)	(30.21)	(56.96)	(24.11)	-	-	(56.96)	(24.11)	-	-
China	19.99	14.67	7.37	17.95	18.97	14.06	0.00	20.54	-	-
	(15.89)	(4.94)	(0.00)	(14.80)	(15.89)	(0.00)	(0.00)	(16.33)	-	-
Colombia	32.31	24.86	0.00	29.00	-	-	-	-	0.00	29.00
	(29.04)	(32.73)	(0.00)	(33.72)	-	-	-	-	(0.00)	(33.72)
Denmark	16.43	13.05	15.94	12.92	-	-	15.94	12.92	-	-
	(9.95)	(12.16)	(15.94)	(11.90)	-	-	(15.94)	(11.90)	-	-
Finland	19.84	15.61	13.15	18.75	13.26	17.18	12.49	23.01	15.17	17.04
	(15.94)	(15.29)	(11.94)	(18.28)	(8.04)	(16.16)	(11.29)	(23.40)	(14.96)	(15.88)
France	18.19	13.08	12.33	13.92	14.00	16.77	9.97	8.58	-	-
	(13.36)	(11.71)	(10.86)	(13.75)	(12.83)	(16.23)	(9.05)	(3.26)	-	-
Germany	16.25	11.01	9.93	12.76	8.36	9.42	13.03	18.00	0.305	13.63
	(13.04)	(10.04)	(10.02)	(10.64)	(7.17)	(7.65)	(12.27)	(18.52)	(0.00)	(7.49)
Greece	40.30	20.02	-	20.02	-	20.02	-	-	-	-
	(34.84)	(20.61)	-	(20.61)	-	(20.61)	-	-	-	-
Hong Kong	38.71	31.81	36.06	28.09	37.91	29.19	12.78	7.87	30.63	8.98
	(31.90)	(28.66)	(33.38)	(25.97)	(35.13)	(26.92)	(8.74)	(1.68)	(4.52)	(10.07)
India	24.28	17.75	16.90	18.09	15.68	19.01	11.87	21.56	21.79	16.37
	(18.44)	(15.37)	(13.27)	(16.16)	(13.32)	(17.83)	(11.02)	(8.90)	(17.28)	(15.65)
Ireland	22.38	10.37	11.24	8.65	11.24	8.65	-	-	-	-
	(19.42)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-	-	-	-
Israel	20.63	-	-	-	-	-	-	-	-	-
	(8.58)	-	-	-	-	-	-	-	-	-
Italy	18.52	13.68	8.12	17.21	6.54	17.32	9.61	18.47	4.03	3.66
	(12.90)	(12.38)	(7.09)	(14.98)	(6.43)	(17.17)	(8.98)	(14.82)	(5.49)	(3.38)

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
Japan	13.63	12.41	14.45	10.51	15.21	12.37	13.65	8.48	10.56	10.50
	(10.69)	(10.23)	(11.50)	(7.40)	(11.62)	(10.23)	(11.51)	(5.85)	(10.56)	(10.02)
Malaysia	31.15	25.10	27.13	20.52	27.13	20.52	-	-	-	-
	(22.39)	(20.41)	(21.70)	(19.46)	(21.70)	(19.46)	-	-	-	-
Mexico	10.60	15.87	15.13	16.36	26.51	26.63	11.51	13.07	14.38	14.10
	(0.00)	(10.08)	(9.78)	(10.23)	(20.14)	(20.44)	(8.22)	(7.53)	(12.48)	(9.38)
Netherlands	20.63	13.62	12.92	14.43	15.32	19.70	11.34	11.32	-	-
	(18.71)	(14.65)	(14.65)	(14.63)	(15.84)	(21.94)	(13.28)	(11.69)	-	-
Norway	14.33	33.42	29.34	36.22	33.29	42.28	19.45	31.29	-	8.88
	(9.35)	(32.08)	(25.36)	(33.54)	(29.42)	(35.71)	(17.13)	(24.87)	-	(0.00)
New Zealand	34.22	42.52	54.64	16.25	0.00	0.00	71.03	32.49	-	-
	(27.17)	(29.37)	(52.55)	(10.48)	(0.00)	(0.00)	(56.20)	(23.69)	-	-
Peru	17.01	21.31	13.69	25.66	-	-	8.08	13.79	17.70	31.60
	(0.00)	(11.82)	(4.07)	(16.27)	-	-	(2.75)	(14.72)	(5.38)	(32.23)
Philippines	12.86	8.64	4.55	10.73	4.49	7.86	-	-	5.68	18.50
	(0.00)	(2.43)	(0.00)	(4.18)	(0.00)	(0.00)	-	-	(5.68)	(6.94)
Poland	7.12	5.48	10.79	3.03	10.79	3.03	-	-	-	-
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-	-	-	-
Portugal	21.07	30.18	13.05	40.62	10.22	0.0468	12.97	52.96	25.88	27.51
	(13.22)	(18.82)	(12.42)	(21.12)	(7.45)	(0.0468)	(9.96)	(19.08)	(25.88)	(26.45)
Russia	-	2.02	0.00	2.42	-	-	0.00	2.42	-	-
	-	(2.28)	(0.00)	(2.34)	-	-	(0.00)	(2.34)	-	-
South Africa	38.04	27.69	32.53	20.14	22.52	18.13	49.51	26.28	15.52	19.10
	(28.37)	(22.91)	(25.00)	(21.16)	(21.67)	(21.19)	(41.04)	(21.30)	(6.01)	(16.49)
Singapore	36.51	24.85	30.35	20.08	31.54	21.36	-	-	20.89	12.52
	(25.67)	(15.71)	(17.37)	(15.67)	(19.92)	(15.82)	-	-	(12.84)	(10.92)
South Korea	9.59	8.65	12.08	6.37	9.85	9.88	9.75	5.38	16.96	3.20
	(5.96)	(4.33)	(10.21)	(3.24)	(6.85)	(1.88)	(8.01)	(4.47)	(12.33)	(1.76)
Spain	21.72	16.37	19.74	12.08	21.87	2.40	18.01	14.63	31.84	8.89
	(17.69)	(15.35)	(15.80)	(13.04)	(9.80)	(0.00)	(15.70)	(17.57)	(30.99)	(10.17)
Sweden	25.48	17.51	18.20	17.18	19.14	15.08	18.92	16.67	0.00	26.52
	(19.84)	(17.52)	(18.04)	(17.52)	(21.74)	(17.49)	(15.98)	(16.48)	(0.00)	(25.79)
Switzerland	16.09	20.59	18.17	24.08	22.02	29.80	17.36	18.03	11.09	25.95
	(8.17)	(19.47)	(17.00)	(20.95)	(22.77)	(22.38)	(14.35)	(20.27)	(10.82)	(21.12)
Taiwan	18.84	17.15	17.73	16.85	11.39	13.36	0.3245	0.00	41.76	24.46
	(17.06)	(0.00)	(0.00)	(0.00)	(0.00)	(11.77)	(0.00)	(0.00)	(36.99)	(12.35)
Thailand	24.27	17.11	17.57	16.83	17.57	16.83	-	-	-	-
	(17.86)	(12.20)	(14.22)	(9.01)	(14.22)	(9.01)	-	-	-	-
Turkey	23.81	-	-	-	-	-	-	-	-	-
	(13.96)	-	-	-	-	-	-	-	-	-

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
UK	33.42	25.63	23.66	27.50	22.19	28.99	24.96	26.36	-	-
	(25.43)	(23.75)	(20.27)	(27.32)	(20.58)	(28.81)	(19.92)	(25.84)	-	-
TOTAL	**22.04**	**19.30**	**19.54**	**19.09**	**21.11**	**21.16**	**17.93**	**17.13**	**18.63**	**17.74**
	(14.55)	**(15.12)**	**(14.54)**	**(15.86)**	**(16.18)**	**(19.01)**	**(13.19)**	**(12.75)**	**(10.83)**	**(13.14)**

In this table I outline mean (median) Dividends-to-Cashflow (%) for non-cross-listed and cross-listed firms for the full sample period. All firm level data is sourced from Worldscope and Datastream. Dividends-to-Cashflow (%) are defined in the appendix. For cross-listed firms, I calculate payout ratios for the pre and post-listing periods. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. All payout ratios are calculated after removing the top 1% of observations to remove possible outliers.

Table 3.4(b): Median Dividends-to-Cashflow payout differentials.

	Cross-List	Cross-List		Level 1 OTC			Level 2/3			Rule 144a		
	CL-NCL	Pre-NCL	Post-NCL	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre
Argentina	**19.35*** **	**25.40***	**18.29*** **	-	-	-	**25.40***	**18.29*** **	(7.11)	-	-	-
Australia	**(14.78)*** **	**(20.1)*** **	**(12.57)*** **	**(17.65)*** **	**(11.82)*** **	5.83	**(18.92)*** **	**(12.85)*** **	6.07	**(36.31)*** **	**(20.34)** **	15.97
Austria	**2.94*** **	(0.30)	**6.45*** **	(0.30)	**6.45*** **	6.75	-	-	-	-	-	-
Belgium	**0.98***	(0.02)	**6.35** **	1.46	**7.36*** **	5.90	(0.41)	(5.78)	(5.37)	-	-	-
Brazil	**6.02*** **	4.05	**6.45*** **	4.62	**6.37*** **	1.75	3.48	**8.79** **	5.31	-	(4.21)	-
Canada	**(4.22)*** **	(1.87)	**(7.57)*** **	-	-		(1.87)	**(7.57)*** **	(5.70)	-	-	-
Chile	(0.32)	**26.43** **	(6.42)	-	-		**26.43** **	(6.42)	(32.85)	-	-	-
China	**(10.95)** **	**(15.9)*** **	(1.09)	0.00	(15.9)	(15.9)	**(15.9)*** **	0.44	16.33	-	-	-
Colombia	3.69	(29.04)	4.68	-	-	-	-	-	-	(29.04)	4.68	
Denmark	2.21	5.99	1.95	-	(9.95)	-	5.99	1.95	(4.04)	-	-	-
Finland	(0.65)	**(4.00)*** **	2.34	**(7.90)** **	0.22	8.12	**(4.65)***	**7.46** **	12.11	(0.98)	(0.06)	0.92
France	**(1.65)*** **	**(2.50)*** **	0.39	(0.53)	2.87	3.40	**(4.31)*** **	**(10.10)*** **	(5.79)	-	-	-
Germany	**(3.00)*** **	**(3.02)*** **	**(2.40)***	**(5.87)*** **	**(5.39)*** **	0.48	(0.77)	5.48*	6.25	**(13.04)*** **	(5.55)	7.49
Greece	**(14.23)***	-	**(14.23)***	-	**(14.23)***	-	-	-	-	-	-	-
Hong Kong	**(3.24)***	1.48	**(5.93)*** **	3.23	**(4.98)** **	(8.21)	**(23.16)*** **	**(30.22)*** **	(7.06)	**(27.38)*** **	**(21.83)***	5.55
India	**(3.07)*** **	**(5.17)*** **	**(2.28)*** **	**(5.12)*** **	(0.61)	4.51	**(7.42)*** **	**(9.54)*** **	(2.12)	(1.16)	**(2.79)*** **	(1.63)
Ireland	**(19.42)*** **	**(19.4)*** **	**(19.42)*** **	**(19.42)*** **	**(19.42)*** **	0.00	-	-	-	-	-	-
Israel	-	-	-	-	-	-	-	-	-	-	-	-
Italy	(0.52)	**(5.81)*** **	2.08	**(6.47)*** **	**4.27***	10.74	**(3.92)*** **	**1.92***	5.84	**(7.41)*** **	**(9.52)*** **	(2.11)
Japan	**(0.46)***	**0.81** **	**(3.29)*** **	**0.93*** **	(0.46)	(1.39)	0.82	**(4.84)*** **	(5.66)	(0.13)	(0.67)	(0.54)
Malaysia	**(1.98)***	(0.69)	**(2.93)***	(0.69)	**(2.93)***	(2.24)	-	-	-	-	-	-
Mexico	**10.08*** **	**9.78*** **	**10.23*** **	**20.14*** **	**20.44*** **	0.30	**8.22***	**7.53***	(0.69)	12.48	**9.38***	(3.10)
Netherlands	**(4.06)*** **	**(4.06)*** **	**(4.08)*** **	**(2.87)*** **	3.23	6.10	**(5.43)*** **	**(7.02)*** **	(1.59)	-	-	-
Norway	**22.73*** **	**16.01*** **	**24.19*** **	**20.07*** **	**26.36*** **	6.29	7.78	**15.52*** **	7.74	-	(9.35)	-
New Zealand	2.20	25.38	**(16.69)***	**(27.17)*** **	**(27.17)*** **	0.00	**29.03*** **	(3.48)	(32.51)	-	-	-
Peru	**11.82*** **	4.07	**16.27*** **	-	-	-	2.75	**14.72***	11.97	5.38	**32.23*** **	26.85
Philippines	2.43	0.00	4.18	0.00	0.00	0.00	-	-	-	5.68	**6.94** **	1.26
Poland	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Portugal	**5.60***	(0.80)	**7.90** **	(5.77)	(13.17)	(7.40)	(3.26)	**5.86** **	9.12	12.66	**13.23** **	0.57
Russia	-	-	-	-	-	-	-	-	-	-	-	-
South Africa	**(5.46)*** **	**(3.37)** **	**(7.21)*** **	**(6.70)*** **	**(7.18)*** **	(0.48)	**12.67*** **	**(7.07)***	(19.74)	**(22.36)*** **	**(11.88)*** **	10.48
Singapore	**(9.96)*** **	**(8.30)** **	**(10.00)*** **	**(5.75)***	**(9.85)*** **	(4.10)	-	-	-	**(12.83)***	**(14.75)*** **	(1.92)
South Korea	(1.63)	**4.25*** **	**(2.72)*** **	**0.89***	**(4.08)*** **	(4.97)	2.05	(1.49)	(3.54)	**6.37** **	**(4.20)*** **	(10.57)
Spain	(2.34)	(1.89)	**(4.65)** **	(7.89)	**(17.69)*** **	(9.80)	(1.99)	(0.12)	1.87	13.30	(7.52)	(20.82)
Sweden	**(2.32)*** **	**(1.80)***	**(2.32)*** **	1.90	(2.35)	(4.25)	(3.86)	**(3.36)*** **	0.50	(19.84)**	5.95	25.79

	Cross-List	Cross-List		Level 1 OTC			Level 2/3			Rule 144a		
	CL-NCL	Pre-NCL	Post-NCL	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre	Pre-NCL	Post-NCL	Post-Pre
Switzerland	**11.30*** **	**8.83*** **	**12.78*** **	**14.60*** **	**14.21*** **	(0.39)	**6.18*** **	**12.10** **	5.92	2.65	**12.95*** **	10.30
Taiwan	**(17.06)*** **	**(17.06)** **	**(17.06)** **	**(17.06)** **	(5.29)	11.77	**(17.06)** **	**(17.06)** **	0.00	**19.93*** **	(4.71)	(24.64)
Thailand	(5.66)	(3.64)	(8.85)	(3.64)	(8.85)	(5.21)	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-	-	-	-
UK	**(1.68)*** **	**(5.16)*** **	1.89	**(4.85)*** **	3.38	8.23	**(5.51)*** **	**0.41** **	5.92	-	-	-
TOTAL	**0.57*** **	**(0.01)** **	**1.31***	**1.63*** **	**4.46*** **	**2.83**	**(1.36)*** **	**(1.80)*** **	**(0.44)**	**(3.72)*** **	**(1.41)** **	**2.31**

In this table, I calculate for each ADR Level the **Median** dividend payout difference between cross-listed and non cross-listed firms, in both the pre and post-listing period. Dividend-to-Cashflow is employed as our payout proxy, and is defined in the appendix. Furthermore, I outline for each ADR Level the difference in dividend payouts, pre and post-listing. I test the equality of medians between cross-listed and non cross-listed firms using the Mann-Whitney test (Z-Statistic). *, **, *** represents significance at the 10, 5, and 1% level, respectively. All firm level data is sourced from Worldscope and Datastream. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a issues trade as private placements on PORTAL; Level 1 firms trade over-the-counter as pink sheet issues, and Level 2/3 trade on U.S. exchanges.

Table 3.5: Testing for the presence of a firm effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by firm]	Fixed Effects	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	1.16***	1.06***	1.81***	1.86	**1.5603**	**1.7075**
EXCH	1.43***	1.32***	2.73***	2.33	**1.9091**	**2.0682**
PORTAL	2.25***	2.24***	4.42*	5.15	**1.9644**	**1.9732**
MBA	0.0823***	0.0766***	0.1129**	0.1038	**1.3718**	**1.4739**
ROE	0.0148***	0.0147***	0.0217***	0.0162	**1.4662**	**1.4762**
Ln (Total Assets)	0.1934***	0.1945***	0.3513***	0.4499	**1.8164**	**1.8062**
Debt	0.0015	0.000***	0.0002***	0.0015	**0.1333**	**2.0000**
FCF	0.0001	0.0001***	0.0002***	0.00013	**2.0000**	**2.0000**
ADR Div	2.21***	2.16***	2.70***	2.19	**1.2217**	**1.2500**

In this Table, I test for the presence of a firm effect in the data using Petersens (2005) approach. Specifically, I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \varsigma_i + \eta_{it}$, $X_{it} = \pi_i + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by firm and (4) firm fixed effects. In the remaining columns, I compare (3) to both (1) and (2).

Table 3.6: Testing for the presence of a time effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by year]	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	1.16	1.06	1.35	1.1638	1.2736
EXCH	1.43	1.32	1.21	0.8462	0.9167
PORTAL	2.25	2.24	1.64	0.7289	0.7321
MBA	0.0823	0.0766	0.0829	1.0073	1.0822
ROE	0.0148	0.0147	0.0344	2.3243	2.3401
Ln (Total Assets)	0.1934	0.1945	0.1945	1.0057	1.0000
Debt	0.0015	0.0001	0.0001	0.0667	1.0000
FCF	0.0001	0.0001	0.0001	1.0000	1.0000
ADR Div	2.21	2.16	1.75	0.7919	0.8102

In this Table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \gamma_t + \eta_{it}$, $X_{it} = \mu_t + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by time. In the remaining columns, I compare (3) to both (1) and (2).

Table 3.7: Rogers (1993) standard errors clustered by firm with time fixed effects.

Variable	OLS	White-Huber (1980)	Rogers (1993)	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	1.16	1.06	1.80	**1.5517**	**1.6981**
EXCH	1.43	1.32	2.72	**1.9021**	**2.0606**
PORTAL	2.25	2.24	4.38	**1.9467**	**1.9554**
MBA	0.0823	0.0766	0.1136	**1.3803**	**1.4830**
ROE	0.0148	0.0147	0.0217	**1.4662**	**1.4762**
Ln (Total Assets)	0.1934	0.1945	0.3515	**1.8175**	**1.8072**
Debt	0.0015	0.0001	0.00016	**0.1067**	**1.6000**
FCF	0.0001	0.0001	0.00014	**1.4000**	**1.4000**
ADR Div	2.21	2.16	2.75	**1.2443**	**1.2731**

In this Table, I compare Rogers (1993) standard errors clustered by firm with time fixed effects. I compare these to standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), and (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity. In the remaining columns, I compare Rogers (1993) standard errors to both (1) and (2).

Table 3.8: Summary Statistics for all firms (Covariates scaled by Net Sales)

	Full Sample (N=3,418)		Cross-Listed (N=496)		Non-Cross-Listed (N=2,922)		Tests of Difference (CL vs. NCL)	
Variables	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Div-to-Earnings	37.83	31.01	34.21	30.00	38.19	31.12	**6.15*** **	**7.20*** **
Div-to-Cashflow	20.26	14.53	18.24	15.25	20.49	14.46	**5.89*** **	**2.45** **
MBA	2.59	1.69	3.21	1.89	2.52	1.66	**-11.65*** **	**-8.56*** **
ROE	12.02	9.93	11.86	11.88	12.04	9.77	0.52	**-4.65*** **
Debt	217.54	0.2151	1.58	0.3514	238.57	0.2048	0.31	**-20.78*** **
Total Assets (Log)	13.26	13.37	13.91	14.14	13.31	13.31	**-25.03*** **	**-25.43*** **
Earnings Volatility	7074.83	0.3710	11813.56	0.1078	6495	0.4728	**-3.75*** **	**11.51*** **
Free Cash Flow	25.92	0.08	3.69	1.1	28.46	0.07	0.53	**-50.50*** **
ADR Dividend	0.0073	0	0.1506	0	-	-	-	-
COGS	3268.17	0.7339	0.6550	0.6777	3619.66	0.7394	**6.53*** **	**16.92*** **
Common Law	0.1755	0	0.4138	0	0.1696	0	**-39.18*** **	**-38.99*** **
Civil Law	0.3270	0	0.5861	0	0.3206	0	**-34.52*** **	**-34.39*** **

Table 3.9: Summary Statistics for Exchange-listed and non-Exchange listed firms.

	Cross-Listed (N=496)		Level 1 OTC (N=234)		Level 2/3 Exchange (N=212)		Rule 144a Portal (N=50)		Tests of Diff. (Exch vs. OTC)	Tests of Diff. (Exch vs. Port)	Tests of Diff. (OTC vs. Port)
Variables	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean/(Med)	Mean/(Med)	Mean/(Med)
Div-to-Earn	34.21	30.00	36.03	33.10	31.98	25.35	34.64	27.56	**3.22*** **	-1.18	0.70
									(6.17)* **	(-1.64)	**(2.29)** **
Dividends-to-CF	18.24	15.25	20.20	18.32	16.16	12.07	17.68	13.00	**6.49*** **	-1.45	**2.43*** **
									(8.64)* **	(-1.54)	**(3.84)*** **
MBA	3.21	1.89	3.00	1.88	3.87	2.20	1.71	1.11	**-5.38*** **	**8.18*** **	**6.26*** **
									(-5.53)* **	**(12.58)*** **	**(9.74)*** **
ROE	11.86	11.88	12.05	12.32	12.11	12.10	10.03	9.35	-0.67	1.57	**1.75***
									(-0.18)	**(3.09)*** **	**(3.22)*** **
Debt	1.58	0.3514	0.8399	0.3056	2.66	0.3626	0.6989	0.6080	-0.90	0.44	0.38
									(-1.67)*	**(-7.67)*** **	**(-8.45)*** **
Total Assets (Log)	13.91	14.14	13.78	13.96	14.12	14.47	13.79	13.79	**-5.87*** **	**3.79*** **	-0.07
									(-5.99)* **	**(4.25)*** **	(0.44)
Earnings Vol.	11813.5	0.1078	13511	0.0995	8542.74	0.085	17371	0.7263	1.34	-1.43	-0.54
									(-0.91)	**(-5.22)*** **	**(-5.63)*** **
Free Cash Flow	3.69	1.1	5.37	1.18	2.04	0.975	2.56	1.25	1.33	-1.35	0.55
									(2.90)* **	**(-2.45)*** **	(-0.72)
ADR Dividend	0.1506	0	0.1812	0	0.1212	0	0.1272	0	**4.86*** **	-0.32	**2.55** **
									(4.84)* **	(-0.325)	**(2.55)** **
COGS	0.6550	0.6777	0.6927	0.7195	0.5943	0.6145	0.7237	0.7418	**8.25*** **	**-5.53*** **	**-2.57** **
									(15.02)* **	**(-11.89)*** **	**(-2.93)*** **
Common Law	0.4138	0	0.5250	1	0.2967	0	0.3714	0	**13.83*** **	**-2.84*** **	**5.51*** **
									(13.46)* **	**(-2.84)*** **	**(5.47)*** **
Civil Law	0.5861	0	0.1812	0	0.1212	0	0.1272	0	**-13.83*** **	2.84***	**-5.51*** **
									(-13.46)* **	**(2.84)*** **	**(-5.47)*** **

Table 3.10: Tobit analysis of dividend policy of cross-listed firms – Dividend-to-Earnings

Variable	Sign	Pooled Tobit							
		[1]	*dy / dx*	[2]	*dy / dx*	[3]	*dy / dx*	[4]	*dy / dx*
OTC	+/-	-1.22	-0.6742	-9.28	-5.12	-9.25	-5.10	-10.57	-5.79
		[-0.59]		[-4.2]***		[-4.2]***		[-4.8]***	
EXCH	+/-	-7.38	-3.93	-19.96	-10.32	-19.84	-10.27	-20.07	-10.38
		[-2.4]**		[-5.4]***		[-5.3]***		[-5.5]***	
PORTAL	+/-	-0.78	-0.43	-8.16	-4.51	-8.61	-4.74	-9.15	-5.03
		[-0.15]		[-1.56]		[-1.60]		[-1.71]*	
Intercept		24.56	-	-41.37	-	-44.17	-	-45.86	-
		[5.44]***		[-10]***		[-5.3]***		[-5.6]***	
MBA	-	-	-	-0.67	-0.39	-0.67	-0.38	-0.69	-0.40
				[-4.3]***		[-4.3]***		[-4.4]***	
ROE	+	-	-	0.06	0.036	0.06	0.037	0.06	0.032
				[2.1]**		[2.1]**		[2.2]**	
Log(Total Asset)	+	-	-	6.32	3.66	6.29	3.65	6.12	3.58
				[4.55]***		[6.46]***		[6.38]***	
ADR Dividend	+/-	-	-	16.71	10.65	16.59	10.56	16.85	10.75
				[5.4]***		[5.26]***		[5.38]***	
Anti-Director	+	-	-	-	-	5.63	3.19	-	-
						[3.77]***			
Common Law	+	-	-	-	-	-	-	5.65	3.32
								[4.28]***	
Industry Effects		Yes	-	Yes	-	Yes	-	Yes	-
Time Effects		No	-	No	-	No	-	No	-
Observations		29691	-	21116	-	21116	-	21116	-
Censored Obs		5541	-	3312	-	3312	-	3312	-
Log Likelihood		-131195	-	-94759	-	-94734	-	-94724	-

In this table I report pooled Tobit coefficient and marginal effects estimates of the effect of cross listing on the ordinary dividend payouts of cross-listed firms around the cross-listing date. Dividends-to-Earnings is employed as the dependent variable. The final sample is comprised of 496 cross-listed firms and 2,922 non-cross-listed firms from 40 countries over the period from 1990-2002. Firm-level controls are sourced from both Worldscope and Datastream and are defined in the Appendix. Country controls are also defined in the appendix. In each specification I report results for firms trading in the U.S. either Over-the-Counter **[OTC]** as a Level 1 ADR, a Level 2/3 Exchange Listed ADR **[EXCH]**, or on the Portal under Rule 144a **[PORTAL]**. *, **, *** Indicate significance at the 10, 5, and 1% level, respectively. The pooled Tobit standard errors are robust to non-normality and heteroscedasticity in the errors and are also clustered by firm to account for arbitrary within-group correlations. Z-stats reported for the Pooled Tobit. In columns 1-4 I include but do not report the estimates of the firm level means. In all but one specification, an F-Test suggests that they are jointly significant at the 1% level. The marginal effects are calculated at the mean of the independent variables. For the dummy variables the marginal effects is calculated as the discrete change in F[x] as the dummy variable x changes from 0 to 1.

Table 3.11: Tobit Analysis of dividend policy by legal origin – Dividend-to-Earnings.

Variable	Sign	Pooled Tobit							
		[1]	*dy / dx*	[2]	*dy / dx*	[3]	*dy / dx*	[4]	*dy / dx*
OTC*AD	+/-	-5.60	-3.01	-11.11	-6.03	-7.11	-3.95	-10.37	-5.66
		[-1.31]		[-2.47]**		[-1.53]		[-2.2]**	
EXCH*AD	+/-	-6.45	-3.44	-22.42	-11.34	-18.41	-9.54	-21.09	-10.76
		[-1.22]		[-3.2]***		[-2.6]***		[-3.0]***	
PORTAL*AD	+/-	8.62	4.90	1.03	0.60	4.96	2.97	1.99	1.17
		[0.74]		[0.16]		[0.77]		[0.342]	
Intercept		25.38	-	-20.30	-	-22.27	-	-25.91	-
		[5.63]***		[-4.6]***		[-0.82]		[-0.95]	
MBA	-	-	-	-0.66	-0.39	-0.66	-0.39	-0.68	-0.39
				[-4.3]***		[-4.2]***		[-4.3]***	
ROE	+	-	-	0.06	0.035	0.06	0.035	0.06	0.032
				[2.04]**		[2.3]**		[2.3]**	
Log(Total Asset)	+	-	-	5.65	3.28	5.63	3.27	5.51	3.19
				[5.84]***		[5.81]***		[5.71]***	
ADR Dividend	+/-	-	-	8.48	5.16	7.85	4.76	7.76	4.71
				[2.85]***		[2.63]***		[2.63]**	
Anti-Director	+	-	-	-	-	4.71	2.68	-	-
						[3.02]***			
Common Law	+	-	-	-	-	-	-	4.85	2.84
								[3.69]***	
Industry Effects		Yes	-	Yes	-	Yes	-	Yes	
Time Effects		No	-	No	-	No	-	No	
Observations		29691	-	21116	-	21116	-	21116	
Censored Obs		5541	-	3312	-	3312	-	3312	
Log Likelihood		-131210	-	-94820	-	-94804	-	-94794	

In this table I report pooled Tobit coefficient and marginal effects estimates of the effect of cross listing on the ordinary dividend payouts of cross-listed firms around the cross-listing date. Dividends-to-Earnings are employed as the dependent variable. The final sample is comprised of 496 cross-listed firms and 2,922 non-cross-listed firms from 40 countries over the period from 1990-2002. Firm-level controls are sourced from both Worldscope and Datastream and are defined in the Appendix. Country controls are also defined in the appendix. In each specification I report results for firms trading in the U.S. either Over-the-Counter **[OTC]** as a Level 1 ADR, a Level 2/3 Exchange Listed ADR **[EXCH]**, or on the Portal under Rule 144a **[PORTAL]**. In this specification I interact the ADR Dummies with an investor rights measure developed by LLSV [1998]. The ADR measure is 1 if the firm is domiciled in a country where investors are poorly protected [AD<3]. *, **, *** Indicate significance at the 10, 5, and 1% level, respectively. The pooled Tobit standard errors are robust to non-normality and heteroscedasticity in the errors and are also clustered by firm to account for arbitrary within-group correlations. Z-stats reported for the Pooled Tobit. In columns 1-4 I include but do not report the estimates of the firm level means. In all but one specification, an F-Test suggests that they are jointly significant at the 1% level. . For the dummy variables the marginal effects is calculated as the discrete change in F[x] as the dummy variable x changes from 0 to 1.

Table 3.12: Tobit Analysis of dividend policy of cross-listed firms – Dividend-to-Cashflow.

Variable	Sign	Pooled Tobit							
		[1]	*dy / dx*	[2]	*dy / dx*	[3]	*dy / dx*	[4]	*dy / dx*
OTC	+/-	1.91	1.08	-0.18	-0.1065	-0.21	-0.1254	-2.21	-1.28
		[1.63]		[-0.15]		[-0.18]		[-1.96]**	
EXCH	+/-	-3.33	-1.79	-7.22	-3.93	-7.12	-3.88	-7.05	-3.88
		[-2.11]**		[-3.6]***		[-3.5]***		[-3.7]***	
PORTAL	+/-	-0.51	-0.28	-1.84	-1.06	-2.38	-1.36	-3.34	-1.91
		[-0.17]		[-0.66]		[-0.86]		[-1.15]	
Intercept		17.90	-	2.09	-	-0.92	-	-5.27	-
		[5.29]***		[0.43]		[-0.19]		[-1.12]	
MBA	-	-	-	0.0952	0.0559	0.1066	0.0628	0.0410	0.0243
				[1.36]		[1.54]		[0.61]	
ROE	+	-	-	0.0850	0.0499	0.0864	0.5087	0.0784	0.0466
				[5.72]***		[5.85]***		[5.42]***	
Log (Total Asset)	+	-	-	1.37	0.8085	1.40	0.8255	1.03	0.6131
				[4.66]***		[4.42]***		[4.21]***	
ADR Dividend	+/-	-	-	6.71	4.23	6.62	4.18	6.87	4.39
				[4.30]***		[4.26]***		[4.55]***	
Anti-Director	+	-	-	-	-	6.37	3.58	-	-
						[7.98]***			
Common Law	+	-	-	-	-	-	-	9.66	5.90
								[11.69]***	
Industry Effects		Yes	-	Yes	-	Yes	-	Yes	-
Time Effects		No	-	No	-	No	-	No	-
Observations		27829	-	19769	-	19769	-	19769	-
Censored Obs		4486	-	2581	-	2581	-	2581	-
Log Likelihood		-111761	-	-79922	-	-79810	-	-79546	-

In this table I report pooled Tobit coefficient and marginal effects estimates of the effect of cross listing on the ordinary dividend payouts of cross-listed firms around the cross-listing date. Dividends-to-Cashflow is employed as the dependent variable. The final sample is comprised of 496 cross-listed firms and 2,922 non-cross-listed firms from 40 countries over the period from 1990-2002. Firm-level controls are sourced from both Worldscope and Datastream and are defined in the Appendix. Country controls are also defined in the appendix. In each specification I report results for firms trading in the U.S. either Over-the-Counter **[OTC]** as a Level 1 ADR, a Level 2/3 Exchange Listed ADR **[EXCH]**, or on the Portal under Rule 144a **[PORTAL]**. *, **, *** Indicate significance at the 10, 5, and 1% level, respectively. The pooled Tobit standard errors are robust to non-normality and heteroscedasticity in the errors and are also clustered by firm to account for arbitrary within-group correlations. Z-stats reported for the Pooled Tobit. In columns 1-4 I include but do not report the estimates of the firm level means. In all but one specification, an F-Test suggests that they are jointly significant at the 1% level. The marginal effects are calculated at the mean of the independent variables. For the dummy variables the marginal effects is calculated as the discrete change in F[x] as the dummy variable x changes from 0 to 1.

Table 3.13: Tobit Analysis of Dividend Policy by legal origin – Dividend-to-Cashflow.

Variable	Sign	Pooled Tobit							
		[1]	*dy / dx*	[2]	*dy / dx*	[3]	*dy / dx*	[4]	*dy / dx*
OTC*AD	+/-	-2.40	-1.30	-3.86	-2.17	1.47	0.88	-2.39	-1.38
		[-0.97]		[-1.41]		[0.53]		[-0.83]	
EXCH*AD	+/-	-4.87	-2.57	-10.72	-5.57	-5.38	-2.98	-7.99	-4.32
		[-1.86]*		[-3.4]***		[-1.69]*		[-2.55]**	
PORTAL*AD	+/-	-6.14	-3.19	-3.43	-1.94	1.73	1.04	-1.33	-0.78
		[-1.84]*		[-1.38]		[0.68]		[-0.55]	
Intercept		15.78	-	17.29	-	14.59	-	5.85	-
		[4.69]***		[1.26]		[1.06]		[0.43]	
MBA	-	-	-	0.0926	0.0544	0.0965	0.0568	0.0384	0.0228
				[1.31]		[1.38]		[0.56]	
ROE	+	-	-	0.0832	0.0488	0.0842	0.0496	0.0774	0.0460
				[5.6]***		[5.7]***		[5.35]***	
Log(Total Asset)	+	-	-	1.20	0.7041	1.22	0.7151	0.8117	0.4820
				[4.11]***		[3.89]***		[3.99]***	
ADR Dividend	+/-	-	-	5.65	3.52	4.79	2.97	4.33	2.69
				[3.79]***		[3.22]***		[3.02]***	
Anti-Director	+	-	-	-	-	6.29	3.53	-	-
						[7.53]***			
Common Law	+	-	-	-	-	-	-	9.49	5.80
								[11.59]***	
Industry Effects		Yes	-	Yes	-	Yes	-	Yes	-
Time Effects		No	-	No	-	No	-	No	-
Observations		27829	-	19769	-	19769	-	19769	-
Censored Obs		4486	-	2581	-	2581	-	2581	-
Log Likelihood		-111770	-	-79939	-	-79839	-	-79573	-

In this table I report pooled Tobit coefficient and marginal effects estimates of the effect of cross listing on the ordinary dividend payouts of cross-listed firms around the cross-listing date. Dividends-to-Cashflow is employed as the dependent variable. The final sample is comprised of 496 cross-listed firms and 2,922 non-cross-listed firms from 40 countries over the period from 1990-2002. Firm-level controls are sourced from both Worldscope and Datastream and are defined in the Appendix. Country controls are also defined in the appendix. In each specification I report results for firms trading in the U.S. either Over-the-Counter **[OTC]** as a Level 1 ADR, a Level 2/3 Exchange Listed ADR **[EXCH]**, or on the Portal under Rule 144a **[PORTAL]**. In this specification I interact the ADR Dummies with an investor rights measure developed by LLSV [1998]. The ADR measure is 1 if the firm is domiciled in a country where investors are poorly protected [AD<3]. *, **, *** Indicate significance at the 10, 5, and 1% level, respectively. The pooled Tobit standard errors are robust to non-normality and heteroscedasticity in the errors and are also clustered by firm to account for arbitrary within-group correlations. Z-stats reported for the Pooled Tobit. In columns 1-4 we include but do not report the estimates of the firm level means. In all but one specification, an F-Test suggests that they are jointly significant at the 1% level. . For the dummy variables the marginal effects is calculated as the discrete change in F[x] as the dummy variable x changes from 0 to 1.

Table 3.14: Before/After closely held shares for cross-listed firms.

	Level 1 OTC	Level 2/3 Exchange	Rule 144a Portal
	Median CHS	Median CHS	Median CHS
-2	85,116	37,604	15,476
-1	101,690	40,830	15,113
List Year	88,581	53,168	33,570
Δ[1,-2]	14,783	6,569	4,830
Δ[1,-1]	[1,791]	3,343	5,193
Δ[2,-2]	871	[5,996]	32,574
Δ[2,-1]	[15,703]	[9,222]	32,937
Δ[3,-2]	[16,346]	8,278	45,331
Δ[3,-1]	[32,920]	5,052	45,694
Δ[4,-2]	[15,499]	11,410	11,295
Δ[4,-1]	[32,073]	8,184	11,653
Δ[5,-2]	592	[12,670]	11,295
Δ[5,-1]	[15,982]	[15,896]	11,658
Before	73, 830	44,266	10,080
After	80,707	48,453	23,484
Difference	6,877	4,187	13,404

In this table I report 'before-after' estimates of Closely Held Shares [Firm Governance] for firms that cross-list in the United States. I report the median closely held share value for firms that list either as Level 1 ADRs [n = 214], Exchange-Listed Level 2/3 [n = 137] and Ordinary Lists, or that trade under Rule 144a on Portal [n = 49]. Closely Held Shares [CHS] are shares held by insiders and are provided by Worldscope. I calculate the change in CHS between the five year post-listing **[1, 2, 3, 4, 5]** period and the two years pre-listing **[-2, -1]** [**Δ[1,-2], Δ[1,-1], Δ[2,-2], Δ[2,-1], Δ[3,-2], Δ[3,-1], Δ[4,-2], Δ[4,-1], Δ[5,-2], Δ[5,-1]**].

Table 3.15: Variable Descriptions

Variable	Sign	Abbreviation	Source	Description
Dividends-to-Earnings	N/A	*Div/Earn*	Worldscope	Dividends per share represent the total amount of dividends declared during the year, Earnings per share represent the earnings for the year
Dividends-to-Cashflow	N/A	*Div/CF*	Worldscope	Dividends per share represent the total amount of dividends declared during the year, Cash Flow per share represents the cash earnings per share of the company
Market-to-Book Assets	-	*MBA*	Datastream	Also called Discount to Net Asset Value, divides the market value by the net book value
Free-Cash-Flow	+	*FCF/Net Sales*	Worldscope	Earnings before Interest and Taxation [EBIT] + Depreciation Depletion & Amortization [DDA] – Capital Expenditures
Debt	-	*Debt/Net Sales*	Worldscope	Total Debt Represents all interest bearing and capitalized lease obligations. It is the sum of long and short term debt.
Cost of Goods Sold	-	*COGS/Net Sales*	Worldscope	COGS represents specific or direct manufacturing cost of labour and material in the production of finished goods.
Return on Equity	+	*ROE*	Worldscope	EPS divided by the book growth per share [Expressed as a %]
EPS Volatility	-	*EPS*	Worldscope	The variance of the previous three years EPS
Net Sales	N/A	-	Worldscope	Represents Gross sales and other operating revenue less discounts, returns and allowances
Log (Total Assets)	+	*Log (Total Assets)*	Worldscope	Total Assets represents the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.
D (Law)	+	*Common Law*	LLSV(2000)	D=1 the firm originates from a Common Law Country
D (Investor Protection)	+	*Anti Director*	LLSV(1998)	D=1 if a firm originates in a country where investors are highly protected [Anti-director Rights >=median of 3]
Industry Dummies	N/A		Worldscope	Primary Standard Classification Codes [SIC].
ADR Dividend	+/-	*ADR Dividend*	Bank of New York	D=1 if a firm pays an ADR Dividend.

Table 3.16: Correlation Coefficients and Variance Inflation Factors.

	DivEarn	DivCF	COGS	ROE	Earn Vol.	FCF	Debt	MBA	Log (TA)	VIF (DE)
DivEarn	**1**									-
DivCF	**0.5937*** **	**1**								-
COGS	**-0.0116** **	**-0.0315*** **	**1**							1.01
ROE	**0.0206*** **	**0.1442*** **	**-0.0446*** **	**1**						1.08
Earn Vol.	**-0.0310*** **	**-0.0443*** **	**0.0202*** **	**-0.0233*** **	**1**					1.00
FCF	-0.0029	-0.0050	-0.0008	-0.0084	0.0006	**1**				1.00
Debt	-0.0070	-0.0060	-0.0005	**-0.0116*** **	0.0012	**0.5411*** **	**1**			1.01
MBA	**-0.0303*** **	**0.0159*** **	**-0.0647*** **	**0.1730*** **	**-0.0206*** **	-0.0065	-0.0028	**1**		1.06
Log (TA)	**0.0984*** **	**-0.0153*** **	**-0.0288*** **	**-0.1240*** **	**0.0206*** **	**-0.0361*** **	**-0.0598*** **	**-0.0540*** **	**1**	1.03

In this table I outline Pearson Correlation Coefficients for our dependent variables and all our independent variables. In addition, I outline employing both variants of our dependent variable, Variance-Inflation Factors (VIF's). The Variance-Inflation Factors are defined as $(1/(1-R^2))$ where R^2 is from a regression (pooled) of an explanatory variable on a constant and the remainder of the explanatory variables. ***, ** Represent significance at the 1 and 5% level of significance respectively. All of the variables are defined in Table 3.15.

Figure 3.1: Median Dividends-to-Earnings (%) for OTC, EXCH, PORTAL and NCL Firms

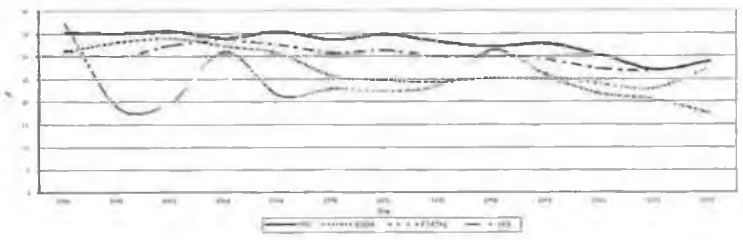


Figure 3.2: Median Dividends-to-Cashflow (%) for OTC, EXCH, PORTAL and NCL Firms

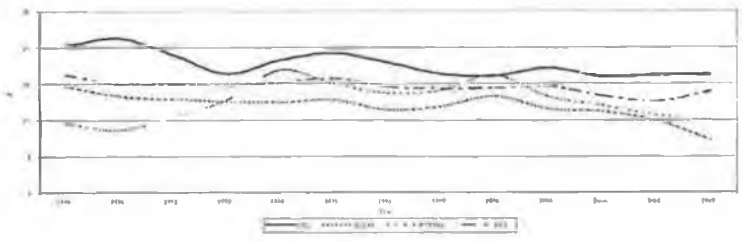


Figure 3.3: Median Dividends-to-Earnings (%) for Low IP OTC, EXCH, PORTAL and NCL Firms

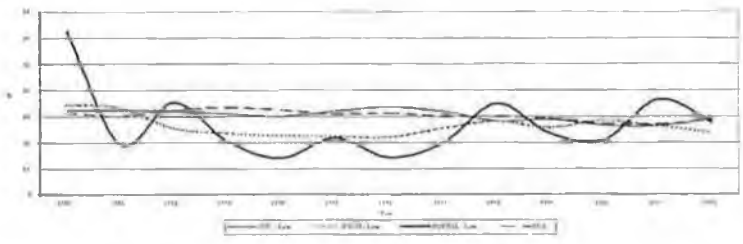


Figure 3.4: Median Dividends-to-Earnings (%) for High IP OTC, EXCH, PORTAL and NCL Firms

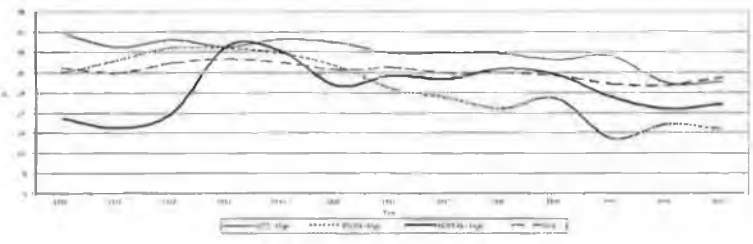


Figure 3.5: Median Dividends-to-Cashflow (%) for Low IP OTC, EXCH, PORTAL and NCL Firms

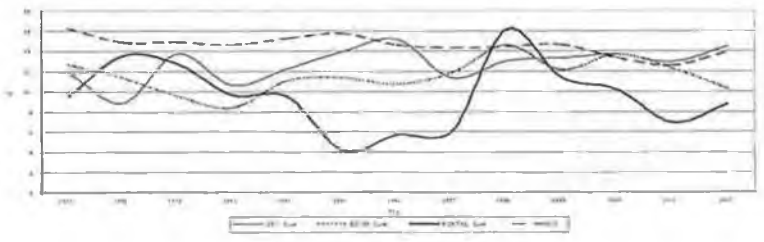


Figure 3.6: Median Dividends-to-Cashflow (%) for High IP OTC, EXCH, PORTAL and NCL Firms

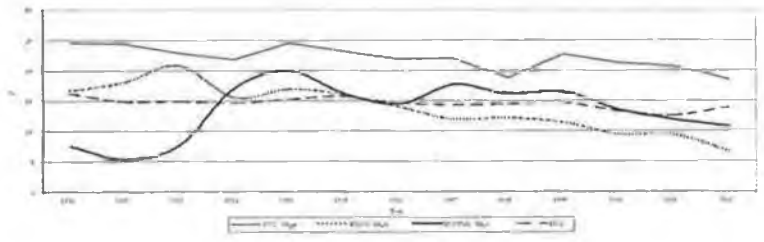


Figure 3.7: Median Dividends-to-Earnings (%) for OTC Firms (Low & High IP) and NCL Firms

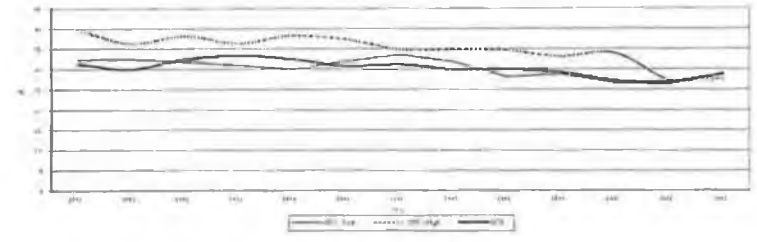


Figure 3.8: Median Dividends-to-Earnings (%) for EXCH Firms (Low & High IP) and NCL Firms

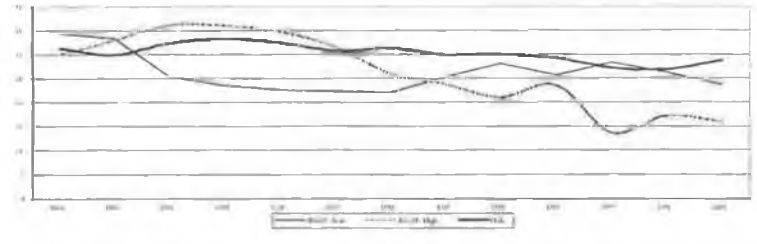


Figure 3.9: Median Dividends-to-Earnings (%) for PORTAL Firms (Low & High IP) and NCL Firms

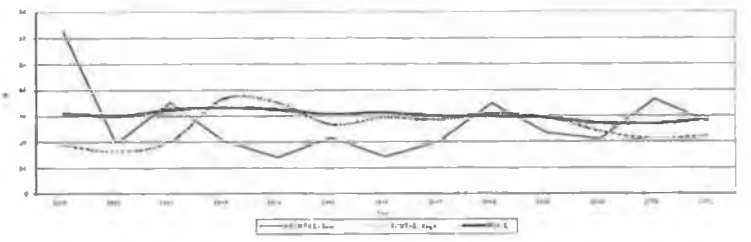


Figure 3.10: Median Dividends-to-Cashflow (%) for OTC Firms (Low & High IP) and NCL Firms

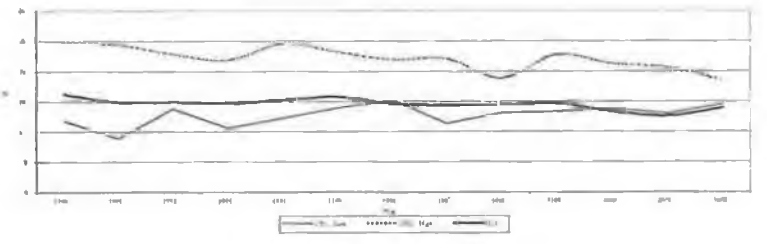


Figure 3.11: Median Dividends-to-Cashflow (%) for EXCH Firms (Low & High IP) and NCL Firms

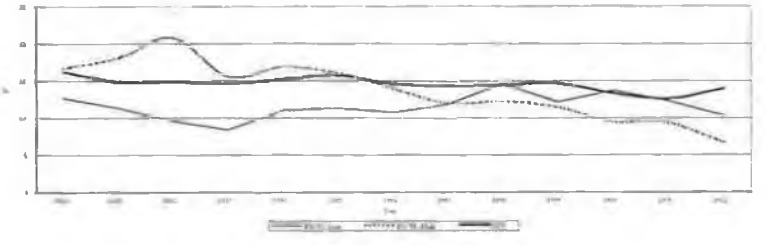
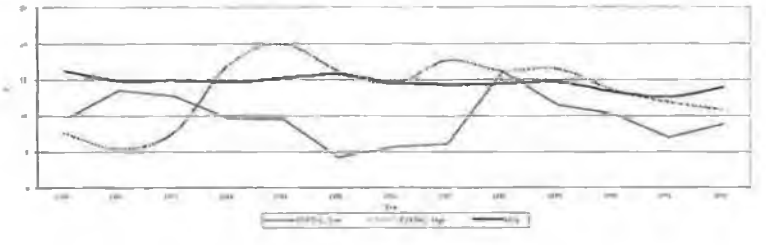


Figure 3.12: Median Dividends-to-Cashflow (%) for PORTAL and NCL Firms (Low & High IP)



Chapter 4: Are Irish cross-listed firms worth more?

4.1 Introduction

This Chapter represents the first of four, which examines the valuation benefits of international cross listings. In this Chapter, I examine the valuation benefits of listing in the U.K., and the U.S. for a sample of internationally listed Irish firms. The following motivates this Chapter.

Recently DKS (2004) document that in 1997, firms cross-listed in the U.S. are worth more than their counterpart non-cross-listed firms. They relate this cross-listing premium to the predictions of the legal bonding hypothesis; firms are better able to fund their growth opportunities by voluntarily committing to better protect their minority investors under the U.S. legal regime. Interestingly, DKS (2004) report a negative cross-listing premium for Irish firms; non cross-listed Irish firms[20] are valued more highly than Irish firms cross-listed in the U.S. Their results suggest that Irish firms trading in the U.S. (or more precisely Irish firms listed on organised U.S. exchanges or Nasdaq[21], either directly, or via Level 2/3 American Depositary Receipts are valued, relative to non cross-listed Irish firms, at a discount of 5.51% in 1997, a result at odds with the predictions of the legal bonding hypothesis[22]. The goal of this chapter is to shed more light on this issue.

In this chapter, I examine the value of Irish firms trading abroad. My approach differs from DKS (2004) in a number of instances: first, the focus is on a single country, Ireland. I like Davis-Friday, Frecka, and Rivera (2005, pg. 29; DFR hereafter) focus on a single country because of the "tendency of previous studies to generalize based on multi-country samples". From an

[20] Although included in many multi-country studies, the study of Irish cross-listed firms has been largely neglected in academic studies. To the best of my knowledge, Cotter (2004) represents the only study that devotes a sizable proportion of his work to the study of Irish ADRs. Gallagher and Kiely (2005) examine the impact of a dual listing on the volume-volatility relationship for 14 Irish, trading in Dublin and London. Their sample of firms includes a number of Irish firms that trade in the U.S. as ADRs, but the impact of this 'third-listing' is not addressed in their study. Buckland and Mulligan (1996) show that Irish firms that list in London are, relative to Irish firms that list solely on the Irish Stock Exchange, significantly larger and have greater growth opportunities.

[21] DKS (2004) do not report any results for Irish Level 1/Portal traded firms.

[22] In a follow up paper, DKS (2006) examine the cross-listing premium in calendar time from 1997-2004. Exchange-traded Irish firms are only worth less than non-cross-listed firms in 1997. In all other years, these firms are worth more, and statistically significantly so in most years. However, what remains unclear is whether listing causes value for Irish firms.

analysis of the summary statistics reported in DKS (2004), it is obvious that their overall findings cannot be generalised to include Irish firms without further study. I provide the further study. Second, I extend the cross-sectional approach of DKS (2004) by studying the time series behaviour of value for a panel of cross-listed Irish firms. In doing so, I can examine the dynamics of the cross listing premium around the cross listing date using valuation metrics, given the obvious inadequacies of a purely cross-sectional approach to do so. Like DKS (2004) I abstract from the traditional event study approach, and seek to answer these questions using valuation metrics (i.e. Tobin's q). The use of valuation metrics in a panel data setting allows us to circumvent the problems associated with using standard event studies. First, I can adequately control for self-selection. Event studies, by and large fail to do so. Second, I examine the 'cross-listing premium' up to five years post-listing. In contrast, Kothari and Warner (2005) highlight the limitations of long-horizon event study methods. Finally, I examine the relative merits of listing abroad in different countries. I examine the relative valuation merits of listing in London and in the United States for Irish firm and compare the valuation gains that accrue to Irish firms that list in the U.S., relative to those firms that list internationally, solely on the London stock exchange.

I explicitly acknowledge that cross listing abroad does not have to be associated with an appreciation of firm value to be successful (i.e. value enhancing). In fact, the possibility remains that cross listing may be value enhancing for a firm i.e. relative to non-cross-listed firms, even if that firm experiences a post-listing decline in value. This forms the basis of what's commonly referred to within the literature as program evaluation. In response, I present fixed effects, pooled ordinary least squares (with Mundlak (1978)) corrections, and difference-in-difference estimates of the impact of listing on firm value. The first, and the latter are common program evaluation estimators (See Woodridge (2002), Blundell and Costa-Dias (2000, BC Hereafter)).

My results suggest that cross listing is associated with enhanced value for Level 2/3 issues. This result provides support in favour of the legal bonding hypothesis. This result is at odds with

the findings of GLS (2005), and serves to reinforce the arguments put forth by DFR (2005) in respect of the importance of measuring the effects of cross listing using single-country studies. In addition, I reach similar conclusions for a sub-set of Irish firms that cross-list on the London Stock Exchange. Although the results remain by and large statistically insignificant, they do, nevertheless, exhibit considerable economic significance. I document the opposite effect for Level 1 issues. Interestingly, I find that Level 1 firms enjoy a valuation premium over Level 2/3 issues in the pre-listing period. However, this is reversed in the post-listing period, as a result of increasing and decreasing value, on the part of Level 2/3 and Level 1 ADRs, respectively.

The chapter proceeds as follows. The data and empirical specification is outlined in the next two sections. Results are presented and discussed, and I end with some concluding remarks.

4.2 Data

I begin by obtaining a complete list of Irish firms listed on the Irish Stock Exchange (www.ise.ie), and a list of Irish equities dual-listed[23] on the London Stock Exchange[24]. I provide a full list of all-Irish firms listed in the United States in Table 4.1. I source U.S. listed Irish firms from the Bank of New York (www.adrbny.com), and cross-reference their records with information sourced from Deutsche Bank (www.adr.db.com), JP Morgan (www.adr.com), the New York Stock Exchange (NYSE) (www.nyse.com), and NASDAQ (www.nasdaq.com). For each firm, I provide both the date of listing in the U.S., and the depositary receipt type. Furthermore, I provide, where relevant, the corresponding date in which each firm listed on the Irish Stock Exchange, and the London Stock Exchange. Finally, in the case of Irish firms with

[23] We should be clear in exactly how we define 'Dual-Listing'. In this study, we define firms as dual-listed if they are listed, in addition to their home market, on another foreign market. Hence, this involves a secondary listing of a companies stock. This should not be confused with what are termed 'Dual Listed Company Structures' (DLCS). Bedi and Tennant (2002, pg. 7) define DLSC as "effectively mergers between two companies in which the companies agree to combine their operations and cash flows, but retain separate shareholder registries and identities. In this respect, a dual listing is quite different to cross listing".

[24] There are considerably more Irish firms listed on the London Stock Exchange, than in the U.S. At least on the face of it, this is consistent with the findings of SS (2004): firms cross-list on geographically close markets to which they are familiar with. This tendency for firms to cross-list on culturally similar, and geographically close markets is also documented by PRZ (2002).

either more than one depositary receipt program (e.g. Allied Irish Bank) or firms that transfer from one depositary receipt level to another (e.g. Jefferson Smurfit Group), I classify firms in accordance with their first listing (in the U.S.) and ignore any subsequent changes. This is a standard approach taken in the literature.

To measure firm value, I follow DKS (2004), DKLN (2005), and KKZ (2005) and employ Tobin's q, where Tobin's q is defined as ((Book Value Total Assets - Book Value of Equity + Market Value of Equity)/ (Book Value Total Assets)). For robustness sake, I employ a variant of Tobin's q, Relative q. Like GLS (2005), and Kalimipalli and Ramchand (2006, KR Hereafter), I calculate Relative q as the value of each international firm divided by the average value of all domestic Irish firms. In the next section I present summary statistics for both measures.

I exclude all non-cross-listed financial firms, but contrary to other studies, I do not exclude cross-listed financial firms. If I were to do so, I would lose three Irish Banking firms listed in the U.S. Given the small size of my sample, it makes more sense to retain these firms. Second, I restrict my final sample to those firms with total assets greater than ten million U.S. dollars, as in doing so I maximise the sample size. DKS (2004) report results for firms with total assets greater than one hundred million U.S. dollars, but also find similar results when they relax this constraint and employ all firms with total assets greater than ten million U.S. dollars. The standard approach in the literature is to exclude all non-cross-listed firms with average total assets of one hundred million U.S. dollars. This approach facilitates a greater comparison of large cross-listed firms to large non-cross-listed firms. However, given the small size of our sample; I use ten million U.S. dollars as my cut-off point.

In addition to my proxies for firm value, I source all additional firm-level variables from Worldscope. In my econometric specifications, I control for growth opportunities at the firm and industry level. I use the average sales growth over the last two years (geometric average) to proxy for firms' growth. I include, in accordance with DKS (2004) and HKZ (2005), the Global

Industry q for each firm to control for an industry-level growth effect on firm value. I calculate Global Industry q as follows; first, I classify each firm into their corresponding industry based upon their primary standard industry classification. Then I calculate for each industry group, the yearly mean Global Industry q for each industry classification as the average value of all firms within that classification. I employ over 15,000 international firms from the Worldscope database to calculate both the mean and median Global Industry q for each year from 1986-2002. Finally, to remove the possibility of outliers, I remove the top 1% of observations for both Tobin's q (and Relative q) and two-year average sales growth. The source, formal definition and calculation of all variables employed in our analysis are presented in Table 4.9.

4.3 Univariate Statistics

Next I compare the sample of cross-listed and non-cross-listed firms in calendar and event time. In Table 4.2 I compare the value of cross-listed firms relative to non-cross-listed firms in each year from 1990 to 2003. I present two sets of summary measures. First, for each listing type, I present mean and median value (q) for each year. In each column labelled 'difference', I test whether the mean and median valuation differences between the cross-listed and non-cross-listed firms are statistically significant in each year using standard tests.

The summary measures presented in Table 4.2 suggest the following. First, Level 1 firms are worth less than non-cross-listed firms in almost every period (They are worth less in every period if I examine mean valuation differences). However, in every year, the difference is not statistically different from zero. Next, the results for each set of exchange-listed firms are similar. In the early years of the sample, cross-listed firms are valued on a par with non-cross-listed firms. In most periods, cross-listed firms are valued less than non-cross-listed firms, but the valuation difference is statistically insignificant in each period. In contrast, in the remaining years, exchange cross-listed firms are worth more, and statistically so in some periods. For example, from 1999 onwards, the mean (and median) Level 2/3 exchange traded Irish firms is worth more

than their counterpart non-cross-listed firm. The valuation premium is statistically significant in two of the four years. For these firms, the largest mean valuation premium occurs in 2002. Like DKS (2004), I find that exchange-traded Irish firms are valued the same as domestic Irish firms in 1997 (the valuation difference is negative, but insignificantly so. They document an insignificant discount of 5.95%, similar to my discount of 5.51%).

Finally, from 1996 onwards, the median Irish firm listed in London is worth more than domestic Irish firms, although the valuation premium is only statistically different in one year (1999 for both sets of firms).

Next I compare the value of firms in event time. I begin by graphing value around the time of listing. I plot absolute and relative value, over an eleven-year period: five years pre-listing, the year of listing, and up to five years post-listing. Unconditional mean and median estimates are depicted in Figures 4.1-4.4. I outline in Tables 4.3, 'before-after' estimates of absolute and relative value, respectively. In both, I calculate the change in value in each year up to five years post-listing relative to, two and one years prelisting, and the list year.

I begin by describing the evolution of absolute value for Level 2/3 issues. First, and in contrast to my earlier findings, Level 2/3 issues are, in fact, less highly valued than Level 1 firms in the pre-listing period. It is only in the post-listing period that Level 2/3 firms are worth more than Level 1 firms. Furthermore, both sub-sets of ordinary listings on the London Stock Exchange are more highly valued than Level 2/3 firms in the pre-listing period. This suggests that unlike previous international studies, Irish firms that list in the U.S. are not worth more prior to listing. However, this result is comparable to those reported by DFR (2005) in their study of Mexican ADRs. Although they do not present pre-listing statistics, Mexican exchange-listed ADRs are, worth significantly less than non-cross-listed firms (when value is measured as the Market Value of Equity). Taken together, my results highlight the importance of employing single-country studies in order to examine the relative merits of listing for firms. Second, both the mean and median Level 2/3 issue appreciates significantly in the post-listing period, a result

consistent with the predictions of the legal bonding hypothesis. Value continues to increase up to four-years post-listing: average value increases from 1.45 in the year of listing to a high of 2.45 in the fourth year post-listing, an increase of just under 69%. GLS (2005) document a fall in value for Level 2/3 firms, post-listing.

The value of Level 1 issues is significantly different in the post-listing period. The trends outlined in Figures 4.1-4.2 and Table 4.3 suggest that value depreciates in the post-listing value. For example, the unconditional mean value outlined in Figure 4.1 suggests that value begins to fall off one-year pre- listing, and continues to fall-off up to two-years post-listing. However, there does appear to be a leveling off in value thereafter.

Next I examine the value of both sub-sets of firms listed in London[25]. Both sets of firms are more highly valued than Level 2/3 firms in the pre-listing period. There is also some evidence to suggest that Irish firms, list on the London Stock Exchange after experiencing a run-up in value. For example, in Figure 4.2 the median value of London (U.S.) firms appreciates by almost 13% in the year immediately preceding listing in London. Similar to London (U.S.) firms, London firms also list after a run-up in value, although this run-up in value appears to begin almost three-years pre-listing. Specifically, value appreciates by almost 26% in the three-years prior to listing. For London (U.S.) firms, valuation continues to appreciate up to two-years post-listing, but begins to fall off thereafter. In contrast, the value of London firms appears to fall-off post-listing, suggesting that these firms time their decision to list on the London Stock Exchange. Finally, I find that value is statistically greater in the post-listing period for Level 2/3, London and London (U.S.) firms (See bottom column of Table 4.6).

[25] I identify two sub-sets of Irish firms listed in London. First, I identify those firms with a listing in London, but not in the U.S., London. Next, I augment this series with data from firms that list in London prior to listing in the U.S., London (U.S.). The motivation for doing so is partly driven by my desire to examine the true effect of listing in London for Irish firms. In my analysis, a sizable majority of Irish firms that list in the U.S. also trade on the London Stock Exchange. Furthermore, their London listing was initiated prior to listing in the U.S., in a period where data availability is poor. For example, Bank of Ireland and Allied Irish Bank listed in London in 1959 and 1967, respectively. Consequently, my sample of Irish firms that list in London is limited.

In Table 4.3, I also examine the value of cross-listed firms relative to non-cross-listed firms around the time of listing. A Relative q value greater than 1 implies, that cross-listed firms are worth more than their counterpart non-cross-listed firms. Less than 1 suggests the opposite. The data presented in Table 4.3 and Figures 4.3-4.4 suggests that Level 2/3 firms are only worth more than domestic firms after listing in the U.S. This result is driven by the absolute appreciation in value that they experience after listing. London (U.S.) firms are worth more than domestic firms in the run-up to listing, and remain so post-listing. Level 1 firms are worth less post-listing, while London-listed firms tend to be valued on a par, on average.

In summary, the results thus far suggest the following: first, exchange listing in the U.S. and London is associated with a positive absolute and relative change in value. In contrast, trading over-the-counter in the U.S. coincides with lower absolute and relative value. In the next section, I examine whether these unconditional estimates are robust to the inclusion of proxies for growth opportunities.

4.4 Standard Error Diagnostics

In the next three tables I test for the presence of a firm and time effect by using Petersen's (2005) approach. The test procedure is outlined in Section 3.4. In this panel, the time dimension is long (1986-2002) but the number of firms totals 69. Standard error estimates are outlined for the following independent variables; dummy variables for Level 1 [OTC], Level 2/3 [EXCH], and London 'Ordinary' lists [LSE]. Global industry q [Industry q] and two-year geometric average sales growth [Sales Growth] represent two continuous independent variables. Tobin's q is employed as our dependent variable. I begin by testing for the presence of a firm effect in Table 4.4. In addition to outlining ordinary least squares, and White-Huber (1980) standard errors, I outline in column 5, standard errors from firm fixed effects estimation. As outlined by Petersen (2005), firm fixed effects standard errors are superior to Rogers (1993) standard errors (clustered by firm) in the presence of a firm effect. In the remaining columns of Table 4.4, I outline the ratio of Rogers

(1993) to both ordinary least squares, and White-Huber (1980) standard errors i.e. $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$.

The results from Table 4.4 suggest that there exists a sizable firm effect in the data. I document sizable differences between Rogers (1993) and White-Huber (1980) standard errors, a result indicative of a sizable firm effect in the data. I find that both the ordinary least squares and White-Huber (1980) standard errors consistently underestimate the 'true' standard error. For example, the White-Huber (1980) standard error is under half the standard error of the Rogers (1993) standard error for the Level 2/3 [EXCH] dummy variables. The corresponding ordinary least squares standard error only serves to further underestimates the standard error.

I present Rogers (1993) standard errors clustered by time in Table 4.5. I compare these standard errors to ordinary least squares, and White-Huber (1980) standard errors. The ratio of Rogers (1993) standard errors to both are presented in the remaining columns, $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$.

The results are not supportive of the existence of a time effect in the data. In fact, for almost all of the independent variables, the Rogers (1993) standard errors clustered by time are almost numerically identical to the White-Huber (1980) standard errors. For example, the ratio of Rogers (1993) to White-Huber (1980) standard errors for the London Ordinary dummy variable is almost unity (0.9794).

In Table 4.6, I absorb the time effects by including time fixed effects (dummies), and cluster by firm. I compare these standard errors to ordinary least squares, and White-Huber (1980) standard errors. The results are presented in the remaining columns. I find that both the ordinary least squares, and White-Huber (1980) dramatically underestimate the true standard error.

4.5 Regression Estimates

Next I examine whether the findings documented in the previous section are robust to the inclusion of firm and industry controls. I attempt to address the endogeneity of the cross listing decision in three ways. First, I control for growth opportunities at the level of the firm (two-year average sales growth). Consequently, I estimate the following via ordinary least squares (with standard errors clustered by firm and time fixed effects):

$$q_{it} = \alpha + X_{it}\beta + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 LSE_{it} + \varsigma_t + \mu_{it} \quad (4.1)$$

Where q_{it} is Tobin's q, X_{it} is a vector of firm and industry control (two-year average sales growth and Global Industry q), $OTC_{it}, EXCH_{it}, LSE_{it}$ are post-listing dummies for Level 1 over-the-counter, Level 2/3 exchange traded, and 'ordinary' lists on the London Stock Exchange, respectively. ς_t are time fixed effects, and μ_{it} is a standard idiosyncratic error term.

Next, I provide two additional methods, which explicitly acknowledge the existence of selection bias. I estimate both fixed effects and difference-in-difference estimates of the impact of listing on firm value. I estimate two 'variants' of the fixed effects model. In the first, I estimate a standard two-way fixed effects model as follows:

$$q_{it} = \alpha_i + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 LSE_{it} + \varsigma_t + \mu_{it} \quad (4.2)$$

α_i are firm fixed-effects, which reflect differences across firms that are constant, but unobserved over time. In both the fixed-effects, and difference-in-difference specifications, I explicitly assume that the unobserved heterogeneity is time-invariant. In addition to the fixed effects approaches, I estimate the following difference-in-difference estimate of the impact of listing on firm value. The standard assumptions underlying the fixed effects estimator are assumed to hold. In this specification, I take care to ensure that given the panel nature of our data, I do not associate the last observation of one firm with the first observation of the next firm, when differencing both the dependent and independent (dummy) variables. I estimate the corresponding equation:

$$\Delta q_{it} = \delta_t + \delta_1 \Delta OTC_{it} + \delta_2 \Delta EXCH_{it} + \delta_3 \Delta PORTAL_{it} + \delta_4 \Delta LSE_{it} + \varepsilon_{it} \quad (4.3)$$

Next I estimate a pooled version of 4.2 given my concerns over violations of strict exogeneity, arising from feedback effects from firm value to the cross-listing dummy variables. In this pooled specification, I follow Mundlak (1978) and specify the individual specific effects as a linear function of the averages over time of all the exogenous variables plus a random individual effect that is assumed to be independent of the explanatory variables: $\alpha_i = \overline{X_i}\zeta + a_i$, where $\overline{X_i} = \frac{1}{T}\sum_{s=1}^{T} X_{it}$. Substituting into Equation 4.2 yields the following:

$$q_{it} = \alpha + X_{it}\beta_1 + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 LSE_{it} + \overline{X_i}\zeta + \mu_{it} \quad (4.4)$$

Where X_{it} is a vector of firm and industry control (two-year average sales growth and Global Industry q). Equation 4.4 is estimated using pooled ordinary least squares yielding consistent estimates. Pooled estimation circumvents the problems associated with violations of the strict exogeneity assumption because estimation requires, inter alia, the less restrictive assumption of contemporaneous exogeneity. This pooled approach also has the additional advantage over the fixed-effects approach in that all non-cross-listed firms are included. In the fixed-effects approach I estimate the within-effect i.e. the effect of listing on value only for those firms that change from being non-listed to listed. This restriction of using the fixed effects approach is voiced by Li and Prabhala (2005). Finally, I allow for the valuation effects to differ in each post-listing period, and relax the homogenous effect of listing and value that I imposed. For example, in the case of the pooled ordinary least squares (with Mundlak (1978) corrections), I estimate the following:

$$q_{it} = \alpha + X_{it}\beta_1 + \sum_{s=0}^{5}\beta_t OTC_{it}^{s} + \sum_{t=0}^{5}\beta_t EXCH_{it}^{s} + \sum_{t=0}^{5}\beta_t LSE_{it}^{s} + \overline{X_i}\zeta + \mu_{it} \quad (4.5)$$

Where I estimate the effect of cross listing on value, up to five years post-listing. The results are presented in the next section.

4.6. Results

The fixed effects and difference-in-difference results are presented in Table 4.7. I present, for comparison, ordinary least squares estimates of the impact of cross-listing on firm value. In the remaining columns, I outline the estimates from the pooled ordinary least squares (with Mundlak (1978) corrections), the fixed-effects, and difference-in-difference estimators, respectively.

I begin with a discussion of the results presented in Table 4.7. I report the results corresponding to Equations 4.2, 4.3, and 4.4. I estimate these equations separately for London – U.S. listed Irish firms. For the ordinary least squares, and pooled ordinary least squares estimators, I present estimates with and without firm and industry controls. I outline the total number of firms employed in each regression, the R-squared, an F-stat for the significance of all explanatory variables, and an F-stat testing for the joint significance of the Mundlak (1978) corrections (time-averages) for the pooled ordinary least squares. Finally, I indicate whether time-dummies are included (or not) in each specification. Time-dummies are excluded from the pooled ordinary least squares estimator given the inclusion of the time-averaged (time-variant) explanatory variables. In the pooled ordinary least squares specification, the Mundlak (1978) correction terms are included but not reported.

I begin by discussing the results by listing type outlined in Table 4.7. The coefficient estimates for Level 1 firms are, by and large, similar across the different econometric specifications. They suggest that cross listing in the U.S. does not cause value for these firms. For example, both the ordinary least squares, and pooled ordinary least squares estimates suggest that these firms are worth significantly lower post-listing, although this 'cross-listing-discount' loses its significance when I include firm and industry controls. However, in all specifications, the coefficient estimate for Level 1 firms remains economically significant. For example, the coefficient ranges from –0.2572 in the fixed effects specification to –0.5068 in the difference-in-difference specification. In both specifications, the coefficient estimates for the firm and industry

controls are of the correct sign, and sometimes significant. The significance of the Global q measure is in line with the findings documented by DKS (2004), and KKZ (2005). The coefficient estimates for both the fixed-effects, and difference-in-difference estimators, are consistent with those presented in the ordinary least squares specifications. In contrast, the results for exchange-listed ADRs are suggestive of an economically significant 'cross-listing premium' (albeit statistically insignificant). The results for both the ordinary least squares and pooled ordinary least squares estimates are quantitatively similar. In contrast, both the fixed effects, and difference-in-difference estimates are smaller, but positive. The results for Level 2/3 exchange-listed firms, and the difference in post-listing value for Level 1 and Level 2/3 issues are consistent with the predictions of the bonding hypothesis.

Finally, I present the results for both variants of our London defined subset of firms. Interestingly, I present differing results for London 'Ordinary' across the different estimators. For example, both the ordinary least squares, and pooled ordinary least squares estimates are negative (but insignificant), while the coefficient estimates for both the fixed-effects and difference-in-difference estimates are both positive, and marginally insignificant (at least in the case of the fixed-effects estimates). Finally, I estimate each of the previous models for London U.S. firms. The results are largely dissimilar to those documented for London 'Ordinary' firms. I find that across all estimators, these firms are valued more highly in the post-listing period. Although statistically insignificant, the results suggest that I should be careful in determining whether listing in the U.K. is value enhancing or not for Irish firms. My results suggest that listing in London may well have proven to be value enhancing for firms, who listed in London prior to listing in the U.S. (and also too early for us to gather data). The results for London (U.S.) firms, although not as strong as in the previous section, do nevertheless imply that listing in London is value enhancing. This result is in line with the findings of Salva (2003) who relates the increased equity valuations that accrue to firms that list in London to enhanced governance. However, in the case of Irish firms, it remains hard to reconcile our findings to enhanced

governance, given the 'governance' similarities between the Irish and London stock exchanges. SS (2004) and Yang and Lau (2006, YL Hereafter) offer some additional, and in the case of Irish firms, plausible explanations. Both emphasise the relationship between listing and familiarity. Specifically, SS (2004) conclude that the greatest cost of capital gains from listing accrue to firms who list in markets where there is a large cross product market trade. This finding suggests that Irish firms that are familiar to U.K. investors before listing in the U.K. benefit as a result post-listing. YL (2006) conclude that Chinese firms with a listing in Hong Kong enjoy two additional benefits to listing abroad relative to those Chinese firms that list in the U.S. Hong-Kong listed Chinese firms experience a significant enhancement of their information environment, and are less financially constrained. Given the proximity of Hong Kong to China (relative to the U.S.), the results are consistent with the arguments put forth by SS (2004).

In Table 4.8, I examine the causal impact of listing on value up to five years post-listing. The results are largely in line with those presented earlier. Consequently, I do not elaborate too much on the results. In summary the results suggest the following: first, the valuation-discount for Level 1 firms is increasing in the number of years, post-listing. In contrast, I find that the valuation benefits to listing are not immediate for Level 2/3 exchange-listed ADRs. They do, however, materialise thereafter. This result is in stark contrast to the results that I later document for emerging market exchange-listed ADRs. In the case of the latter, the valuation benefits of listing are immediate, but transitory. The valuation benefits to London U.S. listings are immediate, and remain significant up to three-years post-listing (and positive, but insignificant, up to five years post-listing). Finally, the results for London 'Ordinary' firms are mixed; the coefficient estimates suggest both the existence of both (albeit) a 'cross-listing-premium' and 'discount' on differing periods, post-listing.

4.7. Concluding Remarks

In this Chapter, I examine the valuation effects of listing abroad for a sample of internationally listed Irish firms. This study is largely motivated by an irregularity in DKS (2004). In contrast to both the predictions of their theoretical model, and their overall empirical findings, U.S. exchange traded Irish firms are valued less than their counterpart non-cross-listed firms. The result is at odds with the predictions of the legal bonding hypothesis, and leaves us non-the wiser as to whether an international cross listing is value enhancing for Irish firms. I attempt to fill this void.

Using a panel of internationally listed Irish firms, and employing valuation metrics, I show that Irish firms that trade as Level 2/3 firms experience a sizable appreciation in value, post-listing. The result is robust to the inclusion of firm and industry controls, and to a variety of different estimators. Although the coefficient remains largely statistically insignificant, the magnitude of the coefficient displays sizable economic significance. This result is consistent with the predictions of the bonding hypothesis, but is in contrast to the findings of GLS (2005). Interestingly, I find that firms that trade over-the-counter, as Level 1 issues are more highly valued than exchange traded firms in the pre-listing period. However, this manifests into a valuation discount in the post-listing period, given the depreciation in value experienced by these firms in the post-listing period. Finally, I present two sets of results for London-traded Irish firms. I find that Irish firms that trade in London, but not in the U.S., appear to time their decision to list on the London Stock Exchange. The results are consistent with GLS (2005). In my second sub-set of 'London' firms, I augment our original sample of 'dual-listed' firms with Irish firms that trade in London, prior to listing in the U.S. In contrast to my 'dual-listed' sample of firms, listing in London is value enhancing. In line with DFR (2005), my results also highlight the importance of examining the effects of international cross listing on a country-by-country basis.

The results generated in this Chapter have some important implications for Irish firms considering listing abroad. First, and foremost, the results suggest that listing abroad, either in London, or on U.S. exchanges, is associated with enhanced value for Irish firms. In contrast, a non-exchange traded depositary receipt program (Level 1) does not provide enhanced value for these firms. This contrasts with KR (2006). They show using a sample of internationally listed firms from India that there exists no significant valuation difference across depositary receipt levels. Exchange and non-exchange traded depositary receipts gain equally from listing. While I cannot conclude that a non-exchange traded depositary receipt does not provide some benefits for Irish firms, my results do suggest that there are no additional benefits, at least in terms of enhanced value.

Table 4.1: U.S. Listed Irish firms by Domestic and International Listings

Company	LSE Listing	List Date	U.S. Listing	List Date	ISE Listing
Allied Irish Bank	Overseas Listed	29/06/1967	NYSE	01/11/1990	26/06/1967
			PORTAL	24/04/1998	
Anglo Irish Bank	Overseas Listed	22/02/1974	OTC	01/10/1994	22/02/1974
Arcon	Overseas Listed	03/04/1995	OTC	26/08/1998	09/08/2004
Bank of Ireland	Overseas Listed	14/01/1959	NYSE	01/11/1995	14/01/1959
Conduit	-	-	PORTAL	27/06/2000	06/04/2001
					Delist 2003
CRH	Overseas Listed	05/02/1973	NASDAQ	23/07/1986	05/02/1973
Datalex	-	-	OTC	26/04/2002	20/10/2000
Elan Corporation	Overseas Listed	18/11/1993	NYSE	26/01/1984	01/01/1989
Glanbia	-	-	OTC	08/11/2002	01/03/1988
Glencar Mining	-	-	OTC	01/09/1996	01/01/1983
Greencore Group	-	-	OTC	26/04/1999	01/01/1991
Hibernia	-	-	NASDAQ	01/10/1992	-
Icon	-	-	NASDAQ	14/05/1998	26/04/1999
Iona	-	-	NASDAQ	28/02/1997	19/12/1997
Jefferson Smurfit Group	-	-	OTC NYSE- Delisted 1995	04/09/2002	Delist 2002
Ryanair Hldgs	Overseas Listed	16/07/1998	NASDAQ	28/05/1997	07/12/2001
Skillsoft	-	-	NASDAQ	18/04/1995	-
			PORTAL	06/10/1995	
Trinity Biotech	-	-	NASDAQ	01/10/1992	24/05/1999
Trintech	-	-	NASDAQ	22/09/1999	-
Waterford Wedgwood	Overseas Listed	01/12/1986	NASDAQ	28/01/1987	11/06/2003

This table outlines cross-listed Irish firms by listing type. Irish firms' trade in London as ordinary shares ('Ordinaries', as opposed to depositary receipts). Level 1issues trade over-the-counter as pink-sheet issues. Level 2/3 ADRs are exchange-listed ADRs trading on the NYSE and NASDAQ. Elan trade on the NYSE as an 'Ordinary' list. For each, I report the list date. All data is sourced directly from the Irish Stock Exchange, the London Stock Exchange, the NYSE and NASDAQ, and is cross-referenced with information from the Bank of New York, Deutsche-Bank, JP Morgan, and Citibank.

Table 4.2: Value of cross-listed and non-cross-listed firms in calendar time.

Mean	Level 1			Level 2/3			London			Lon (U.S.)		
Year	Level 1	NCL	Difference	Level 2/3	NCL	Difference	London	NCL	Difference	Lon (U.S.)	NCL	Difference
1986	-	1.49	-	1.44	1.49	(0.05)	-	1.49	-	-	1.49	-
1987	-	1.94	-	1.49	1.94	(0.45)	2.01	1.94	0.07	2.01	1.94	0.07
1988	-	1.71	-	1.38	1.71	(0.33)	1.65	1.71	(0.06)	1.65	1.71	(0.06)
1989	-	1.73	-	1.46	1.73	(0.27)	1.81	1.73	0.08	1.81	1.73	0.08
1990	-	1.99	-	1.67	1.99	(0.32)	1.80	1.99	(0.19)	1.80	1.99	(0.19)
1991	-	1.73	-	1.76	1.73	0.03	1.50	1.73	(0.23)	1.50	1.73	(0.23)
1992	-	1.78	-	2.05	1.78	0.27	1.44	1.78	(0.34)	1.44	1.78	(0.34)
1993	-	1.56	-	1.77	1.56	0.21	1.38	1.56	(0.18)	1.38	1.56	(0.18)
1994	1.05	1.83	(0.78)	2.20	1.83	0.37	1.52	1.83	(0.31)	1.64	1.83	(0.19)
1995	1.07	1.82	(0.75)	1.66	1.82	(0.16)	1.60	1.82	(0.22)	1.76	1.82	(0.06)
1996	1.25	1.71	(0.46)	1.62	1.71	(0.09)	1.71	1.71	0.00	1.91	1.71	0.20
1997	1.35	1.68	(0.33)	1.58	1.68	(0.10)	1.83	1.68	0.15	1.87	1.68	0.19
1998	1.14	2.02	(0.88)	2.01	2.02	(0.01)	1.95	2.02	(0.07)	2.20	2.02	0.18
1999	1.49	1.63	(0.14)	2.24	1.63	**0.61***	2.02	1.63	**0.39***	2.15	1.63	**0.52****
2000	1.39	1.64	(0.25)	2.26	1.64	**0.62***	1.79	1.64	0.15	1.92	1.64	0.28
2001	1.34	1.78	(0.44)	2.28	1.78	0.50	1.99	1.78	0.21	2.22	1.78	0.44
2002	1.52	1.53	(0.01)	2.42	1.53	**0.89****	1.89	1.53	0.36	2.25	1.53	0.72

Median	Level 1			Level 2/3			London			Lon (U.S.)		
Year	Level 1	NCL	Difference	Level 2/3	NCL	Difference	London	NCL	Difference	Lon (U.S.)	NCL	Difference
1986	-	1.48	-	1.44	1.48	(0.04)	-	1.48	-	-	1.48	-
1987	-	1.70	-	1.49	1.70	(0.21)	2.01	1.70	0.31	2.01	1.70	0.31
1988	-	1.60	-	1.38	1.60	(0.22)	1.65	1.60	0.05	1.65	1.60	0.05
1989	-	1.64	-	1.46	1.64	(0.18)	1.81	1.64	0.17	1.81	1.64	0.17
1990	-	1.73	-	1.63	1.73	(0.10)	1.73	1.73	0.00	1.73	1.73	0.00
1991	-	1.56	-	1.54	1.56	(0.02)	1.48	1.56	(0.08)	1.48	1.56	(0.08)
1992	-	1.57	-	1.51	1.57	(0.06)	1.50	1.57	(0.07)	1.50	1.57	(0.07)
1993	-	1.43	-	1.34	1.43	(0.09)	1.42	1.43	(0.01)	1.47	1.43	0.04
1994	1.05	1.66	(0.61)	1.74	1.66	0.08	1.55	1.66	(0.11)	1.55	1.66	(0.11)
1995	1.07	1.67	(0.60)	1.54	1.67	(0.13)	1.63	1.67	(0.04)	1.64	1.67	(0.03)
1996	1.25	1.60	(0.35)	1.46	1.60	(0.14)	1.62	1.60	0.02	1.67	1.60	0.07
1997	1.35	1.66	(0.31)	1.61	1.66	(0.05)	1.71	1.66	0.05	1.82	1.66	0.16
1998	1.14	1.71	(0.57)	1.70	1.71	(0.01)	1.95	1.71	0.24	2.08	1.71	0.37
1999	1.48	1.55	(0.07)	1.73	1.55	0.18	1.87	1.55	**0.32****	2.01	1.55	**0.46****
2000	1.45	1.61	(0.16)	1.74	1.61	0.13	1.71	1.61	0.10	1.75	1.61	0.14
2001	1.30	1.44	(0.14)	1.97	1.44	**0.53***	1.75	1.44	0.31	1.97	1.44	0.53
2002	1.37	1.37	0.00	1.88	1.37	**0.51***	1.60	1.37	0.23	1.69	1.37	0.32

Table 4.3: 'After-Before' value of cross-listed firms

	Level 1				Level 2/3				LSE				LSE (Incl. Pre U.S.)			
	Value		Relative Value		Value		Relative Value		Value		Relative Value		Value		Relative Value	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
-2	1.60	1.29	0.94	0.78	1.51	1.29	0.88	0.81	1.53	1.39	0.84	0.81	1.75	1.63	0.96	0.96
-1	1.71	1.62	0.94	0.85	1.49	1.26	0.81	0.65	1.83	1.50	1.06	0.82	2.06	1.57	1.17	0.89
0	1.46	1.43	0.85	0.83	1.46	1.32	0.81	0.72	1.86	1.71	1.05	0.91	2.21	1.77	1.24	0.97
Δ(1,-2)	(0.15)	0.34	(0.09)	0.20	0.52	0.17	0.18	0.04	0.20	0.27	0.10	0.12	0.33	0.29	0.20	0.01
Δ(1,-1)	(0.26)	(0.01)	(0.09)	0.13	0.54	0.20	0.25	0.20	(0.10)	0.16	(0.12)	0.11	0.02	0.35	(0.01)	0.08
Δ(2,-2)	(0.42)	(0.09)	(0.28)	(0.16)	0.83	0.31	0.53	0.17	0.47	0.26	0.30	0.09	0.48	0.28	0.30	0.10
Δ(2,-1)	(0.53)	(0.42)	(0.28)	(0.23)	0.85	0.34	0.60	0.33	0.17	0.15	0.08	0.08	0.17	0.34	0.09	0.17
Δ(3,-2)	(0.30)	(0.08)	(0.13)	0.12	0.86	0.49	0.51	0.26	0.26	0.21	0.16	0.15	0.30	0.08	0.21	0.01
Δ(3,-1)	(0.41)	(0.25)	(0.13)	0.05	0.88	0.52	0.58	0.42	(0.04)	0.10	(0.06)	0.14	(0.01)	0.14	0.00	0.08
Δ(4,-2)	(0.34)	(0.03)	(0.24)	(0.08)	0.95	0.71	0.60	0.38	0.08	0.14	0.05	0.03	0.09	0.00	0.11	(0.04)
Δ(4,-1)	(0.45)	(0.36)	(0.24)	(0.15)	0.97	0.74	0.67	0.54	(0.22)	0.03	(0.17)	0.02	(0.18)	0.06	(0.10)	0.03
Δ(5,-2)	(0.22)	(0.09)	(0.11)	0.05	0.32	0.37	0.73	0.21	0.30	0.30	0.21	0.10	0.12	0.17	0.10	0.01
Δ(5,-1)	(0.33)	(0.24)	(0.11)	(0.02)	0.34	0.30	0.80	0.37	0.00	0.19	(0.01)	0.09	(0.19)	0.23	(0.11)	0.08
Before	1.43	1.19	0.79	0.68	1.53	1.54	0.83	0.88	1.60	1.47	0.93	0.80	1.75	1.54	0.99	0.84
After	1.34	1.25	0.80	0.73	2.00	1.68	1.20	0.97	1.77	1.66	1.02	0.93	1.97	1.72	1.14	0.98
Diff	(0.09)	0.06	0.01	0.05	0.47**	0.14**	0.37**	0.09***	0.17	0.19***	0.09	0.13***	0.22*	0.18***	0.15*	0.14***

In this table I present before and after estimates of firm value for cross-listed firms. Value is proxied by Tobin's q and Relative q. I calculate the mean (median) difference in value between the post and pre-listing period, and the change in *q* between the five year post-listing **(1, 2, 3, 4, 5)** period and the two years pre-listing **(-2, -1)** **[Δ(1,-2), Δ(1,-1), Δ(2,-2), Δ(2,-1), Δ(3,-2), Δ(3,-1), Δ(4,-2), Δ(4,-1), Δ(5,-2), Δ(5,-1)]**. The mean (median) valuation differential is tested using the Satterwaite t-test and the Mann-Whitney test, respectively. *, **, *** Represents significance at the 10, 5, 1% level respectively.

Table 4.4: Testing for the presence of a firm effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by firm]	Fixed Effects	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	0.2027	0.1069	0.2030	0.3559	**1.0015**	**1.8990**
EXCH	0.1026	0.1271	0.2601	0.1371	**2.5351**	**2.0464**
LSE	0.0985	0.0924	0.1331	0.1687	**1.3513**	**1.4405**
Industry q	0.1698	0.3009	0.4516	0.1353	**2.6596**	**1.5008**
Sales Growth	0.5446	0.5458	0.5927	0.3707	**1.0883**	**1.0859**

In this Table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \varsigma_i + \eta_{it}$, $X_{it} = \pi_i + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by firm and (4) firm fixed effects. In the remaining columns, I compare (3) to both (1) and (2).

Table 4.5: Testing for the presence of a time effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by year]	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	0.2027	0.1069	0.0984	**0.4854**	**0.9205**
EXCH	0.1026	0.1271	0.1058	**1.0312**	**0.8324**
LSE	0.0985	0.0924	0.0905	**0.9188**	**0.9794**
Industry q	0.1698	0.3009	0.2087	**1.2291**	**0.6936**
Sales Growth	0.5446	0.5458	0.7307	**1.3417**	**1.3388**

In this table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \gamma_t + \eta_{it}$, $X_{it} = \mu_t + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by time. In the remaining columns, I compare (3) to both (1) and (2).

Table 4.6: Rogers (1993) standard errors clustered by firm with time fixed effects.

Variable	OLS	White-Huber (1980)	Rogers (1993)	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	0.2027	0.1069	0.2056	1.0143	1.9233
EXCH	0.1026	0.1271	0.2556	2.4912	2.0110
LSE	0.0985	0.0924	0.1439	1.4609	1.5574
Industry q	0.1698	0.3009	0.5258	3.0966	1.7474
Sales Growth	0.5446	0.5458	0.5848	1.0738	1.0715

In this table, I compute Rogers (1993) standard errors clustered by firm with time fixed effects. I compare these to standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), and (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity. In the remaining columns, I compare Rogers (1993) standard errors to both (1) and (2).

Table 4.7: Cross-Listing abroad and value for Irish firms

	OLS		POLS		Fixed Effects	DID
	(1)	(2)	(3)	(4)	(5)	(6)
Level 1	-0.4672	-0.3077	-0.4685	-0.3251	-0.2572	-0.5068
	[-2.85]***	[-1.50]	[-2.93]***	[-1.63]	[-1.79]*	[1.55]
Level 2/3	0.2177	0.2558	0.2191	0.2415	0.0403	0.0919
	[0.73]	[1.00]	[0.74]	[0.97]	[0.39]	[0.51]
London Ordinary	-0.0096	-0.0290	-0.0072	-0.0395	0.1492	0.1329
	[-0.10]	[-0.20]	[-0.08]	[-0.28]	[1.60]	[0.65]
Global Industry q		1.27		1.25		
		[2.42]**		[2.39]**		
Log (1+Sales Growth)		0.66		0.69		
		[1.13]		[1.19]		
London – U.S. List	0.1865	0.1836	0.1871	0.1744	0.1558	0.4245
	[1.31]	[1.14]	[1.33]	[1.09]	[1.81]*	[1.06]
Time Dummies	Yes	Yes	No	No	Yes	1988
Time-Averages	No	No	Yes	Yes	No	No
R^2	0.0529	0.2426	0.0289	0.2200	0.0231	0.001
Pr > F	3.98***	3.46***	1.76	2.27**		
Pr > F (Time)	-	-	0.36	3.02**	-	-

Table 4.8: Estimating the effect of listing on firm value for Irish firms up to five years post-listing.

	List	t + 1	t + 2	t + 3	t + 4	t + 5	Sales Growth	Global q	Time Dummies	Time-Averages	R^2	Pr > F(Time)
OLS												
Level 1	-0.13	0.23	-0.37**	-0.23	-0.23	-0.31**	0.76	1.30***	Yes	No	0.28	-
Level 2/3	-0.16	-0.07	0.53	0.58	0.79*	0.66	0.76	1.30***	Yes	No	0.28	-
LSE	0.14	-0.25	0.34	0.20	-0.18	-0.16	0.76	1.30***	Yes	No	0.28	-
LSE U.S.	0.42	0.41	0.73**	0.50**	0.13	-0.09	0.76	1.30***	Yes	No	0.28	-
POLS												
Level 1	-0.22*	0.20	-0.32**	-0.22	-0.24	-0.28***	0.77	1.29***	No	Yes	0.26	0.00
Level 2/3	-0.06	-0.13	0.49	0.53	0.81*	0.61	0.77	1.29***	No	Yes	0.26	0.00
LSE	0.11	-0.30	0.30	0.22	-0.16	-0.17	0.77	1.29***	No	Yes	0.26	0.00
LSE U.S.	0.35	0.39	0.74**	0.52**	0.13	-0.10	0.77	1.29***	No	Yes	0.26	0.00
Fixed-Effects												
Level 1	-0.22	-0.23	-0.50*	-0.38	-0.28	-0.16	-	-	Yes	No	0.03	-
Level 2/3	0.02	0.10	-0.14	-0.11	-0.02	-0.10	-	-	Yes	No	0.03	-
LSE	-0.12	-0.05	0.22	0.01	-0.07	0.15	-	-	Yes	No	0.03	-
LSE U.S.	-0.06	-0.01	0.08	-0.06	-0.22*	-0.01	-	-	Yes	No	0.03	-

Table 4.9: Variable Descriptions

Variable	Expected Sign	Source	Description/Definition
Tobin's *q*	N/A	Worldscope	Tobin's *q* is calculated as follows: ((Book Value of Total Assets – Book Value of Equity) + Market Value of Equity)/(Book Value of Total Assets)
Relative Tobin's *q*	N/A	Worldscope	Relative Tobin's *q* is calculated as the *q* of each firm divided by the average *q* of all domestic firms.
Global Industry *q*	+	Worldscope	Global Industry *q* is defined as the average *q* of all firms in the same industry. Firms are assigned to each industry based upon Primary Standard Industry Classification (SIC) codes. We use a sample of over 14,000 firms from the Worldscope Database to calculate the Global *q* of each industry. Industry groups are classified as follows: Agriculture and Food (0100-0999 & 2000-2111) Mining & Construction (1000-1999, excluding 1300-1399) Textiles & Printing/Publishing (2200-2799) Chemicals (2800-2824, 2840-2899) Pharmaceuticals (2830-2836) Extractive (2900-2999, 1300-1399) Durable Manufacturers (3000-3999, excluding 3570-3579) Transportation (4000-4899) Utilities (4900-4999) Retail (5000-5999) Banking & Financial Services (6000-6999) Services (7000-8999, excluding 7370-7379) Computers (7370-7379, 3570-3579, 3670-3679) Public Administration (9000+).
Two Year Average Sales Growth	+	Worldscope	Geometric average of annual sales over the last two years. Sales are expressed in Euro.

Figure 4.1: Mean (Unconditional) Tobin's *q*.

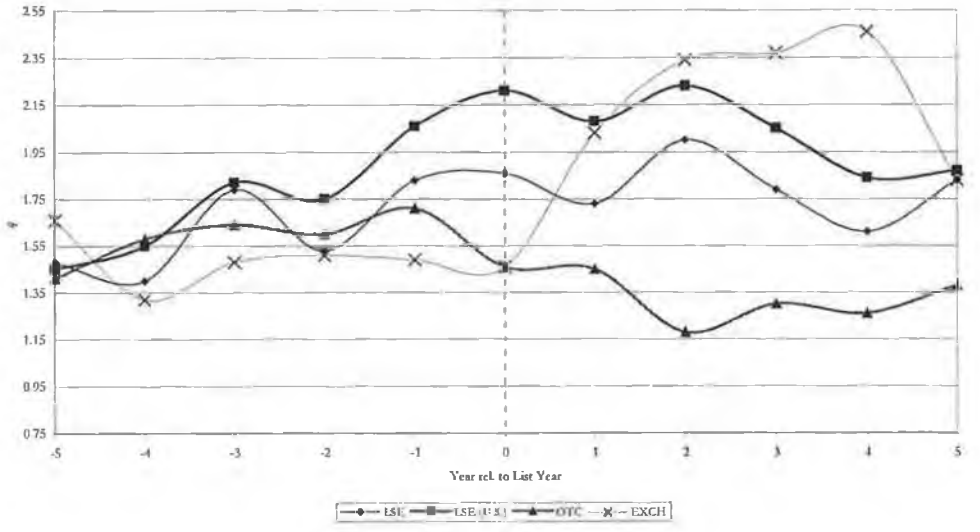


Figure 4.2: Median (Unconditional) Tobin's *q*.

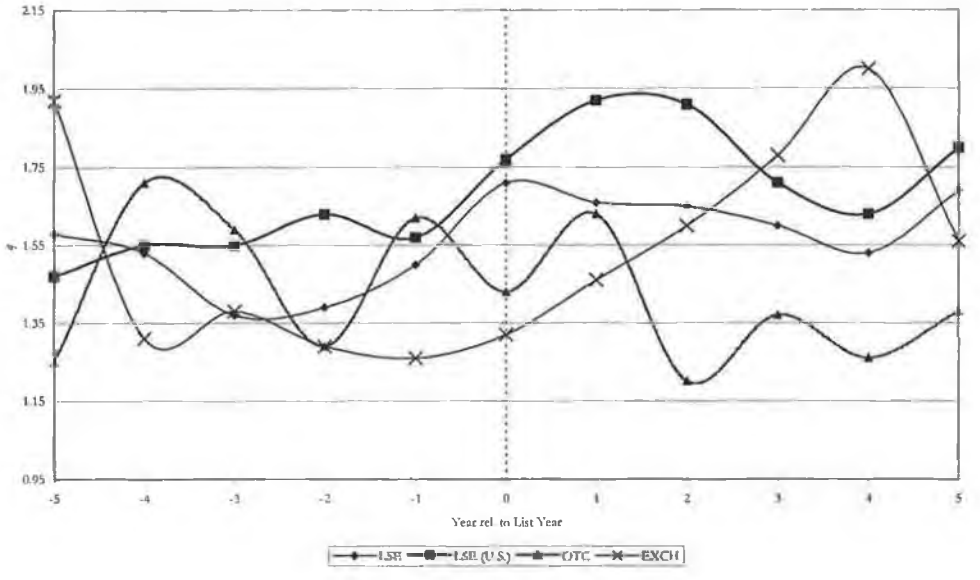


Figure 4.3: Mean Relative *q*.

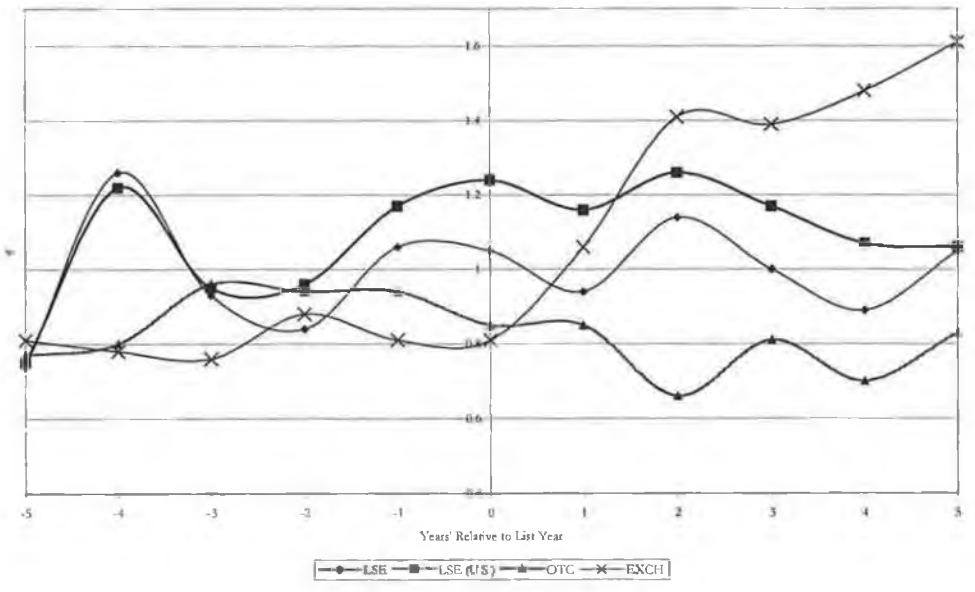
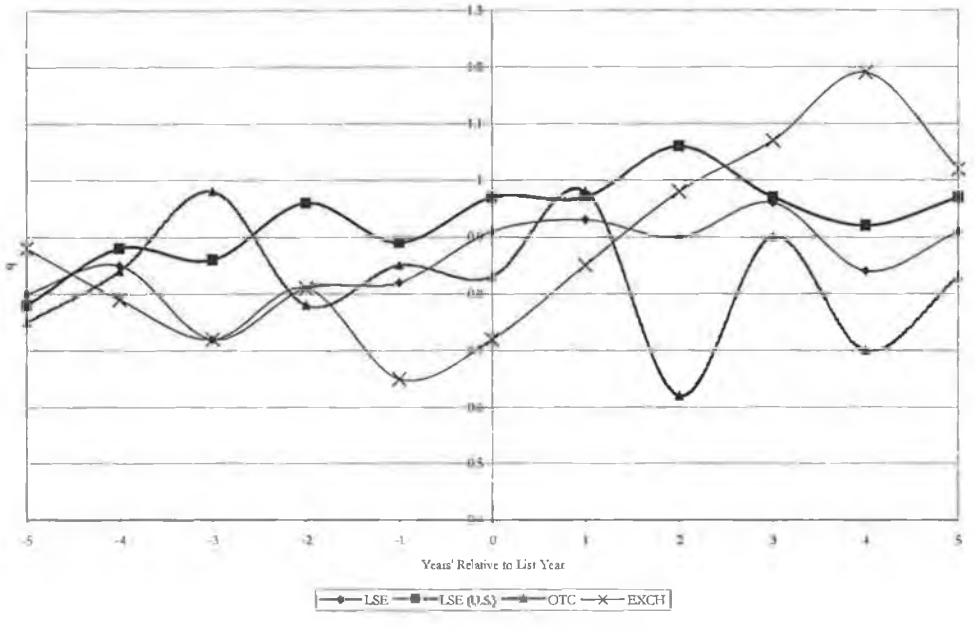


Figure 4.4: Median Relative *q*.



Chapter 5: Does cross-listing really enhance value?

5.1 Introduction

In Chapter 4, I examined the valuation effects of listing abroad for a sample of internationally listed Irish firms. The results suggest that exchange listing in both London and the U.S. proves value enhancing. In this Chapter, I examine whether cross listing is value enhancing for a sample of cross-listed emerging market firms. I am motivated to do so for a number of reasons. First, while Chapter 4 highlights the importance of conducting single-country studies, my sample size is small. By collecting a larger sample of cross-listed firms, I hope to attach both statistical and economic significance to my results. Second, I attempt to resolve the ongoing debate on whether the greatest gains to listing accrue to emerging market firms. More specifically, the theoretical predictions of, amongst others, BB (2006) and DKS (2004), and the empirical findings of Mittoo (2003), RW (2002) and LSZ (2005) together suggest that the greatest gains from exchange listing in the U.S. should accrue to firms from low-disclosure/weak investor protection countries. However, in a recent paper, KKZ (2005) document cross-sectional evidence to the contrary. They find, in contrast to the theoretical predictions of BB (2006) that the valuation benefits from exchange cross listing in the U.S., accrue to firms that operate in high-disclosure/strong investor protection countries. They theorise that this result is at least partly explained, not in terms of the benefits of listing, but in terms of the associated costs of listing. More specifically, they argue that while the incremental benefits of listing should be greater for firms from low-disclosure/weak investor protection countries, the associated costs of listing (e.g. initial and continuing U.S. G.A.A.P. compliance) are also greater for these firms. Their argument concludes by theorising that the net benefit of listing is greatest (weakest) for firms from high-disclosure (low-disclosure) countries.

In this chapter, I examine whether cross listing is value enhancing for a sample of cross-listed emerging market firms. Specifically, I extend the cross-sectional approach of both DKS

(2004) and KKZ (2005) and form a panel of 504 cross-listed firms (and 4,563 non cross listed firms), and examine whether the benefits from listing, if they do materialise, persist in the post-listing period. In doing so, I am able to examine the long-term benefits to listing using standardised valuation metrics, and not through non-selection corrected event studies (e.g. Miller (1999)).

To answer these questions, I employ a variety of different estimators. I begin by presenting a simple firm fixed effects model. In addition, given my legitimate concerns over possible violations of strict exogoneity, I estimate a pooled variant of the fixed effects model, whereby I control for unobserved heterogeneity using standard Mundlak (1978) corrections. Second, I estimate a variety of selection-correction estimators. I assume both selection on observables, and selection on unobservables (private information), and estimate different models accordingly. In the case of the former, I employ propensity score matching methods[26] (See Rosenbaum and Rubin (1983)) to match cross-listed firms to non-cross-listed firms based upon their identical propensity scores i.e. conditional probability of receiving a treatment given ex-ante characteristics. For each type of listing, I estimate the average effect of the treatment on the treated for up to five years post-listing. Finally, I relax the assumption that selection is based upon observable factors only, and assume that the listing decision is in part privately motivated i.e. unobservable. Finally, I estimate a pooled treatment effects model along the lines of Campa and Kedia (2002, CK Hereafter), DKLN (2005), Colak and Whited (2005, CW Hereafter), and Villalonga and Amit (2006, VA Hereafter) and control for selection by including the generalised residual from a first stage probit i.e. the inverse mills ratio, in a second stage regression.

My results for Level 2/3 firms are, albeit weaker, in line with those documented by KKZ (2005). It appears that given the costs of listing (See Table 2.1 for an overview), firms from high-

[26] Although previously under-utilized within finance literature, over the course of the last few years numerous authors, conscious of the endogeneity of many financial decisions, have employed propensity score matching estimators. For example, propensity score matching estimators have been applied to issues relating to: (a) equity issuance (e.g. Cheng (2004)) (b) diversification discount (e.g. Ahn and Walker (2004), Villalonga (2004)), (c) financial development (e.g. Aivazian and Santor (2003)). In fact, the growing importance of modeling self-selection in corporate finance has been recently documented by LP (2005).

disclosure countries reap greater valuation benefits from listing in the U.S. However, in subsequent analysis, I find that the valuation gains from listing appear to be transitory. For example, the results from the distributed lag, and matching models both suggest that the gains from listing are immediate, but not long lasting. This suggests that while the 'cross-listing premium' appears to persist in calendar time (See DKS (2006)), it fails to do so in event-time. Second, and in contrast with our results for Level 2/3 issues, I find that Level 1 firms from low-disclosure regimes experience, relative to Level 1 firms from high-disclosure regimes positive (less negative) valuation gains, post-listing. This result is robust to different classifications of 'low-disclosure' regimes. I can, at this stage, only theorise that this is explained in terms of the costs and benefits of listing. As before, the benefits to non-exchange listing should be greatest for firms form low-disclosure regimes. However, the costs associated with such depositary receipt programs are considerably less that the costs associated with an exchange-listing ADR. Consequently, the net benefits of listing are positive for these firms. Finally, it is difficult to draw inferences on the relative merits of cross listing for Rule 144a firms given their tendency to 'time' their decision to cross-list. However, I can infer that Rule 144a firms from high investor/English common law regimes experience the greatest fall in value post-listing.

The Chapter proceeds as follows; in the next section I outline my sample. Next I outline some 'before-after' summary statistics. My empirical specification is outlined in Section 4, and the results follow in Section 5. I end with some concluding remarks.

5.2 Data

I begin by sourcing a full list of emerging market countries with firms cross-listed in the United States. For each, I identify those firms with a cross listing in the U.S. As in Chapter 4, all information on cross-listed firms is sourced from the Bank of New York, and cross-referenced with information sourced from Deutsche Bank (www.adr.db.com), JP Morgan (www.adr.com), the New York Stock Exchange (NYSE) (www.nyse.com), and NASDAQ (www.nasdaq.com).

From my cross-listed sample of firms: (1) I classify firms according to their first cross listing, and (2) classify simultaneous Level 1/Portal 'listings' as Level 1 issues. My final sample (Table 5.1) is comprised of 4,563 non-cross-listed, non-financial firms and 583 cross-listed firms. The cross-listed sample is comprised of 260 Level 1 firms, 142 exchange-listed Level 2/3 issues and 181 firms that trade under Rule144a. I supplement my original sample of 4,563 non-cross-listed non-financial firms, with an additional 1,031 financial firms to ensure appropriate matches for our financial cross-listed firms. I do not include these financial firms in my fixed-effects, pooled ordinary least squares (with Mundlak (1978) corrections), and treatment effects models since the valuation ratios for financial firms are not comparable to those for non-financial firms. Furthermore, the elimination of financial firms facilitates a greater comparison of firms across countries (See DKS (2004)). I do not exclude financial sector cross-listed firms. This is primarily motivated by the findings of Bancel, Kalimipalli, and Mittoo (2004, BKM Hereafter) who document impressive post-listing performance for financial sector European American depositary receipts. Finally, I only include firms with average total assets greater than 100 million U.S. dollars. This latter approach facilitates a greater comparison between cross-listed and non cross-listed firms.

In Table 5.1 I outline by country the number of non-cross-listed firms, and the number of cross-listed firms listed in the United States by depositary receipt level. I exclude from my final sample firms domiciled in Russia, the Czech Republic and Indonesia because I deem the data to be of insufficient quality. I provide the percentage that each country (i.e. number of firms) contributes to the total number of firms in each depositary receipt level and adopt an identical approach for my non-cross-listed sample. For example, taken together South Korean and Malaysian firms comprise almost 28% of the non-cross-listed sample: Colombian firms contribute just over half of 1%. Hong Kong firms provide the greatest number of Level 1 firms (37.31%), while Argentina provide no firm. Brazil and Mexico equally provide the greatest share of exchange Level 2/3 issues, while India and Taiwan supply the majority of firms that trade in

the U.S. under Rule 144a on the Portal. An interesting feature evident from Table 5.1 is that across and within countries there exists significantly differing preferences for the different types of depositary receipt listings. For example, the majority of firms from Hong Kong trade over-the-counter as Level 1 issues. This contrasts notably with the preference of Indian and Taiwanese firms for a Rule 144a ADR. In line with the findings of BY (2002), Israeli firms that are predominantly high-tech firms reveal a strong preference for exchange-listed depositary receipts.

I outline in Table 5.2 my final sample by primary standard industry classification code. I classify all firms (with available primary standard industry classification codes) into one of 14 industries. They are (1) agriculture and food (0100-0999 and 2000-2111), (2) mining and construction (1000-1999, excluding 1300-1399), (3) textiles and printing/publishing (2200-2799), (4) chemicals (2800-2824, 2840-2899), (5) pharmaceuticals (2830-2836), (6) extractive (2900-2999, 1300-1399), (7) durable manufacturers (3000-3999, excluding 3570-3579), (8) transportation (4000-4899), (9) utilities (4900-4999), (10) retail (5000-5999), (11) banking or financial services (6000-6999), (12) services (7000-8999, excluding 7370-7379), (13) computers (7370-7379, 3570-3579, 3670-3679), and (14) public administration (9000+). I provide the percentage that each industry (i.e. number of firms) contributes to the total number of firms in each depositary receipt level, and in my non-cross-listed sample. For example, the majority of our non cross-listed and Rule 144a sample is made up of manufacturing firms, with 27.37, and 30.9 respectively. The majority of Level 1 firms are retail (19.62%). Level 2/3 issues are predominantly transportation firms.

I employ three different valuation ratios to analyse the impact of cross listing on firm value. I follow DKS (2004), DKLN (2005), and HKZ (2005) and employ Tobin's q, where Tobin's q is defined as before (See Chapter 4). To check for robustness, I supplement this measure with two additional valuation proxies employed by KS (2003, 2004): book-to-market of assets and earnings-to-price ratios. The use of valuation ratios instead of returns provides a means of

comparing firms across borders using a standardised metric (See KS (2004)). All variables are expressed in local currency. All data is sourced from Worldscope and is collected on the 31st of December from 1990 to 2003.

Like Chapter 4, I employ the following firm-level variables in my empirical specifications: I use the average sales growth over the last two years (geometric average) and Global Industry q for each firm. To remove the influence of possible outliers, I remove the top 1% of observations for Tobin's q, and two-year average sales growth, and remove the top and bottom 1% of observations for both, book-to-market of assets, and earnings-to-price. Negative values of Tobin's q are set to missing. I outline, in Table 5.3, the expected sign, the source, and a fuller definition of all of the firm-level variables just outlined.

I include the following country-level controls obtained from LLSV (1998) to control for differences in value across countries: a dummy variable indicating the legal origin of each country. In each specification I employ the English law dummy as my reference group. Second, I employ the anti-director rights index, an equally weighted index of 6 different shareholder rights, which ranges from a low of 0 to a high of 5. A higher rating implies a greater level of investor protection. Mexico has an anti-director rights measure of 1. In contrast, Chile, Hong Kong, India and South Africa score much higher with a rating of 5. I also include a measure of judicial efficiency, and accounting standards. The former, ranging from 0 to 10 is defined as producing a rating of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms". A higher rating of each implies both greater judicial efficiency, and a higher level of accounting standards. Hong Kong scores a perfect rating of 10, while Thailand scores a lowly 3.25. The index of accounting standards rates companies' annual reports in 1990 for the inclusion or exclusion of 90 specific items. This measure is unavailable for China, Hungary and Poland. Finally I include two additional country-level controls: country liquidity ratio and, a capital access ratio. All country-level control ratios are time-invariant.

Finally, I employ a capital access ratio, developed by the Milkens Institute. I source this variable from DKS (2004) and BKM (2004). This variable quantifies the ability to source capital based upon the breath, depth and liquidity of markets. The score ranges from 0 to 7, and is increasing in the ability of firms to access capital. All country level variables are outlined in Table 5.4. Hong Kong, India, and Singapore score perfectly on the Judicial Efficiency measure. Chile, Hong Kong, India, and South Africa are the highest rated emerging market firms when ranked in terms of anti-director rights.

5.2.1 Summary Statistics

I report in Tables 5.5-5.5(a), mean and median values of the variables employed in the analysis. In Table 5.5, I calculate the means and medians of all variables for all cross-listed and non cross-listed firms. In Table 5.5(a), I further sub-divide our cross-listed sample of firms into Level 1, Level 2/3, and Rule 144a firms, respectively. In both Tables, I test for any significant mean and median differentials between each pairwise set of firms. For example, in Table 5.5, I report both t (mean) and z (median)-statistics in order to test for systematic differences between our mean and median cross-listed and non cross-listed samples, respectively.

First, the mean and median non cross-listed firm tend to be more highly valued than cross-listed firms. In fact, this result holds for all three-valuation metrics (although it is not statistically significant when I employ book-to-market value as my valuation metric). Second, and in line with a variety of earlier studies, I find that cross-listed firms tend to be larger (as measured by total assets), are more profitable (as measured by return on equity), and have greater sales growth (See CKS (2003), PRZ (2002)).

In Table 5.5(a), I compare non-cross-listed firms to each depositary level separately. Again, non cross-listed firms tend to be worth more. For example, median value (q) for non-cross-listed, Level 1, Level 2/3, and Rule 144a is 1.42, 1.34, 1.36, and 1.34, respectively. Interestingly, the mean and median valuation differentials between the different depositary receipt levels tend

to be insignificant. Next, Level 2/3 firms tend to be larger, more profitable, and are growing faster than Level 1, and Rule 144a firms. For example, the median return on equity for exchange-listed firms is 10.26, compared to figures of 8.91 and 9.36 for Level 1 and Rule 144a firms, respectively. All cross-listed firms tend to be larger and more profitable than non-cross-listed firms. An interesting feature from Table 5.5(a) is that there appears to be systematic differences between our non-exchange listed sample of firms. Rule 144a firms are more profitable (although not significantly so), are larger, and are growing faster.

In the remaining rows of Table 5.5(a), I examine the differences in country-level variables across the different sub-samples of firms. First, French legal origin firms are more likely to cross-list on an organised exchange i.e. the means of French law are significantly higher for firms that list as a Level 2/3 issue, compared to those that list either over-the-counter, or as a private placements. On the other hand, both English common and German civil law firms tend to trade less frequently on organised exchanges. Specifically, the majority of English common law firms trade over-the-counter as Level 1 issues, while German civil law firms trade predominantly as private placements on the Portal.

Next I compare the sample of cross-listed and non-cross-listed firms in calendar and event time. In Table 5.6 I compare the value of cross-listed firms relative to non-cross-listed firms in each year from 1990 to 2003. I present two sets of summary measures. First, for each listing type, I present mean and median value (q) for each year. In each column labeled 'difference', I test whether the mean and median valuation differences between the cross-listed and non-cross-listed firms are statistically significant in each year using standard tests. In the remaining columns, I outline yearly estimates of the valuation difference between cross-listed and a matched sample of non-cross-listed firms i.e. the cross-listing premium. All cross-listed firms are matched to non-cross-listed firms based upon size (total assets), growth (two-year sales growth), legal origin, and industry group using propensity score matching. Li and Zhao (2006, LZ Hereafter)

adopt an identical approach in their study of seasoned equity offerings. In the next section I outline the mechanics of propensity score matching.

The summary measures presented in Table 5.6 are consistent with the findings of DKS (2006)[27]. Specifically, the matching estimates suggest that exchange traded firms experience the largest cross-listing premium, relative to both Level 1 and Rule 144a cross-listed firms. Next I find that the cross-listing premium tends to vary over time. For example, emerging market Level 2/3 firms are worth more, but not statistically so in every period. The cross-listing premium is greatest for these firms in 1994. In contrast, for Level 1 and Rule 144a firms, the valuation difference tends to vary from discount to premium over time.

I compare in Table 5.7, the value of cross-listed firms to non-cross-listed firms in event time. In Panel A, I present for each listing type, the mean and median level of value in an eleven year period around the time of cross-listing. I denote the listing year as Year 0, and compare the value of cross-listed firms to non-cross-listed firms in each year from five years pre-listing to five years post-listing. The mean and median difference between cross-listed and non-cross-listed firms is calculated by taking the value of each cross-listed firm in each year less the average performance of non-cross-listed firms in the same year. Thus, I report the mean and median 'abnormal' valuation between cross-listed and non-cross-listed firms. In Panel B, I supplement this with before-after median estimates for each variant of our valuation metric. To facilitate a direct comparison between Tobin's q and the other valuation ratios, I invert both earnings-to-price, and book-to-market value of assets. To conserve space, I comment only on the statistics for Tobin's q. For each cross-listing sub-group, I calculate the change in value in each of the five post-listing years, relative to each of three pre-listing years i.e. two-years (Year = -2), one year (Year = -1), and the list year (Year = 0). The value of each depositary receipt level is depicted graphically in Figures 5.1-5.6.

[27] DKS (2006) also examine the cross-listing premium across countries, stage of economic development, and industry classification.

The results are consistent across both Panels and suggest the following. First, I find that Level 1 firms list after a period of poor performance (i.e. falling value). Both the absolute and relative i.e. 'abnormal' value of Level 1 firms, fall in every pre-listing period, and continues to fall post-listing. It appears that the greatest fall-off in value occurs in the pre-listing period. For example, over the course of the eleven-year 'window', the mean Level 1 firm experiences an absolute decline in value in the region of 35%. However, 28% (or 74% of the overall depreciation in value) occurs in the pre-listing period. Another interesting feature evident from Panel A relates to the valuation difference between Level 1 and non-cross-listed firms. Unlike Level 2/3 firms (and probably Rule 144a firms if I ignore their temporary 'abnormal' performance), Level 1 issues are worth significantly more than non-cross-listed firms (and Level 2/3 firms) in the pre-listing period. Second, Rule 144a firms appear to 'time' their decision to trade in the U.S. Both the absolute and relative measures of value, demonstrate that these firms experience a sizable appreciation pre-listing, which falls off post-listing. In fact, the fall-off is greater than the corresponding rise in value that occurs in the pre-listing period (i.e. the post-listing value is significantly less than the pre-listing value, and the 'abnormal' level of value is significantly negative after five years post-listing). This result for Rule 144a firms is consistent with the findings of GLS (2006). Finally, in contrast to the predictions of the bonding hypothesis, exchange trading in the U.S. is not associated with a corresponding appreciation in firm value. However, unlike Level 1 firms, the fall-off in value appears not to begin in the pre-listing period. More specifically, in the course of the eleven-year event 'window', the average exchange traded firm experiences a 16% depreciation in value. In the pre-listing period (Year = -5 to Year = 0), the mean value of these firms only declines by 4%. Thus, it appears that, unlike Level 1 firms, Level 2/3 firms tend to experience the greatest fall-off in value, post-listing. In the next section, I generate propensity score matches in event time and estimate the average effect of the treatment (listing) on the treated (cross-listed firms) for up to five years post-listing[28].

[28] In their study, LZ (2006, pg. 358) estimate separate propensity score models for each year. I carry out a similar

Next I present by each listing type and country, pre and post-listing measure of value. In Tables 5.8-5.11, I outline summary statistics related to each valuation metric. In Table 5.8, I present median q ratios for each country. For each I calculate the median *q* ratio for non-cross-listed and cross-listed firms over the full sample period. The median difference between cross-listed and non-cross-listed firms is presented in column 4. In the remaining columns of Table 5.8, I outline pre and post-listing median *q* ratios for all cross-listed, Level 1, Level 2/3, and Rule 144a issues, respectively. In Tables 5.9 and 5.10, I undertake an identical analysis using book-to-market and earnings-to-price. The results are broadly similar across the valuation ratios. Consequently, I only discuss the results for q.

The summary statistics suggest sizable variation in value across countries. Median q ranges from a low of 0.75 for Brazil to a high of 1.76 for Thailand. This range increases when I employ mean (unreported) rather than median q ratios. There exists a positive and statistically significant valuation differential between cross-listed and non-cross-listed firms for 9 countries employed in our sample. I also document 6 statistically significant negative median differentials between both sets of firms. For the remaining four countries, I report a positive, but insignificant valuation difference.

I present in Table 5.12 a correlation coefficient matrix for all of the firm and country-level variables employed. In the last column, I calculate variance-inflation factors in order to detect for any possible multicollinearity. In almost all instances the correlation coefficients are of the correct sign, and are highly significant. For example, *q* is positively correlated with Global industry q, accounting standards, judicial efficiency, anti-director rights, liquidity, and capital access, and is negatively correlated with the French civil law dummy, which is in line with predictions of LLSV (2002). Second, I find that the country-level control variables are highly correlated with one another. For example, the anti-director rights measure and the level of

exercise in Table 5.6. They refrain from estimating a pooled propensity score model over the entire period because of the year-by-year analysis provides a "flexible specification for business cycle". Although I am aware of the limitations of the pooled specification to adequately account for business cycle effects, I am primarily motivated in this paper to examine the valuation effects in event time, and not in calendar time.

judicial efficiency measure are positively and significantly correlated ($\rho = 0.63$). In addition, the variance inflation factors for all of the country level variables are large relative to those calculated for the firm-level variables, albeit perhaps not necessarily too harmful (the general rule of thumb is that multicollinearity is harmful if the $VIF > 10$ (See Kennedy (2003)). Given this, in all regression specifications, I include these country-level controls separately[29].

5.3 Estimation Methodology

Next I employ Petersens (2005) test procedure. The test procedure is outlined in Section 3.4. I begin by testing for a firm effect. In Table 5.13, I present standard error estimates using each of the before mentioned estimators for the following independent variables; dummy variables for Level 1 [OTC], Level 2/3 [EXCH], and Rule 144a [PORTAL] firms, two-year geometric average sales growth [Sales Growth], and Global Industry q [Industry q]. In all specifications, the independent variable is *q*. I document similar results when I employ either book-to-market or earnings-to-price as the valuation metric. As noted earlier, I present the standard error, and not the coefficient estimates.

The results from Table 5.13 suggest that there appears to be a firm effect in the data. The ratio of Rogers (1993) standard errors clustered by firm to White-Huber (1980) standard errors $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$ are sizable different. For example, the standard errors of each of the depositary receipt dummy variables clustered by firm are more than twice the White-Huber (1980) standard errors. For both continuous independent variables, there is also evidence to suggest that both ordinary least squares and White-Huber (1980) standard errors consistently underestimate the 'true' standard errors. In summary the evidence suggests the presence of a firm effect in the data.

[29] KKZ (2005) adopt a different approach. They form what they term an "investor rights factor" using factor analysis.

Next I test for the presence of a time effect. I estimate Rogers (1993) standard errors clustered by time (year). In the last columns of Table 5.14, I compare these standard errors to ordinary least squares, and White-Huber (1980) standard errors, respectively. Interestingly, the results from Table 5.14 differ across the independent variables. For example, for each depositary receipt dummy variable, the Rogers (1993) clustered by time and not the ordinary least squares, or the White (1980) standard errors, underestimate the 'true' standard error. In contrast, for both continuous independent variables, ordinary least squares, and ordinary least squares (with heteroscedastic corrections i.e. White (1980)) standard errors consistently underestimate the true standard error.

Finally, I account for both the firm and time effect, by including time fixed effects to absorb the time effect, and cluster by firm. The results are outlined in Table 5.15. I compare these standard errors to ordinary least squares, and White-Huber (1980) standard errors. The ratio of Rogers (1993) standard errors to ordinary least squares and White-Huber (1980) standard errors i.e. $\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$, $\left(\frac{SE_{Rogers}}{SE_{White}}\right)$ are outlined in the last and next to last columns of Table 5.15. I also report whether the coefficient estimates are statistically significant under the different estimators. I do so in order to highlight the importance of correctly adjusting standard errors for arbitrary within-cluster correlation. Failure to do so dramatically alters the conclusions that I draw from the analysis.

In this section I examine the effect of cross listing on firm value. I begin with the following specification, whereby I model firm value as a function of firm characteristics:

$$q_{it} = \delta_0 + X_{it}\beta + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 PORTAL_{it} + c_i + u_{it} \qquad (5.1)$$

Where X_{it} is a set of exogenous observable characteristics of the firm, OTC_{it}, $EXCH_{it}$, $PORTAL_{it}$ are standard dummy variables that take the value of 1 if the firm trades in the United States as a Level 1, Level 2/3, or under Rule 144a on Portal, respectively. c_i is

unobserved heterogeneity and u_{it} is a standard idiosyncratic disturbance term. Finally, $\{\alpha,\beta,\delta_1,\delta_2,\delta_3\}$ is a vector of parameters to be estimated.

In line with, amongst others, DKS (2004), and LLM (2003), I explicitly acknowledge the non-randomness of the cross-listed sample, and model their decision to cross-list as follows:

$$\begin{aligned} CL^*_{it} &= \gamma Z_{it} + \eta_{it} \\ CL_{it} &= 1 \text{ if } CL^*_{it} > 0 \\ CL_{it} &= 0 \text{ if } CL^*_{it} < 0 \end{aligned} \tag{5.2}$$

Where CL^*_{it} is an unobserved latent variable, and Z_{it} is a set of observable firm-level characteristics that determine the decision to cross-list in the United States, and η_{it} is a disturbance term. In addition, $OTC_{it}, EXCH_{it}, PORTAL_{it} \in CL_{it}$. Selection bias arises because of the correlation between $OTC_{it}, EXCH_{it}, PORTAL_{it}$ and u_{it}. This correlation can arise in two instances i.e. (1) selection on observables which arises through correlation between Z_{it} and u_{it}, or (2) through selection on unobservables i.e. correlation between η_{it} and u_{it}. Both instances render ordinary least squares estimates of the effect of cross listing on value, biased.

I use three different approaches in order to control for selection bias. First, I begin by exploiting the panel nature of our sample and use a fixed-effects estimator to estimate equation (1). In doing so, I explicitly assume that the unobservables are time-invariant. In addition, I must assume that the unobservables, in addition to being time-invariant, have no causal effect in precipitating cross listing (See LP (2005)).

Second, I estimate two treatment effects models. First I assume that the decision to cross-list in the United States is a function of observable firm-level characteristics. I make the strong assumption that the decision to cross-list is not driven by unobservable factors i.e. private information. I estimate the average effect of the treatment on the treated (ATT) by matching

those firms that cross-list with a non-cross-listed firm with a similar propensity score. The ATT is the difference in value between the cross-listed and matched non-cross-listed firm.

Third, I relax the assumption that the decision to cross-list is not driven by unobservable characteristics. I estimate a treatment effects model, whereby I augment the second stage equation with a selection correction term namely the inverse mills ratio.

5.3.1 Fixed-Effects Estimation

I begin with a standard fixed-effects specification. I augment equation 5.1 with time-fixed effects and estimate the following two-way fixed effects model[30]:

$$q_{it} = \delta_0 + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 PORTAL_{it} + \alpha_t + c_i + \upsilon_{it} \qquad (5.3)$$

Where in addition to the variables and coefficients outlined earlier, α_t are standard time-fixed effects that account for contemporaneous correlation. Like Chapter 4, I estimate a distributed lag version of 5.3:

$$q_{it} = \delta_0 + \sum_{s=0}^{5} \delta_t OTC_{it}^{s} + \sum_{t=0}^{5} \delta_t EXCH_{it}^{s} + \sum_{t=0}^{5} \delta_t PORTAL_{it}^{s} + c_i + \upsilon_{it} \qquad (5.4)$$

Where $OTC_{it}^{s}, EXCH_{it}^{s}, PORTAL_{it}^{s} = 1$ if t is s years after the firm lists in the U.S. Finally, and as I do in Chapter 4, I estimate a pooled version given our concerns over violations of strict exogeneity[31]. I specify the individual specific effects as Mundlak (1978) corrections:

$$c_i = \overline{X_i}\zeta + a_i, \text{ where } \overline{X_i} = \frac{1}{T}\sum_{s=1}^{T} X_{it} \qquad (5.5)$$

Substituting 5.5 into equation 5.4 yields the following:

$$q_{it} = \delta_0 + X_{it}\beta + \delta_1 OTC_{it} + \delta_2 EXCH_{it} + \delta_3 PORTAL_{it} + \overline{X_i}\zeta + \mu_{it} \qquad (5.6)$$

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[30] The results from both the standard Hausman (1978) test, and Mundlak (1978) auxiliary regression specification confirm that in this instance a random effects specification is not appropriate.

[31] I formally test for this possibility, following Wooldridge (2002), by inserting the one-year forwarded cross-listing variables as independent variables and testing whether their coefficients are jointly equal to zero.

Where the variables are as before. X_{it} is a vector of firm and industry control (two-year average sales growth and Global Industry q). Equation 5.6 is estimated using pooled ordinary least squares yielding consistent estimates. In addition to estimating both 5.4 and 5.6, I allow for the valuation effects to differ in each post-listing period; in equations 5.4 and 5.6 I restrict the effects of listing to be homogenous in each post-listing period. For example, in the cased of the pooled ordinary least squares (with Mundlak (1978) corrections), I estimate the following:

$$q_{it} = \delta_0 + X_{it}\beta_1 + \sum_{s=0}^{5}\beta_t OTC_{it}^s + \sum_{t=0}^{5}\beta_t EXCH_{it}^s + \sum_{t=0}^{5}\beta_t PORTAL_{it}^s + \overline{X}_i\zeta + \upsilon_{it} \qquad (5.7)$$

I also estimate a similar model using fixed-effects estimation. The vector X_{it} remains unchanged from the previous specification.

5.3.2 Propensity Score Matching

I begin by outlining exactly what I would like to measure. Let $\Delta q = q_{CL} - q_{NCL}$ define the valuation benefits of listing for firms, where q_{CL} denotes the valuation outcome of cross listing, and $CL \in (OTC, EXCH, PORTAL)$, q_{NCL} denotes the unobservable counterfactual. I employ a propensity score-matching estimator to estimate q_{NCL}. The notation is taken from BC (2000).

I construct the counterfactual outcome by matching cross listing and non-cross-listing firms with similar observable characteristics, ex-ante. X is a vector of observable firm characteristics, which includes a set of non-mutually exclusive observable characteristics that affect both (1) program participation, and (2) impact upon the outcome variable q_{CL}. The fundamental assumption underlying matching, the Conditional Independence Assumption (CIA) relies crucially on the selection of the appropriate vector of observables. This assumption states that the assignment (D) conditional on observable factors X is independent of potential firm

values q_{CL}, q_{NCL} i.e. given X, one can use non-cross-listed (non-treated) firms to estimate the counterfactual, Y_0. Given X, I estimate the effect of the treatment on the treated (ATT), $E(q_{CL} - q_{NCL} \mid D = 1, X)$. The vector of observable characteristics, X are; size (total assets), sales growth (defined as the two-year average sales growth), legal origin, lagged firm value (q), and industry dummies based upon primary standard industry classification codes. I begin with a parsimonious probit model, whereby I match firms based on size and industry. In subsequent matches, I augment this with sales growth, legal origin, and lagged q, respectively[32].

Firm value, q_{CL} associated with cross listing in the U.S. can be written as a function of observables (T) and unobservables U_E:

$$q_{CL} = g_{CL}(T) + U_E \tag{5.8}$$

Where $(U_E) = 0$ and g_E is a non-stochastic function. The mean effect of cross listing on firm value for each firm with observable characteristics X is given by:

$$E(q_{CL} - q_{NCL} \mid D = 1, X) = g_{CL}(X) - g_{NCL}(X) + E(U_{CL} - U_{NCL} \mid X, D = 1) \tag{5.9}$$

And the average effect of cross listing is given by:

$$M_{CL}(S) = \int_S \frac{E(q_{CL} - q_{NCL} \mid D = 1, X)\, dF(X, D = 1)}{\int_S dF(X, D = 1)} \tag{5.10}$$

S is a subset of the support of X given $D = 1$. Let I_L denote the set of indices for cross-listed firms and q_{CL} is as before. The causal effect of cross listing on firm value for each firm i, where $i \in I_{CL}$ is obtained by comparing q_{CL_i}, the average value of a cross-listed firm to the average value of a matched non-cross-listed firm, q_{NCL_j} where $j \in I_{NCL}$. Each cross-listed firm is

[32] The adoption of two (or more) different specifications of the probit model acts as an important diagnostic check of our model. Specifically, Deheija (2005) provides an empirical example demonstrating that the validity of the estimates of the impact of the treatment relies crucially on the robustness of our estimates of the ATT to different specifications of the probit model. Large changes in the estimated ATT resulting from small changes in the probit specification would rule against the use of propensity score matching in the given context.

matched to its 'nearest' non-cross-listed firm and may be matched to more than one non-cross-listed firm if more than one is identified. The change in value for each firm is then given by:

$$q^{p}_{CL_i} - \sum_{j \in I_{NCL}} W_{CL}(i,j) q^{p}_{NCL_j} \tag{5.11}$$

Where $W_{CL}(i,j)$ is a positive weight function such that the weight sum to 1. Aggregating across firms, the average effect of cross listing on value is given by:

$$\hat{M}(CL,p,S) = \frac{1}{N_{CL}} \sum_{i \in I_{CL}} q_{CL_i} - \sum_{j \in I_{NCL}} W_{CL}(i,j) q^{p}_{NCL_j} \tag{5.12}$$

N_{CL} and N_{NCL} is the number of cross-listed and non-cross-listed firms in I_{CL} and I_{NCL} respectively. I employ 'Nearest-Neighbour' matching to match the listed and non-listed firms. Nearest-neighbour matching begins by defining a neighbourhood $C(X_i)$ for firm i where $i \in I_{CL}$. Neighbours are chosen for each firm i such that for each non-cross-listed firm $(j \in I_{NCL}, X_j \in C(X_i))$.

5.3.3 Treatment Effects

In this section I outline a standard treatment effects model, whereby I correct for the probability of listing based upon unobservable factors. This approach is similar, but not identical to the standard Heckman (1979) two-stage estimation procedure[33]. I begin by referring to Equation 5.2. Now I assume that the decision to cross-list in the United States is a function of unobservable characteristics. CK (2002), CW (2005), and VA (2006) estimate similar 'pooled Heckman' models. Thus, the impact on firm value conditional on being cross-listed in the United States as:

$$E(q_{it} \mid CL_{it} = 1) = \delta_0 + X_{it}\beta_1 + \delta_1 CL_{it} + E(\upsilon_{it} \mid CL_{it} = 1) \tag{5.13}$$

[33] Technically, the Heckman (1979) two-stage procedure is not a treatment effects model. In addition to the standard Heckman (1979) model, a treatment effects model includes, unlike the Heckman (1979) model, the selection indicator from the first stage probit as a regressor in the second-stage regression.

Given 5.2 and assuming that the errors terms from both Equations 5.1 and 5.2 are bivariate normal, the unobservable component from equation 5.2, the generalised residual from the probit model is defined as:

$$E(q_{it} \mid CL_{it} = 1) = \rho\sigma_{\upsilon}\lambda_1(\beta Z_{it}) \tag{5.14}$$

where:

$$\lambda_1(\beta Z_{it}) = \frac{\varphi(\beta Z_{it})}{\phi(\beta Z_{it})} \tag{5.15}$$

The latter is commonly referred to as the Inverse Mills Ratio. In the second-stage estimation, I add this selection-correction term, yielding the following:

$$q_{it} = \delta_0 + X_{it}\beta_1 + \delta_1 CL_{it} + \lambda_1\beta_2 + c_i + \upsilon_{it} \tag{5.16}$$

In addition, I specify the unobserved heterogeneity as in Mundlak (1978) i.e. $c_i = \overline{X_i}\zeta + a_i$, where $\overline{X_i} = \frac{1}{T}\sum_{s=1}^{T} X_{it}$, and estimate the following:

$$q_{it} = \delta_0 + X_{it}\beta_1 + \delta_1 CL_{it} + \lambda_1\beta_2 + \overline{X_i}\delta + \upsilon_{it} \tag{5.17}$$

In their pooled 'Heckman' specification, DKLN (2005) control for unobserved heterogeneity by estimating least squared dummy variable model, whereby, as the name suggests they include a dummy-variable for each firm[34]. Given the disadvantage of using this approach in large samples, I specify the unobserved heterogeneity by including Mundlak (1978) correction terms as an additional set of regressors in Equation 5.17. The results for each estimation procedure are presented in the following section.

5.4 Results

The results are outlined in Tables 5.16-5.20. In Table 5.16, I present the results corresponding to equations 5.3, 5.6, and 5.17. For each depositary receipt level, I present ordinary

[34] I would like to thank both Kathryn Dewenter and Walter Novaes for clarifying to me their estimation procedure.

least squares, pooled ordinary least squares, firm fixed effects, and treatment effect estimates of the impact of cross listing on value. In all regressions, I only include those firms with average total assets greater than one hundred million U.S. dollars, calculated over the entire sample period, in order to facilitate a greater comparison between cross-listed and non-cross-listed firms. In Table 5.17, I examine the valuation effects of cross listing by level of domestic investor protection. Finally, in Tables 5.18 and 5.19, I examine the distribution of value in the post-listing period using estimates of the average effect of the treatment on the treated.

I begin with a discussion of the results presented in Table 5.16. First, unlike DKS (2004) and KKZ (2005), exchange cross-listed firms do not on average receive a higher valuation compared with non-cross-listed firms. Except for the fixed effect estimates, I find that on average listing in the U.S. is not associated with enhanced value. Given the violation of strict exogeneity for the firm fixed effects estimates I lend more credence to the least squares ordinary (with firm level controls for growth opportunities), pooled least squares, and treatment effect estimates.

Interestingly, I find that in the treatment effects models, the inclusion of the inverse mills ratio, increases the magnitude of the estimated coefficient, and reduces its standard error. However, in both instances, the coefficient estimate for Level 2/3 firms remains statistically insignificant (albeit marginally so). The sign of the inverse mills ratio is also interesting. Unlike DKS (2004), DKLN (2005), and BF (2006) the estimated coefficient is positive, and statistically different from zero. This suggests that the unobservable factors that govern the decision to exchange cross-list, also serves to impact positively on firm value.

Next I examine whether cross listing in the U.S. confers any valuation benefits on non-exchange-traded firms. The predictions from both the recognition and the legal bonding hypotheses suggest that listing in the U.S. should not be associated with enhanced value for these firms. My results are consistent with these predictions. First, and in line with the event time 'performance adjusted' valuation statistics presented earlier, Level 1 over-the-counter firms are valued similar to non-cross-listed firms. Although the signs differ across the different estimators, in

all specifications, the estimated 'Level 1' coefficient remains statistically insignificant. Yet again the sign of the inverse mills ratio is positive, but in this instance, insignificant. I document similar findings for Rule 144a firms. The least squares and treatment effects estimates suggest that these firms are not valued at a premium relative to non-cross-listed firms. In common with Level 2/3 firms, I find that the coefficient estimate for the inverse mills ratio is significantly positive. In all regressions, I find that the industry growth rate, proxied by global industry *q*, and firm growth impact positively on firm value.

In Table 5.20, I present a series of pooled least squares estimates with country controls. The results are the same as those just outlined: Level 1 firms are worth less (albeit insignificantly), exchange-listed Level 2/3 issues are worth more, but insignificantly so. The results for Rule 144a are as before. The sign of the coefficient estimates for the country-level control variables are in line with my prior expectations: relative to English common law firms, German and French civil law firms are worth less. This is entirely consistent with the findings of LLSV (2002). Firm value is increasing in the index of accounting standards, judicial efficiency, anti-director rights, overall market liquidity, and capital access. In all regressions the country level controls remain highly significant.

In summary, the results thus far that exchange-cross-listing in the U.S. does not appear to be associated with enhanced value for emerging market firms. In all specifications, I find that exchange-traded firms are not valued at a premium relative to non-cross-listed firms. The results are in line with the summary measures that I presented earlier: in calendar, and event time, exchange-traded firms are valued on a par with non-exchange traded firms. Results for the non-exchange-traded sample are in line with the predictions of the recognition and bonding hypotheses; cross listing in the U.S. is not associated with enhanced value for these firms[35]. In the following sections, I take the analysis a step further. First, I sub-divide each depositary receipt level by legal

[35] When I employ book-to-market and earnings-to-price as our valuation metric, I reach stronger conclusions. For example, for both metrics we find that exchange-traded firms are worth more, and Rule 144a firms less. I find conflicting results for Level 1 firms.

regime and examine the effects of listing on value for each. Finally, I present conditional estimates of the effect of listing on value in event time using matching and distributed lag methods.

Next I turn my attention towards examining the relative valuation benefits of listing across different legal regimes. Over the last decade the evidence in respect to the benefits across different legal regimes/level of investor protection has been mixed. For example, Miller (1999) documents empirical support in favour of the theoretical predictions developed by BB (2006); the valuation effects of [exchange] cross listing are larger the poorer the level of investor protection in the domestic, non-U.S. economy. In contrast KKZ (2005) suggest that the valuation gains to exchange listing are greater for firms from high investor protection countries[36]. I examine the valuation benefits of listing across different 'investor protection regimes' for all three listing levels. I adopt two approaches: in Panel A, I interact a 'high investor protection' dummy with each cross-listing dummy, and provide pooled ordinary least squares and ordinary least squares estimates. Country-level investor protection is defined in terms of LLSV's (1998) anti-director rights index. I present two sets of results based upon above and below median domestic legal protection. In Panel B, I present a series of pooled ordinary least squares estimates of the impact of listing by sub-sets of firms based upon legal characteristics. I employ three legal characteristics; anti-director rights index, judicial efficiency, and English common law. All variables are sourced from LLSV (1998) and are defined earlier. I estimate models for subsets of firms classified in terms of being above or below the median value of each index. The median values are calculated based upon the number of countries in the sample.

I begin with a discussion of Panel A. In columns 1-3, I interact each listing dummy with a 'high investor protection' dummy, where firms are classified as domiciled in a high protection regime of the anti-director rights measure is 4 or greater. Low investor protection firms have a ranking of 3 and below. For example, Argentina, Chile, Hong Kong, India, Malaysia, Singapore,

[36] BB (2006) also contends that firms from high investor protection countries are more likely to [exchange] cross-list in the U.S. KKZ (2005) find empirical support in favour of this prediction. Using logit analysis they outline how high investor protection firms are more likely to list on an exchange than low investor protection firms. Low investor protection firms are more likely to list, either as a Level 1, or Rule 144a ADR.

and South Africa have an anti-director rights index equal to 4 or above. In the remaining columns, I interact each listing dummy with the 'low investor protection' dummy.

I begin with a discussion of the results for 'high investor protection' firms. In line with my earlier findings, the joint coefficient estimates suggest that both Level 1 and Rule 144a firms are worth less (albeit insignificantly so) in the post-listing period. For example, the pooled ordinary least squares estimate (with firm controls) for Level 1 firms is –0.13 (-0.0444 –0.0833). Though statistically insignificant, the negative valuation effects of cross listing appear to be less severe for Level 1 firms from low investor protection countries. I document similar, but stronger results for Rule 144a firms: in line with my earlier findings, the (pooled ordinary least squares) coefficient estimates of 'Rule 144a' and 'Rule 144a*AD' sum to –0.15. Unlike Level 1 firms, the coefficient estimates are oppositely signed suggesting that the valuation effects of listing differ across different investor protection regimes. This result suggests that Rule 144a firms from low investor countries experience a positive and significant valuation effect, post-listing ('Rule 144a' = 0.1703**, 'Rule 144a*AD' = -0.3240***). While this is consistent with the finding for Level 1 firms, low investor protection Rule 144a firms experience, in contrast, positive valuation effects, post-listing. My findings for both Level 1 and Rule 144a firms are similar across both sub-samples, and across the different econometric specifications.

Finally, I discuss the results for Level 2/3. The pooled ordinary least squares and ordinary least squares estimates suggest that Level 2/3 exchange-listed firms are worth more, albeit insignificantly so, in the post-listing period. There is weak evidence to suggest that, in contrast to both Level 1 and Rule 144a firms, the greatest valuation gains of listing accrue to high investor, not low investor protection firms. KKZ (2005) reach similar, albeit stronger conclusions (the coefficient on the interaction of exchange list and low disclosure is significantly negative) in their analysis. The results are identical when I interact our listing dummies with 'low investor protection' dummies'.

In order to examine whether my results are robust to the classification of firms, I outline in Panel B, pooled ordinary least squares estimates of the impact of listing by sub-sets of firms based upon legal characteristics. In almost every instance, the results documented in Panel B are in line with those in Panel A. For example, for all cross-listed firms, the previous results are replicated when I classify firms according to 'Judicial Efficiency'. Furthermore, below median Rule 144a firms are worth more in the post-listing period. When I classify firms as 'English Common Law' or 'Non-English Common Law', I find very differing results between the non-exchange depositary receipts. Non-English Common Law Level 1 and Rule 144a experience contrasting fortunes in the post-listing period; on the one hand, non-English Common Law Level 1 firms experience a statistically significant fall in value post-listing. In contrast, civil law Rule 144a firms experience significantly enhanced value, post-listing. Finally, in line with KKZ (2005), I document stronger conclusions than earlier when I classify exchange-listed depositary receipts as English common law, or not. The results suggest that the benefits to exchange listing in the United States only accrue to firms with an English Common law tradition. This finding is consistent with the prevailing view that the benefits to exchange cross listing is greatest for those firms with the lowest initial costs of compliance, and continued adherence to U.S. G.A.A.P. So while on theoretical grounds the benefits to exchange listing in the United States should be greatest for firms from low disclosure regimes (e.g. BB (2006)), the costs associated with such only serve to render the perceived net benefits neutral, or even negative[37]. In contrast, my results suggest that the greatest benefits to a non-exchange U.S. listing accrue to firms domiciled in low disclosure regimes. Although the results are weak for Level 1 firms, I document statistically significant enhanced value in the post-listing period for low-disclosure domiciled Rule 144a firms.

Finally, I examine whether the valuation gains/losses from listing in the U.S. are equally distributed in the post-listing period (as I assume in my dummy variable construct in equations 5.3,

[37] Bris, Cantale, and Nishiotis (2005) quote the example in their paper that ITV, the British T.V. broadcaster deregistered its stock from U.S. markets in 2005 because the reporting obligations imposed by the SEC were "very costly". ITV calculate the monetary saving as $13 million USD over a two-year period.

5.6, and 5.7) or whether differences exist in post-listing event time. To do so, I provide two sets of estimates. First, I outline in Table 5.18, estimates of the average effect of the treatment on the treated (ATT) for all listed firms, up to five-years post-listing. Finally I estimate pooled ordinary least squares distributed lag model. The results are presented in Table 5.19.

In Table 5.18, I outline up to five years post-listing, the average effect of the treatment on the treated for a matched sample of cross-listed and non-cross-listed firms. In Panels A, B and C I estimate the ATT based upon different propensity score (probit) specifications. In Panel D, I test the robustness of our findings to different pre-listing match dates. I begin with a discussion of Panels A, B, and C. In Panels A-C, I estimate for all cross-listed, and for each different cross-listing level, different first-step probit specifications. In the second-step, I estimate for each year up to five years post-listing, the average effect of the treatment on the treated. For each year, I provide the number of cross-listed firms, and the corresponding number of matched non-cross-listed firms. For example, in Panel A, I estimate the ATT on the year of listing by matching 367 cross-listed firms to 301 non-cross-listed firms. The number of matches tends to decrease as I employ a less parsimonious probit specification in Panels B and C. DKLN (2005) experience a similar situation in their study. In all probit specifications, I include time dummies in order to match firms (within our panel data structure) in the same year, and impose a common support condition to improve the quality of our matches. In Panels A-C, I match firms on the year of listing.

I begin with a discussion of the results reported in Panel A. Here, I model the decision to list as a function of firm size and industry membership. The results from the first-stage probit models suggest that for each depositary receipt, firm size is an important determinant of listing in the U.S. This is consistent with previous studies (e.g. PRZ (2002), CKS (2003)). In the second-stage, I estimate the average effect of listing on listed firms for each year up to five-years, post-listing. First, I find that for all listed firms [Cross-List], the valuation benefits to listing in the U.S. materialise immediately: in the year, and the year immediately following listing. Thereafter, the

'cross-listing premium' dissipates: after two years of listing, cross-listed are no longer valued greater than non-cross-listed firms.

The results for Level 2/3 issues are similar. The causal effect of listing on value is immediate, but transitory. For example, in the year of listing, the mean valuation difference between exchange-listed and non-listed firms is a statistically significant 0.412. In contrast, in the year immediately post-listing, the valuation difference is an insignificant 0.193. Thereafter, the valuation difference decreases further, and remains statistically insignificant. Next I find no (significant) valuation effect for Level 1 firms. They are valued more highly in the year of listing, but the difference is statistically insignificant (albeit only marginally). In all subsequent years, Level 1 firms are valued on a par with non-cross-listed firms. As outlined earlier, I exercise caution in interpreting the findings for Rule 144a firms. In fact, the results in Panels B-C, lend further evidence to the market-timing hypothesis. In Panel A, I find that these firms enjoy a significant 'valuation premium' over non-cross-listed firms. I consciously do not term this a 'cross-listing premium' because the evidence is more consistent with market timing, and not bonding, segmentation, or liquidity hypotheses. The subsequent value of these firms lends further credence to this argument. For example, in the years immediately following listing, these firms experience a dramatic decline in value relative to a matched sample of non-cross-listed firms. In fact, the decline is so severe that the significant 'valuation premium' of 0.577 documented in the year of listing, evolves into a statistically significant 'valuation discount' after five years of listing (-0.192).

To shed further light on this, I match these firms with corresponding non-cross-listed firms, in different pre-listing periods. I hypothesise that if these firms do time their decision to list in the U.S., the valuation difference between Rule 144a and a matched sample of non-cross-listed firms on the year of listing should be increasing in the number of years prior to listing that I match these firms. Thus, I match Rule 144a firms with non-cross-listed firms in three different periods in the pre-listing period; the list year, two-years, and four-years pre-listing. All firms are matched on firm size, growth, and legal origin. In the case of Level 1 and Level 2/3 exchange listed firms, I

match these firms on the list year, one and two-years, pre-listing. The results are presented in Panel D. The results for Rule 144a firms are largely supportive of the market-timing hypothesis: relative to a matched sample of firms, Rule 144a firms experience a run-up in value in the years immediately prior to listing. Consistent with the market timing hypothesis, and regardless of the pre-listing matching period, these firms experience a sizable decline in value, post-listing. In addition, the results for both Level 1 and Level 2/3 issues are robust to the choice of pre-listing matching period.

In Panels B and C, I augment the original first-stage probit specification with additional firm and country level variables that determine participation in U.S. capital markets. In Panel B, I model the decision to list as a function of size, industry, growth (two-year average sales growth), and legal origin (French and German civil law). In Panel C, I augment this specification with lagged *q*, which is consistent with the earlier arguments concerning the impact of feedback effects on the decision to cross-list. The results presented in Panel B are largely similar to those presented in Panel A. For all cross-listed firms, I again document immediate but transitory 'cross-listing premia'. Level 2/3 exchange-listed firms experience a similar trend in value. However, there does exist some important differences in the estimates outlined in Panel B, relative to those documented in Panel A. First, exchange-listed issues are not worth significantly more in the listing year. The estimates coefficient is positive (0.315), but insignificant. However, although the valuation premia are insignificant in all subsequent post-listing time periods, they are, however, of a magnitude greater than those documented earlier. For example, in the fifth year of listing, the valuation difference is 0.147, compared to an earlier figure of 0.024. In the case of Rule 144a firms, I again document a decline in value, post-listing. However, the documented decline in value is not immediate, and only materialises in the fourth year after listing. Finally, for Level 1 firms, I document, like earlier, no significant valuation differences in the post-listing period.

In Panel C, I include lagged *q* as an additional determinant of listing in the U.S. The results for Level 1 firms are similar to those documented earlier. For Level 2/3 firms, the valuation

premium in the year of listing disappears. In fact, I find no significant valuation difference in any post-listing period. In the case of Rule 144a firms, I find no valuation difference in the year of listing, given the inclusion of lagged q in the participation equation. With the exception of two-years post-listing, there exists no significant valuation premium or discount in the post-listing period.

Finally, in Table 5.19, I estimate distributed lag models by level of investor protection[38]. I classify firms as domiciled in either high or low investor protection countries. In columns 1-3, I estimated distributed lag models for 'high investor protection' firms. In the remaining columns, I present estimates for 'low investor protection' firms. For both sets of firms, I provide two sets of estimates. First, I estimate the distributed lag model for all firms. Next for each set of firms I only include those with similar levels of domestic investor protection. Thus, for 'high investor protection' firms I only include non-cross-listed firms also from 'high investor protection' countries. I adopt the same approach for 'low investor protection' firms.

I begin with a discussion of the results for 'high investor protection' firms. Consistent with the findings documented in Table 5.18, there is evidence to suggest that the greatest valuation gains to exchange-listing in the U.S. accrue to firms that trade on domestic markets where investors are highly protected. In contrast to the matching estimates (and unreported distributed lag models for all firms), the gains to listing are longer lasting. More specifically, the valuation gains last up to two years post-listing, and remain positive (but insignificantly so) up to five years post-listing. This contrasts notably with the matching estimates where in some instances; the valuation gains only

[38] In unreported results I also estimate distributed lag models for our full set of firms. The conditional estimates are by and large consistent with the 'unconditional' time-series plots outlined in Figures 5.1-5.6, and the before-after median statistics presented earlier, and are largely similar to the matching estimates presented earlier. More specifically, I find that for Level 2/3 firms the valuation effects of listing are immediate, but transitory. This is in line with Figures 5.1 and 5.2; value, as measured by q, is positive (but insignificant) only in the year immediately following listing. Level 1 firms remain valued at a statistically insignificant discount in every post-listing period. In addition, the magnitude of the cross-listing discount is increasing in the number of years post-listing. Finally, one should exercise caution in interpreting the findings for Rule 144a firms. The time-series behaviour in value experienced by these firms in the pre and post-listing periods, as outlined in Figures 5.1-5.6, provides anecdotal evidence consistent with the market-timing hypothesis (e.g. Henderson, Jegadeesh, and Weisbach (2006, HJW Hereafter)). In effect, it remains difficult to separate these transitory valuation effects from the true effect of listing on value, because the upward trend in value, and the fall-off thereafter, is probably not found for comparable, non-cross-listed firms.

accrue on the listing year, and were insignificantly negative after five years of listing. The results also contrast with the findings for 'low investor protection' exchange traded firms documented in the remaining columns of Table 5.19. When I compare these firms to a corresponding sample of non-cross-listed firms (from 'low investor protection' regimes), I find that they are worth on average less, and in some instances statistically significantly less. Although the valuation differences for 'high investor protection' firms are insignificantly different from zero in the post-listing period (i.e. when I compare these firms to non-cross-listed firms from 'high investor protection' regimes), the results, nevertheless are consistent with the findings of KKZ (2005): exchange-traded firms that trade domestically on markets where investors are highly protected[39] experience the greatest valuation gains from listing in the U.S.

Finally I examine the post-listing valuation effects for non-exchange traded firms. When I compare these firms to non-cross-listed 'high investor protection' domiciled firms, I reach similar conclusions to earlier. First, the results for Rule 144a firms suggest that cross-listed firms from 'high investor protection' regimes experience the greatest fall-off in value post-listing. In contrast, while firms from 'low investor protection' regimes also experience a fall-off in value post-listing, relative to their counterpart non-cross-listed firms, the valuation difference is always positive (albeit not always significantly so). This suggests that Rule 144a firms from 'high investor protection' regimes experience the greatest fall-off in value. Finally, for Level 1 firms, I find very little difference across the different investor protection regimes. There does appear to be slightly better performance by high investor protection firms, but the differences are very small. Consequently, the conclusions drawn for Level 1 firms are the same that I drew from the analysis presented in Table 5.18.

[39] When I compare these firms to non-cross-listed 'high investor protection' firms, the valuation differences are not significantly different from zero. In fact, the difference is negative (but insignificant) after five years of listing, which is in line with the matching estimates. The results are consistent given that in the matching estimates we also match firms based upon legal origin.

5.5 Concluding Remarks

In this chapter I examine the valuation gains to cross listing in event time for a panel of emerging market firms cross-listed in the U.S. I abstract from the traditional event-study approach, and examine the relative valuation effects of cross listing using valuation metrics. I explicitly account for selection-bias, by estimating the effect of listing on value firm fixed-effects, matching, and treatment effect estimators. My main findings are as follows. First, and perhaps, most importantly is that while the 'cross-listing premium' documented by DKS (2004, 2006) persists in calendar time for exchange-traded firms, it fails to persist in event time. Results from both my matching and distributed lag estimates suggest that the valuation gains to listing are immediate, but short-lived. More precisely, I find that the greatest gains to exchange listing occur on the year of listing, but fall-off thereafter. I do however uncover some evidence to suggest that, in line with KKZ (2005), the magnitude of the 'cross-listing premium' for exchange-listed firms is *positively* related to the level of investor protection domestically. This result is probably best explained in terms of the costs associated with exchange listing, which in relative terms are larger for firms trading in countries where investors are poorly protected. The results suggest that at least in the context of emerging market firms, cross listing does not cause value. In effect, there is no 'cross listing premium'. In a related paper, Clarkson, Nowland, and Ragunathan (2006, pg. 17, CNR Hereafter) conclude in their study of internationally listed Asian firms that "there is no such thing as a cross listing premium".

For non-exchange traded depositary receipts, I document in line with previous studies, no such valuation effects. There is some evidence that suggests that the greatest gains to listing accrue to non-exchange traded firms from low-disclosure regimes. However, for both sets of firms, the valuation gains remain statistically indifferent from zero.

Table 5.1: Sample Description.

Country	NCL	SIC 6	%	Level 1	%	Level 2/3	%	Rule 144a	%	Total CL	Sample
Argentina	60	7	1.31	0	0.00	11	7.75	5	2.76	16	76
Brazil	246	29	5.39	26	10.00	25	17.61	3	1.66	54	300
Chile	113	35	2.48	2	0.77	17	11.97	2	1.10	21	134
China	89	4	1.95	8	3.08	12	8.45	4	2.21	24	113
Colombia	27	6	0.59	1	0.38	1	0.70	4	2.21	6	33
Hong Kong	540	167	11.83	97	37.31	7	4.93	1	0.55	105	645
Hungary	23	4	0.50	2	0.77	1	0.70	9	4.97	12	35
India	278	23	6.09	5	1.92	9	6.34	50	27.62	64	342
Israel	83	16	1.82	1	0.38	8	5.63	0	0.00	9	92
Korea	636	74	13.94	4	1.54	7	4.93	20	11.05	31	667
Malaysia	638	153	13.98	12	4.62	0	0.00	0	0.00	12	650
Mexico	71	14	1.56	18	6.92	25	17.61	11	6.08	54	125
Peru	45	8	0.99	3	1.15	1	0.70	1	0.55	5	50
Philippines	110	70	2.41	5	1.92	1	0.70	6	3.31	12	122
Poland	56	15	1.23	1	0.38	1	0.70	11	6.08	13	69
Singapore	407	67	8.92	19	7.31	1	0.70	1	0.55	21	428
South Africa	313	151	6.86	37	14.23	8	5.63	3	1.66	48	361
Taiwan	404	60	8.85	0	0.00	6	4.23	42	23.20	48	452
Thailand	296	98	6.49	14	5.38	0	0.00	1	0.55	15	311
Turkey	128	30	2.81	5	1.92	1	0.70	7	3.87	13	141
Total	**4,563**	**1,031**	**100%**	**260**	**100%**	**142**	**100%**	**181**	**100%**	**583**	**5,146**

This table outlines the final. The final sample is arrived at after imposing the following restrictions on our original sample: (1) I exclude all firms with missing SIC data (2) All firms with total assets less than $10 Million, and (3) financial firms (SIC beginning with 6)(non-cross-listed only). To enable matching for financial cross-listed firms, I include a set of non-cross-listed financial firms (outlined in column 3). These firms are not included in out valuation regression analysis. All firms are obtained from the Worldscope Country Lists. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a ADRs trade on Portal; Level 1 ADRs trade over-the-counter as pink sheet issues, and Level 2/3 trade on the NYSE or NASDAQ.

Table 5.2: Sample Description by Industry Classification.

Industry Classification	NCL	%	Level 1	%	Level 2/3	%	SEC Rule 144a	%	Total CL	%	Sample	%
Agriculture and Food	370	8.11	10	3.85	5	3.52	8	4.42	23	3.95	393	7.64
Mining and Construction	335	7.34	20	7.69	9	6.34	3	1.66	32	5.49	367	7.13
Textiles and Pub.	538	11.79	19	7.31	7	4.93	8	4.42	34	5.83	572	11.12
Chemicals	211	4.62	2	0.77	8	5.63	15	8.29	25	4.29	236	4.59
Pharmaceuticals	85	1.86	3	1.15	2	1.41	4	2.21	9	1.54	94	1.83
Extractive	56	1.23	3	1.15	4	2.82	3	1.66	10	1.72	66	1.28
Durable Manufacturers	1249	27.37	41	15.77	17	11.97	56	30.94	114	19.55	1363	26.49
Transportation	265	5.81	26	10.00	45	31.69	10	5.52	81	13.89	346	6.72
Utilities	95	2.08	5	1.92	5	3.52	7	3.87	17	2.92	112	2.18
Retail	583	12.78	51	19.62	8	5.63	10	5.52	69	11.84	652	12.67
Banking and Financial	0	0.00	45	17.31	17	11.97	23	12.71	85	14.58	85	1.65
Services	363	7.96	19	7.31	3	2.11	6	3.31	28	4.80	391	7.60
Computers	404	8.85	16	6.15	12	8.45	28	15.47	56	9.61	460	8.94
Public Administration	9	0.20	0	0.00	0	0.00	0	0.00	0	0.00	9	0.17
	4,563	**100%**	**260**	**100%**	**142**	**100%**	**181**	**100%**	**583**	**100%**	**5,146**	**100%**

Table 5.3: Variable Descriptions.

Variable	Expected Sign	Source	Description/Definition
Tobin's *q*	N/A	Worldscope	(Book Value of Total Assets – Book Value of Equity + Market Value of Equity)/(Book Value of Total Assets)
Earnings to Price	N/A	Worldscope	=(1/PE Ratio) Price Earnings Ratio = Market Price/Earnings per Share
Book to Market	N/A	Datastream	=(1/MBA) Market to Book Assets = Market Value Assets/Book Value of Assets
Geometric Average Sales	+	Worldscope	Two-Year Geometric Average Sales
Total Assets ($)	+	Worldscope	Represents the sum of total current assets, long-term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.
Law	+	LLSV (2000)	English, German, and French Law Dummies
Anti-Director Rights	+	LLSV (1998)	An index aggregating the shareholder rights which ranges from 0 to 6.
Liquidity Ratio	+	BKM (2004)	Dollar Value of Shares divided by Average Market Capitalization
Capital Access Ratio	+	BKM (2004)	The Capital Access Index identifies quantitative and qualitative measures of the ability of an entrepreneur to raise capital (developed by the Milken Institute Capital Studies Group).
Accounting Index	+	LLSV (1998)	Index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items.
Judicial Efficiency	+	LLSV (1998)	Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country-risk rating agency Business International Corporation.
Global Industry *q*	+	Worldscope	Median Global Industry *q*

Table 5.4: Country Level Variables.

Country	English Law	French Law	German Law	Scandinavian Law	Anti-Director Rights	Efficiency Judicial	Accounting Standards	Capital Access	Liquidity Ratio
Argentina	0	1	0	0	4	6.00	45	4.154	0.50
Brazil	0	1	0	0	3	5.75	54	3.706	0.86
Chile	0	1	0	0	5	7.25	52	4.451	0.11
China	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	0	1	0	0	3	7.25	50	3.649	0.10
Hong Kong	1	0	0	0	5	10.00	69	5.373	1.13
Hungary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
India	1	0	0	0	5	8.00	57	3.907	0.43
Israel	1	0	0	0	3	10.00	64	4.521	0.26
Korea	0	0	1	0	2	6.00	62	4.519	1.88
Malaysia	1	0	0	0	4	9.00	76	4.714	0.73
Mexico	0	1	0	0	1	6.00	60	3.774	0.38
Peru	0	1	0	0	3	6.75	38	4.021	0.26
Philippines	0	1	0	0	3	4.75	65	4.137	0.35
Poland	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Singapore	1	0	0	0	4	10.00	78	5.220	0.50
South Africa	1	0	0	0	5	6.00	70	4.423	0.19
Taiwan	0	0	1	0	3	6.75	65	4.775	4.62
Thailand	1	0	0	0	2	3.25	64	4.560	0.38
Turkey	0	1	0	0	2	4.00	51	3.556	1.30

This table summarizes all of the country level variables employed in our analysis. The following variables are sourced from LLSV (1998): English, French, German and Scandinavian Law Dummies, Anti-Director Rights, Efficiency of Judicial System, and Accounting Standards. The Anti-Directors Rights measure is oft cited as an accurate measure of the degree of investor protection in a country. It is an aggregation of six different shareholder rights (See LaPorta (1998) for a formal definition). The Accounting Standards Index is created for each country by examining the annual reports of firms for the inclusion or exclusion of 90 specific items. The Capital Access Ratio and the Liquidity Ratio are sourced from Doidge, Karolyi and Stulz (2004) and Bancel, Kamilipalli and Mittoo (2004).

Table 5.5: Summary Statistics for cross-listed and non-cross-listed firms.

	Full Sample (N=5,146)		Cross-Listed (N=583)		Non-Cross-Listed (N=4,563)		Tests of Difference (CL vs. NCL)	
Variables	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Tobins *q*	1.66	1.41	1.59	1.35	1.67	1.42	**5.77*** **	**7.43*** **
Book-to-Market	1.36	1.12	1.37	1.14	1.36	1.12	-0.77	-1.43
Earnings-to-Price	0.0775	0.0613	0.0861	0.0714	0.0767	0.0602	**-7.31*** **	**-12.09*** **
ROE	6.42	8.32	7.88	9.38	6.21	8.13	**-3.20*** **	**-5.04*** **
Sales Growth (%)	27.97	20.12	31.36	23.58	27.45	19.47	**-4.65*** **	**-5.61*** **
Total Assets (Log)	8.25	8.20	8.98	8.97	8.16	8.12	**-70.45*** **	**-60.71*** **
English Law	0.5497	1	0.5132	1	0.5520	1	**4.96*** **	**4.96*** **
French Law	0.1906	0	0.2997	0	0.1837	0	**-18.83*** **	**-18.79*** **
German Law	0.2174	0	0.1115	0	0.2242	0	**17.41*** **	**17.37*** **
Judicial Efficiency	7.32	6.75	7.38	6.75	7.32	6.75	**-1.81***	-1.34
Capital Intensity	4.57	4.56	4.47	4.42	4.57	4.56	**13.19*** **	**13.54*** **
Liquidity Ratio	1.16	0.73	0.9626	0.5000	1.17	0.73	**10.55*** **	**14.47*** **
Anti-Director	3.55	4	3.75	4	3.55	4	**-10.36*** **	**-13.62*** **

Table 5.5(a): Summary Statistics for Exchange-listed and non-Exchange listed firms.

	Non Cross-Listed (N=4,563)		Level 1 OTC (N=260)		Level 2/3 Exchange (N=142)		Rule 144a Portal (N=181)		Tests of Diff. (Exch vs. OTC)	Tests of Diff. (Exch vs. Port)	Tests of Diff. (OTC vs. Port)
Variables	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean/(Med)	Mean/(Med)	Mean/(Med)
Tobins *q*	1.67	1.42	1.57	1.34	1.59	1.36	1.62	1.34	-0.74	-0.88	**-1.93***
									(-0.33)	(-0.65)	(-0.96)
Book-to-Market	1.36	1.12	1.39	1.15	1.18	0.90	1.48	1.28	**4.78*****	**-6.77*****	**-2.48****
									(5.16)***	**(-7.78)*****	**(-3.47)*****
Earnings-to-Price	0.0767	0.0602	0.0877	0.0763	0.0773	0.0645	0.0884	0.0694	**4.04*****	**-3.55*****	0.12
									(4.38)***	**(-2.96)*****	(1.29)
ROE	6.21	8.13	7.50	8.91	8.58	10.26	7.93	9.36	-0.98	0.57	-0.44
									(-1.84)*	**(2.30)****	**(0.55)**
Sales Growth (%)	27.45	19.47	24.97	18.66	39.65	28.80	34.55	26.38	**-7.29*****	**2.33****	**-5.32*****
									(-7.90)***	**(2.47)****	**(-5.99)*****
Total Assets (Log)	8.16	8.12	8.85	8.80	9.28	9.29	8.99	8.92	**-13.81*****	**9.89*****	**-5.35*****
									(-13.32)***	**(9.94)*****	**(-4.96)*****
English Law	0.5520	1	0.7614	1	0.2102	0	0.3528	0	**32.82*****	**-7.41*****	**26.09*****
									(28.06)***	**(-7.32)*****	**(23.81)*****
French Law	0.1837	0	0.2006	0	0.6100	0	0.2386	0	**-23.86*****	**19.27*****	**-2.63*****
									(-21.83)***	**(17.88)*****	**(-2.63)*****
German Law	0.2242	0	0.0059	0	0.0810	0	0.2848	0	**-11.36*****	**-12.24*****	**-27.11*****
									(-11.12)***	**(-11.86)*****	**(-24.58)*****
Judicial Efficiency	7.32	6.75	7.98	10	6.79	6	6.82	6.75	**13.90*****	-0.57	**16.32*****
									(11.81)***	**(-7.12)*****	**(13.82)*****
Capital Intensity	4.57	4.56	4.77	4.71	4.17	4.15	4.18	3.91	**24.58*****	-0.32	**28.90*****
									(20.21)***	**(-3.84)*****	**(22.47)*****
Liquidity Ratio	1.17	0.73	0.7598	0.8600	0.6591	0.38	1.49	0.43	**4.18*****	**-13.08*****	**-18.42*****
									(13.78)***	**(-13.72)*****	**(-4.25)*****
Anti-Director	3.55	4	4.13	5	3.14	3	3.55	3	**17.61*****	**-6.42*****	**12.15*****
									(16.38)***	**(-5.81)*****	**(12.03)*****

Table 5.6: Comparison of cross-listed and non-cross-listed firms by year.

Mean	Level 1				Level 2/3				Rule 144a			
Year	Level 1	NCL	Difference	Prop Score	Level 2/3	NCL	Difference	Prop Score	Rule 144a	NCL	Difference	Prop Score
1990	1.49	1.71	(0.22)	(0.20)	1.42	1.71	(0.29)	-	-	1.71	-	-
1991	1.40	1.85	**(0.45)****	**(0.57)****	1.66	1.85	(0.19)	-	1.17	1.85	(0.68)	-
1992	1.78	1.83	(0.05)	(0.06)	1.81	1.83	(0.02)	-	1.82	1.83	(0.01)	-
1993	1.83	1.89	(0.06)	(0.31)	2.11	1.89	0.22	-	1.77	1.89	(0.12)	**0.64****
1994	1.81	2.09	**(0.28)****	(0.26)	2.05	2.09	(0.04)	**0.70****	2.61	2.09	**0.52*****	**0.67****
1995	1.75	1.86	(0.11)	0.20	1.68	1.86	(0.18)	0.03	1.96	1.86	0.10	0.19
1996	1.73	1.83	(0.10)	0.32	1.79	1.83	(0.04)	0.19	1.70	1.83	(0.13)	(0.18)
1997	1.79	1.79	0.00	**0.51****	1.96	1.79	0.17	0.32	1.76	1.79	(0.03)	0.16
1998	1.42	1.45	(0.03)	**0.33****	1.44	1.45	(0.01)	**0.26***	1.50	1.45	0.05	0.18
1999	1.53	1.53	0.00	(0.07)	1.61	1.53	0.08	0.22	1.60	1.53	0.07	0.00
2000	1.52	1.51	0.01	0.01	1.70	1.51	**0.19****	**0.41***	1.64	1.51	**0.13****	0.10
2001	1.38	1.37	0.01	(0.05)	1.42	1.37	0.05	0.16	1.37	1.37	0.00	**0.19***
2002	1.41	1.42	(0.01)	0.03	1.38	1.42	(0.04)	**0.37****	1.43	1.42	0.01	0.09
2003	1.51	1.52	(0.01)	(0.02)	1.51	1.52	(0.01)	**0.32****	1.54	1.52	0.02	0.21
All	1.56	1.62	**(0.06)*****	0.05	1.59	1.62	(0.03)	0.07	1.62	1.62	0.00	

Median	Level 1			Level 2/3			Rule 144a		
Year	Level 1	NCL	Difference	Level 2/3	NCL	Difference	Rule 144a	NCL	Difference
1990	1.40	1.48	(0.08)	1.42	1.48	(0.06)	-	1.48	-
1991	1.30	1.65	**(0.35)*****	1.57	1.65	(0.08)	1.17	1.65	(0.48)
1992	1.40	1.63	(0.23)	1.86	1.63	0.23	1.76	1.63	0.13
1993	1.67	1.67	0.00	2.20	1.67	0.53	1.71	1.67	0.04
1994	1.70	1.84	**(0.14)***	1.99	1.84	0.15	2.40	1.84	**0.56*****
1995	1.56	1.68	**(0.12)***	1.64	1.68	(0.04)	1.84	1.68	0.16
1996	1.43	1.61	(0.18)	1.63	1.61	0.02	1.51	1.61	(0.10)
1997	1.54	1.52	0.02	1.70	1.52	**0.18****	1.53	1.52	0.01
1998	1.20	1.22	(0.02)	1.28	1.22	0.06	1.26	1.22	0.04
1999	1.27	1.34	(0.07)	1.36	1.34	0.02	1.35	1.34	0.01
2000	1.29	1.28	0.01	1.39	1.28	0.11*	1.31	1.28	0.03
2001	1.21	1.22	(0.01)	1.25	1.22	0.03	1.21	1.22	(0.01)
2002	1.23	1.27	(0.04)	1.20	1.27	**(0.07)****	1.24	1.27	(0.03)
2003	1.36	1.36	0.00	1.29	1.36	(0.07)	1.38	1.36	0.02
All	**1.33**	**1.38**	**(0.05)*****	**1.36**	**1.38**	**(0.02)**	**1.34**	**1.38**	**(0.04)**

Table 5.7: Comparison of cross-listed and non-cross-listed firms in event time.

Panel A	Level 1 OTC				Level 2/3 Exchange				Rule 144a			
	Mean		Median		Mean		Median		Mean		Median	
	Level 1	Difference	Level 1	Difference	Level 2/3	Difference	Level 2/3	Difference	Rule 144a	Difference	Rule 144a	Difference
-5	2.32	**0.71*** **	1.72	**0.35*** **	1.77	0.16	1.57	0.20	1.56	(0.05)	1.33	(0.04)
-4	1.89	**0.28*** **	1.64	**0.26*** **	1.62	0.01	1.43	0.05	1.65	0.04	1.35	(0.03)
-3	1.77	**0.16** **	1.52	**0.14** **	1.75	0.14	1.48	0.10	1.90	**0.29*** **	1.53	0.15
-2	1.73	**0.12***	1.52	0.14	1.73	0.12	1.53	0.15	2.25	**0.64*** **	1.86	**0.48*** **
-1	1.78	**0.17** **	1.54	**0.16***	1.75	0.14	1.50	0.12	2.07	**0.46*** **	1.65	**0.27** **
0	1.68	0.07	1.43	0.06	1.70	0.09	1.46	0.09	2.18	**0.57*** **	1.85	**0.48*** **
1	1.59	(0.02)	1.37	(0.01)	1.62	0.01	1.38	0.00	1.95	**0.34*** **	1.74	**0.37*** **
2	1.56	(0.05)	1.38	0.00	1.57	(0.04)	1.32	(0.06)	1.71	0.10	1.46	**0.09** **
3	1.58	(0.03)	1.37	0.00	1.62	0.01	1.41	0.03	1.64	0.03	1.46	0.08
4	1.59	(0.02)	1.32	(0.06)	1.56	(0.05)	1.33	(0.05)	1.51	(0.10)	1.28	**(0.10)***
5	1.50	(0.11)	1.28	**(0.10)** **	1.48	(0.13)	1.31	(0.07)	1.44	**(0.17)** **	1.27	**(0.11)** **
All Pre	1.87	**0.27*** **	1.59	**0.22*** **	1.66	0.05	1.45	0.08	1.89	**0.28*** **	1.43	**0.06*** **
All Post	1.56	**(0.06)*** **	1.33	**(0.05)*** **	1.59	(0.02)	1.36	(0.02)	1.62	0.01	1.34	(0.04)
Difference	**(0.31)*** **		**(0.26)*** **		(0.07)		(0.09)		**(0.27)*** **			

Panel B	Level 1 OTC			Level 2/3 Exchange			Rule 144a		
	Tobin's *q*	1/BM	1/EP	Tobin's *q*	1/BM	1/EP	Tobin's *q*	1/BM	1/EP
-2	1.52	1.01	13.81	1.49	1.95	17.00	1.86	0.88	24.21
-1	1.54	1.09	12.90	1.49	1.32	18.32	1.65	1.09	20.62
0	1.48	1.14	14.60	1.45	1.36	20.12	1.86	0.93	20.20
Δ(1,-2)	(0.06)	(0.005)	(0.65)	(0.13)	**(0.719)***	(2.64)	(0.18)	(0.064)	**(8.00)*** **
Δ(1,-1)	(0.12)	(0.085)	0.25	(0.13)	(0.09)	(3.95)	0.03	(0.277)	**(4.41)*** **
Δ(2,-2)	(0.14)	(0.030)	0.49	(0.17)	(0.694)*	(0.28)	**(0.44)*** **	(0.153)	**(9.51)*** **
Δ(2,-1)	**(0.16)** **	(0.049)	1.40	(0.17)	(0.065)	(1.59)	**(0.23)*** **	(0.365)	**(5.91)*** **
Δ(3,-2)	**(0.14)***	(0.048)	**(1.51)** **	(0.10)	**(0.95)** **	(0.50)	**(0.46)*** **	(0.043)	**(11.00)*** **
Δ(3,-1)	**(0.16)** **	(0.128)	(0.60)	(0.10)	(0.32)	(1.81)	**(0.25)*** **	(0.257)	**(7.41)*** **
Δ(4,-2)	(0.19)	(0.109)	**(1.60)***	(0.17)	**(1.00)*** **	(1.55)	**(0.60)*** **	(0.187)	**(12.21)*** **
Δ(4,-1)	**(0.21)*** **	(0.189)	(0.69)	(0.17)	**(0.367)** **	(2.86)	**(0.39)*** **	**(0.40)***	**(8.61)*** **
Δ(5,-2)	**(0.24)** **	(0.223)	**(2.12)***	(0.24)	**(1.04)*** **	(4.10)	**(0.60)*** **	(0.037)	**(11.11)*** **
Δ(5,-1)	**(0.26)** **	**(0.303)** **	(1.21)	(0.24)	**(0.411)** **	(5.42)	**(0.39)*** **	(0.25)	**(7.51)*** **
Before	1.59	1.09	14.30	1.47	1.48	17.10	1.46	0.8599	19.50
After	1.35	0.8678	12.70	1.34	1.19	14.95	1.34	0.7778	13.70
Difference	**(0.24)*** **	**(0.22)*** **	**(1.60)*** **	(0.13)	**(0.45)*** **	**(2.15)** **	**(0.12)*** **	(0.0821)	**(5.80)*** **

Table 5.8: Median Tobin's q for cross-listed and non-cross-listed firms over the sample period.

Country	NCL	Cross-List	CL-NCL	Cross-List		Level 1		Level 2/3		Rule 144a	
Tobin's q	Full Period	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
Argentina	1.32	1.33	0.01	1.59	1.26	N/A	N/A	1.62	1.29	1.51	1.17
Brazil	0.75	0.72	(0.03)	0.61	0.78	0.59	0.70	0.64	0.85	N/A	0.80
Chile	1.58	1.72	(0.14)	1.83	1.69	1.24	1.12	1.86	1.68	3.17	1.97
China	1.19	1.13	(0.06)	1.17	1.12	1.17	1.14	N/A	1.12	N/A	1.11
Colombia	1.25	1.30	0.05	1.26	1.30	1.19	1.02	1.47	1.05	1.82	1.33
Hong Kong	1.48	1.44	(0.04)	1.72	1.38	1.70	1.37	2.38	1.59	N/A	2.2
Hungary	1.38	1.61	0.23	2.17	1.56	2.45	1.38	N/A	2.32	2.03	1.55
India	1.29	1.42	0.13	2.12	1.31	2.49	1.99	2.06	1.37	2.17	1.28
Israel	1.49	1.67	0.18	1.21	1.75	1.18	1.1	1.33	1.78	N/A	N/A
Korea	1.19	1.21	0.02	1.23	1.2	1.29	1.25	1.62	1.47	1.18	1.16
Malaysia	1.62	1.72	0.10	2.14	1.39	2.14	1.39	N/A	N/A	N/A	N/A
Mexico	1.22	1.32	0.10	1.32	1.29	1.36	1.56	1.42	1.29	1.27	1.13
Peru	1.08	1.24	0.16	1.88	1.17	1.67	1.14	2.06	1.44	N/A	1.78
Philippines	1.29	1.42	0.13	1.52	1.37	1.52	1.25	1.51	1.37	1.49	1.46
Poland	1.45	1.19	(0.26)	1.11	1.23	1.08	1.18	N/A	1.23	1.16	1.25
Singapore	1.62	1.37	(0.25)	1.44	1.36	1.51	1.35	N/A	1.72	1.14	1.15
Sth Africa	1.57	1.81	0.24	2.17	1.66	2.39	1.66	1.86	1.79	1.52	1.47
Thailand	1.76	2.07	0.31	2.57	1.84	N/A	N/A	3.31	2.14	2.4	1.82
Taiwan	1.41	1.77	0.36	2.19	1.54	2.19	1.64	N/A	N/A	N/A	1.22
Turkey	1.74	1.46	(0.28)	1.51	1.44	3.44	1.49	N/A	1.89	1.32	1.36
Full Sample	**1.41**	**1.38**	**(0.03)**	**1.53**	**1.34**	**1.59**	**1.34**	**1.47**	**1.33**	**1.45**	**1.34**

In this table I outline median Tobin's q for both our non-cross-listed and cross-listed sample for the full sample period. All firm level data is sourced from Worldscope and Datastream. Tobin's q defined as [(Book Value of Total Assets – Book Value of Equity + Market Value of Equity)/Book Value of Total Assets]. For the cross-listed sample I calculate valuation ratios for the pre and post-listing period. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a ADRs trade on PORTAL; Level 1 ADRs trade over-the-counter as pink sheet issues, and Level 2/3 trade on the NYSE or NASDAQ. All valuation ratios are calculated after removing the top 1% of observations to remove possible outliers.

Table 5.9: Median Book-to-Market for cross-listed and non-cross-listed firms.

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
Argentina	1.02	0.76	0.4694	0.9712	N/A	N/A	0.4694	1.04	0.5347	0.8371
Brazil	1.69	1.35	1.85	1.15	1.85	1.66	1.22	0.9523	N/A	1.25
Chile	0.9909	0.5681	0.4310	0.6212	2.26	3.42	0.4301	0.6097	0.3571	0.5569
China	0.8333	1.18	1.19	1.17	1.19	0.9174	N/A	1.17	N/A	1.75
Colombia	1.98	1.35	0.8849	1.40	1.06	5.23	0.3831	1.88	2.12	1.35
Hong Kong	1.11	1.03	0.7117	1.13	0.7462	1.15	0.3067	0.8771	N/A	0.6451
Hungary	1.37	0.7782	0.6622	0.9803	0.5319	1.47	N/A	0.4338	0.6666	0.9049
India	0.6849	0.9389	0.3466	1.21	0.2774	0.5871	0.3134	0.3333	0.3731	1.35
Israel	0.7692	0.6219	0.8503	0.5935	1.02	1.25	0.5780	0.5847	N/A	N/A
Korea	1.54	1.02	0.9803	1.13	0.8518	1.00	0.8333	0.9523	1.02	1.17
Malaysia	0.8333	0.6645	0.4832	0.7547	0.4832	0.7547	N/A	N/A	N/A	N/A
Mexico	1.15	1.01	0.7462	1.15	0.8934	1.00	0.6172	1.19	0.7637	1.15
Peru	1.31	0.6756	0.4658	0.7382	0.4777	1.09	0.4273	0.6579	N/A	0.6333
Philippines	1.23	0.8695	0.8193	0.8771	0.8193	0.9259	0.5464	0.7936	2.22	0.7633
Poland	1.04	0.8928	1.11	0.800	5.55	1.42	N/A	0.9342	1.00	0.7812
Singapore	0.8264	0.8300	0.5681	0.8849	0.5681	0.8928	N/A	0.6902	N/A	N/A
Sth Africa	1.58	1.81	2.17	1.66	2.42	1.66	1.86	1.80	1.52	1.47
Thailand	1.76	2.08	2.61	1.85	N/A	N/A	3.31	2.14	2.44	1.83
Taiwan	0.9345	0.4842	0.2681	0.6097	0.2681	0.5524	N/A	N/A	N/A	0.7359
Turkey	0.5882	0.6024	0.3773	0.7092	0.1364	0.6594	N/A	0.3759	0.4807	0.7936
Full Sample	**1.17**	**1.16**	**0.9615**	**1.20**	**0.9523**	**1.21**	**0.7519**	**0.9900**	**1.22**	**1.35**

In this table I outline mean and median Book to Market ratios for non-cross-listed and cross-listed firms. All firm level data is sourced from Worldscope and Datastream. For cross-listed firms, I calculate valuation ratios pre and post-listing. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a ADRs trade on PORTAL: Level 1 ADRs trade over-the-counter as pink sheet issues, and Level 2/3 trade on the NYSE or NASDAQ. All valuation ratios are calculated after removing the top 1% of observations to remove possible outliers.

Table 5.10: Median Earnings-to-Price for cross-listed and non-cross-listed firms.

Country	NCL	Cross-List	Cross-List		Level 1 OTC		Level 2/3		Rule 144a	
	Full Period	Full Period	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List	Pre-List	Post-List
Argentina	0.0611	0.0840	0.0740	0.0858	N/A	N/A	0.0851	0.0801	0.0004	0.0896
Brazil	0.0001	0.0544	0.0002	0.0892	0.0002	0.0360	0.0478	0.0952	N/A	0.1030
Chile	0.0778	0.0606	0.0730	0.0532	0.0640	0.0045	0.0730	0.0523	0.0711	0.0854
China	0.0877	0.0813	0.0892	0.0775	0.0892	0.0694	N/A	0.0926	N/A	0.0518
Colombia	0.0763	0.0523	0.0735	0.0485	0.0738	0.1302	0.0767	0.0717	0.0003	0.0380
Hong Kong	0.0934	0.0847	0.0813	0.0869	0.0833	0.0877	0.0005	0.0207	N/A	0.1694
Hungary	0.0990	0.0769	0.0689	0.0892	0.0934	0.1298	N/A	0.0502	0.0680	0.0952
India	0.0378	0.0651	0.0458	0.0917	0.0512	0.0656	0.0358	0.0437	0.0464	0.1041
Israel	0.0420	0.0794	0.0952	0.0736	0.0641	N/A	0.1063	0.0736	N/A	N/A
Korea	0.0778	0.0632	0.0579	0.0724	0.0387	0.0662	0.0546	0.0735	0.0628	0.0746
Malaysia	0.0588	0.0500	0.0514	0.0487	0.0514	0.0487	N/A	N/A	N/A	N/A
Mexico	0.0546	0.0647	0.0421	0.0746	0.0003	0.0588	0.0454	0.0813	0.0533	0.0980
Peru	0.0194	0.0003	0.0006	0.0171	0.0005	0.1861	0.0078	0.0427	N/A	N/A
Philippines	0.0609	0.0606	0.0598	0.0606	0.0289	0.0606	0.0584	0.0131	0.0892	0.0628
Poland	0.0552	0.0498	0.0245	0.0511	0.0222	0.1233	N/A	N/A	0.1053	0.0534
Singapore	0.0568	0.0502	0.0371	0.0588	0.0374	0.0602	N/A	N/A	0.0549	0.0371
Sth Africa	0.1041	0.0724	0.0588	0.0826	0.0584	0.0826	0.0423	0.0657	0.1064	0.1031
Thailand	0.0473	0.0468	0.0422	0.0557	N/A	N/A	0.0474	0.0272	0.0414	0.0583
Taiwan	0.0826	0.0749	0.0501	0.0843	0.0501	0.0854	N/A	N/A	N/A	0.0236
Turkey	0.0704	0.1001	0.0680	0.1136	0.0312	0.1063	N/A	0.0823	0.1369	0.1219
Full Sample	**0.0641**	**0.0666**	**0.0540**	**0.0746**	**0.0602**	**0.0784**	**0.0467**	**0.0662**	**0.0512**	**0.0735**

In this table I outline mean and median Earnings-to-Price ratios for non-cross-listed and cross-listed firms. All firm level data is sourced from Worldscope and Datastream. For cross-listed firms, I calculate valuation ratios, pre and post-listing. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a ADRs trade on PORTAL, Level 1 ADRs trade over-the-counter as pink sheet issues, and Level 2/3 trade on the NYSE or NASDAQ. All valuation ratios are calculated after removing the top 1% of observations to remove possible outliers.

Table 5.11: Median before-after valuation differentials for cross-listed firms by listing type.

Country	Cross-List			Level 1			Level 2/3			Rule 144a		
	q	BM	EP	q	BM	EP	q	BM	EP	q	BM	EP
Argentina	(0.33)	0.50	0.0118	-	-	-	(0.33)	0.57	(0.005)	(0.34)	0.30	0.0892
Brazil	0.17	(0.70)	0.0890	0.11	(0.19)	0.0358	0.21	(0.27)	0.0474	-	-	-
Chile	(0.14)	0.19	(0.0198)	(0.12)	1.16	(0.0595)	(0.18)	0.18	(0.0207)	(1.20)	0.20	0.0143
China	(0.05)	(0.02)	(0.0117)	(0.03)	(0.27)	(0.0198)	-	-	-	-	-	-
Colombia	0.04	0.52	(0.0250)	(0.17)	4.17	0.0564	(0.42)	1.50	(0.005)	(0.49)	(0.77)	0.0377
Hong Kong	(0.34)	0.42	0.0056	(0.33)	0.40	0.0044	(0.79)	0.57	0.0202	-	-	-
Hungary	(0.61)	0.32	0.0203	(1.07)	0.94	0.0364	-	-	-	(0.48)	0.24	0.0272
India	(0.81)	0.86	0.0459	(0.50)	0.31	0.0144	(0.69)	0.02	0.0079	(0.89)	0.98	0.0577
Israel	0.54	(0.26)	(0.0216)	(0.08)	0.23	-	0.45	0.01	(0.0327)	-	-	-
Korea	(0.03)	0.15	0.0145	(0.04)	0.15	0.0275	(0.15)	0.12	0.0189	(0.02)	0.15	0.0118
Malaysia	(0.75)	0.27	(0.0027)	(0.75)	0.27	(0.0027)	-	-	-	-	-	-
Mexico	(0.03)	0.40	0.0325	0.20	0.11	0.0585	(0.13)	0.57	0.0359	(0.14)	0.39	0.0447
Peru	(0.71)	0.27	0.0165	(0.53)	0.61	0.1856	(0.62)	0.23	0.0349	-	-	-
Philippines	(0.15)	0.06	0.0008	(0.27)	0.11	0.0317	(0.14)	0.25	(0.0453)	(0.03)	(1.46)	(0.0264)
Poland	0.12	(0.31)	0.0266	0.10	(4.13)	0.1011	-	-	-	0.09	(0.22)	(0.0519)
Singapore	(0.08)	0.32	0.0217	(0.16)	0.32	0.0228	-	-	-	0.01	-	(0.0178)
South Africa	(0.51)	(0.51)	0.0238	(0.73)	(0.76)	0.0242	(0.07)	(0.06)	0.0234	(0.05)	(0.05)	(0.0033)
Taiwan	(0.73)	(0.76)	0.0135	-	-	-	(1.17)	(1.17)	(0.0202)	(0.58)	(0.61)	0.0169
Thailand	(0.65)	0.34	0.0342	(0.55)	0.28	0.0353	-	-	-	-	-	-
Turkey	(0.07)	0.33	0.0456	(1.95)	0.52	0.0751	-	-	-	0.04	0.31	(0.015)
Total	(0.19)	0.24	0.0206	(0.25)	0.26	0.0182	(0.14)	0.24	0.0195	(0.11)	0.13	0.0223

In this table I calculate the median difference in value between the post and pre-listing period for all cross-listed, Level 1, Level 2/3, and SEC Rule 144a ADRs, respectively. Tobin's q, book-to-market of assets, and earnings-to-price is employed as valuation metrics. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. Rule 144a ADRs trade on PORTAL; Level 1 ADRs trade over-the-counter as pink sheet issues, and Level 2/3 trade on the NYSE or NASDAQ. All valuation ratios are calculated after removing the top 1% of observations to remove possible outliers

Table 5.12: Correlation Coefficient Matrix and Variance Inflation Factors.

	Tobin's q	Level 1	Level 2/3	Rule 144a	Global *q*	Sales Gth	French Law	German Law	Acc Stds	Judicial Eff	Anti-Director	Liquidity	Capital Access	VIF
Tobin's q	1													-
Level 1	-0.02**	1												1.07
Level 2/3	-0.006	-0.03**	1											1.07
Rule 144a	0.0031	-0.04***	-0.03***	1										1.07
Global *q*	0.31***	-0.08***	-0.07***	-0.06***	1									1.04
Sales Gth	0.012	-0.04***	-0.0005	-0.02**	0.11***	1								1.10
French Law	-0.20***	-0.03***	0.14***	0.0001	-0.041***	0.20***	1							3.71
German Law	0.03**	-0.13***	-0.06***	0.02***	0.029***	-0.10***	-0.38***	1						5.44
Acc Stds	0.21***	0.09***	-0.10***	-0.09***	0.037***	-0.15***	-0.70***	0.0026	1					3.63
Judicial Eff.	0.15***	0.11***	-0.03***	-0.031***	0.036***	-0.12***	-0.39***	-0.27***	0.53***	1				2.40
Anti-Director	0.20***	0.12***	-0.04***	0.001***	0.006	-0.09***	-0.19***	-0.51***	0.24***	0.63***	1			2.65
Liquidity	0.08***	-0.09***	-0.07***	0.023***	0.05***	-0.018*	-0.33***	0.83***	0.08***	-0.11***	-0.30***	1		3.24
Capital Access	0.20***	0.11***	-0.09***	-0.11***	0.055***	-0.19***	-0.69***	0.17***	0.73***	0.64***	0.36***	0.26***	1	3.51

In this table I outline Pearson Correlation Coefficients for our dependent variables and all our independent variables. In addition, I outline employing both variants of our dependent variable, Variance-Inflation Factors (VIF's). The Variance-Inflation Factors are defined as $(1/(1-R^2))$ where R^2 is from a regression (pooled) of an explanatory variable on a constant and the remainder of the explanatory variables. ***, ** Represent significance at the 1 and 5% level of significance respectively.

Table 5.13: Testing for the presence of a firm effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by firm]	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	0.0292	0.0280	0.0610	**2.0922**	**2.1827**
EXCH	0.0359	0.0333	0.0679	**1.8924**	**2.0397**
PORTAL	0.0314	0.0298	0.0613	**1.9491**	**2.0543**
Sales Growth	0.0462	0.0580	0.0849	**1.8377**	**1.4638**
Industry q	0.0328	0.0376	0.0580	**1.7683**	**1.5442**

In this table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \zeta_i + \eta_{it}$, $X_{it} = \pi_t + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by firm. In the remaining columns, I compare (3) to both (1) and (2).

Table 5.14: Testing for the presence of a time effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by year]	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	0.0292	0.0280	0.0254	**0.8705**	**0.9081**
EXCH	0.0359	0.0333	0.0270	**0.7525**	**0.8111**
PORTAL	0.0314	0.0298	0.0180	**0.5723**	**0.6032**
Sales Growth	0.0462	0.0580	0.2433	**5.2662**	**4.1948**
Industry q	0.0328	0.0376	0.0749	**2.2835**	**1.9941**

In this table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \gamma_t + \eta_{it}$, $X_{it} = \mu_t + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by time. In the remaining columns, I compare (3) to both (1) and (2).

Table 5.15: Rogers (1993) clustered by firm with time fixed effects.

Variable	OLS	White-Huber (1980)	Rogers (1993)	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
OTC	0.0292	0.0280	0.0610	**2.0905**	**2.1809**
EXCH	0.0359	0.0333	0.0669	**1.8645**	**2.0096**
PORTAL	0.0314	0.0298	0.0601	**1.9110**	**2.0141**
Sales Growth	0.0462	0.0580	0.0830	**1.7965**	**1.4310**
Industry *q*	0.0328	0.0376	0.1089	**3.3201**	**2.8994**

In this table, I compare Rogers (1993) standard errors clustered by firm with time fixed effects. I compare these to standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), and (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity. In the remaining columns, I compare Rogers (1993) standard errors to both (1) and (2).

Table 5.16: Impact of cross listing on firm value by listing type.

	Level 1 OTC					Level 2/3					SEC Rule 144a				
	OLS	POLS	Fixed Effects	TE	TE	OLS	POLS	Fixed Effects	TE	TE	OLS	POLS	Fixed Effects	TE	TE
Level 1	-0.0257	-0.0244	0.0148	0.0654	0.0678										
	[0.51]	[0.48]	[0.55]	[0.85]	[0.89]										
Level 2/3						0.0345	0.0339	0.0865	0.1469	0.1507					
						[0.65]	[0.64]	[2.27]**	[1.57]	[1.61]					
Rule 144a											0.0282	0.0315	-0.1734	0.0396	0.0418
											[0.61]	[0.68]	[4.98]***	[0.57]	[0.59]
Global q	1.04	1.04		1.10	1.10	1.05	1.04		1.05	1.06	1.04	1.04		1.12	1.11
	[12.2]***	[12.2]***		[7.75]***	[7.76]***	[12.3]***	[12.3]***		[7.55]***	[7.57]***	[12.3]***	[12.3]***		[7.96]***	[7.93]***
Sales Growth	0.14	0.14		0.44	0.44	0.14	0.13		0.50	0.49	0.14	0.13		0.42	0.41
	[2.09]**	[2.04]**		[3.90]***	[3.80]***	[2.05]**	[2.01]**		[4.43]***	[4.27]***	[2.07]**	[1.99]**		[3.70]***	[3.65]***
Lambda (λ)				0.010	0.010				0.0366	0.0359				0.0658	0.0652
				[1.17]	[1.05]				[5.49]***	[5.37]***				[5.62]***	[5.57]***
Time Dummies	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	No
R^2	0.1017	0.1000	0.0654	0.0864	0.0805	0.1017	0.1000	0.0655	0.0980	0.0917	0.1017	0.0995	0.0628	0.1020	0.0904
Pr > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

In this table, I estimate 'Heckman' style two-step estimates of the impact of listing on value for cross-listed firms. The treatment effects regressions are estimated as three separate regressions based upon the different ADR sub-sample of firms. For each ADR level, we estimate a first-stage probit model where the decision to list is determined in terms of size (Log (Total Assets)), and Legal Origin (French, German). To satisfy the exclusion restrictions, these variables are excluded in the second-stage regressions. All variables are defined in the appendix. I present two different versions of the treatment effects models; in the first, I do not control for unobserved heterogeneity. Time dummies are included in this specification. In the second specification, I specify unobserved heterogeneity as Mundlak (1978) corrections (i.e. time averages of the explanatory variables), and exclude time dummies. Finally, I include for each ADR level, ordinary least squares, pooled ordinary least squares (with Mundlak (1978) corrections), and fixed effect estimates of the impact of listing on firm value. The first stage probit estimates are available from the author upon request. ***, **, * Represents significance at 10, 5, and 1% respectively.

Table 5.17: Pooled ordinary least squares valuation regressions based upon legal characteristics.

Panel A	High Investor Protection			Low Investor Protection		
	POLS	POLS	OLS	POLS	POLS	OLS
Level 1	-0.1167	-0.0444	-0.0459	-0.1252	-0.1280	-0.1278
	[1.20]	[0.37]	[0.38]	[2.16]**	[1.60]	[1.59]
Level 2/3	0.0697	0.0223	0.0212	0.0041	0.0506	0.0622
	[0.87]	[0.28]	[0.27]	[0.05]	[0.48]	[0.59]
Rule 144a	0.2233	0.1703	0.1694	-0.1535	-0.1532	-0.1380
	[3.38]***	[2.14]**	[2.13]**	[2.11]**	[1.62]	[1.43]
Level 1*AD	-0.0093	-0.0833	-0.0833	0.0081	0.0836	0.1009
	[0.08]	[0.58]	[0.58]	[0.07]	[0.58]	[0.70]
Level 2/3*AD	-0.0677	0.0304	0.0294	0.067	-0.0278	-0.0215
	[0.60]	[0.23]	[0.22]	[0.60]	[0.21]	[0.16]
Rule 144a*AD	-0.3784	-0.3240	-0.3245	0.3778	0.3240	0.3276
	[3.85]***	[2.62]***	[2.62]***	[3.85]***	[2.62]***	[2.60]***
Global Industry *q*		1.22	1.22		1.22	1.03
		[9.62]***	[9.63]***		[9.61]***	[16.08]***
Log (Sales Growth)		0.0797	0.0806		0.078	0.034
		[0.85]	[0.86]		[0.83]	[0.36]
High/Low AD	0.3178	0.4010	0.4016	-0.3179	-0.4011	-0.4022
	[12.69]***	[11.97]***	[12.01]***	[12.70]***	[11.98]***	[11.87]***

Panel B	Anti-Director Rights Index				Judicial Efficiency				English Common Law			
	Above Median		Below Median		Above Median		Below Median		English		Non-English	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Level 1	-0.1111	-0.1298	-0.1345	-0.0698	-0.1311	-0.1440	-0.0053	0.0228	-0.0815	-0.0797	-0.2652	-0.2150
	[1.89]*	[1.59]	[1.36]	[0.56]	[1.98]**	[1.48]	[0.07]	[0.25]	[1.33]	[0.95]	[3.58]***	[2.02]**
Level 2/3	0.0322	0.0757	0.0512	-0.0065	0.1245	0.1883	0.0096	-0.0379	0.3609	0.4099	0.0594	0.0714
	[0.41]	[0.71]	[0.64]	[0.08]	[1.17]	[1.40]	[0.16]	[0.58]	[2.31]**	[2.33]***	[1.04]	[1.04]
Rule 144a	-0.1296	-0.1196	0.2088	0.1403	-0.0966	-0.0827	0.1598	0.0899	-0.1601	-0.1573	0.1960	0.1604
	[1.77]*	[1.23]	[3.19]***	[1.81]*	[1.29]	[0.83]	[2.47]**	[1.17]	[1.93]*	[1.35]	[3.23]***	[2.29]**
Global Industry *q*		0.86		1.42		0.95		1.31		0.92		1.28
		[5.06]***		[8.15]***		[5.36]***		[7.62]***		[5.22]***		[7.58]***
Log (Sales Gth)		0.15		0.18		-0.0055		0.12		0.29		0.065
		[1.04]		[1.48]		[0.03]		[1.03]		[1.89]*		[0.60]
Pr > F (Time)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2	0.0801	0.1080	0.0307	0.1066	0.0844	0.1153	0.0359	0.0927	0.0805	0.1043	0.0339	0.0980

Table 5.18: Estimates of the Average Effect of the Treatment on the Treated (ATT).

Panel A		Cross-List			Level 1 OTC			Level 2/3 Exch			SEC Rule 144a		
	ATT (t)	Probit	ATT	Matches	Probit	ATT	Matches	Probit	ATT	Matches	Probit	ATT	Matches
Sales Growth	List		0.344	367/301		0.171	171/133		0.412	73/69		0.577	123/115
			[4.65]***			[1.60]			[2.78]***			[4.55]***	
Size	t + 1	0.2997	0.155	398/380	0.2145	-0.014	178/173	0.3309	0.193	76/73	0.2442	0.232	142/135
		[17.37]***	[2.43]**		[9.67]***	[0.16]		[9.64]***	[1.47]		[9.71]***	[2.06]**	
q_{t-1}	t + 2		0.000	383/359		0.024	164/159		0.074	70/69		-0.031	140/132
			[0.001]			[0.29]			[0.64]			[0.32]	
German Law	t + 3		-0.007	362/335		0.076	149/136		0.039	65/61		0.040	134/127
			[0.113]			[0.79]			[0.341]			[0.48]	
French Law	t + 4		0.052	337/313		0.144	136/126		0.100	54/54		0.036	122/112
			[0.895]			[1.59]			[0.751]			[0.412]	
	t + 5		-0.054	328/314		0.002	124/120		0.024	48/42		-0.192	114/110
			[1.053]			[0.02]			[0.153]			[2.45]**	
Industry Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo - R-Squared	-	0.2231	-	-	0.1977	-	-	0.2363	-	-	0.1785	-	-
Log - Likelihood	-	-1506	-	-	-822	-	-	-385	-	-	-647	-	-
LR (Chi)	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-

Panel B		Cross-List			Level 1 OTC			Level 2/3 Exch			SEC Rule 144a		
	ATT (t)	Probit	ATT	Matches	Probit	ATT	Matches	Probit	ATT	Matches	Probit	ATT	Matches
Sales Growth	List	0.6327	0.322	162/133	0.4549	-0.121	79/66	0.8785	0.315	32/28	0.8711	0.418	51/51
		[2.55]**	[3.03]***		[1.33]	[0.76]		[2.01]**	[1.13]		[2.39]**	[2.08]**	
Size	t + 1	0.3424	0.102	197/194	0.3166	-0.019	90/89	0.3520	0.153	38/36	0.2056	0.217	68/65
		[11.53]***	[1.14]		[7.87]***	[0.16]		[5.89]***	[0.89]		[4.73]***	[1.21]	
q_{t-1}	t + 2		-0.055	187/180		0.066	79/75		0.123	38/36		0.211	69/67
			[0.61]			[0.51]			[0.97]			[1.45]	
German Law	t + 3	-0.2096	0.108	173/162	-1.26	0.136	70/67	-0.2929	0.184	34/33	0.4095	0.289	65/61
		[2.07]**	[1.25]		[3.76]***	[1.02]		[1.33]	[1.07]		[2.91]***	[2.26]**	
French Law	t + 4	0.1025	0.077	145/139	-0.0992	-0.044	56/54	0.4354	0.061	27/26	0.1218	-0.025	56/54
		[0.94]	[0.86]		[0.64]	[0.27]		[2.32]**	[0.29]		[0.69]	[0.18]	
	t + 5		0.011	138/127		0.140	52/51		0.147	23/22		-0.068	48/46
			[0.128]			[1.11]			[0.91]			[0.51]	
Industry Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo – R-Squared	-	0.2656	-	-	0.3207	-	-	0.3058	-	-	0.1757	-	-
Log - Likelihood	-	-592	-	-	-301	-	-	-142	-	-	-259	-	-

LR (Chi)	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-

Panel C		Cross-List			Level 1 OTC			Level 2/3 Exch			SEC Rule 144a		
	ATT (t)	Probit	ATT	Matches	Probit	ATT	Matches	Probit	ATT	Matches	Probit	ATT	Matches
Sales Growth	List	0.6344	0.166	155/125	0.5203	-0.064	76/57	0.8216	0.092	30/28	0.8490	-0.050	49/46
		[2.44]**	[1.34]		[1.48]	[0.40]		[1.79]*	[0.30]		[2.23]**	[0.19]	
Size	t + 1	0.3731	-0.009	175/170	0.3416	0.068	80/77	0.3681	-0.229	31/29	0.2350	0.332	63/61
		[11.70]***	[0.09]		[7.95]***	[0.63]		[5.89]***	[0.98]		[5.01]***	[2.22]**	
q_{t-1}	t + 2	0.1344	0.014	176/170	0.0111	-0.130	75/72	0.1277	0.074	36/35	0.1891	0.164	65/64
		[3.02]***	[0.16]		[0.17]	[0.94]		[1.46]	[0.63]		[3.13]***	[1.24]	
German Law	t + 3	-0.1913	-0.006	161/150	-1.27	-0.016	69/64	-0.1917	-0.001	27/26	0.4264	0.085	61/59
		[1.78]*	[0.06]		[3.74]***	[0.13]		[0.83]	[0.005]		[2.88]***	[0.60]	
French Law	t + 4	0.1726	0.105	134/130	-0.0639	0.237	53/49	0.4990	-0.123	26/26	0.1677	-0.052	50/50
		[1.52]	[1.08]		[0.40]	[1.49]		[2.55]**	[0.59]		[0.92]	[0.39]	
	t + 5		0.052	127/122		0.131	50/48		0.044	21/20		0.019	44/41
			[0.61]			[0.99]			[0.24]			[0.17]	
Industry Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo – R-Squared	-	0.2729	-	-	0.3266	-	-	0.3123	-	-	0.1809	-	-
Log - Likelihood	-	-547	-	-	-280	-	-	-132	-	-	-243	-	-
LR (Chi)	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-

Panel D		Cross-List			Level 1 OTC			Level 2/3 Exch			SEC Rule 144a		
	ATT (t)	Two-Pre	One-Pre	List	Two-Pre	One-Pre	List	Two-Pre	One-Pre	List	Four-Pre	Two-Pre	List
Sales Growth	List	0.330	0.289	0.322	-0.109	0.150	-0.121	0.278	0.553	0.315	0.619	0.641	0.418
		[2.80]***	[2.71]***	[3.03]***	[0.64]	[0.99]	[0.76]	[1.38]	[2.43]**	[1.13]	[2.90]***	[3.41]***	[2.08]**
Size	t + 1	0.032	0.046	0.102	-0.069	-0.076	-0.019	0.143	0.088	0.153	0.315	0.439	0.217
		[0.30]	[0.49]	[1.14]	[0.48]	[0.56]	[0.16]	[0.64]	[0.47]	[0.89]	[1.62]	[2.47]**	[1.21]
German Law	t + 2	-0.044	0.007	-0.055	-0.141	-0.182	0.066	-0.111	-0.075	0.123	0.086	0.111	0.211
		[0.50]	[0.08]	[0.61]	[0.85]	[1.25]	[0.51]	[0.64]	[0.52]	[0.97]	[0.60]	[0.64]	[1.45]
French Law	t + 3	-0.090	0.035	0.108	0.182	-0.129	0.136	-0.273	-0.310	0.184	0.188	-0.075	0.289
		[0.82]	[0.38]	[1.25]	[1.17]	[0.78]	[1.02]	[1.11]	[1.37]	[1.07]	[1.44]	[0.44]	[2.26]**
	t + 4	0.106	0.018	0.077	0.214	0.227	-0.044	0.187	0.009	0.061	-0.170	0.048	-0.025
		[1.02]	[0.19]	[0.86]	[1.15]	[1.43]	[0.27]	[0.89]	[0.53]	[0.29]	[1.02]	[0.31]	[0.18]
	t + 5	-0.007	-0.053	0.011	0.026	0.102	0.140	0.236	0.284	0.147	0.031	0.041	-0.068
		[0.07]	[0.54]	[0.128]	[0.11]	[0.57]	[1.11]	[1.20]	[1.59]	[0.91]	[0.20]	[0.35]	[0.51]
Industry Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

In Table 5.18, I estimate the Average Effect of the Treatment on the Treated (ATT) for cross-listed emerging market firms. In Panels A and B I employ different probit specifications in order to generate the propensity to list for each firm i.e. the propensity scores. All matches are based upon 'Nearest Neighbour' Matching, and all firms are matched on the year of listing ((P (CL=1¦$X_{t=0}$). My probit specifications are as follows: Panel A; I employ firm size, and industry dummies based upon primary SIC codes, firm growth and legal origin dummies (French and German Law). In Panel B, I augment the probit from Panel A with one-year lagged Tobin's *q*. In Panel C, I replicate our probit specification from Panel A, and estimate the ATT for each different valuation proxy. Finally, in Panel D, we examine whether our results are robust to the time in which we match firms by matching firms on the year of listing (P (CL=1¦$X_{t=0}$), one-year pre-listing (P (CL=1¦X_{t-1}), and two-years pre-listing (((P (CL=1¦X_{t-2}). The variables are outlined in the appendix. In each specification the common support condition is imposed. I estimate the ATT on the year of listing (t) and up to 5 years post-listing (t+5). I also outline the number of matched cross-listed firms to non-cross-listed firms for each time period (ATT (t)). Absolute values of t-stats are reported in square brackets under the ATT estimates. ***, **, * Represents significance at 1, 5, and 10% respectively.

Table 5.19: Pooled least squares estimates of the impact of cross-listing by level of investor protection.

	High Investor Protection				Low Investor Protection			
	All Firms		High IP Only		All Firms		Low IP Only	
Level 1_t	0.1954**	0.1622	0.0136	-0.1034	-0.3878***	-0.4072***	-0.2121**	-0.1977*
Level 1_{t-1}	0.0726	0.0934	-0.0945	-0.1396	-0.3467***	-0.2622*	-0.1995**	-0.0637
Level 1_{t-2}	0.0479	0.1307	-0.1154	-0.0747	-0.4642***	-0.4100***	-0.3241***	-0.2347**
Level 1_{t-3}	0.0467	-0.0411	-0.1035	-0.2471**	-0.2734**	-0.1739	-0.1379	0.0086
Level 1_{t-4}	0.0729	0.0548	-0.0618	-0.1413	-0.1556	-0.0752	-0.0428	0.0776
Level 1_{t-5}	0.0217	0.1001	-0.1071	-0.0707	-0.3274***	-0.2252*	-0.1992*	-0.0732
Level $2/3_t$	0.2586**	0.3586*	0.1004	0.1361	-0.0459	-0.1001	0.1125	0.0853
Level $2/3_{t-1}$	0.2805**	0.3850**	0.1369	0.1887	-0.1944**	-0.3095***	-0.0427	-0.1064
Level $2/3_{t-2}$	0.2121*	0.4731***	0.0691	0.2525	-0.2292***	-0.3266***	-0.0984	-0.1587***
Level $2/3_{t-3}$	0.1828	0.3119	0.0507	0.0944	-0.0736	-0.2299**	0.0643	-0.0841
Level $2/3_{t-4}$	0.1069	0.1514	-0.0189	-0.0257	-0.0436	-0.2406**	0.0729	-0.1114
Level $2/3_{t-5}$	0.0606	0.1239	-0.0647	-0.0304	-0.1350	-0.2827***	-0.0121	-0.1275
SEC Rule $144a_t$	0.6266***	0.5807**	0.4562**	0.3131	0.4127***	0.1157	0.5914***	0.3251**
SEC Rule $144a_{t-1}$	0.2199*	0.2124	0.0460	-0.0438	0.2885**	0.1573	0.4607***	0.3452***
SEC Rule $144a_{t-2}$	-0.0320	0.1340	-0.1954*	-0.0854	0.1013	0.0573	0.2466***	0.2418**
SEC Rule $144a_{t-3}$	-0.0614	-0.0129	-0.2000***	-0.2079**	0.0945	0.0444	0.2339**	0.2115*
SEC Rule $144a_{t-4}$	-0.1161	0.0528	-0.2434***	-0.0811	-0.0039	-0.0705	0.1105	0.0685
SEC Rule $144a_{t-5}$	-0.1521***	-0.0649	-0.2747***	-0.2103**	-0.0531	-0.0684	0.0729	0.0838
Global Industry q		1.24		0.87		1.23		1.41
		(9.64)***		(5.15)***		(9.57)***		(8.14)***
Ln (Sales Growth)		-0.055		0.1360		-0.0451		0.1681
		(0.57)		(0.95)		(0.46)		(1.45)
Year Dummies	No	No	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No	No	No
R^2	0.051	0.0922	0.0814	0.1084	0.0595	0.0892	0.0391	0.1083
Pr > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pr > F (Lags)								
Level 1	0.130	0.137	0.109	0.039**	0.000***	0.000***	0.000***	0.146
Level 2/3	0.170	0.187	0.634	0.763	0.000***	0.000***	0.000***	0.020**
Rule 144a	0.000***	0.248	0.000***	0.038***	0.005***	0.245	0.000***	0.036**
Pr > F (Time)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 5.20: Pooled least squares estimates of the impact of cross-listing with country controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Level 1	-0.0115	-0.0980	-0.0613	-0.0663	-0.0844	0.0211	-0.0784
	[0.17]	[1.43]	[0.87]	[0.92]	[1.17]	[0.30]	[1.07]
Level 2/3	0.0253	0.1578	0.1275	0.0295	0.0538	0.0342	0.1221
	[0.37]	[2.49]**	[1.89]*	[0.47]	[0.87]	[0.51]	[1.95]*
SEC Rule 144a	0.0227	0.0219	0.0741	0.0141	-0.0132	-0.0123	0.0911
	[0.37]	[0.33]	[1.13]	[0.22]	[0.21]	[0.19]	[1.39]
Global Ind. q	1.22	1.12	1.08	1.14	1.21	1.16	1.04
	[9.55]***	[8.96]***	[8.60]***	[8.94]***	[9.60]***	[9.26]***	[8.36]***
Log (Sales Gth)	0.05	0.13	0.11	0.04	0.05	0.06	0.16
	[0.53]	[1.33]	[1.15]	[0.44]	[0.41]	[0.62]	[1.66]*
French Law		-0.47					
		[12.20]***					
German Law		-0.31					
		[7.80]***					
Accounting Stds			0.0204				
			[9.93]***				
Judicial Efficiency				0.0730			
				[7.56]***			
Anti-Director					0.1447		
					[12.05]***		
Liquidity Ratio						0.0477	
						[3.73]***	
Capital Access							0.3392
							[9.34]***
Year Dummies	No	No	No	No	No	No	No
Industry Dummies	No	No	No	No	No	No	No
R^2	0.0878	0.1426	0.1246	0.1125	0.1349	0.0910	0.1254
Pr > F (Time)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pr > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000

In this table I report pooled ordinary least squares (with Mundlak corrections) estimates of the impact of cross-listing on firm value for a sample of cross-listed emerging market firms over the period from 1990-2003. Tobin's q is employed as our valuation proxy. In all specifications, the Mundlak (1978) correction terms (i.e. linear function of averages over time of the exogenous variables) are included but not reported. We do, however, test for the joint significance of the Mundlak (1978) corrections using a standard F-test (Pr > F (Time)). All variable are defined in the appendix. Our standard errors are robust to clustering by firm. Absolute values of t-stats are reported in square brackets under the coefficient estimates. ***, **, * Represents significance at 1, 5, and 10% respectively. A constant is included but not reported.

Figure 5.1: Mean Tobin's *q* 'Around' List Year

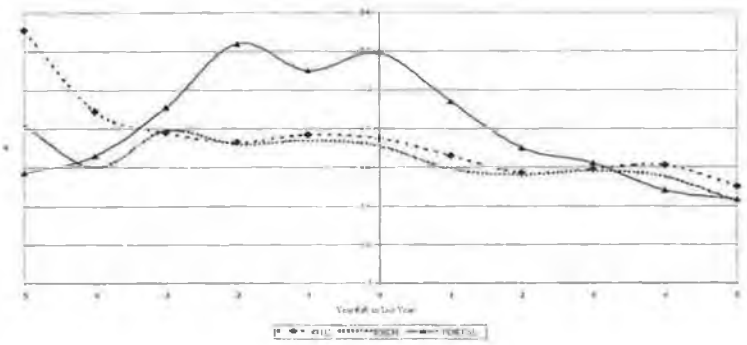


Figure 5.2: Median Tobin's *q* 'Around' List Year

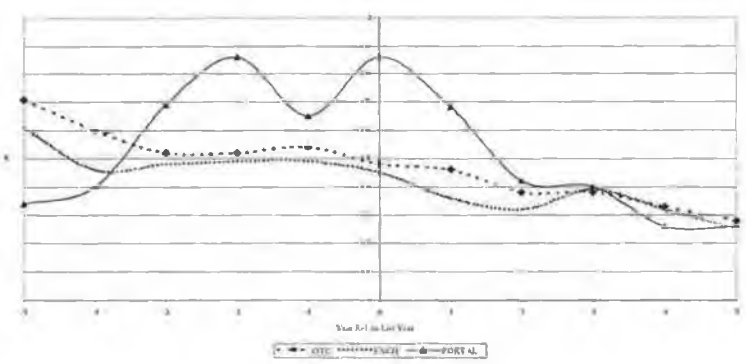


Figure 5.3: Mean (1/BM) 'Around' List Year

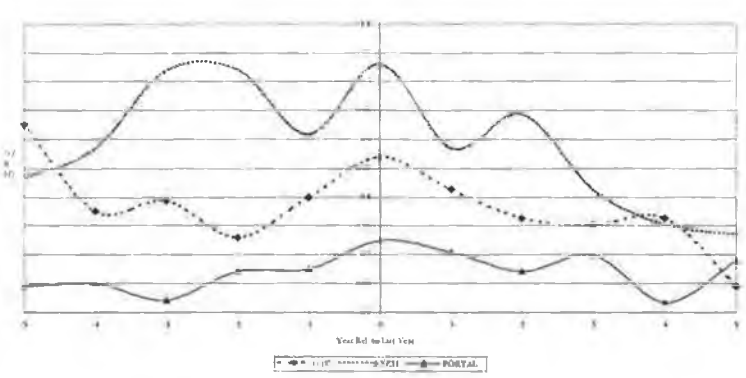


Figure 5.4: Median (1/BM) 'Around' List Year

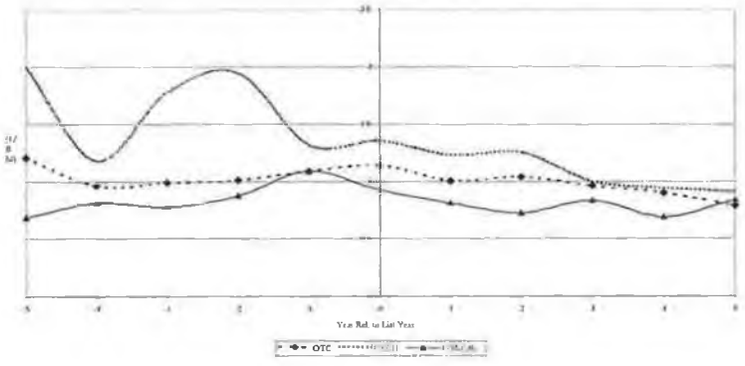


Figure 5.5: Mean (1/EP) 'Around' List Year

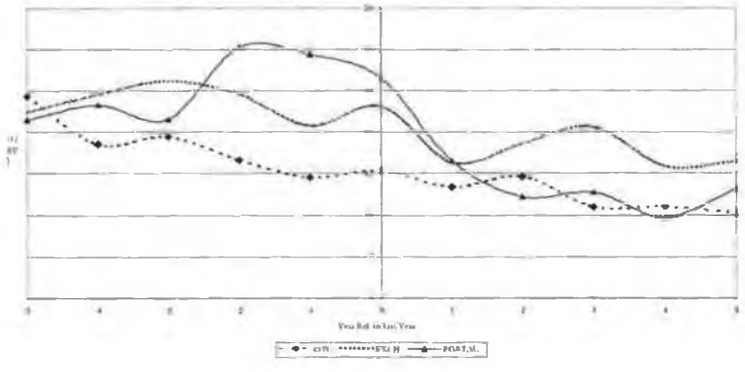
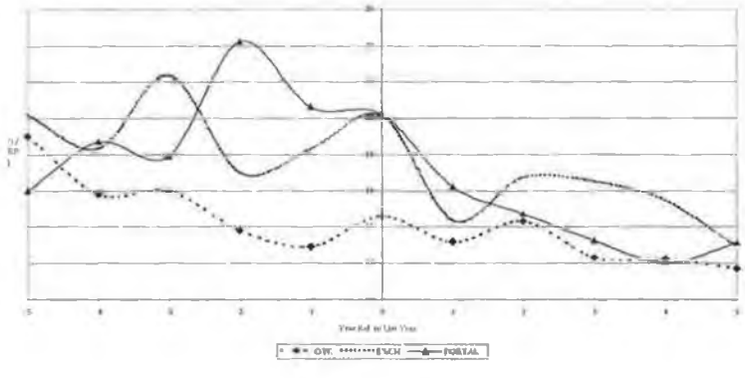


Figure 5.6: Median (1/EP) 'Around' List Year



Chapter 6: Is there a cross listing premium for non-exchange traded depositary receipts?

6.1. Introduction

In this Chapter I examine the valuation effects of listing on firm value for non-exchange traded depositary receipts. In the previous chapter, I uncovered weak evidence that non-exchange traded firms from low disclosure regimes outperform their counterpart high disclosure firms post-listing. Here, I examine this further by extending our sample to include non-exchange traded firms from both developed and emerging market countries. My final sample is made up of 728 Level 1/Rule 144a firms from 39 countries. I begin by examining non-exchange traded firms in both calendar and event time. My results suggest that non-exchange traded firms tend to be worth less than domestic firms in calendar time. In event time, I show that Level 1 firms tend to be worth more than non-cross-listed firms, only in the pre-listing period. These firms list after a period of deteriorating firm performance, which is not reversed after listing in the U.S. Consequently, Level 1 firms are valued at a discount relative to non-cross-listed firms after listing in the U.S. Rule 144a firms are only worth more than non-cross-listed firms in the period immediately around the time of listing. These firms 'time' their decision to list.

I replicate the analysis from Chapter 5, and show that listing does not cause value for non-exchange traded firms from either developed or emerging markets. However, I find that Rule 144a firms from a high-disclosure regime experience the worst post-listing decline in value relative to non-cross-listed firms.

Finally, I examine the absolute and relative behaviour of value of non-exchange traded firms by (1) stage of economic development (emerging and developed) and high and low investor protection (2) legal origin (English common law, Scandinavian, French and German civil law), (3)

level of investor protection (proxied by LLSV (1998) anti-director rights index), and finally (4) industry membership (defined in terms of primary standard industry classification code). I show that while the absolute value of non-exchange traded firms differs substantially across different sub-categories of firms in the post-listing period, the conclusions that I draw for the entire sample of firms applies. Listing in the U.S. does not cause value for non-exchange traded firms.

6.2. Data

In this Chapter, I augment my sample from Chapter 5 with a comprehensive list of developed market firms that trade in the U.S., either 'over-the-counter' via a Level issue, or on Portal trading under Rule 144a. Unlike GLS (2005), I do not attempt to identify a firms' first 'international' listing. For example, in our final sample I include a number of Irish firms whom listed abroad (in London), prior to listing in the U.S. This approach is largely influenced by my inability to identify each firm's initial international listing. All information on cross-listed firms is sourced from the Bank of New York, and is cross-referenced with data from Deutsche Bank (www.adr.db.com), and JP Morgan (www.adr.com). My final sample, outlined in Table 6.1 is comprised of 10,912 firms from 39 different countries. This figure includes 10,184 domestic firms, 505 Level 1 firms, and 223 Rule 144a firms. From my original cross-listed sample of firms: (1) I classify firms according to their first depositary receipt level, and (2) classify simultaneous Level 1/Portal 'listings' as Level 1 issues. I only include those firms with average total assets greater than 10 million U.S. dollars over the entire sample period in order to facilitate a greater comparison across both sub-sets of firms. Finally, I exclude all firms with missing primary (4-digit) standard industry classification codes.

I outline in Table 6.1, the number of non-cross-listed firms, and the number of cross-listed firms listed in the United States. I exclude from my final sample firms domiciled in Russia, the Czech Republic and Indonesia because of insufficient quality. I provide the percentage that each country contributes to each depositary receipt level and adopt an identical approach for my

non-cross-listed sample. The majority of our non-cross-listed sample is domiciled in the U.K. There also exists a sizable difference across countries in their contribution to each depositary receipt level. For example, Hong Kong, Australia, U.K., and South Africa provide the majority of Level 1 issues, with 97 (19.21%), 61 (12.08%), 51 (10.10%), and 37 (7.33%) programs, respectively. Together, they supply just fewer than 47% of the entire sample of Level 1 firms. In contrast, Argentina and Taiwan provide none. Similar trends are observed for private placement issues. The majority of these firms originate in India (50), Taiwan (42), and South Korea (21). Jointly, they provide just over 50% of the entire sample. Belgium, Denmark, Israel, Malaysia, and New Zealand provide no firm. An interesting feature evident from Table 6.1 is that across and within countries there exists significantly differing preferences for each listing type. For example, the majority of firms from Hong Kong trade over-the-counter as Level 1 issues. This contrasts notably with the preference of Indian and Taiwanese firms to generate funds via a private placement.

Like Chapter 4 and 5, value is proxied using Tobin's q. All additional data is sourced from Worldscope and is gathered on the 31st of December at the end of each year from 1990 to 2003. To check for robustness, I employ Relative q as I do in Chapter 4. Relative q serves to focus on the within-country variation in corporate valuation, and thus facilitates a greater comparison of value across countries. In addition to the sample description outlined in Table 6.1, I provide the median value for each country, and depositary receipt level. Unreported mean values are also calculated, and the general findings remain unchanged. Unsurprisingly, large differences in corporate value are evident across countries. Chua, Eun, and Lai (2006) examine the distribution of corporate valuation globally. Their analysis suggests that the variation in corporate value (measured using country-level Tobin's q (CTQ)) is driven by cross-sectional differences in corporate governance, growth options, GDP growth, and capital market openness. For example, the median value for domestic U.K. firms is 1.77, compared to a value of just 0.76 for Brazilian firms. Another interesting feature arising from Table 6.1 concerns the difference in

value across the different depositary receipt levels, within countries. These differences do not appear to be systematically related to either depositary receipt level. For example, Level 1 firms from Australia, France, India, South Africa, Thailand, and Turkey enjoy sizable valuation premiums over their counterpart Rule 144a firms. In contrast, Rule 144a firms from Chile, Hong Kong, Ireland, Peru, Spain, Sweden, and Switzerland are valued more highly than Level 1 firms from the same country.

As in Chapter 4 and 5, I employ the following firm-level variables in the empirical specifications: I use the average sales growth over the last two years (geometric average) and Global Industry *q* for each firm. I remove the top 1% of observations for Tobin's q, and two-year average sales growth. Negative values of Tobin's q are set to missing.

6.3 Univariate Statistics

6.3.1. Comparison of cross-listed and non-cross-listed firms in calendar and event time.

I begin by comparing the value of cross-listed and non-cross-listed firms in both calendar and event time. The results are outlined in Table 6.2. In Panel A, I compute mean and median value for each depositary receipt level and for non-cross-listed firms, in each year from 1990-2003. The valuation difference D (q) is calculated as the mean (median) valuation difference between firms listed in the U.S., and all firms not listed in the U.S. Like DKS (2004, 2006), the valuation differences are calculated based upon a sample of firms whose average total assets, calculated over the entire sample period is greater than one hundred million United States dollars. This approach facilitates a greater comparison between cross-listed and non-cross-listed firms, since cross-listed firms tend to larger. DKS (2004, 2006) adopt a similar approach, but for each year their analysis is performed on a country-by-country basis. In Panel B, I compare the value of cross-listed and non-cross-listed firms in event time. I outline the mean and median value of cross-listed firms in an eleven-year event window around the time of listing: five years pre-listing [Year = -5, -1], the year of listing [Year = 0], and five years post- listing [Year = +1, +5]. This analysis is performed using

Tobin's q, Industry-adjusted q, and Relative q. The Industry-adjusted q is calculated as follows: for each firm, I subtract from the value of each firm, the average value of its industry group, over the entire sample period. Each firm is classified into a particular industry based upon its primary four-digit standard industry classification code. The Industry-adjusted q is calculated using data from over 15,000 firms from the Worldscope database. Finally, I compare the value of cross-listed to non-cross-listed firms in event time by computing Relative q. A Relative q greater than 1 suggests that cross-listed firms are worth more than their counterpart non-cross-listing firms. Less than 1 suggests the opposite.

I begin with a discussion of the results presented in Panel A. Here I present mean and median valuation differences between cross-listed and non-cross-listed firms in calendar time. I begin with Level 1 firms. The most discernible trend is that over the sample period, these firms are valued at a discount relative to non-cross-listed firms. In 11 of the 14 years of our sample, non-cross-listed firms are worth more than Level 1 firms. Seven of the valuation differences are statistically significant at conventional levels. These figures also suggest that the valuation discounts increased as the decade progressed: the discount increased in every year from 1997 to 2000. In the years prior to 1997, there existed no valuation differences between both sets of firms. The results are robust to the calculation of a mean or median valuation difference. Rule 144a firms tend to be worth less on average. In every year but two, the average Rule 144a firm is worth less than firms not trading in the U.S. Of the 12 valuation discounts, 10 are significantly different from zero. Finally, and especially from 1996 onwards, the 'valuation discount' remains remarkably constant.

Overall the year-to-year comparisons demonstrate large valuation differences between cross-listed and non-cross-listed firms. For both, non-cross-listed tend to be worth more, and in most years the valuation differences are statistically significant. The valuation discount experienced by Level 1 firms has become more pronounced as the decade progressed. The mean (and median) Rule 144a firm is worth less in almost every period, and this valuation discount has remained largely constant from 1996 onwards.

In Panel B I calculate the value of cross-listed firms in event time. For each set of non-exchange traded firms, I outline the mean and median absolute value of cross-listed firms. Next I compare the value of cross-listed to non-cross-listed firms by outlining the evolution of Relative q around the time of cross listing. In effect, both Relative q and Industry-adjusted q serve as measures of the mean and median "abnormal" valuation of cross-listed (relative to non-cross-listed, and relative to industry counterparts in the case of Industry-adjusted q) in the same (event) year. This analysis is intended to uncover whether cross-listed firms are worth more pre-listing, and whether the valuation difference widens post-listing. The results suggest that Level 1 firms tend to cross-list during a period of declining firm value. Value decreases significantly leading up to the list year (Year = 0). For example, in the list year, Level 1 firms are worth on average 12.5% less than they were five years pre-listing (Year = -5). The decline in value experienced in the pre-listing period continues post-listing, and the magnitude of the decline is similar to that experienced pre-listing. For example, after five years of listing (Year = +5), the average Level 1 firm has declined in absolute value by an additional 13.75%. Similar conclusions are reached when I employ Industry-adjusted q.

Next I examine whether this trend is specific to cross-listed firms alone, or whether the trends outlined are characteristic of the whole marketplace. To shed light on this, I outline the evolution of both Relative q and Industry-adjusted q in the remaining columns of Panel B. Because of the similar findings between the two measures, I focus on the trends suggested by Relative q. First, in terms of our average Relative q measure, Level 1 firms are worth more than non-cross-listed firms in every pre-listing year. However, in line with the unconditional estimates the valuation premium decreases in every year approaching the list year. Consistent with before, the value of listing firms continues to fall. After five years of listing (Year = +5), Level 1 firms are worth on average less than non-cross-listed domestic firms. Over the eleven-year event window, the average Level 1 firm has experienced a fall in value of around 25% relative to domestic firms.

The Industry-adjusted loss in value is even greater. These unconditional results are not supportive of the premise that listing in the U.S. is associated with enhanced value for Level 1 firms.

The value of Rule 144a firms is outlined in the remaining columns of Panel B. In contrast to Level 1 firms, Rule 144a firms tend to time their listing in the U.S. Rule 144a firms experience a run-up in value pre-listing, followed by a fall-off thereafter. For example, in the pre-listing period, the value of a Rule 144a firm appreciates on average by 32%. In the post-listing period, the fall-off in value is even greater (almost 38%). These trends are also evident in the relative valuation measures. These measures suggest that it is only in the period around the time of listing that Rule 144a firms are worth more than domestic firms. In every other period, the average Rule 144a firm is worth less. In addition, the valuation difference around the time of listing appears to owe much to market timing rather than from any valuation effect from listing.

The last three rows of Panel B summarise my general findings. The value of Level 1 firms depreciates in both the pre and post-listing periods. The net effect is that, after trading in the U.S., these firms are no longer valued at a premium relative to domestic firms. Now, domestic firms are valued more highly. Rule 144a firms 'time' their listing in the U.S. (See Webb (1999), HJW (2006)). The run-up in value pre-listing is more than offset by a fall-off thereafter. In line with the year-to-year analysis, Rule 144a firms tend to be less highly valued than domestic firms.

6.3.2. Comparison of listing firms by category.

I examine the absolute value of both depositary receipt levels by (1) stage of economic development (emerging and developed) and high and low investor protection (2) legal origin (English common law, Scandinavian, French and German civil law), (3) level of investor protection (proxied by LLSV (1998) anti-director rights index), and finally (4) industry membership (defined in terms of primary standard industry classification code). The results are presented in Tables 6.3-6.6. I outline in each Table, the percentage change in the value in each year up to five years post-listing, relative to the pre-listing periods for each listing level, and for

each sub-category. In Table 6.7, I summarise my earlier findings by presenting median before-after estimates for each sub-category. In the remaining columns of Table 6.7, I examine the value of each category, relative to both their domestic and industry counterparts, using both Relative and Industry-adjusted q. Both measures allow us to examine whether the unconditional estimates provided in Tables 6.3-6.6 are common to listing firms alone, or whether the demonstrated trends are market-wide, industry-wide, or both.

6.3.3. Valuation by Stage of Economic Development and Disclosure Level.

I outline in Table 6.3 the behaviour of corporate value for both depositary receipt levels by stage of economic development and disclosure level. Listed firms are classified as either developed or emerging, and high or low disclosure domiciled firms. I classify firms as either high or low disclosure domiciled firms if their anti-director rights measure is 4 or greater[40]. The anti-director rights measure is sourced from LLSV (1998). In each column, I outline the absolute median value for each category for each year up to five-years pre-listing. In the remaining rows of Table 6.3, I calculate the change in value for each year up to five-years post-listing, relative for each year in the three-year pre-listing (-2, -1, 0) period. Finally, in each column labelled '%Δ' I calculate the corresponding percentage change in *q* over the same period.

Lets begin with Level 1 firms. There exists a significant difference between developed and emerging market, and between high and low investor protection domiciled Level 1 firms. Specifically, the fall-off in value in the post-listing period is greatest for emerging market, and low investor protection firms alike. For example, relative to the list-year, emerging market firms are worth 13.51 per cent less, after the fifth year of listing. Over the same period, developed market firms only depreciate by a mere 1.20 per cent. Similarly, over the same period, low investor protection domiciled (cross-listed) firms are worth almost 5% less. The corresponding figure for

[40] Although similar, there are notable differences between the developed and emerging, and high and low investor protection classification.

Level 1 firms trading in high-investor protection regimes is exactly 14%. The overall trends suggest that after a period of initial poor performance, value begins to appreciate after three years of listing for developed market firms. In contrast, value falls in every post-listing period for emerging market firms. Level 1 firms from high-investor protection are worth, relative to the list year, less in every period in the post-listing period (i.e. up to five years post-listing). In contrast, the decline in value for low-investor protection is not immediate (for example after one year of listing the median Level 1 firm is actually worth more) and not as severe, as outlined earlier.

The results for Rule 144a firms are presented in the remaining columns of Table 6.3. Similar to Level 1 firms, there exists a significant difference in corporate value for both emerging-developed market and high-low protection domiciled firms, in the pre and post-listing periods. Similar to Level 1 firms, the fall-off in value in the post-listing period is again greatest for emerging market firms. In almost every year post-listing, emerging market firms are worth less relative to both the two-year pre-listing period, and the list year[41].

Finally, there also exists a discernible difference in the post-listing behaviour of value for Rule 144a firms domiciled where investors are protected differently. Firms from high-investor protection regimes experience the greatest depreciation in post-listing value. For example, after five years of trading in the U.S., high-investor protection domiciled Rule 144a firms are worth almost 61% less than their listing year value. While low-investor protection firms also experience a significant fall-off also, the magnitude of the depreciation is less.

6.3.4. Valuation by Legal Origin.

I outline in Table 6.4 the evolution of corporate value for Level 1, and Rule 144a firms, by legal origin. I classify each firm in accordance with their legal origin as defined in LLSV (1998).

[41] In addition, both Figure 6.5 and Table 6.4 outline significantly different behaviour in value in the pre-listing period. Specifically, while both sets of firms appear to 'time' their decision to list in the U.S., the 'run-up' in value occurs much earlier in the pre-listing period for emerging market firms. It is evident from Figure 6.5 that emerging market firms experience a run-up in value that begins four-years pre-listing. In contrast, developed market firms experience a run-up in value just one-year pre-listing.

Firms are classified as either English common, or French, German, or Scandinavian civil law. In general, investors are better protected in English common law jurisdictions. To conserve space, I only present the percentage change (%Δ) in value for all firms over regular intervals in both the pre and post-listing periods.

I begin with a discussion of Level 1 firms. The most striking feature from Table 6.4 (and Figure 6.8) is that the behaviour of value for Level 1 issues as a whole, appears to be driven almost entirely by English common law firms. In contrast, civil law firms exhibit no fall-off in value in the pre or post-listing period. In fact, in the case of Scandinavian civil law firms, value begins to appreciate two-years post-listing (See Figure 6.8). Relative to English common law firms, French and German civil law firms exhibit a very small fall-off in value in the post-listing period. Specifically, in the fifth year of listing, English common law firms are worth, relative to the list year, 14.04 per cent less. The corresponding figures for French, German, and Scandinavian firms exhibit a fall of 3.94, 2.68, and a rise in value of 6.06 percent, respectively.

The results for Rule 144a firms are outlined in the remaining columns of Table 6.4. Similar to the results presented for Level 1 firms, value differs greatly across legal regimes. First, and unlike English common, French and German civil law firms, Scandinavian civil law firms experience a very modest depreciation in value, post-listing. In contrast, both English common, and French civil law firms experience a run-up in value beginning up to four years pre-listing. French civil law firms list after a run-up in value, which begins one-year pre-listing. Like Level 1 firms, English common law firms experience the greatest fall-off in value in the post-listing period. Unlike German civil law Level 1 firms, Rule 144a firms experience a similar fall-off in value in the post-listing period as that experienced by English common law firms. For example, after five years of listing, relative to list year value, Scandinavian civil law firms experience a modest drop in value in the region of 7.59%. English common, and French and German civil law firms experience more dramatic declines in value, in the region of 44.75, 25.27, and 30.22 percent, respectively.

6.3.5. Valuation by Level of Investor Protection.

Next I examine, by level of investor protection, value around the time of listing. I employ LLSV's (1998) anti-director rights index to proxy for investor protection. The anti-director rights index ranges from 0 to 5, where 5 constitutes the highest level of investor protection. The results are presented in Table 6.5 (and Figures 6.9 and 6.10).

I begin with Level 1 firms. In this case it is very difficult to identify any systematic differences in value around listing. For example, the fall-off in value in the post-listing period is similar for firms with an anti-director rights index of 0, 1, 2, 4, and 5. After five years of listing, these firms depreciate in value, relative to the initial year of listing, by 12.36, 18.47, 11.32, 11.83, and 12.88 percent, respectively. The value of firms with the highest ranking of investor protection is consistent with our findings for English common law firms. This is not surprising given that investors enjoy the best protection under English common law regimes. Firms with an anti-director rights index of 3 experience the smallest decline in value post-listing. The following countries have an anti-director rights index of 3, with the number of Level 1 firms in brackets: Israel (1), Brazil (26), Colombia (1), France (16), Peru (3), Phillipines (5), Portugal (2), Taiwan (0), Finland (2), and Sweden (6). In the next Chapter, I further this analysis. I examine on a country-by-country basis, the causal effects of listing on value: I compare the absolute value of cross-listed firms (as I do here) to the value of non-cross-listed firms. I return to a discussion of the results in the next Chapter.

I present the results for Rule 144a firms in the remaining columns of Table 6.5. Like before, it is difficult to identify any specific trends in value across the different levels of investor protection. For example, firms domiciled in countries with the highest level of investor protection (anti-director rights index=5), and those with average protection (anti-director rights index=3) experience a run-up in value beginning up to four-years pre-listing. Consistent with my earlier findings, the former experiences the greatest loss in value post-listing. Those firms domiciled in countries with the weakest level of investor protection (anti-director rights index=1,

the data for firms with an anti-director rights index of 0 is poor) list after a period of excellent performance, in the year immediately prior to listing. They do not experience the same dramatic fall-off in value. In contrast, firms with an anti-director rights measure of 2 and 4 respectively, experience a very moderate run-up in value immediately prior to listing. This appreciation in value is not offset post-listing. For example, relative to value one-year pre-listing, these firms are still worth more after five years of listing.

6.3.6. Valuation by Industry Type.

I outline, the value of cross-listed firms by primary standard industry classification. The results are depicted in Tables 6.6-6.7. I begin with a discussion of the results for Level 1 firms outlined in Table 6.6 (and Figures 6.11-6.12). In Table 6.6, I outline the median value of Level 1 firms for each year pre-listing, up to five years pre-listing. In the remaining rows (and for Rule 144a firms in Table 6.7), I present the change in firm value in each year up to five years post-listing, relative to two and one year pre-listing, and the list-year. In Figures 11-14, the value of cross-listed firms over time is depicted; in Figures 6.11-6.12, I outline the value of Level 1 firms classified as SIC code 2-7, and 8-13, respectively. The results for Rule 144a firms are presented in Figures 6.13-6.14. Industry codes 1 and 14 are excluded from both because of insufficient data.

I begin with Level 1 firms. First, there appears to be no discernible pattern across the different industry classifications. I can, nonetheless, identify some of the main trends in the data. First, as outlined in the last column of Table 6.6, I find that the change in value is negative for the majority of Level 1 issues post-listing: in the first year of listing, 8 of the 13 industry classes are worth less, relative to two-years pre listing. Furthermore, value depreciates further as the number of years post-listing increases; e.g. after five-years of listing, almost every industry class is worth less relative to the year immediately prior to listing (11 out of 13 industry classes). Second, I am able to identify those industries with the most, and least impressive unconditional post-listing

performance (underperformance). Both Level 1 'Extractive', and 'Utility' firms experience the most impressive post-listing performance. In contrast, the least impressive unconditional post-listing performance is experienced by Chemical, Pharmaceutical, Transportation, Retail, and Services. In the next section I examine whether these unconditional results are robust to the inclusion of firm and control level controls.

The value of Rule 144a firms by industry is outlined in Table 6.7 (and Figures 6.13-6.14). Like Level 1 firms, there appears to be no discernible pattern across the different industry classifications. However, I am able to identify some of the most salient points. First, like Level 1 firms, the vast majority of Rule 144a firms are worth less post-listing. For example, after five years of listing, 9 of the 12 industry classes are worth less. Second, and perhaps more interesting, I find that of the 12 industry classes (with available data), exactly half exhibit very little evidence of market timing. In contrast, the remaining industry classes appear to time their listing in the U.S. (Pharmaceutical, Durable Manufacturers, Textiles, Services, Computers, and Retail). Finally, I find that the greatest post-listing underperformance is experienced by those industry classes that experience the greatest run-up in value, pre-listing.

6.3.7. Comparison of listed firms to their domestic and industry counterparts.

The results from the previous two sections can be summarized as follows: first, listing in the U.S. is associated with lower value for both sets of cross-listed firms on an absolute and relative basis. For both, firms domiciled in emerging market and high investor protection regimes experience the greatest absolute loss in value. For Level 1 firms, listing in the U.S. is associated with a fall in value for all different levels of investor protection. After five years of listing, the level of depreciation ranges from 7.63% to 18.47% relative to the list year. For Rule 144a firms, the greatest fall-off in value is experienced by firms domiciled in countries with an anti-director rights measure of 1, 3, and 5. The fall-off in value is not specific to any particular level of investor protection.

In Tables 6.8 and 6.9, I further examine these trends. First, I summarize my findings from earlier and present a series of before-after estimates for both sets firms. Next I augment these measures by examining the performance of cross-listed firms, relative to both their domestic and industry counterparts, by presenting before-after estimates using Relative q and Industry-adjusted q, respectively.

The results for Level 1 firms are in Table 6.8. They suggest that on an adjusted basis, listed firms experience a greater fall-off in value relative to both their domestic and industry counterparts. When I classify firms as either emerging/developed, high/low investor protection, by legal origin, and by anti-director rights measure, each set of firms is worth less relative to their domestic counterparts, and in some instances, and the differences are statistically different. For example, both developed and emerging market firms are both outperformed by their domestic counterparts around the time of listing. English common and Scandinavian civil law firms are also worth less on a relative basis. Finally both high/low protection domiciled Level 1 firms also experience a loss in value relative to domestic firms.

On an Industry-adjusted basis, the post-listing performance of listed firms is less severe. Scandinavian civil and developed market firms outperform their industry around the time of listing. Furthermore, albeit not statistically different, five of the six anti-director rights classifications are now positive. In contrast, emerging and high-investor protection firms are still outperformed.

The results for Rule 144a firms are outlined in Table 6.9. On a relative basis, developed market, high investor protection, English common, and French and German civil law firms are outperformed. Furthermore, the appreciation in value experienced by Scandinavian civil law firms is no different than that experienced by domestic firms. In summary, other than French civil law firms, listing in the U.S. is associated with a fall in value. Rule 144a firms with an anti-director rights measure of 3 and 5 are also outperformed after listing in the U.S., although the absolute fall-off in value is considerably less when compared to the performance of their

domestic counterparts. On an Industry-adjusted basis, my conclusions remain largely unchanged. Their industry counterparts outperform English common law and emerging market firms. In contrast, French civil, and developed market firms continue to gain value post-listing.

6.4 Regression Estimates.

I test for the presence of a firm and time effect in Tables 6.10-6.12. I present standard error estimates for the following independent variables; dummies for Level 1 [OTC], Rule 144a [PORTAL] firms. The following firm and country controls are also employed: Global industry q [Global q], two-year average sales growth [Sales Growth], and [GDP growth].

In Table 6.10 I test for the presence of a firm effect. The test procedure is outlined in Section 3.4. I present Rogers (1993) standard errors clustered by firm, and compare these to ordinary least squares and White-Huber (1980) standard errors. The sizable differences between Rogers (1993) and White-Huber (1980) standard errors are evidence in favour of a sizable firm effect. For all independent variables, the White-Huber (1980) standard errors are considerable smaller than the Rogers (1993) standard errors. For example the ratio of Rogers (1993) to White-Huber (1980) for the Level 1 dummy is 2.1097.

I present in Table 6.11 estimates of Rogers (1993) standard errors clustered by year. Interestingly, there appears to be a sizable time effect in the data. Specifically, there exists a sizable difference between the Rogers (1993) and White-Huber (1980) standard errors. For example, in the case of Sales and GDP growth the magnitude of the differences are 4.60, and 5.54, respectively. For the remaining independent variables, the White-Huber (1980) standard errors are considerably smaller than those documented by Rogers (1993). In Table 6.12 I present Rogers (1993) standard errors clustered by firm, and absorb the time effect by including time fixed effects. Yet again I find sizable differences between Rogers (1993) and White-Huber (1980) standard errors.

I documented in previous sections evidence that the absolute value of non-exchange-traded firms fall after listing in the U.S. Listing is associated with a fall in value, irrespective of the classifications that I employ. The majority of firms also experience a loss in value on a relative-adjusted basis. In this section, I complement the analysis presented in Tables 6.8-6.9, by presenting regression estimates of the impact of listing on value. I begin estimating the following:

$$q_{it} = \beta_0 + X_{it}\beta_1 + \beta_2 Post_{it} + \alpha_i + \varsigma_t + \mu_{it} \quad (6.1)$$

Where q_{it} is Tobin's q, X_{it} is a vector of firm and industry control (two-year average sales growth and Global Industry q). ς_t are time fixed effects, α_i unobserved heterogeneity, and μ_{it} is a standard idiosyncratic error term. $\{\alpha,\beta_1,\beta_2,\beta_3\}$ is a vector of parameters to be estimated. $Post_{it}$ is a post-listing dummy which is one the year of listing, and one thereafter. The inclusion of firm growth opportunities is a first attempt to address the endogeneity issue of cross listing.

Next I estimate regressions of the following form:

$$q_{it} = \beta_0 + X_{it}\beta_1 + \beta_2 Post_{it} + \beta_3 List_{it} + \alpha_i + \varsigma_t + \mu_{it} \quad (6.2)$$

$$q_{it} = \beta_0 + X_{it}\beta_1 + \beta_2 Post_{it} + \beta_3 Pre_{it} + \alpha_i + \varsigma_t + \mu_{it} \quad (6.3)$$

Where $Pre_{it}, List_{it}$, represent the pre, and full period listing dummies, respectively. Pre_{it} is a pre-listing dummy, which is one in every period prior to listing, and finally, $List_{it}$ is a listing dummy which is one in every period for all cross-listing firms. Equation 6.2 allows us to examine whether the act of listing itself is associated with greater value for cross-listed firms. Finally in Equation 6.3 I compare the value of cross-listed to non-cross-listed firms in the pre and post-listing periods. Each equation is estimated using ordinary least squares (with standard errors clustered by firm). Time-fixed effects are included to account for contemporaneous correlation.

Next I estimate the causal effect of listing on value for cross-listed firms. I address the endogeneity issue in two ways. First, as mentioned earlier I estimate Equation 6.1 with controls

for growth opportunities at the level of the firm. Second, I estimate firm-fixed effect regressions, which control for endogeneity arising from time-invariant firm characteristics (but not endogeneity arising from time-variant firm characteristics). Consequently, I estimate the following:

$$q_{it} = \alpha + \beta_2 Post_{it} + \varsigma_t + c_i + \mu_{it} \tag{6.4}$$

Where c_i is unobserved heterogeneity. I also estimate a variant of our firm-fixed effects model because of our concerns regarding violations of strict exogeneity (See Chapters 4 and 5 for an overview of the Mundlak (1978) corrections). The equation is as follows:

$$q_{it} = \alpha + X_{it}\beta_1 + \beta_2 Post_{it} + \overline{X}_i\zeta + \mu_{it} \tag{6.5}$$

Equation 6.5 is estimated using pooled ordinary least squares with standard errors clustered at the level of the firm. Time-fixed effects are excluded because of the inclusion of the Mundlak (1978) time-averaged correction terms.

Finally I examine the value of cross-listed firms relative to non-cross-listed firms in each period up to five-years post-listing. GLS (2005) perform a similar approach but their 'year-dummy' is interpreted relative to an earlier pre-listing period, and not relative to non-cross-listed firms. I am more interested in examining the relative, rather than the absolute value of cross-listed firms. I estimate the following:

$$q_{it} = \alpha + X_{it}\beta_1 + \sum_{s=0}^{5} \beta_t Post_{it}^s + \overline{X}_i\zeta + u_{it} \tag{6.6}$$

6.5 Results.

The results are outlined in Tables 6.13-6.16. In Table 6.13, I present estimates corresponding to Equations 6.1-6.3. In Panel A, I outline results for our full sample of firms. In Panel B, I restrict the analysis to those firms with average total assets of at least one hundred million U.S. dollars over the entire sample period. In the remaining tables, I only include large firms. In Table 6.14, I replicate this analysis for differing sub-sets of non-exchange traded firms. I

present results for developed, emerging, high and low investor protection categories, respectively. Table 6.15 contains our firm-fixed effect estimates. Finally in Table 6.16, I estimate the effect of listing on value on a distributed yearly basis up to five years post-listing.

I begin by discussing the results in Panel B of Table 6.13. The results for both sets of firms corresponding to Equation 6.1 are presented in columns (1) and (7). In columns (2) and (8) I augment the original specification with firm and industry controls. First, the results suggest that there exists no valuation difference between cross-listed and non-cross-listed firms post-listing. In both specifications the firm and industry controls are highly significant and are of the correct sign. Next I examine whether the act of listing is associated with higher or lower value. To do so, I include a 'Listing Dummy', which equals one in every period if the firm cross-lists at any point during our sample period. The results are outlined in columns 2-4 and 8-9 for Level 1 and Rule 144a firms, respectively. First, the results suggest that Level 1 firms tend to be worth more than non-cross-listed firms, on average. In contrast, Rule 144a firms tend to be valued on a par with non-cross-listed firms. Of greater interest, the coefficient estimate on the [Post-Listing] dummy is negative and highly significant for Level 1 firms. Taken together, this suggests that while Level 1 firms tend to be worth more than non-cross-listed firms on average, they lose value relative to non-cross-listed firms after listing in the U.S. Rule 144a firms tend to be valued similar relative to non-cross-listed firms, and the act of listing is not associated with a fall in value relative to non-cross-listed firms.

I provide estimates corresponding to Equation 6.3 In the remaining columns. I include the 'Pre' and 'Post' list dummies in the same equation to examine the value of both sets of firms, relative to non-cross-listed firms, in the period around listing. The results for Level 1 firms are consistent with our earlier findings: these firms tend to be worth more pre-listing. Given the fall-off in value after listing in the U.S. (Columns (3-4)), they are not worth more than non-cross-listed firms post-listing (Columns (1-2)). Rule 144a firms tend to be worth marginally more pre-listing, although the difference is not statistically significant.

In summary, my results thus far suggest the following. First, trading in the U.S. is not associated with enhanced value for either set of firms. Level 1 firms tend to be worth more on average, although the act of listing does not contribute to this valuation premium. Private placement firms are valued similar to non-cross-listed firms on average. In the next section, I examine whether these results manifest for differing sub-categories of both firms. I present the results in Table 6.14.

Here, I provide estimates for developed, emerging, high and low investor protection sub-samples. For all, I only report estimates with all firm and industry controls included. The results for Level 1 firms are in line with the summary statistics presented earlier. First, emerging market firms experience the greatest loss in value. In contrast to developed market firms, when I include the [Listing Dummy], the coefficient estimate on the [Post List] dummy for emerging market firms is negative and statistically significant. The corresponding coefficient for developed market firms is slightly negative, but it is not statistically different from zero. In the remaining columns, I compare the value of developed and emerging market firms pre and post-listing. In line with expectations, developed market firms tend to be worth more post-listing, although the difference remains statistically insignificant ($p=0.33$). In contrast, emerging market firms are worth more pre-listing, although yet again, the difference is not statistically significant ($p=0.24$).

Next I examine the value of Level 1 firms from high and low investor protection regimes. Consistent with my earlier findings, Level 1 firms from low-investor protection regimes tend to perform better post-listing. Both sets of firms tend to be worth more on average [List Dummy is positive and significant for both]. However, Level 1 firms domiciled in countries where investors are highly protected experience the greatest decline in value post-listing. Finally, while both sets of firms are worth more pre-listing, Level 1 firms from low-investor protection regimes are still worth more post-listing.

The results for Rule 144a firms are similar to those of Level 1 firms. Unlike developed market firms, emerging market firms are worth significantly less after listing in the U.S.

Interestingly, Rule 144a firms tend to be worth less on average relative to domestic firms. Emerging market firms tend to be valued on a par with their domestic counterparts. However, after listing in the U.S., developed market firms experience an increase in value; emerging market firms tend to experience the opposite. Consistent with this, emerging market firms tend to be worth more prior to listing in the U.S. In contrast, developed market firms are worth more. In both instances, the differences are statistically different from zero (i.e. p=0.06 and 0.08, respectively). Finally, when I classify Rule 144a firms as either high or low investor protection domiciled, the results are largely similar to those presented for Level 1 firms. High disclosure firms tend to experience the greatest loss in value after listing in the U.S. In contrast, low disclosure firms do not lose value relative to their domestic counterparts after listing in the U.S. Finally, and consistent with these arguments, Rule 144a firms are more highly valued in the pre, relative to the post-listing period.

In addition to controlling for growth opportunities at the firm level (previous section), I address the endogeneity of the listing decision in this section by estimating firm-fixed effect regressions. I present fixed-effect estimates for both sets of firms. I tend to lend more credence to the pooled ordinary least squares estimates given my concerns over possible violations of strict exogeneity. I estimate regressions for our full sample of firms, and then for each of the same categories employed in the earlier analysis.

The results for both sets of firms are in line with those outlined for equation 6.1 with firm-level controls included. First, listing in the U.S. does not cause value for both sets of non-exchange traded depositary receipt firms. Furthermore, regardless of the classification of firms, I find that listing does not cause value for Level 1 firms. The sign of the coefficients on the listing dummy for each classification are in line with those documented earlier, but all remain statistically indifferent from zero. For example, Level 1 firms from both developed and low-investor protection firms are worth more, but insignificantly so. In contrast, the sign on the listing dummy is negative for firms domiciled in emerging and high-investor regimes. In all specifications, the firm, industry, and

country controls are correctly signed, and significantly different from zero. In summary, my results suggest that listing in the U.S. does not cause value for Level 1 firms, regardless of the classifications that I employ.

The results for Rule 144a firms are outlined in the bottom panel of Table 6.15. For the majority of the sub-categories, listing in the U.S. does not cause value. However, there is one notable exception: the results suggest that listing in the U.S. is associated with significantly lower value for firms domiciled in high-investor protection regimes. This result is in line with those I outlined earlier for these firms. In summary, I find that in general, listing in the U.S. is not associated with enhanced (relative) value for both sets of non-exchange-traded firms.

Finally in Table 6.16, I examine the distribution of the valuation gains/losses to listing for each set of firms. For the full sample, Level 1 firms are valued on a par with non-cross-listed firms. For each remaining sub-group, I reach similar conclusions. The results for Rule 144a firms are outlined in the remaining columns. For the full sample of firms, Rule 144a firms are worth significantly more in the year of listing, and the year immediately after [Year = +1]. They are valued at a significant discount in two of the remaining four years. There exist contrasting fortunes for firms from high and low disclosure regimes. Firms domiciled in low disclosure regimes are worth more in the first three years, post-listing. Thereafter, they are valued on a par with domestic firms. In contrast, Rule 144a firms from high-disclosure regimes are valued significantly less than domestic firms after two years of listing, and in every period thereafter. This is in line with the findings I documented for these firms earlier.

6.6 Concluding Remarks

In this Chapter, I examine whether listing abroad enhances value for non-exchange traded depositary receipts. In general, a non-exchange listing in the U.S. has been the prefered method of entry onto U.S. capital markets for non-U.S. firms. However, hitherto, the extant literature

suggests that trading in the U.S. does not enhance value for these firms. I examine the valuation effects of listing for these firms in detail.

I replicate the analysis from Chapter 5, and show that listing does not cause value for non-exchange traded firms from either developed or emerging markets. However, I find that Rule 144a firms from a high-disclosure regime experience the worst post-listing decline in value relative to non-cross-listed firms.

Table 6.1: Summary Statistics by Country (Median).

	Country	Domestic	%	Level 1	%	Rule 144a	%	Sample	%	Tobins q Domestic	Tobins q Level 1	Tobins q Rule 144a
1	Argentina	55	0.54	0	0.00	5	2.24	60	0.55	1.33	-	1.25
2	Australia	819	8.04	61	12.08	4	1.79	884	8.10	1.85	1.98	1.47
3	Austria	75	0.74	10	1.98	2	0.90	87	0.80	1.38	1.56	1.31
4	Belgium	92	0.90	2	0.40	0	0.00	94	0.86	1.51	1.53	-
5	Brazil	222	2.18	26	5.15	3	1.35	251	2.30	0.76	0.67	0.80
6	Chile	94	0.92	2	0.40	2	0.90	98	0.90	1.61	1.18	2.01
7	China	88	0.86	8	1.58	4	1.79	100	0.92	1.19	1.14	1.12
8	Colombia	23	0.23	1	0.20	4	1.79	28	0.26	1.32	1.17	1.34
9	Denmark	119	1.17	4	0.79	0	0.00	123	1.13	1.50	1.07	-
10	Finland	104	1.02	2	0.40	2	0.90	108	0.99	1.49	1.44	1.32
11	France	719	7.06	16	3.17	5	2.24	740	6.78	1.53	1.65	1.24
12	Germany	695	6.82	21	4.16	3	1.35	719	6.59	1.53	1.34	1.35
13	Greece	248	2.44	2	0.40	5	2.24	255	2.34	1.99	1.78	1.34
14	Hong Kong	534	5.24	97	19.21	1	0.45	632	5.79	1.48	1.43	2.20
15	Hungary	20	0.20	2	0.40	8	3.59	30	0.27	1.42	1.45	1.65
16	India	216	2.12	5	0.99	50	22.42	271	2.48	1.64	2.42	1.34
17	Ireland	30	0.29	4	0.79	1	0.45	35	0.32	1.63	1.27	1.88
18	Israel	83	0.82	1	0.20	0	0.00	84	0.77	1.50	1.16	-
19	Italy	171	1.68	5	0.99	7	3.14	183	1.68	1.40	1.31	1.39
20	Japan	682	6.70	23	4.55	0	0.00	705	6.46	1.65	1.63	-
21	Korea	631	6.20	4	0.79	21	9.42	656	6.01	1.20	1.30	1.18
22	Malaysia	629	6.18	12	2.38	0	0.00	641	5.87	1.62	1.72	-
23	Mexico	63	0.62	18	3.56	11	4.93	92	0.84	1.28	1.45	1.24
24	Netherlands	132	1.30	15	2.97	2	0.90	149	1.37	1.61	1.85	1.86
25	Norway	134	1.32	8	1.58	3	1.35	145	1.33	1.56	1.24	1.33
26	New Zealand	52	0.51	4	0.79	0	0.00	56	0.51	1.75	1.24	-
27	Peru	40	0.39	3	0.59	1	0.45	44	0.40	1.10	1.16	1.78
28	Phillipines	108	1.06	5	0.99	6	2.69	119	1.09	1.29	1.33	1.47
29	Poland	55	0.54	1	0.20	11	4.93	67	0.61	1.47	1.11	1.23
30	Portugal	31	0.30	2	0.40	3	1.35	36	0.33	1.33	1.23	1.86
31	Singapore	404	3.97	19	3.76	1	0.45	424	3.89	1.62	1.39	1.15
32	South Africa	305	2.99	37	7.33	3	1.35	345	3.16	1.57	1.83	1.47
33	Spain	97	0.95	4	0.79	2	0.90	103	0.94	1.56	1.28	1.66
34	Sweden	264	2.59	6	1.19	1	0.45	271	2.48	1.63	1.36	1.85
35	Switzerland	169	1.66	5	0.99	1	0.45	175	1.60	1.38	1.58	2.28
36	Taiwan	401	3.94	0	0.00	42	18.83	443	4.06	1.76	-	1.96
37	Thailand	295	2.90	14	2.77	1	0.45	310	2.84	1.41	1.79	1.22
38	Turkey	127	1.25	5	0.99	7	3.14	139	1.27	1.74	1.56	1.33
39	U.K	1,158	11.37	51	10.10	1	0.45	1,210	11.09	1.77	1.82	1.76

	Country	Domesnc	%	Level 1	%	Rule 144a	%	Sample	%	Tobins *q* Domestic	Tobins *q* Level 1	Tobins *q* Rule 144a
	Total	**10,184**	**100%**	**505**	**100%**	**223**	**100%**	**10,912**	**100%**	**1.55**	**1.54**	**1.37**

In this table I report by country the number of domestic (non-cross-listed), Level 1 and Rule 144a firms. I report by country, the number of domestic, Level 1, and Rule 144a firms. For each category of firms, I also calculate the percentage (%) contribution of each country to the overall sample. In the remaining columns, I outline the Median *q* for each category of firms. All firms are obtained from the Worldscope Country Lists. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche Bank, JP Morgan and Citibank. Rule 144a ADRs trade on Portal and Level 1 ADRs trade over-the-counter as pink sheet issues. Tobin's *q* is calculated as [(Book Value of Total Assets – Book Value of Equity + Market Value of Equity)/Book Value of Total Assets].

Table 6.2: Value of cross-listed and non-cross-listed firms by year and in event time.

Panel A	Level 1						Rule 144a					
Large	Mean			Median			Mean			Median		
Year	Level 1	NCL	D(*q*)	Level 1	NCL	D(*q*)	Rule 144a	NCL	D(*q*)	Rule 144a	NCL	D(*q*)
1990	1.67	1.78	(0.11)	1.58	1.58	0.00	1.03	1.78	**(0.75)***	1.03	1.58	**(0.55)***
1991	1.72	1.87	(0.15)	1.53	1.64	(0.11)	1.22	1.87	**(0.65)***	1.17	1.64	**(0.47)****
1992	1.81	1.75	0.06	1.53	1.53	0.00	1.72	1.75	(0.03)	1.50	1.53	(0.03)
1993	2.00	1.91	0.09	1.80	1.66	0.14	1.73	1.91	(0.18)	1.62	1.66	(0.04)
1994	2.04	2.01	0.03	1.73	1.73	0.00	2.52	2.01	**0.51*****	2.21	1.73	**0.48*****
1995	1.87	1.90	(0.03)	1.63	1.66	(0.03)	1.93	1.90	0.03	1.83	1.66	0.17
1996	1.86	1.95	(0.09)	1.59	1.67	**(0.08)***	1.76	1.95	**(0.19)****	1.53	1.67	**(0.14)*****
1997	1.89	2.01	**(0.12)***	1.61	1.68	(0.07)	1.85	2.01	**(0.16)***	1.58	1.68	**(0.10)*****
1998	1.59	1.81	**(0.22)*****	1.36	1.48	**(0.12)*****	1.56	1.81	**(0.25)*****	1.30	1.48	**(0.18)*****
1999	1.73	2.00	**(0.27)*****	1.45	1.57	**(0.12)*****	1.73	2.00	**(0.27)*****	1.38	1.57	**(0.19)*****
2000	1.75	2.05	**(0.30)*****	1.45	1.56	**(0.11)*****	1.76	2.05	**(0.29)*****	1.32	1.56	**(0.24)*****
2001	1.57	1.68	**(0.11)****	1.36	1.42	**(0.06)*****	1.42	1.68	**(0.26)*****	1.23	1.42	**(0.19)*****
2002	1.61	1.67	**(0.06)***	1.40	1.44	**(0.04)*****	1.46	1.67	**(0.21)*****	1.27	1.44	**(0.17)*****
2003	1.76	1.84	**(0.08)***	1.52	1.56	**(0.04)*****	1.58	1.84	**(0.26)*****	1.38	1.56	**(0.18)*****
ALL	**1.74**	**1.87**	**(0.13)*****	**1.50**	**1.55**	**(0.05)*****	**1.67**	**1.87**	**(0.20)*****	**1.36**	**1.55**	**(0.19)*****

Panel B	Level 1						Rule 144a					
	Mean			Median			Mean			Median		
	Tobin's *q*	Relative *q*	Ind Adj *q*	Tobin's *q*	Relative *q*	Ind Adj *q*	Tobin's *q*	Relative *q*	Ind Adj *q*	Tobin's *q*	Relative *q*	Ind Adj *q*
-5	2.16	1.17	0.35	1.71	0.98	(0.03)	1.65	0.93	(0.16)	1.33	0.86	(0.43)
-4	2.09	1.09	0.22	1.67	0.98	(0.23)	1.59	0.88	(0.25)	1.33	0.84	(0.46)
-3	1.99	1.07	0.17	1.61	0.92	(0.19)	1.86	0.98	(0.03)	1.53	0.89	(0.36)
-2	1.97	1.07	0.14	1.61	0.91	(0.20)	2.17	1.09	0.25	1.72	0.93	(0.12)
-1	1.99	1.06	0.16	1.62	0.91	(0.17)	2.14	1.04	0.29	1.64	0.91	(0.18)
0	1.89	1.04	0.09	1.58	0.89	(0.22)	2.18	1.08	0.32	1.86	0.97	(0.07)
1	1.78	1.00	(0.03)	1.53	0.89	(0.26)	1.96	1.06	0.09	1.70	0.92	(0.22)
2	1.79	0.97	(0.03)	1.53	0.87	(0.27)	1.82	0.97	(0.06)	1.47	0.88	(0.31)
3	1.73	0.97	(0.06)	1.47	0.84	(0.27)	1.67	0.92	(0.19)	1.43	0.83	(0.37)
4	1.70	0.96	(0.10)	1.46	0.85	(0.28)	1.58	0.89	(0.20)	1.30	0.81	(0.41)
5	1.63	0.92	(0.12)	1.39	0.83	(0.32)	1.58	0.87	(0.18)	1.28	0.80	(0.40)
Pre	**1.99**	**1.08**	**0.17**	**1.65**	**0.93**	**(0.16)**	**1.87**	**0.98**	**0.03**	**1.38**	**0.89**	**(0.36)**
Post	**1.74**	**0.95**	**(0.03)**	**1.50**	**0.83**	**(0.25)**	**1.67**	**0.93**	**(0.12)**	**1.36**	**0.83**	**(0.34)**
Difference	**(0.25)*****	**(0.13)*****	**(0.20)*****	**(0.15)*****	**(0.10)*****	**(0.09)*****	**(0.20)*****	**(0.05)****	**(0.15)*****	**(0.02)****	**(0.06)*****	**0.02**

Table 6.3: Value of listed firms by stage of economic development and level of investor protection.

	Level 1								Rule 144a							
	Dev	%Δ	Emerg	%Δ	High P	%Δ	Low P	%Δ	Dev	%Δ	Emerg	%Δ	High P	%Δ	Low P	%Δ
-5	1.76	-	1.70	-	1.93	-	1.35	-	1.09	-	1.34	-	1.46	-	1.31	-
-4	1.71	-	1.64	-	1.85	-	1.36	-	1.11	-	1.40	-	1.66	-	1.32	-
-3	1.70	-	1.53	-	1.84	-	1.3	-	1.14	-	1.69	-	1.88	-	1.32	-
-2	1.71	-	1.54	-	1.75	-	1.38	-	1.11	-	1.86	-	2.23	-	1.38	-
-1	1.71	-	1.57	-	1.84	-	1.36	-	1.22	-	1.65	-	1.77	-	1.55	-
0	1.67	-	1.48	-	1.71	-	1.34	-	1.77	-	1.88	-	2.06	-	1.84	-
Δ(1,-2)	(0.06)	(3.51)	(0.08)	(5.19)	(0.10)	(6.06)	(0.02)	(1.47)	0.51	45.95	(0.11)	(5.91)	(0.54)	(31.95)	0.34	19.77
Δ(1,-1)	(0.06)	(3.51)	(0.11)	(7.01)	(0.19)	(11.52)	0.00	0.00	0.40	32.79	0.10	6.06	(0.08)	(4.73)	0.17	9.88
Δ(1, 0)	(0.02)	(1.20)	(0.02)	(1.35)	(0.06)	(3.64)	0.02	1.47	(0.15)	(8.47)	(0.13)	(6.91)	(0.37)	(21.89)	(0.12)	(6.98)
Δ(2,-2)	(0.09)	(5.26)	(0.14)	(9.09)	(0.13)	(8.02)	(0.03)	(2.22)	0.44	39.64	(0.40)	(21.51)	(0.83)	(59.29)	0.13	8.61
Δ(2,-1)	(0.09)	(5.26)	(0.17)	(10.83)	(0.22)	(13.58)	(0.01)	(0.74)	0.33	27.05	(0.19)	(11.52)	(0.37)	(26.43)	(0.04)	(2.65)
Δ(2, 0)	(0.05)	(2.99)	(0.08)	(5.41)	(0.09)	(5.56)	0.01	0.74	(0.22)	(12.43)	(0.42)	(22.34)	(0.66)	(47.14)	(0.33)	(21.85)
Δ(3,-2)	(0.13)	(7.60)	(0.16)	(10.39)	(0.18)	(11.46)	(0.07)	(5.34)	0.33	29.73	(0.44)	(23.66)	(0.91)	(68.94)	0.10	6.76
Δ(3,-1)	(0.13)	(7.60)	(0.19)	(12.10)	(0.27)	(17.20)	(0.05)	(3.82)	0.22	18.03	(0.23)	(13.94)	(0.45)	(34.09)	(0.07)	(4.73)
Δ(3, 0)	(0.09)	(5.39)	(0.10)	(6.76)	(0.14)	(8.92)	(0.03)	(2.29)	(0.33)	(18.64)	(0.46)	(24.47)	(0.74)	(56.06)	(0.36)	(24.32)
Δ(4,-2)	(0.07)	(4.09)	(0.20)	(12.99)	(0.20)	(12.90)	(0.08)	(6.15)	0.28	25.23	(0.58)	(31.18)	(0.98)	(78.40)	(0.05)	(3.76)
Δ(4,-1)	(0.07)	(4.09)	(0.23)	(14.65)	(0.29)	(18.71)	(0.06)	(4.62)	0.17	13.93	(0.37)	(22.42)	(0.52)	(41.60)	(0.22)	(16.54)
Δ(4, 0)	(0.03)	(1.80)	(0.14)	(9.46)	(0.16)	(10.32)	(0.04)	(3.08)	(0.38)	(21.47)	(0.60)	(31.91)	(0.81)	(64.80)	(0.51)	(38.35)
Δ(5,-2)	(0.06)	(3.51)	(0.26)	(16.88)	(0.25)	(16.67)	(0.10)	(7.81)	0.25	22.52	(0.59)	(31.72)	(0.95)	(74.22)	(0.09)	(6.98)
Δ(5,-1)	(0.06)	(3.51)	(0.29)	(18.47)	(0.34)	(22.67)	(0.08)	(6.25)	0.14	11.48	(0.38)	(23.03)	(0.49)	(38.28)	(0.26)	(20.16)
Δ(5, 0)	(0.02)	(1.20)	(0.20)	(13.51)	(0.21)	(14.00)	(0.06)	(4.69)	(0.41)	(23.16)	(0.61)	(32.45)	(0.78)	(60.94)	(0.55)	(42.64)

In this table I outline by stage of economic development and level of investor protection, the behaviour of Median Tobin's *q* for Level 1 and Rule 144a firms. I calculate both the % difference in value between the post and pre-listing period and the change in *q* between the five year post-listing **(1, 2, 3, 4, 5)** period and the three years pre-listing **(-2, -1, 0)** **[Δ(1,-2), Δ(1,-1), Δ(1, 0), Δ(2,-2), Δ(2,-1), Δ(2, 0), Δ(3,-2), Δ(3,-1), Δ(3, 0), Δ(4,-2), Δ(4,-1), Δ(4, 0), Δ(5,-2), Δ(5,-1), Δ(5, 0)]** based upon median values of Tobin's

Table 6.4: % Change in value for Level 1 and Rule 144a firms by legal origin.

	Level 1					Rule 144a				
	English Common Law %Δ	French Civil Law %Δ	German Civil Law %Δ	Scandinavian Civil Law %Δ	Negative	English Common Law %Δ	French Civil Law %Δ	German Civil Law %Δ	Scandinavian Civil Law %Δ	Negative
-5	2.28	1.20	1.49	1.32	-	1.41	1.26	1.44	-	-
-4	2.16	1.22	1.43	1.21	-	1.66	1.25	1.45	1.32	-
-3	2.01	1.29	1.50	1.27	-	1.88	1.24	1.83	1.24	-
-2	1.80	1.36	1.50	1.25	-	2.30	1.28	2.26	1.11	-
-1	1.90	1.27	1.52	1.43	-	1.77	1.34	1.67	1.23	-
0	1.71	1.27	1.49	1.32	-	2.19	1.86	1.82	1.45	-
Δ(1,-2)	(8.33)	(6.62)	(2.00)	7.20	3/4	(23.91)	26.56	(20.80)	22.52	2/4
Δ(1,-1)	(13.16)	0.00	(3.29)	(6.29)	3/4	(1.13)	20.90	7.19	10.57	1/4
Δ(1, 0)	(3.51)	0.00	(1.34)	1.52	2/4	(20.09)	(12.90)	(1.65)	(6.21)	4/4
Δ(2,-2)	(10.00)	(8.82)	2.67	4.80	2/4	(40.43)	14.84	(28.76)	27.03	2/4
Δ(2,-1)	(14.74)	(2.36)	1.32	(8.39)	3/4	(22.60)	9.70	(3.59)	14.63	2/4
Δ(2, 0)	(5.26)	(2.36)	3.36	(0.76)	3/4	(37.44)	(20.97)	(11.54)	(2.58)	4/4
Δ(3,-2)	(12.78)	(11.03)	(6.00)	12.00	3/4	(43.91)	7.03	(29.20)	27.93	2/4
Δ(3,-1)	(17.37)	(4.72)	(7.24)	(2.10)	4/4	(27.12)	2.24	(4.19)	15.45	2/4
Δ(3, 0)	(8.19)	(4.72)	(5.37)	6.06	3/4	(41.10)	(26.34)	(12.09)	(2.07)	4/4
Δ(4,-2)	(13.33)	(8.09)	(9.33)	25.60	3/4	(49.57)	3.12	(39.82)	18.02	2/4
Δ(4,-1)	(17.89)	(1.57)	(10.53)	9.79	3/4	(34.46)	(1.49)	(18.56)	6.50	3/4
Δ(4, 0)	(8.77)	(1.57)	(8.72)	18.94	3/4	(47.03)	(29.03)	(25.27)	(9.66)	4/4
Δ(5,-2)	(18.33)	(10.29)	(3.33)	12.00	3/4	(47.39)	8.59	(43.81)	20.72	2/4
Δ(5,-1)	(22.63)	(3.94)	(4.61)	(2.10)	4/4	(31.64)	3.73	(23.95)	8.94	2/4
Δ(5, 0)	(14.04)	(3.94)	(2.68)	6.06	3/4	(44.75)	(25.27)	(30.22)	(7.59)	4/4

In this table I outline by legal origin, the behaviour of Tobin's *q* for Level 1 and Rule 144a firms. Firms are classified as English Common Law, French, German, or Scandinavian Civil Law. I calculate both the % difference in value between the post and pre-listing period and the change in *q* between the five year post-listing **(1, 2, 3, 4, 5)** period and the three years pre-listing **(-2, -1, 0)** **[Δ(1,-2), Δ(1,-1), Δ(1, 0), Δ(2,-2), Δ(2,-1), Δ(2, 0), Δ(3,-2), Δ(3,-1), Δ(3, 0), Δ(4,-2), Δ(4,-1), Δ(4, 0), Δ(5,-2), Δ(5,-1), Δ(5, 0)]** based upon median values of Tobin's *q*.

Table 6.5: % Change in value for Level 1 and Rule 144a firms by anti-director rights measure.

	Level 1							Rule 144a						
	(0) %Δ	(1) %Δ	(2) %Δ	(3) %Δ	(4) %Δ	(5) %Δ	Negative	(0) %Δ	(1) %Δ	(2) %Δ	(3) %Δ	(4) %Δ	(5) %Δ	Negative
-5	1.44	1.27	1.82	1.15	1.74	2.19	-	1.38	1.15	1.17	2.02	1.32	1.76	-
-4	1.59	1.34	1.95	1.17	1.72	1.97	-	1.52	1.10	1.19	1.97	1.32	1.72	-
-3	1.51	1.52	1.56	1.14	1.63	1.98	-	1.59	1.16	1.22	2.23	1.49	1.96	-
-2	1.58	1.41	1.57	1.14	1.71	1.79	-	1.67	1.22	1.21	2.68	1.21	2.47	-
-1	1.76	1.53	1.47	1.16	1.80	1.89	-	1.46	1.29	1.22	2.22	1.22	2.30	-
0	1.78	1.57	1.59	1.18	1.86	1.63	-	-	1.85	1.33	2.14	1.45	2.20	-
Δ(1,-2)	10.76	1.42	0.00	(3.51)	2.92	(12.85)	3/6	9.58	22.95	9.09	(30.22)	15.70	(27.93)	2/6
Δ(1,-1)	(0.57)	(6.54)	6.80	(5.17)	(2.22)	(17.46)	5/6	25.34	16.28	8.20	(15.77)	14.75	(22.61)	2/6
Δ(1, 0)	(1.69)	(8.92)	(1.26)	(6.78)	(5.38)	(4.29)	6/6	-	(18.91)	(0.75)	(12.62)	(3.45)	(19.09)	5/5
Δ(2,-2)	4.43	(4.96)	1.27	(5.26)	2.34	(13.41)	3/6	(0.60)	18.05	12.40	(33.58)	19.01	(43.32)	3/6
Δ(2,-1)	(6.25)	(12.42)	8.16	(6.90)	(2.78)	(17.99)	5/6	(13.70)	12.40	11.48	(19.82)	18.03	(39.13)	3/6
Δ(2, 0)	(7.30)	(14.65)	0.00	(8.47)	(5.91)	(4.91)	5/6	-	(21.62)	2.56	(16.82)	(0.69)	(36.36)	4/5
Δ(3,-2)	(5.06)	(9.22)	(3.18)	(7.02)	(2.34)	(14.53)	6/6	(4.79)	8.20	8.26	(39.55)	17.36	(46.96)	3/6
Δ(3,-1)	(14.77)	(16.34)	3.40	(8.62)	(7.22)	(19.05)	5/6	8.90	2.33	7.38	(27.03)	16.39	(43.04)	2/6
Δ(3, 0)	(15.73)	(18.47)	(4.40)	(10.17)	(10.22)	(6.13)	6/6	-	(28.65)	(1.50)	(24.30)	(2.07)	(40.45)	5/5
Δ(4,-2)	(1.90)	(12.06)	5.10	(2.63)	(5.26)	(16.20)	5/6	1.80	2.46	1.65	(46.27)	14.88	(52.63)	2/6
Δ(4,-1)	(11.93)	(18.95)	12.24	(4.31)	(10.00)	(20.63)	5/6	16.44	(3.10)	0.82	(35.14)	13.93	(49.13)	3/6
Δ(4, 0)	(12.92)	(21.02)	3.77	(5.93)	(12.90)	(7.98)	5/6	-	(32.43)	(7.52)	(32.71)	(4.14)	(46.82)	5/5
Δ(5,-2)	(1.27)	(9.22)	(10.19)	(4.39)	(4.09)	(20.67)	6/6	10.18	(90.82)	4.13	(46.27)	12.40	(48.58)	3/6
Δ(5,-1)	(11.36)	(16.34)	(4.08)	(6.03)	(8.89)	(24.87)	6/6	26.03	(6.20)	3.28	(35.14)	11.48	(44.78)	3/6
Δ(5, 0)	(12.36)	(18.47)	(11.32)	(7.63)	(11.83)	(12.88)	6/6	-	(34.59)	(5.26)	(32.71)	(6.21)	(42.27)	5/5

In this table I outline by industry type, the behaviour of Tobin's *q* for Level 1 and Rule 144a firms. The Anti-Directors Rights measure is taken from LLSV (1998) and ranges from 0 to 5. I calculate both the % difference in value between the post and pre-listing period and the change in *q* between the five year post-listing **(1, 2, 3, 4, 5)** period and the three years pre-listing **(-2, -1, 0)** **[Δ(1,-2), Δ(1,-1), Δ(1, 0), Δ(2,-2), Δ(2,-1), Δ(2, 0), Δ(3,-2), Δ(3,-1), Δ(3, 0), Δ(4,-2), Δ(4,-1), Δ(4, 0), Δ(5,-2), Δ(5,-1), Δ(5, 0)]** based upon median values of Tobin's *q*.

Table 6.6: Median value for Level 1 firms by industry.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	Neg
-5	2.81	1.50	1.91	1.45	3.02	2.11	2.06	2.99	2.58	1.71	1.18	1.58	1.82	-	-
-4	1.85	1.28	1.95	1.49	2.52	1.55	1.75	2.83	2.71	1.56	1.20	1.61	2.17	-	-
-3	1.84	1.42	1.56	1.43	2.01	1.73	1.69	2.03	1.71	1.58	1.21	1.65	2.17	-	-
-2	2.02	1.54	1.71	1.48	3.17	1.64	1.59	1.69	1.61	1.80	1.23	1.54	1.80	-	-
-1	1.95	1.84	1.74	1.39	2.34	1.54	1.59	1.52	1.66	1.80	1.33	1.69	1.95	-	-
0	2.05	1.48	1.59	1.39	2.30	1.68	1.55	1.58	1.77	1.76	1.30	1.69	1.51	1.71	-
Δ(1,-2)	(0.03)	0.05	(0.16)	(0.01)	(0.68)	0.05	(0.11)	(0.36)	0.35	(0.10)	0.06	0.15	(0.33)	-	8/13
Δ(1,-1)	0.04	(0.25)	(0.19)	0.08	0.15	0.15	(0.11)	(0.19)	0.30	(0.10)	(0.04)	0.00	(0.48)	-	7/13
Δ(1, 0)	(0.06)	0.11	(0.04)	0.08	0.19	0.01	(0.07)	(0.25)	0.19	(0.06)	(0.01)	0.00	(0.04)	0.13	7/14
Δ(2,-2)	-	(0.09)	(0.17)	(0.06)	(0.84)	0.24	(0.03)	(0.36)	0.40	(0.12)	0.09	0.01	(0.24)	-	8/12
Δ(2,-1)	-	(0.39)	(0.20)	0.03	(0.01)	0.34	(0.03)	(0.19)	0.35	(0.12)	(0.01)	(0.14)	(0.39)	-	9/12
Δ(2, 0)	-	(0.03)	(0.05)	0.03	0.03	0.20	0.01	(0.25)	0.24	(0.08)	0.02	(0.14)	0.05	0.55	5/13
Δ(3,-2)	-	0.04	(0.04)	(0.49)	(1.38)	0.08	(0.07)	(0.17)	0.27	(0.31)	0.10	(0.22)	(0.36)	-	8/12
Δ(3,-1)	-	(0.26)	(0.07)	(0.40)	(0.55)	0.18	(0.07)	0.00	0.22	(0.31)	0.00	(0.37)	(0.51)	-	8/12
Δ(3, 0)	-	0.10	0.08	(0.40)	(0.51)	0.04	(0.03)	(0.06)	0.11	(0.27)	0.03	(0.37)	(0.07)	-	7/12
Δ(4,-2)	-	0.23	(0.06)	(0.37)	(1.16)	(0.26)	(0.01)	(0.42)	0.09	(0.38)	0.05	(0.07)	(0.25)	-	9/12
Δ(4,-1)	-	(0.07)	(0.09)	(0.28)	(0.33)	(0.16)	(0.01)	(0.25)	0.04	(0.38)	(0.05)	(0.22)	(0.40)	-	11/12
Δ(4, 0)	-	0.29	0.06	(0.28)	(0.29)	(0.30)	0.03	(0.31)	(0.07)	(0.34)	(0.02)	(0.22)	0.04	-	8/12
Δ(5,-2)	(0.68)	0.14	(0.12)	(0.42)	(1.11)	(0.10)	(0.17)	(0.24)	0.14	(0.47)	(0.03)	(0.25)	(0.28)	-	11/13
Δ(5,-1)	(0.61)	(0.16)	(0.15)	(0.33)	(0.28)	0.00	(0.17)	(0.07)	0.09	(0.47)	(0.13)	(0.40)	(0.43)	-	11/13
Δ(5, 0)	(0.71)	0.20	0.00	(0.33)	(0.24)	(0.14)	(0.13)	(0.13)	(0.02)	(0.43)	(0.10)	(0.40)	0.01	-	10/13

In this table I outline by industry type, the behaviour of Tobin's *q* for Level 1 OTC (International) firms. The industries are defined as following: **(1)** Agriculture and Food [0199-0999] **(2)** Mining and Construction [1000-1999, excl. 1300-1399] **(3)** Textiles and Publishing [2200-2799] **(4)** Chemicals [2800-2824, 2840-2899] **(5)** Pharmaceuticals [2830-2836] **(6)** Extractive [2900-2999, 1300-1399] **(7)** Durable Manufacturers [3000-3999, excl. 3570-3579, 3670-3679] **(8)** Transportation [4000-4899] **(9)** Utilities [4900-4999] **(10)** Retail [5000-5999] **(11)** Banking and Financial [6000-6999] **(12)** Services [7000-8999, excl. 7370-7379] **(13)** Computers [7370-7379, 3570-3579, 3670-3679] **(14)** Public Administration [9000+]. I calculate the mean (median) difference in value between the post and pre-listing period and the change in *q* between the five year post-listing **(1, 2, 3, 4, 5)** period and the three years pre-listing **(-2, -1, 0)** **[Δ(1,-2), Δ(1,-1), Δ(1, 0), Δ(2,-2), Δ(2,-1), Δ(2, 0), Δ(3,-2), Δ(3,-1), Δ(3, 0), Δ(4,-2), Δ(4,-1), Δ(4, 0), Δ(5,-2), Δ(5,-1), Δ(5, 0)].** The mean (median) valuation differential is tested using the Satterwaite t-test and the Mann-Whitney test, respectively. *, **, *** represents significance at the 10, 5, 1% level respectively.

Table 6.7: Median value for Rule 144a firms by industry.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	Neg
-5	-	1.14	2.62	1.41	1.48	1.34	1.29	1.58	1.93	1.21	1.07	-	2.23	-	-
-4	-	1.07	1.88	1.46	2.32	1.54	1.28	1.70	1.49	1.33	1.06	1.34	2.02	-	-
-3	-	1.14	1.80	1.40	2.08	1.45	1.63	1.78	1.36	2.70	1.11	2.21	2.35	-	-
-2	-	1.24	2.57	1.38	2.22	1.45	2.26	2.25	1.37	2.00	1.12	3.26	3.14	-	-
-1	-	1.22	2.08	1.54	2.15	1.37	2.11	1.96	1.09	2.27	1.12	3.43	2.07	-	-
0	-	1.14	1.80	1.55	2.61	1.46	2.10	2.07	1.29	2.13	1.12	2.06	2.48	-	-
Δ(1,-2)	-	(0.17)	(0.96)	0.25	0.39	0.07	(0.67)	(0.30)	(0.13)	(0.06)	(0.02)	(1.06)	(0.82)	-	9/12
Δ(1,-1)	-	(0.15)	(0.47)	0.09	0.46	0.15	(0.52)	(0.01)	0.15	(0.33)	(0.02)	(1.23)	0.25	-	7/12
Δ(1, 0)		(0.07)	(0.19)	0.08	0.00	0.06	(0.51)	(0.12)	(0.05)	(0.19)	(0.02)	0.14	(0.16)	-	8/12
Δ(2,-2)	-	0.00	(1.06)	(0.09)	0.48	(0.03)	(0.80)	(0.59)	0.00	(0.22)	0.01	(0.70)	(1.31)	-	8/12
Δ(2,-1)	-	0.02	(0.57)	(0.25)	0.55	0.05	(0.65)	(0.30)	0.28	(0.49)	0.01	(0.87)	(0.24)	-	7/12
Δ(2, 0)		0.10	(0.29)	(0.26)	0.09	(0.04)	(0.64)	(0.41)	0.08	(0.35)	0.01	0.50	(0.65)	-	7/12
Δ(3,-2)	-	0.02	(1.12)	(0.16)	0.23	(0.09)	(0.86)	(0.63)	(0.04)	(0.32)	(0.02)	(1.00)	(1.26)	-	9/12
Δ(3,-1)	-	0.04	(0.63)	(0.32)	0.30	(0.01)	(0.71)	(0.34)	0.24	(0.59)	(0.02)	(1.17)	(0.19)	-	9/12
Δ(3, 0)	-	0.12	(0.35)	(0.33)	(0.16)	(0.10)	(0.70)	(0.45)	0.04	(0.45)	(0.02)	(0.20)	(0.60)	-	10/12
Δ(4,-2)	-	(0.14)	(1.29)	(0.25)	0.16	(0.13)	(0.97)	(0.85)	(0.02)	(0.34)	0.00	(1.48)	(1.29)	-	10/12
Δ(4,-1)	-	(0.12)	(0.80)	(0.41)	0.23	(0.05)	(0.82)	(0.56)	0.26	(0.61)	0.00	(1.65)	(0.22)	-	9/12
Δ(4, 0)	-	(0.04)	(0.52)	(0.42)	(0.23)	(0.14)	(0.81)	(0.67)	0.06	(0.47)	0.00	(0.28)	(0.63)	-	10/12
Δ(5,-2)	-	(0.04)	(1.32)	(0.22)	0.33	(0.25)	(0.89)	(0.89)	(0.04)	(0.41)	0.03	(1.57)	(1.38)	-	10/12
Δ(5,-1)	-	(0.02)	(0.83)	(0.38)	0.40	(0.17)	(0.74)	(0.60)	0.24	(0.68)	0.03	(1.74)	(0.31)	-	9/12
Δ(5, 0)	-	0.06	(0.55)	(0.39)	(0.06)	(0.26)	(0.73)	(0.71)	0.04	(0.54)	0.03	(0.37)	(0.72)	-	9/12

In this table I outline by industry type, the behaviour of Tobin's *q* for Rule 144a firms. The industries are defined as following: **(1)** Agriculture and Food [0199-0999] **(2)** Mining and Construction [1000-1999, excl. 1300-1399] **(3)** Textiles and Publishing [2200-2799] **(4)** Chemicals [2800-2824, 2840-2899] **(5)** Pharmaceuticals [2830-2836] **(6)** Extractive [2900-2999, 1300-1399] **(7)** Durable Manufacturers [3000-3999, excl. 3570-3579, 3670-3679] **(8)** Transportation [4000-4899] **(9)** Utilities [4900-4999] **(10)** Retail [5000-5999] **(11)** Banking and Financial [6000-6999] **(12)** Services [7000-8999, excl. 7370-7379] **(13)** Computers [7370-7379, 3570-3579, 3670-3679] **(14)** Public Administration [9000+]. I calculate both the mean (median) difference in value between the post and pre-listing period and the change in *q* between the five year post-listing **(1, 2, 3, 4, 5)** period and the three years pre-listing **(-2, -1, 0) [Δ(1,-2), Δ(1,-1), Δ(1, 0), Δ(2,-2), Δ(2,-1), Δ(2, 0), Δ(3,-2), Δ(3,-1), Δ(3, 0), Δ(4,-2), Δ(4,-1), Δ(4, 0), Δ(5,-2), Δ(5,-1), Δ(5, 0)]**. The mean (median) valuation differential is tested using the Satterwaite t-test and the Mann-Whitney test, respectively. *, **, *** represents significance at the 10, 5, 1% level respectively

Table 6.8: Median value of Level 1 firms before and after cross listing.

	Tobin's q			Relative q			Industry Adjusted q		
	Before	After	Diff	Before	After	Diff	Before	After	Diff
All	1.65	1.50	**(0.15)*** **	0.93	0.83	**(0.10)*** **	(0.16)	(0.25)	**(0.09)*** **
Legal Origin									
English Common	1.98	1.56	**(0.42)*** **	1.00	0.82	**(0.18)*** **	0.17	(0.18)	**(0.35)*** **
French Civil	1.30	1.36	**0.06***	0.91	0.89	(0.02)	(0.40)	(0.33)	**0.07***
German Civil	1.48	1.45	(0.03)	0.88	0.86	(0.02)	(0.40)	(0.34)	0.06
Scandinavian Civil	1.26	1.31	0.05	0.78	0.71	**(0.07)***	(0.53)	(0.43)	**0.10***
Economic Development									
Developed	1.69	1.64	(0.05)	0.96	0.85	**(0.11)*** **	(0.18)	(0.13)	**0.05***
Emerging	1.61	1.35	**(0.26)*** **	0.90	0.82	**(0.08)*** **	(0.15)	(0.34)	**(0.19)*** **
Investor Protection									
High	1.84	1.55	**(0.29)*** **	0.94	0.81	**(0.13)*** **	0.0026	(0.19)	**(0.19)*** **
Low	1.36	1.37	0.01	0.93	0.88	**(0.05)** **	(0.41)	(0.37)	0.04
Investor Protection									
Anti-Director Right = 0	1.39	1.57	**0.18***	0.93	0.90	(0.03)	(0.31)	(0.14)	**0.17***
Anti-Director Right = 1	1.39	1.35	(0.04)	0.84	0.85	0.01	(0.43)	(0.38)	0.05
Anti-Director Right = 2	1.60	1.58	(0.02)	1.05	0.94	**(0.11)** **	(0.25)	(0.13)	0.12
Anti-Director Right = 3	1.16	1.20	**0.04***	0.89	0.83	**(0.06)*** **	(0.56)	(0.53)	0.03
Anti-Director Right = 4	1.71	1.65	(0.06)	0.86	0.83	**(0.03)** **	(0.16)	(0.14)	0.02
Anti-Director Right = 5	1.95	1.50	**(0.45)*** **	0.99	0.80	**(0.19)*** **	0.17	(0.24)	**(0.41)*** **
Industry									
Agriculture & Food	2.09	1.35	**(0.74)** **	0.97	0.68	(0.29)	0.36	(0.22)	**(0.58)***
Mining & Construction	1.58	1.67	0.09	0.87	0.87	0.00	(0.03)	(0.04)	(0.01)
Textiles & Publishing	1.71	1.66	(0.05)	1.06	0.93	**(0.13)*** **	(0.08)	(0.01)	0.07
Chemicals	1.37	1.75	0.38	0.81	0.92	0.11	(0.32)	0.13	0.45
Pharmaceuticals	2.59	2.11	**(0.48)** **	1.33	1.18	(0.15)	0.12	(0.28)	**(0.40)** **
Extractive	1.71	1.71	0.00	0.88	0.84	(0.04)	(0.18)	(0.25)	(0.07)
Durable Manufacturers	1.69	1.48	**(0.21)*** **	0.98	0.82	**(0.17)*** **	(0.06)	(0.25)	**(0.19)*** **
Transportation	2.11	1.34	**(0.77)*** **	1.09	0.79	**(0.30)*** **	0.15	(0.42)	**(0.57)*** **
Utilities	2.11	1.60	**(0.51)***	0.87	0.95	0.08	0.50	(0.04)	**(0.54)** **
Retail	1.66	1.53	(0.13)	0.92	0.86	**(0.06)***	(0.18)	(0.27)	**(0.09)***
Banking and Financial	1.22	1.27	0.05	0.73	0.74	0.01	(0.32)	(0.28)	0.04
Services	1.61	1.49	**(0.12)*** **	0.92	0.85	**(0.07)*** **	(0.43)	(0.54)	**(0.11)*** **
Computers	1.78	1.48	**(0.30)*** **	0.99	0.82	**(0.17)*** **	(0.29)	(0.58)	**(0.29)*** **
Public Administration	-	1.84	-	-	0.96	-			-

Table 6.10: Testing for the presence of a firm effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by firm]	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
Level 1	0.02599	0.02498	0.0527	2.0277	2.1097
Rule 144a	0.1157	0.01018	0.0202	0.1746	1.9843
Global q	0.1928	0.02785	0.0397	0.2059	1.4255
Sales Growth	0.0374	0.04718	0.0599	1.6016	1.2696
GDP Growth	0.2034	0.1877	0.2922	1.4366	1.5567

In this table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \zeta_i + \eta_{it}$, $X_{it} = \pi_i + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by firm. In the remaining columns, I compare (3) to both (1) and (2).

Table 6.11: Testing for the presence of a time effect.

Variable	OLS	White-Huber (1980)	Rogers (1993) [Clustered by year]	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
Level 1	0.02599	0.02498	0.0432	1.6622	1.7294
Rule 144a	0.1157	0.01018	0.0107	0.0925	1.0511
Global q	0.1928	0.02785	0.0559	0.2899	2.0072
Sales Growth	0.0374	0.04718	0.2173	5.8102	4.6058
GDP Growth	0.2034	0.1877	1.04	5.1131	5.5408

In this table, I test for the presence of a firm effect in the data using Petersens (2005) approach. I assume that the independent variables and residuals are characterised by the following: $\varepsilon_{it} = \gamma_t + \eta_{it}$, $X_{it} = \mu_t + \nu_{it}$. I outline standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity, (3) Rogers (1993) standard errors clustered by time. In the remaining columns, I compare (3) to both (1) and (2).

Table 6.12: Rogers (1993) standard errors clustered by firm with time fixed effects.

Variable	OLS	White-Huber (1980)	Rogers (1993)	$\left(\frac{SE_{Rogers}}{SE_{OLS}}\right)$	$\left(\frac{SE_{Rogers}}{SE_{White}}\right)$
Level 1	0.02599	0.02498	0.0527	2.0277	2.1097
Rule 144a	0.1157	0.01018	0.0203	0.1755	1.9941
Global q	0.1928	0.02785	0.0466	0.2417	1.6732
Sales Growth	0.0374	0.04718	0.0604	1.6150	1.2802
GDP Growth	0.2034	0.1877	0.3217	1.5816	1.7139

In this table, I compute Rogers (1993) standard errors clustered by firm with time fixed effects. I compare these to standard errors generated by (1) ordinary least squares (with no heteroscedastic or within group clustering adjustment), and (2) White (1980) standard errors i.e. standard errors adjusted for heteroscedasticity. In the remaining columns, I compare Rogers (1993) standard errors to both (1) and (2).

Table 6.13: Regression estimates for Level 1 & Rule 144a firms.

A (All)	Level 1 & Domestic Firms						Rule 144a & Domestic Firms					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post-Listing Dummy	-0.14	-0.03	-0.29	-0.24	-0.14	-0.03	-0.16	-0.17	-0.26	-0.03	-0.16	-0.17
	[-4.10]***	[-0.63]	[-5.10]***	[-2.81]***	[-3.90]***	[-0.44]	[-3.13]***	[-2.63]***	[-2.87]***	[-0.27]	[-3.05]***	[-2.68]***
Pre-Listing Dummy					0.15	0.22					0.10	-0.15
					[2.56]***	[2.56]**					[1.12]	[-1.92]*
Listing Dummy			0.15	0.22					0.10	-0.15		
			[2.56]***	[2.56]**					[1.12]	[-1.92]*		
Sales Growth		0.99		0.99		0.99		1.01		1.01		1.01
		[16.03]***		[15.89]***		[15.89]***		[16.15]***		[16.19]***		[16.19]***
Global Industry *q*		0.87		0.87		0.87		0.90		0.90		0.90
		[19.21]***		[19.20]***		[19.20]***		[19.68]***		[19.69]***		[19.69]***
Log (1+GDP Grth)		3.02		3.01		3.01		3.08		3.08		3.08
		[13.29]***		[13.27]***		[13.27]***		[13.53]***		[13.55]***		[13.55]***
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Firms	10,607	10,607	10,607	10,607	10,607	10,607	10,329	10,329	10,329	10,329	10,329	10,329
R-Squared	0.09	0.18	0.09	0.18	0.09	0.18	0.09	0.19	0.09	0.19	0.09	0.19

B (Large)	Level 1 & Domestic Firms						Rule 144a & Domestic Firms					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post-Listing Dum	-0.02	0.010	-0.21	-0.19	-0.01	0.02	-0.01	-0.02	-0.05	-0.05	-0.01	-0.02
	[0.41]	[0.25]	[3.57]***	[3.18]***	[0.16]	[0.48]	[0.31]	[0.90]	[1.69]*	[1.58]	[0.69]	[1.32]
Pre-Listing Dummy					0.05	0.05					0.02	0.01
					[3.38]***	[3.41]***					[1.31]	[0.85]
Listing Dummy			0.20	0.21					0.12	0.07		
			[3.38]***	[3.41]***					[1.31]	[0.85]		
Sales Growth		0.88		0.87		0.86		0.87		0.88		0.88
		[15.69]***		[15.63]***		[15.63]***		[15.16]***		[15.69]***		[15.69]***
Global Industry *q*		0.57				0.57		0.56		0.57		0.57
		[13.62]***				[13.64]***		[12.77]***		[13.63]***		[13.63]***
Log (1+GDP Grth)		3.23		3.24		3.24		3.32		3.24		3.24
		[21.95]***		[21.95]***		[21.95]***		[21.33]***		[21.92]***		[21.92]***
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of firms	5,271	5,271	5,271	5,271	5,271	5,271	4,877	4,877	4,877	4,877	4,877	4,877
R-Squared	0.12	0.17	0.12	0.17	0.0925	0.17	0.12	0.17	0.12	0.17	0.12	0.17
H_0 : Pre = Post					0.12	0.39					0.11	**0.08***

Table 6.14: Listing by stage of economic development and disclosure level.

Large	Level 1 & Domestic Firms						Rule 144a & Domestic Firms					
	Developed			Emerging			Developed			Emerging		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Post-Listing Dummy	0.09	-0.08	0.09	-0.02	-0.23	-0.01	0.03	0.14	0.03	-0.04	-0.06	-0.04
	[1.60]	[1.00]	[1.66]*	[0.39]	[2.62]***	[0.11]	[0.84]	[2.23]**	[0.83]	[2.01]**	[1.82]*	[1.91]*
Pre-Listing Dummy			0.04			0.06			-0.05			0.01
			[2.12]**			[2.50]**			[2.21]**			[0.72]
Listing Dummy		0.17			0.22			-0.32			0.07	
		[2.12]**			[2.50]**			[2.21]**			[0.72]	
Sales Growth	1.32	1.31	1.31	0.39	0.37	0.37	1.32	1.32	1.32	0.40	0.40	0.40
	[13.68]***	[13.74]***	[13.74]***	[6.05]***	[5.83]***	[5.83]***	[13.65]***	[13.69]***	[13.69]***	[6.12]***	[6.11]***	[6.11]***
Global Industry q	0.68	0.68	0.68	0.43	0.44	0.44	0.68	0.68	0.68	0.43	0.43	0.43
	[11.42]***	[11.42]***	[11.42]***	[7.64]***	[7.68]***	[7.68]***	[11.34]***	[11.33]***	[11.33]***	[7.66]***	[7.67]***	[7.67]***
Log (1+GDP Grth)	4.31	4.32	4.32	2.27	2.30	2.30	4.29	4.29	4.29	2.28	2.28	2.28
	[12.70]***	[12.72]***	[12.72]***	[12.13]***	[12.25]***	[12.25]***	[12.64]***	[12.62]***	[12.62]***	[12.18]***	[12.21]***	[12.21]***
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of firms	2,644	2,644	2,644	2,627	2,627	2,627	2,644	2,644	2,644	2,627	2,627	2,627
R-Squared	0.13	0.13	0.13	0.24	0.24	0.24	0.13	0.13	0.13	0.24	0.24	0.24
$H_0 : Pre - Post = 0$			0.33			0.24			**0.06***			**0.08***

Disclosure	Level 1 & Domestic Firms						Rule 144a & Domestic Firms					
	High Disclosure			Low Disclosure			High Disclosure			Low Disclosure		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Post-Listing	-0.02	-0.22	-0.01	0.12	-0.07	0.12	-0.11	-0.17	-0.10	0.01	-0.01	0.01
Dummy	[0.37]	[2.99]***	[0.12]	[1.99]**	[0.68]	[2.08]**	[3.17]***	[2.29]**	[3.00]***	[0.68]	[0.44]	[0.94]
Pre-Listing Dummy			0.05			0.05			0.03			0.01
			[2.67]***			[2.12]**			[0.88]			[0.72]
Listing Dummy		0.22			0.19			0.21			0.08	
		[2.67]***			[2.12]**			[0.88]			[0.94]	
Sales Growth	1.16	1.15	1.15	0.62	0.60	0.60	1.17	1.17	1.17	0.62	0.61	0.61
	[12.34]***	[12.32]***	[12.32]***	[9.48]***	[9.43]***	[9.43]***	[12.40]***	[12.42]***	[12.42]***	[9.45]***	[9.42]***	[9.42]***
Global Industry q	0.60	0.60	0.60	0.55	0.55	0.55	0.60	0.60	0.60	0.55	0.55	0.55
	[9.72]***	[9.75]***	[9.75]***	[9.86]***	[9.86]***	[9.86]***	[9.71]***	[9.72]***	[9.72]***	[9.85]***	[9.68]***	[9.68]***
Log (1+GDP Grth)	3.11	3.11	3.11	3.24	3.24	3.24	3.14	3.15	3.15	3.23	3.23	3.23
	[11.26]***	[11.26]***	[11.26]***	[18.85]***	[18.81]***	[18.81]***	[11.38]***	[11.39]***	[11.39]***	[18.83]***	[18.71]***	[18.71]***
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of firms	2,528	2,528	2,528	2,743	2,743	2,743	2,528	2,528	2,528	2,743	2,743	2,743

R-Squared	0.10	0.10	0.10	0.23	0.23	0.23	0.10	0.10	0.10	0.23	0.23	0.23
$H_0 : Pre - Post = 0$			0.20			0.19						0.99

Table 6.15: Firm-fixed effect estimates of the impact of listing on firm value.

Level 1	All		Developed		Emerging		High Disclosure		Low Disclosure	
	FE	POLS	FE	POLS	FE	POLS	FE	POLS	FE	POLS
Post-Listing Dummy	-0.06	0.02	-0.07	0.07	0.03	-0.005	-0.08	-0.06	-0.002	0.03
	[2.73]***	[0.38]	[2.09]**	[1.21]	[0.85]	[0.08]	[2.63]***	[1.25]	[0.07]	[0.46]
Sales Growth		0.74		1.26		0.31		1.16		0.59
		[11.99]***		[12.80]***		[4.13]***		[12.18]***		[7.72]***
Global Industry *q*		0.68		0.73		0.58		0.62		0.68
		[15.27]***		[12.01]***		[9.12]***		[9.86]***		[10.92]***
Log (1+GDP Grth)		1.53		2.90		2.04		1.83		1.65
		[6.13]***		[6.29]***		[7.50]***		[4.14]***		[6.64]***
Time Dummies	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Firm Dummies	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Time Averages	-	0.00***	-	0.00***	-	0.00***	-	0.00**	-	0.00***
No of firms	5,271	5,271	2,644	2,644	2,627	2,627	2,528	2,528	2,743	2,743
R-Squared	0.02	0.07	0.01	0.09	0.06	0.09	0.04	0.08	0.02	0.08

Rule 144a	All		Developed		Emerging		High Disclosure		Low Disclosure	
	FE	POLS	FE	POLS	FE	POLS	FE	POLS	FE	POLS
Post-Listing Dummy	-0.08	0.02	0.04	-0.006	0.03	0.01	-0.18	-0.08	-0.06	0.03
	[6.43]***	[0.37]	[1.13]	[0.16]	[0.85]	[0.50]	[7.10]***	[3.49]***	[4.84]***	[1.57]
Sales Growth		0.74		1.25		0.31		1.16		0.58
		[12.02]***		[12.75]***		[4.13]***		[12.23]***		[7.71]***
Global Industry *q*		0.68		0.73		0.58		0.62		0.68
		[15.27]***		[11.98]***		[9.12]***		[9.79]***		[10.91]***
Log (1+GDP Grth)		1.53		2.97		2.00		1.98		1.61
		[6.13]***		[6.40]***		[7.36]***		[4.45]***		[6.49]***
Time Dummies	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Firm Dummies	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Time Averages	-	0.00***	-	0.00***	-	0.00***	-	0.00***	-	0.00***
No of firms	5,271	5,271	2,644	2,644	2,627	2,627	2,528	2,528	2,743	2,743
R-Squared	0.02	0.07	0.01	0.09	0.06		0.04	0.08	0.01	0.08

In this table, I present firm fixed effect and pooled ordinary least squares estimates of the impact of listing on value for Level 1 and Rule 144a firms. For each set of firms, I generate results for the entire sample [All], stage of economic development [Developed] and [Emerging], and level of disclosure [High Disclosure] and [Low Disclosure]. In the fixed effect specification, time fixed-effects are included to account for contemporaneous correlation. Mundlak (1978) time-averages are included, but not reported. I report the number of firms, and the R-squares for each. ***, **, and *, represents significance at the 1, 5, and 10% level, respectively.

Table 6.16: Impact of listing on value up to five years post-listing.

	Level 1					Rule 144a				
	All	Develop	Emerg	High	Low	All	Develop	Emerg	High	Low
[Year = 0]	0.08	0.13	0.04	0.05	0.04	0.10	-0.03	0.15	0.11	0.13
	[1.43]	[1.61]	[0.48]	[0.63]	[0.44]	[3.23]***	[0.73]	[4.18]***	[1.62]	[3.93]***
[Year = 1]	-0.01	0.01	0.01	-0.01	-0.11	0.04	0.03	0.07	-0.05	0.10
	[0.18]	[0.13]	[0.07]	[0.14]	[1.61]	[1.68]*	[0.52]	[2.60]***	[1.42]	[3.63]***
[Year = 2]	-0.01	0.04	-0.02	-0.05	-0.08	-0.001	0.05	0.01	-0.12	0.08
	[0.23]	[0.64]	[0.35]	[0.80]	[0.89]	[0.03]	[0.61]	[0.45]	[4.35]***	[2.31]**
[Year = 3]	-0.02	0.06	-0.04	-0.04	-0.11	-0.05	-0.03	-0.02	-0.15	0.03
	[0.41]	[0.72]	[0.57]	[0.57]	[1.37]	[2.76]***	[0.78]	[0.99]	[6.44]***	[1.16]
[Year = 4]	-0.01	0.05	0.01	-0.03	-0.09	-0.04	0.01	-0.03	-0.11	0.01
	[0.22]	[0.55]	[0.15]	[0.41]	[1.18]	[2.18]**	[0.21]	[1.44]	[3.78]***	[0.44]
[Year = 5]	-0.07	-0.02	-0.04	-0.10	-0.15	-0.03	-0.03	-0.002	-0.06	-0.004
	[1.37]	[0.30]	[0.64]	[1.61]	[1.99]**	[1.33]	[0.48]	[0.06]	[1.21]	[0.16]
Log (1+Sales Grth)	0.74	1.25	0.31	1.16	0.59	0.73	1.25	0.30	1.16	0.57
	[12.01]***	[12.81]***	[4.14]***	[12.18]***	[7.77]***	[11.94]***	[12.78]***	[4.04]***	[12.14]***	[7.56]***
Global Industry *q*	0.68	0.73	0.58	0.62	0.68	0.68	0.73	0.57	0.62	0.67
	[15.27]***	[11.97]***	[9.12]***	[9.91]***	[10.91]***	[15.27]***	[11.97]***	[9.14]***	[9.86]***	[10.90]***
GDP Growth	1.53	2.94	2.04	1.81	1.64	1.52	2.96	2.04	1.92	1.60
	[6.13]***	[6.34]***	[7.50]***	[4.09]***	[6.60]***	[6.11]***	[6.36]***	[7.49]***	[4.31]***	[6.44]***
Year Dummies	No	No	No	No	No	No	No	No	No	No
No. Firms	5,271	2,644	2,627	2,528	2,743	5,271	2,644	2,627	2,528	2,743
Time Averages	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
R-Squared	0.07	0.09	0.09	0.09	0.08	0.07	0.09	0.09	0.08	0.08

In this table, I present pooled ordinary least squares estimates of the impact of listing on value up to five years post-listing. [Year = 0] is the list year, and [Year = 1] is one year post-listing. For Level 1 and Rule 144a firms, I present estimates for the full sample [All], stage of economic development [Develop] and [Emerg], and level of investor protection [High] and [Low]. Mundlak (1978) corrections are included but not reported. The firm level variables are defined in the text. ***, **, and * represents significance at the 1, 5, and 10% level, respectively.

Figure 6.1: Mean & Median Value of Portal Firms

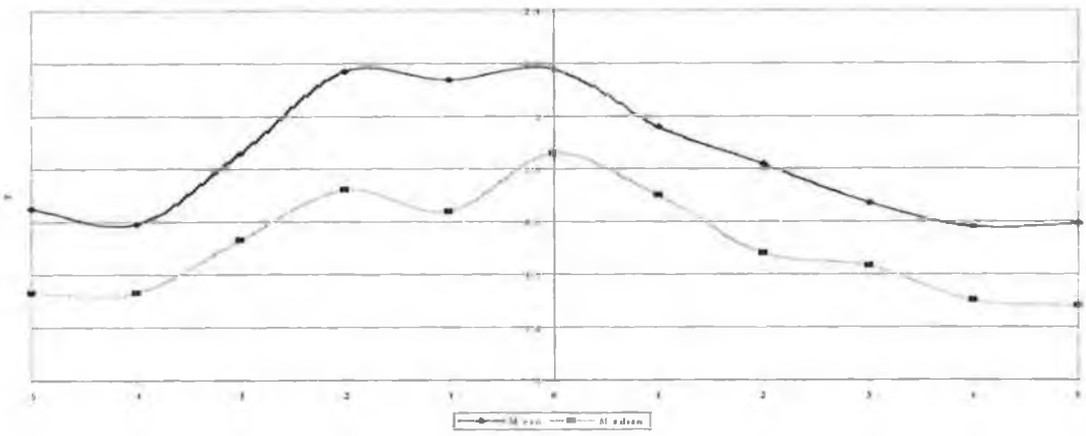


Figure 6.2: Mean & Median Value of Level 1 Firms

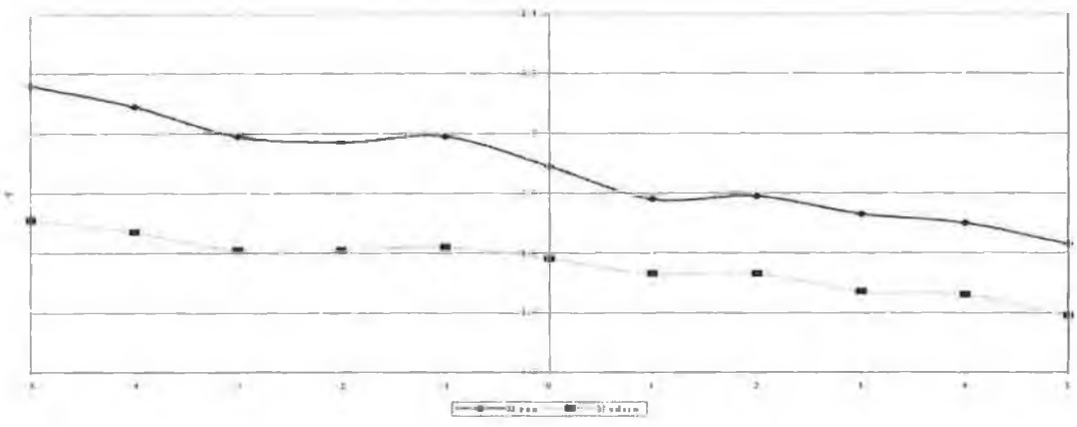


Figure 6.3: Mean & Median Relative Value of Rule 144a Portal Firms

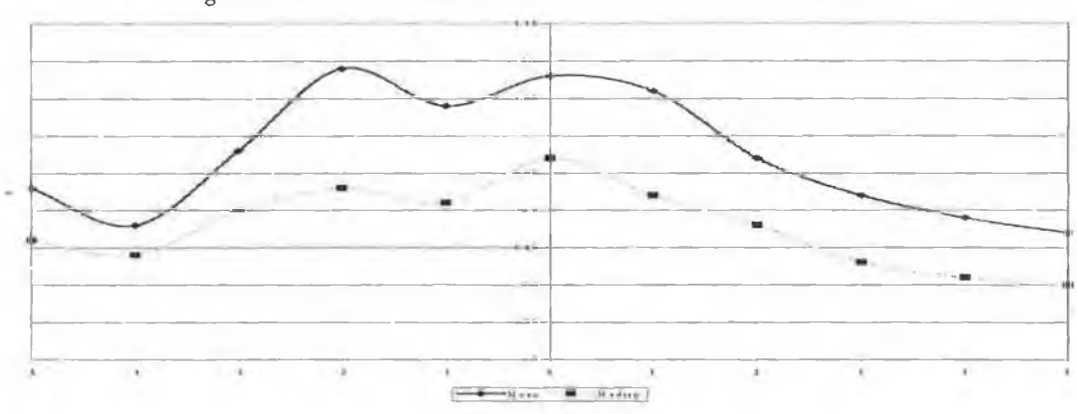


Figure 6.4: Mean & Median Relative Value of Level 1 Firms

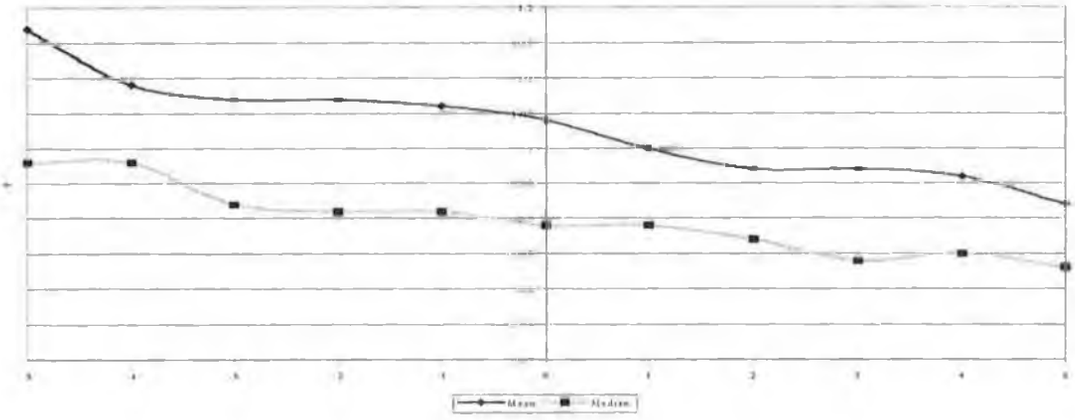


Figure 6.5: Median Value of Emerging & Developed Market Portal Firms

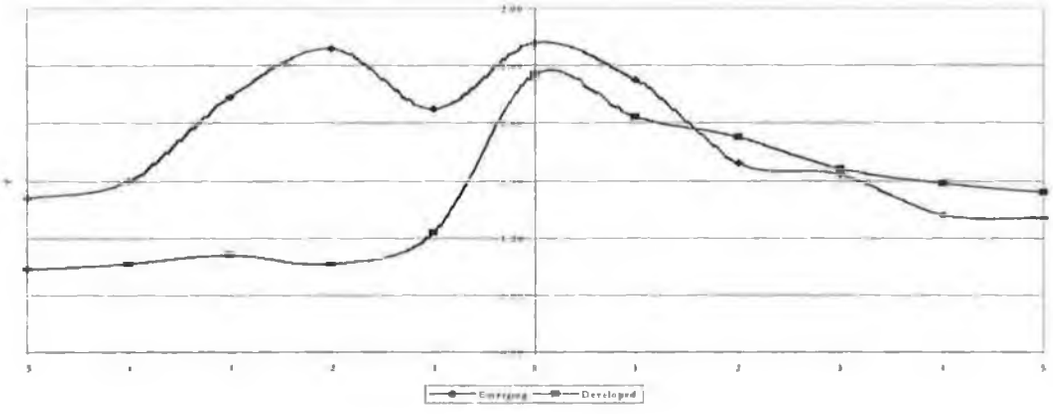


Figure 6.6: Median Value of Emerging & Developed Market Level 1 Firms

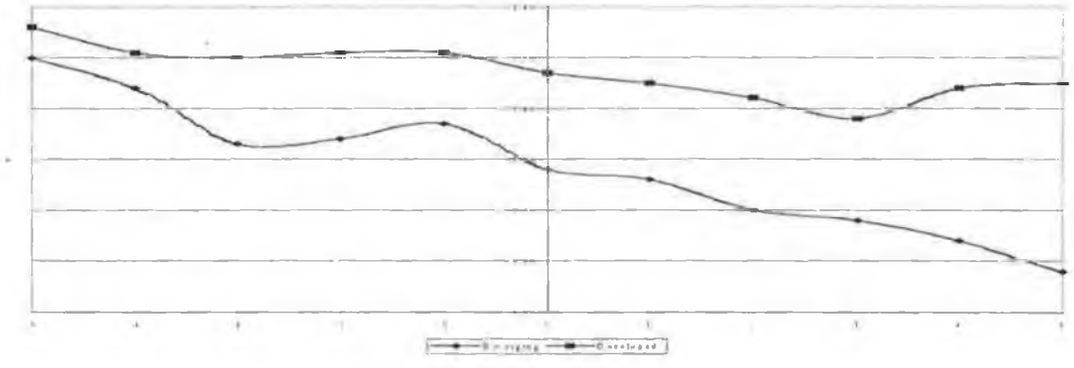


Figure 6.7: Median Value of Portal Firms by Legal Origin

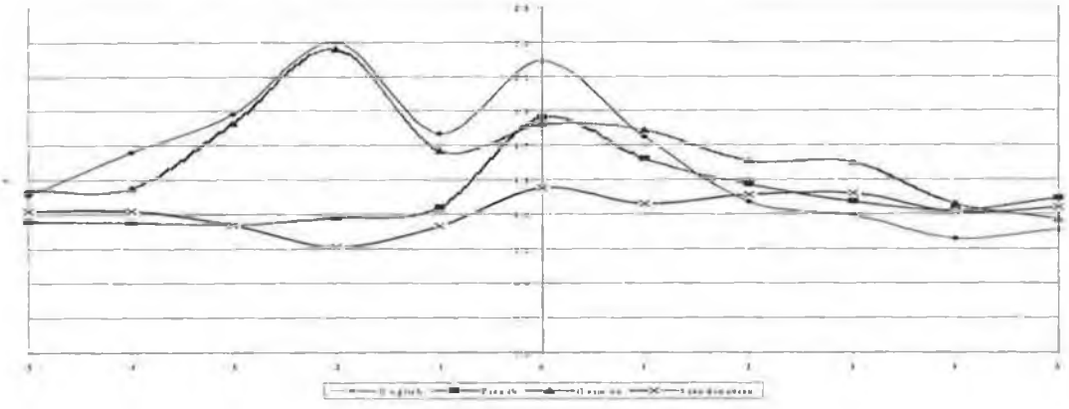


Figure 6.8: Median Value of Level 1 Firms by Legal Origin

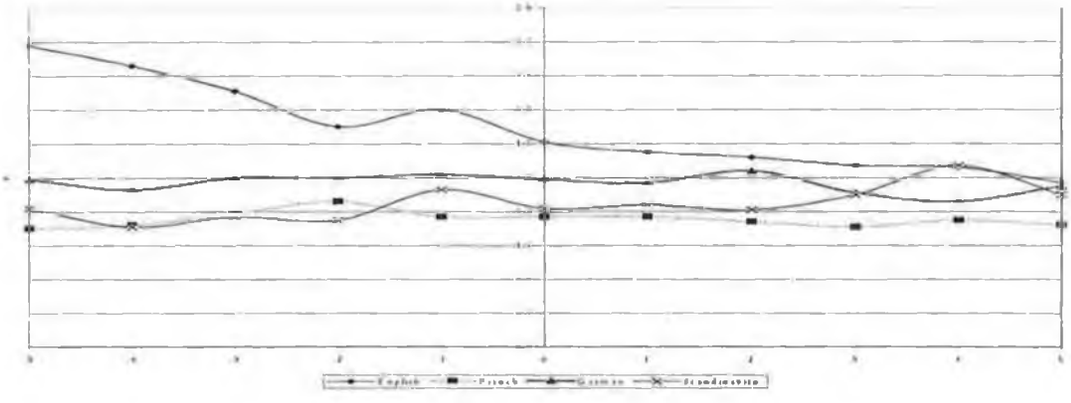


Figure 6.9: Median Value of Level 1 Firms by Level of Investor Protection

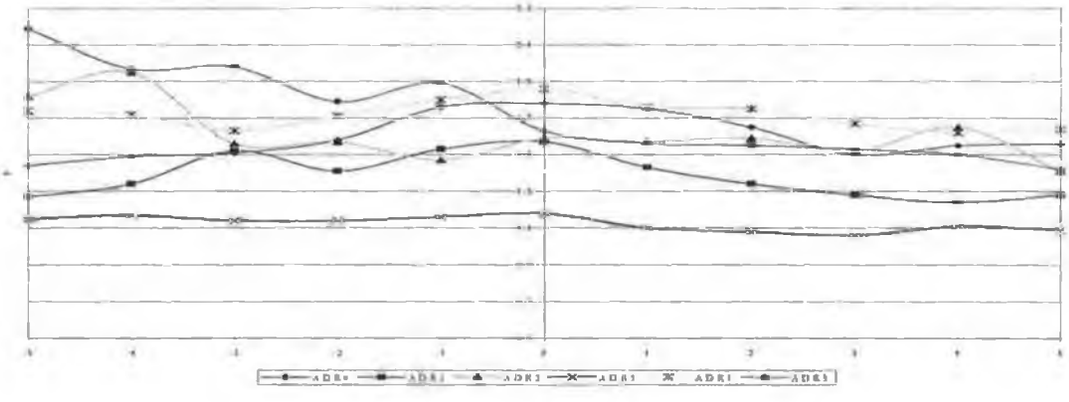


Figure 6.10: Median Value of Portal Firms by Level of Investor Protection

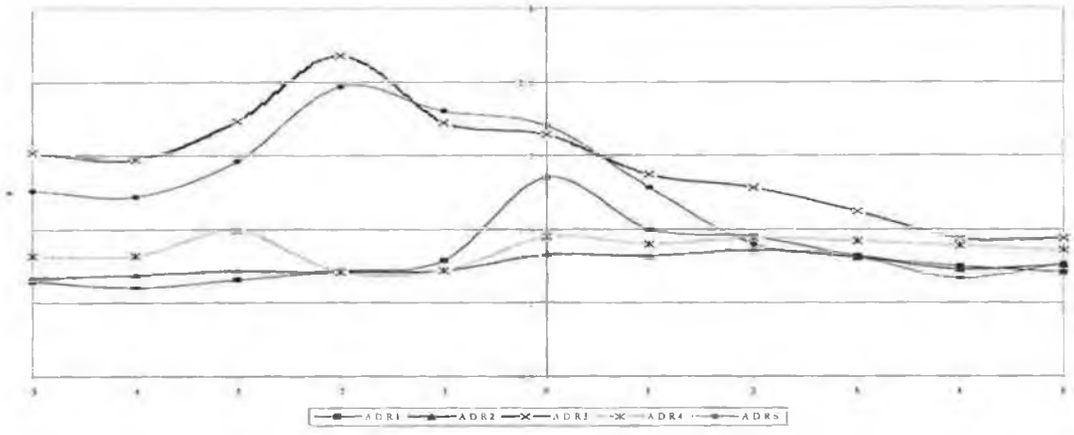


Figure 6.11: Median Value of Level 1 Firms by Industry Type (2-7)

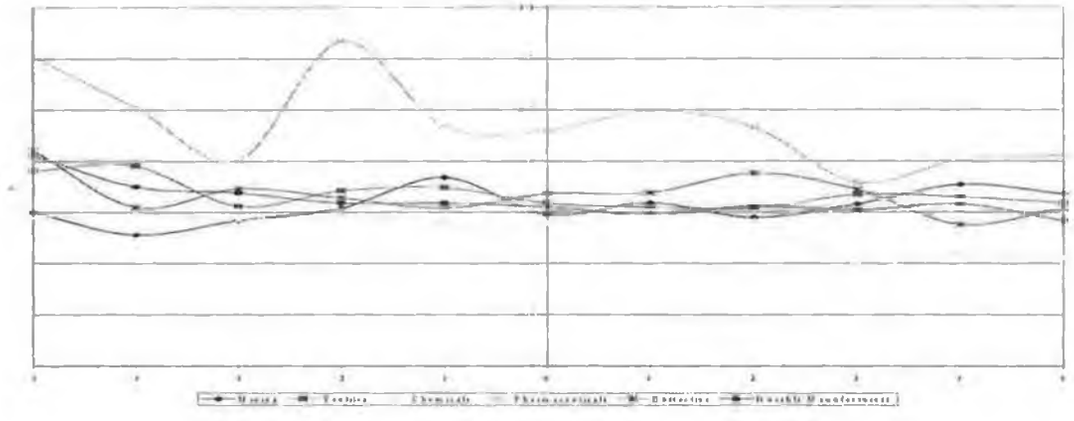


Figure 6.12: Median Value of Level 1 Firms by Industry Type (8-13)

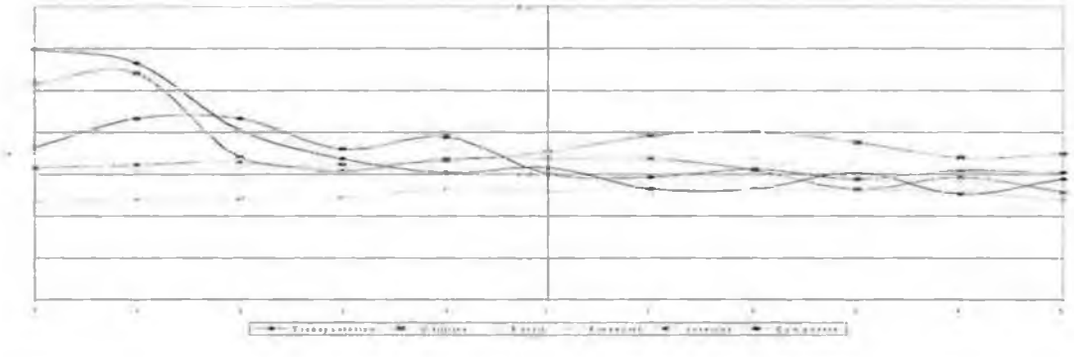


Figure 6.13: Median Value of Rule 144a Firms by Industry Type (2-7)

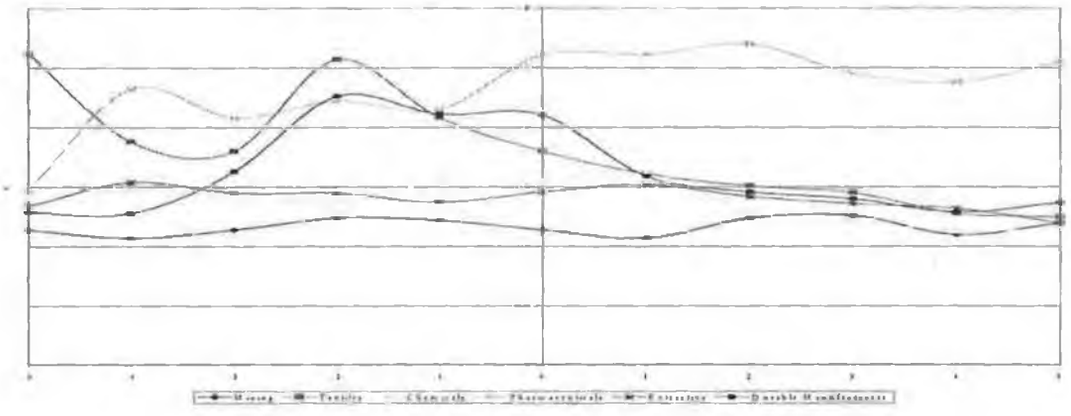
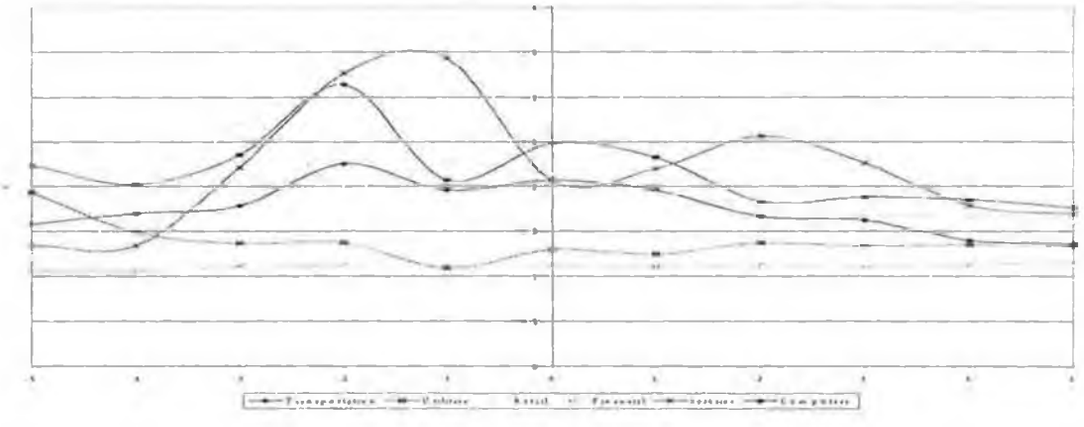


Figure 6.14: Median Value of Rule 144a Firms by Industry Type (8-13)



Chapter 7: What firms from which countries gain most from non-exchange listing in the U.S?

7.1 Introduction

In the previous Chapter, I presented a comprehensive analysis of the valuation effects of listing for non-exchange traded depositary receipts. The results suggest that listing in the U.S. does not provide value for Level 1 and Rule 144a firms. Irrespective of the sub-categories that I employ, I am unable to conclude that listing causes value for non-exchange traded depositary receipts. This is interesting given that until recently, Level 1 issues proved to be the most attractive form of entry for non-U.S. on to U.S. capital markets[42].

In this chapter I examine whether listing in the U.S. via non-exchange traded depositary receipt programs is associated with enhanced value for foreign firms. I abstract from the "tendency of previous studies to generalize based on multi-country samples" DFR (2005, pg. 29). However, unlike DFR (2005), my focus is not on a single country (Mexico in the case of DFR (2005)), but on a host of countries. I examine on a country-by-country basis, the relative valuation merits of listing for a sample of non-exchange traded firms from 39 different countries. In effect, I attempt to identify those countries for which trading in the U.S. proves value enhancing.

First, I compare cross-listed to non-cross-listed firms, in both calendar time and event time. In line with DKS (2004, 2006), I find that in general, non-exchange traded depositary receipts are not worth more than their domestic counterparts. In fact, I document the opposite: non-cross-listed firms are worth more than cross-listed firms in most periods, and significantly so in many instances. When I compare both sets of firms in event time, I find that Level 1 firms tend to be worth more than non-cross-listed firms, but only in the pre-listing period. Their decision to list in the U.S. coincides with a period of deteriorating firm value. Value continues to fall post-listing.

[42] In 2005, sponsored global depositary receipts surpassed the number of Level 1 American Depositary Receipts for the first time, to become the most prominent type of depositary receipt program (See Bank of New York (2006)).

Post-listing, Level 1 firms are valued at a discount relative to non-cross-listed firms. In contrast, Rule 144a firms 'time' their decision to trade in the U.S: an even greater decline post-listing follows a run-up in value pre-listing. Consequently, Rule 144a firms are only worth more than domestic firms in the years immediately before and after listing.

Next I examine the distribution of the post-listing gains/losses for both Level 1 and Rule 144a firms. While the distribution is predominantly made up of non-U.S. firms that experience an absolute decline in value post-listing, I am able to identify a section of firms with positive gains in value. While positive absolute gains do not suggest that listing causes value (along the same lines, negative post-listing value does not necessarily suggest that listing does not cause value), they do, nevertheless, suggest that some firms gain from listing in the U.S. I attempt to identify these firms by examining the relative valuation merits of listing on a country-by-country basis.

My results show that a Level 1 depositary receipt is associated with enhanced value for the average firm from certain countries e.g. Mexico. While I am unable to attach statistical significance to our findings, listing via a Level 1 depositary receipt program generates an economically significant 'cross listing premium' for firms from amongst others Austria and Thailand. In contrast, I document economically and statistically significant 'cross listing discounts' for others e.g. firms from Brazil, Chile, and China. Firms from amongst others, Hungary, Malaysia, Singapore, and Spain are also worth less (relative to domestic firms) but not statistically so. I document similar trends for Rule 144a firms. Trading in the U.S. under Rule 144a is associated with a 'cross listing discount' for the majority of firms. For example, firms from France, Germany, Norway, India, Finland, Singapore, Spain, and the U.K. experience the greatest losses. I document only 4 statistically significant 'cross listing premia': Rule 144a firms from Chile, Peru, Portugal, and Switzerland. Of the remainder, only Italian firms are valued economically higher than domestic Italian firms.

Finally, my results also highlight sizable differences between the different depositary receipt programs within the same country. For example, the fortunes of Rule 144a firms from Peru and Chile contrast notably with the performance of their Level 1 counterparts: Rule 144a Peruvian and

Chilean firms are worth more post-listing. In contrast, Level 1 firms are worth considerably less. In the case of firms from Mexico, Norway, India, and the Netherlands, the roles are reversed.

The rest of the chapter is organised as follows. In Section 7.2, I outline the depositary receipt market in the U.S., with special attention placed on the non-exchange programs. In Section 7.3, I motivate the paper. Section 7.4 entails a description of the data. Sections 7.5 and 7.6 incorporate the univariate and regression analysis, respectively. I end with some concluding remarks.

7.2 U.S. Capital Markets and non-exchange traded ADRs

Non-U.S. firms can trade in the U.S., either directly or as an American Depositary Receipt. There are four distinct depositary receipt listing types: a Level 1 over-the-counter issue trading on Nasdaq, a Level 2 exchange-trading, and Level 3 exchange-trading depositary receipt with capital-raising entitlements in the U.S., and finally a private-placement issue trading on the PORTAL to qualified institutional buyers under Rule 144a[43], although the private placement market is generally less-liquid that their counterpart national exchanges (See Chapter 2 for an overview).

Unlike non-exchange traded depositary receipts, Level 2/3 exchange-traded firms trade on organised U.S. exchanges and commit to sizable disclosure, regulatory, and legal requirements. The costs associated with such are large, but the benefits for these firms are perceived to be greater than those that accrue to non-exchange traded firms (See Chapter 2 for a detailed list of the benefits for Level 2/3 depositary receipts). In contrast, these effects are generally small for non-exchange traded firms. For example, Hail and Leuz (2004, HL Hereafter) document greater cost of capital gains for exchange-traded firms. Level 1 firms also experience a decline in the cost of capital, albeit much smaller. Rule 144a firms experience an increase in their cost of capital, post-listing. Interestingly, there is now a debate emerging on whether the costs associated with an exchange cross listing outweigh the obvious benefits. In this regard, KKZ (2005) examine the relative valuation benefits of listing in the U.S. for non-U.S. firms trading in high and low investor protection regimes. Their

[43] Fenn (2000) and Chaplinsky and Ramchand (2002) examine the development of the private placement market i.e. Rule 144a for domestic and foreign issuers, respectively.

analysis suggests that the greatest gains to an exchange listing in the U.S. accrue to those firms domiciled where investors are better protected. They theorize that the lower valuation gains for firms from low disclosure regimes are driven by the costs associated with initiating and sustaining a Level 2/3-depositary receipt. The relative costs of listing are greater for these firms.

If I apply these arguments to non-exchange traded firms, they suggest that listing in the U.S. via a non-exchange traded depositary receipt may be value enhancing, at least for some firms. Although the benefits associated with such appear to be low, the associated costs are also so[44]. This line of reasoning suggests that the benefits to listing may be sufficiently large for some firms in order to outweigh the costs. In this regard, HL (2004) find that for each depositary receipt level, listing in the U.S. is associated with an ability on the part of firms to exploit their current growth opportunities, and generate new ones. Consequently, listing in the U.S. via a non-exchange traded depositary receipt program may well be associated with value for some firms.

7.3 Motivation

The motivation behind this study is provided in a series of regression estimates presented in Table 6.13. In summary, my results suggest that for both Level 1 and Rule 144a firms, cross listing in the U.S. is not associated with an increase in firm value. Level 1 firms are worth more on average, but the act of listing does not contribute to this 'valuation premium'. Rule 144a firms tend to 'time' their decision to trade in the U.S., and are worth less, both on average, and post-listing. These findings have been largely replicated in a number of multi-country studies e.g. DKS (2004, 2006), and HL (2004). However, there are some exceptions. For example, in his study Miller (1999) documents positive (and largely significant) abnormal returns around the announcement of listing for Level 1 firms, but negative (but insignificant) for Rule 144a firms. DTT (2005) examine the

[44] KR (2006) provide similar arguments in their study. They suggest that while the major advantage for foreign firms that trade as non-exchange traded depositary receipt programs is the low cost of such issues (relative to Level 2/3 depositary receipts), such programs also suffer from the major disadvantage of trading on less liquid markets than Level 2/3 firms do. They conclude, "Whether this is relevant depends on the relative costs of additional disclosure versus the benefits of additional liquidity". In their analysis they suggest that this is not relevant. They conclude, "Hence the lack of complete disclosure and trading venue (PORTAL and DOSM) associated with Rule 144a and Reg S offers does not put them at a relative disadvantage".

impact of listing on a number of accounting variables for Level 1 firms from seven countries (i.e. Hong Kong, United Kingdom, Australia, Japan, South Africa, Germany, and Brazil). They conclude, "...some firms benefit from a presence in the U.S. OTC market, even though U.S. G.A.A.P. accounting and disclosure requirements are not met". In a similar vein, the findings of KR (2006) suggest that for a sample of Indian non-exchange traded firms, "the lack of complete disclosure and trading venue (PORTAL and DOSM) associated with Rule 144a and Regulation S offers does not put them at a relative disadvantage". In effect, what the later studies highlight is the "tendency of previous studies to generalize based on multi-country samples" (DFR (2005)). Admittedly, I am liable to the same charges in Chapter 6. In this Chapter I endeavour to address this issue. DFR (2005) circumvent the problems inherent in multi-country studies, by examining in depth, the impact of a U.S. listing for a sample of firms from one country, Mexico. I adopt the same approach, but for a sample of non-exchange traded ADRs from 39 different countries.

7.4 Do all non-exchange traded firms experience a fall in value post-listing?

In the previous Chapter, I examined whether listing in the U.S. was associated with a corresponding appreciation in value (relative to domestic firms) for a sample of non-exchange traded firms from 39 countries. In line with DKS (2004, 2006), GLS (2006), and HL (2004), listing in the U.S. is not associated with enhanced value for these firms.

In this section I further the analysis, and examine the distribution of value in the post-listing period for both sets of firms. For both sets of non-exchange traded firms I calculate, relative to the list year [Year = 0], the change in q for each firm up to five years post-listing. Next I examine different intervals of the entire distribution. I calculate the mean and median change in value (relative to the list year) up to five years post-listing. I supplement this by calculating the 1st, 25th, 75th, and 99th percentiles, respectively. I also calculate the minimum and maximum change in value for each post-listing year. In the remaining rows of each Table (Tables 7.1-7.2), I calculate the

number of firms with positive and negative change value in each year post-listing relative to the list year.

I replicate this analysis for different sub-sets of each set of firms: first, I perform the analysis for the whole sample of firms. Next I replicate the analysis for firms with positive and negative post-listing performance, respectively. I am careful in exactly how I interpret these findings. The estimates are based upon changes in the absolute level of value for cross-listed firms. Consequently, the results reported in this section have no causal interpretation. I will elaborate more on this issue in the next section. I outline the results for the full sample of Level 1 firms in Table 7.1. In Tables 7.1a and 7.1b, the results are presented for firms with positive and negative performance, respectively. I present the results for Rule 144a firms in Table 7.2.

I begin with the results for Level 1 firms. I outline in Table 7.1, the change in value (relative to list year) for each year up to five years post-listing. In the remaining columns of Table 7.1, I calculate the average change in value for each percentile of the overall distribution. In line expectations, the mean and median Level 1 firm experiences an absolute decline in value post-listing, and the magnitude of the decline is increasing in the number of years. The mean and median firm experiences a loss in value in the region of 8.68 and 6.58% post-listing period, respectively. The average number of firms with negative absolute post-listing performance is almost 168 firms, or just over 61% of the available sample. 99% and 75% of the sample of firms experience an average decline in value of 61.77, and 20.81% or better, post-listing. Although a sizable majority of Level 1 firms experience a decline in value post-listing, nonetheless, there are Level 1 firms for whom listing is associated with enhanced absolute value. I find that at least 25% of the overall sample of Level 1 firms experience absolute valuation gains post-listing. These firms enjoy an average gain in value in the region of 5.91%. In fact, almost 39% of Level 1 firms (109) experience positive valuation gains post-listing.

To shed more light on this, I replicate the analysis for Level 1 firms with positive (absolute) post-listing performance. The results are outlined in Table 7.1a. First, after five years of listing, the

mean and median Level 1 firm is worth 24.92 and 12.99% more, respectively. The average change in value for these firms is in the region of 19.20 and 10.58%, respectively. Like before, a small proportion of firms enjoy sizable valuation gains. Specifically, at least 25% of firms experience average gains in value in the region of 25.45%. The smallest average post-listing valuation gain is 2.4%, while the largest averages 117.30% over the post-listing period. These results suggest that trading in the U.S. is associated with enhanced value for some firms, but at this stage I am unable to determine whether listing actually causes value for these firms. In the next section, I try to identify those countries with positive post-listing performance (relative to non-cross-listed firms). In Table 7.1b, I perform the same analysis for Level 1 firms with negative post-listing performance. The average fall-off in value for the mean and median Level 1 firm is 19.98 and 16.73%, respectively. 99 percent of firms experience an average depreciation in value of almost 67% or better post-listing.

In summary, for the majority of Level 1 firms, listing in the U.S. is associated with an absolute loss in value. However, I am able to identify a proportion of firms with positive post-listing performance, which suggests that listing in the U.S. is not associated with lower value for all firms.

Next I replicate in Table 7.2, the same analysis for Rule 144a firms as a whole. In Tables 7.2a-b, I present the results for Rule 144a firms with positive and negative performance, respectively. I begin with a discussion of the results presented in Table 7.2. The trends evident for Rule 144a firms are similar to those identified for Level 1 firms. First, a sizeable majority of Rule 144a firms (71.2% on average) experience negative post-listing performance. Both the mean (21.00%) and median (22.79%) firm experiences a much larger depreciation in value post-listing. This is not surprising given their tendency to time their listing. 99 and 75 % of the sample experience a decline in value in the region of 74.32% or 33.84% or better, respectively. A small proportion (on average 28.8%) of firms experience positive valuation gains post-listing. Unlike Level 1 firms, the magnitude of the gains appears to be smaller: 25% of Rule 144a firms experience average post-listing gains of 0.648% or better, compared to 5.91% for Level 1 issues.

I replicate the analysis for firms with positive post-listing performance. The results are outlined in Table 7.2a. The mean and median Rule 144a firm experience a valuation gain in the region of 14.08%, and 8.68%, respectively. 25% of the firms appreciate by 19.81% or better, post-listing. A single firm experiences an average post-listing gain of 68.98%. In Table 7.2b, I present our results for firms with negative post-listing performance. The average mean and median firm experience absolute declines in value of 26.74 and 25.16%, respectively. 75% of firms experience a fall in value in the region of 39.94%, or better. The worst performing firms experience an average decline in value in the region of 77.73%.

In summary the results from this section suggest that for both Level 1 and Rule 144a firms, listing in the U.S. is not necessarily associated with an absolute fall in value. The mean and median cross-listed firm experiences a fall in value, post-listing. However, I am able to identify a proportion of firms that experience positive post-listing performance. In the next section, I begin my country-by-country analysis. This analysis is intended to examine whether I can identify those countries for which listing in the U.S. proves to value enhancing, in a relative sense.

7.5 Comparison of cross-listed and non-cross-listed firms by country.

I present in Table 7.3, the average value of Tobin's q for both cross-listed and non-cross-listed (NCL) firms over the entire sample period i.e. All (q) for each country. I calculate the average value for both sets of firms, pre and post-listing. In the remaining columns, I calculate the mean valuation difference (D (q)) between cross-listed and non-cross-listed (NCL) firms, over the entire sample period, and for each sub-period. The mean valuation difference between the cross-listed and non-cross-listed firms is calculated as the difference between the average value of listed firms and the average value of non-cross-listed firms, over the entire sample period. Unreported median valuation differences yield similar findings. DKS (2004, 2006) adopt an identical approach, but on a yearly basis from 1997 to 2004. In subsequent analysis, I examine the valuation differences between cross-listed and non-cross-listed firms on a yearly basis for all firms.

Lets begin with the results for Level 1 firms. The first notable feature is that there exists sizable variation in the valuation differences between cross-listed and non-cross-listed firms across countries. For example, over the entire sample period, I identify 16-valuation premia, and 21-valuation discounts. I deliberately do not term these 'cross-listing premia or discounts' because at this stage, I cannot separate the effects of listing i.e. the 'cross listing premia/discounts' from the 'valuation premia/discounts'. I return to this later. The largest 'valuation premia' is experienced by Indian Level 1 firms, followed by Thailand, and the Netherlands, respectively. These firms enjoy a valuation premium of 47.56, 26.95, and 14.90%, respectively over non-cross-listed firms. In contrast, Level 1 firms from Chile, Denmark, Ireland, Israel, Norway, New Zealand, Poland, Singapore, Spain, Sweden, and Turkey are valued at a sizable discount relative to their domestic counterparts. Danish Level 1 firms are valued at a discount of 28.66% relative to non-cross-listed Danish firms. Overall, Level 1 firms are valued at a small discount (0.65%).

I document similar findings for Rule 144a firms: 14 are valued at a premium, while the remaining 19 are valued at a discount. The largest 'valuation premia' are enjoyed by firms from Switzerland, Hong Kong, Peru, Sweden, Chile, Phillipines, and Ireland. The largest premia accrue to firms from Switzerland (65.20%), and Hong Kong (48.64%). In contrast, sizable 'valuation discounts' accrue to amongst others, firms from Australia (20.54%), France (18.95%), Greece (32.66%), India (18.29%), Norway (14.74%), Poland (16.33%), Singapore (29.01%), and Turkey (23.56%). All together, Rule 144a firms are valued at a greater discount (11.61%) than Level 1 firms.

The final notable feature relates to the valuation differences that exist between Level 1 and Rule 144a firms from the same country. For example, Australian Level 1 firms are more highly valued (34.70%) than their counterpart Rule 144a firms. Similar relations exist for Level 1 firms from Austria (19.08%), Finland (9.09%), India (80.59%), South Africa (24.49%), Thailand (46.72%), and Turkey (17.29%). On the other hand, Rule 144a firms from Chile (70.33%), Colombia (14.53%), Hong Kong (53.85%), Ireland (48.03%), Peru (53.44%), Sweden (36.02%), and Switzerland (44.20%) are more highly valued than their corresponding sample of Level 1 firms.

These figures raise one interesting question: how much of the valuation differences that exist between this sub-set of firms are driven by the act of listing in the U.S? In the remaining sections of Table 7.3, I begin to answer this question.

I calculate for each country, the mean valuation difference between cross-listed and non-cross-listed firms in both the pre and post-listing periods. This data constitutes unconditional estimates of the possible impact of listing on firm value. Consequently, this represents the first instance in this paper in which I may legitimately term the valuation differences between cross-listed and non-cross-listed firms, a 'cross listing premium'. I begin with a discussion of Level 1 firms. On examination, I am able to identify a number of trends not evident from the summary statistics presented earlier. First, a large proportion of Level 1 firms that ultimately trade in the U.S. are more highly valued: pre-listing, firms from 20 countries are valued at a premium relative to non-cross-listed firms. The remaining 17 trade at a discount. Notably, there exists only 13 listing premia post-listing. This suggests that for the majority of Level 1 firms, listing in the U.S. is associated with a fall in firm value.

To supplement this analysis, I present, in Table 7.4, median before and after valuation differences for all cross-listed firms. I calculate before-after estimates of absolute and relative q. Both valuation measures allow us to identify the following: first by analysing absolute before-after estimates, I am able to identify those firms with positive/negative changes in absolute performance post-listing. However, this tells us nothing about the change in value for cross-listed firms relative to non-cross-listed firms, and thus provides no information on the relative valuation merits of listing for cross-listed firms. On the other hand, the before-after measure of Relative q allows us to examine whether listing in the U.S. is value enhancing for cross-listed (relative to non-cross-listed) firms. To illustrate this point further, consider the following: the absolute before-after value for Level 1 firms from Switzerland is a positive and statistically significant 0.31. However, when I examine the difference relative to domestic Swiss firms, the difference is a statistically insignificant 0.03. This suggests that listing in the U.S. via a Level 1 depositary receipt program for Swiss firms is

associated with an increase in absolute value for listed firms, but a much smaller, insignificant increase, relative to domestic firms[45]. This suggests that listing in the U.S. is not value enhancing for these firms. In the next section I examine this further by providing a series of conditional regression estimates. In the remainder of this section I provide a more detailed discussion of the results presented in Table 7.4[46].

For Level 1 issues, eleven countries experience an absolute increase in value after listing in the U.S., five of which are statistically different from zero. All of the remaining countries bar one (Norwegian firms experience no change in value) experience an absolute decline in value, of which eighteen are significantly different from zero. Next I examine whether these positive and negative changes in value are different from those experienced by domestic non-cross-listed firms. For example, it may well be the case that domestic firms also experienced the same increase in value as that experienced by cross-listed firms, and thus listing is not associated with value for cross-listed firms. On the other hand, for those firms who experience a decline in value post-listing, this does not necessarily suggest that listing is not associated with value for these firms. I elaborate on this point further. Let $\hat{\alpha}$ be the coefficient estimate is given by the difference in two before-after estimates $[(q_{CL}^{Post} - q_{CL}^{Pre}) - (q_{NCL}^{Post} - q_{NCL}^{Pre})]$, from the following regression specification: $\Delta q_{it} = \delta_t + \alpha(\Delta D_{it}) + \Delta\varepsilon_{it}$ where D a standard dummy which is 1 in the year of listing, and thereafter, δ_t is an intercept given by a time (year) dummy (i.e. note that the differenced intercept (constant) is differenced out), and Δ is the difference operator. Now, lets begin with the case where Level 1 firms experience an absolute increase in value after listing in the U.S. (i.e. firms from eleven different countries). In this instance $(q_{CL}^{Post} - q_{CL}^{Pre}) > 0$. Listing causes value for these firms, if and only if

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[45] This line of reasoning is identical to the theory underlying difference-in-difference estimators (See BC (2000), and Wooldridge (2002) for a review). For example, let q be the value of the firm with corresponding pre and post-listing values q^{Pre} & q^{Post}. Then, the absolute change in q for cross-listed firms (treatment group) around the time of listing is given by the before-after estimate denoted as $(q_{CL}^{Post} - q_{CL}^{Pre})$. The corresponding change for the non-cross-listed (non-treatment) group of firms is given by $(q_{NCL}^{Post} - q_{NCL}^{Pre})$. The corresponding DID estimate $\hat{\alpha}$ is the difference in two differences i.e. the difference in two before-after estimates given by $[(q_{CL}^{Post} - q_{CL}^{Pre}) - (q_{NCL}^{Post} - q_{NCL}^{Pre})]$.

[46] I reach similar conclusions when I employ mean valuation ratios. The data is outlined in Table 7.8.

$(q_{CL}^{Post} - q_{CL}^{Pre}) > (q_{NCL}^{Post} - q_{NCL}^{Pre})$. For the majority of Level 1 firms $(q_{CL}^{Post} - q_{CL}^{Pre})$ is negative. However, this does not suggest that listing cannot cause value for firms. Consider the following: as before $(q_{CL}^{Post} - q_{CL}^{Pre})$ is negative. Now, lets suppose that $(q_{NCL}^{Post} - q_{NCL}^{Pre})$ is also negative. Therefore, if $\left|q_{CL}^{Post} - q_{CL}^{Pre}\right| < \left|q_{NCL}^{Post} - q_{NCL}^{Pre}\right|$, listing in the U.S. causes value for cross-listed firms. Consequently, a negative $(q_{CL}^{Post} - q_{CL}^{Pre})$ does not imply that listing does not cause value. However, if the 'before-after' estimates for domestic firms, given by $(q_{NCL}^{Post} - q_{NCL}^{Pre})$ is also negative, but less than that experienced by cross-listed firms i.e. $\left|q_{NCL}^{Post} - q_{NCL}^{Pre}\right| < \left|q_{CL}^{Post} - q_{CL}^{Pre}\right|$, the Difference-In-Difference estimate $\hat{\alpha} < 0$, and thus listing does not cause value. In the remainder of this section, I examine this issue further by examining the change in both absolute and relative value around listing. In the next section, I examine whether these differences are robust to the inclusion of controls for growth opportunities.

I find that only five countries with positive absolute changes in value experience a corresponding positive change in value relative to domestic firms. Only firms from France, Japan, Mexico, Poland, and Switzerland are valued more highly relative to their domestic counterparts after listing in the U.S. Of the remainder of the firms with positive absolute changes in value, when compared to domestic firms, the valuation difference is reversed. For example, both Belgium and Brazil experience an absolute increase in value post-listing. However, when I compare firms to their domestic counterparts, listing is not associated with enhanced value. Specifically, the absolute change in value for firms from Belgium and Brazil is 0.18 and 0.11, respectively. In contrast, the relative change is given by (0.03) and (0.11), respectively. In both sub-periods (i.e. pre and post listing), both sets of cross-listed firms are worth less than their domestic counterparts. However, the valuation discounts widen post-listing, and thus suggests that listing is not associated with enhanced value for these firms[47]. Next I turn my attention to those firms where $(q_{CL}^{Post} - q_{CL}^{Pre}) < 0$.

Level 1 firms from Denmark and New Zealand experience the largest absolute decline in value after listing in the U.S., with a fall-off in value in the region of 71.43 and 69.64%, respectively.

[47] These unconditional results for these countries are replicated in a series of regressions in the next section. I will elaborate more in the next section.

It appears that their domestic counterparts did not experience such a decline. For example, pre-listing, Danish Level 1 firms were valued at almost double domestic Danish firms (Relative q = 1.98). Post-listing, this valuation premium had diminished into a sizable valuation discount (Relative q = 0.63). I find, with few exceptions that this trend is largely reflected across our entire sample of Level 1 firms. Level 1 firms from, amongst others Greece (ΔRelq from 1.19 to 0.67), Hungary (ΔRelq from 1.33 to 0.89), Italy (ΔRelq from 1.21 to 0.84), South Africa (ΔRelq from 1.21 to 0.89), and Turkey (ΔRelq from 1.96 to 0.76) also experience a considerable decline in value relative to their domestic counterparts. Furthermore, firms from China, Finland, Hong Kong, Ireland, South Korea, Malaysia, Sweden, and the U.K., to name but a few, are worth less than domestic firms in both sub-periods. For these firms, valuation discount increases after trading in the U.S. Firms from Colombia (ΔRelq from 0.88 to 1.04), Israel (ΔRelq from 0.60 to 0.72), Japan (ΔRelq from 0.83 to 0.90), Mexico (ΔRelq from 1.00 to 1.11), Netherlands (ΔRelq from 0.76 to 1.05), Phillipines (ΔRelq from 0.78 to 0.81), Poland (ΔRelq from 0.53 to 0.80), Portugal (ΔRelq from 0.85 to 0.89), and Switzerland (ΔRelq from1.12 to 1.15) provide the exceptions, even given the fact that many of these firms experience an absolute decline in value post listing. Consequently, for many of these firms $\left|q_{CL}^{Post} - q_{CL}^{Pre}\right| < \left|q_{NCL}^{Post} - q_{NCL}^{Pre}\right|$, and thus listing creates value for these firms. Finally, for our entire sample of Level 1 firms, listing is associated with a fall in value relative to domestic firms (ΔRelq from 0.93 to 0.83).

Next the results for Rule 144a firms are outlined in the remaining columns of Table 7.7. The median firm from twelve countries experiences a fall in value after trading in the U.S. The remaining firms (from ten countries) appreciate in value[48]. Firms from Spain (61.94%), India (41.62%), Chile (38.05%), Hungary (28.19%), and Taiwan (25.30%) experience the greatest losses. With the exception of Spanish firms (ΔRelq from 1.94 to 0.82), the fall-off in value is of a much smaller magnitude relative to their counterpart domestic firms. In contrast, trading in the U.S. is

[48] Our sample of Rule 144a firms is reduced because of the lack of data for some countries in the pre-listing period.

associated with an appreciation in value for firms from Greece (102.63%), Hong Kong (92.98%), Australia (72.54%), Italy (45.87%) and Switzerland (35.23%). However, with the exception of firms from Switzerland, these firms also outperform their domestic counterparts post-listing. For example, firms from Hong Kong are valued more highly than domestic firms post-listing, after being valued at a considerable discount pre-listing (Δ Relq from 0.58 to 1.38).

On closer examination of the data there exists sizable variations in the effects of listing between and within countries. The source of the variation exists, first, between countries, second across the different depositary receipt levels within the same country, and finally, within each different depositary receipt level. The first issue has been discussed in the previous section. I discuss the variations that exist between the different depositary receipt levels for each country next. The most notable differences occur for firms from Greece, Australia, Colombia, Hong Kong, Hungary, Italy, Portugal, Spain, South Africa, and Turkey. For example, while both sets of listed firms depreciate in value, Australian Rule 144a firms experience the largest fall in value post-listing. Interestingly, and unlike their Level counterpart firms, Rule 144a firms gain in value relative to domestic firms, despite the dramatic fall-off in value that they experience. Similar trends occur for Italian, Hungarian, South African, and Turkish Rule 144a issues. Rule 144a firms from Greece, Hong Kong experience, unlike Level 1 firms, an absolute increase in value post-listing. Consequently, unlike Level 1 firms, they gain value relative to non- cross-listed firms around the time of listing.

Finally, I examine in Table 7.5, the breath of the valuation gains from listing within countries. I calculate for each country, and for each depositary receipt level, the mean, median, minimum and maximum level percentage change in value post-listing. I present in the remaining columns, the proportion of firms with positive and negative changes in value post-listing. Specifically, I calculate the difference in value of each firm between the pre and post-listing periods. I find that only 36% and 24% of Level 1 and Rule 144a firms respectively are worth more post-listing. This is in line with my original findings that listing via a non-exchange traded depositary

receipt program is in general associated with a decrease in value. The majority of Level 1 firms from amongst others, China, Denmark, France, Germany, Hong Kong, Italy, Japan, Malaysia, Mexico, Netherlands, Singapore, South Africa, Thailand, and the U.K. are worth less in absolute terms post-listing. In contrast, Level 1 firms from Brazil, New Zealand, Sweden and Switzerland are worth more. In the case of Rule 144a firms, the majority of firms are worth less after listing in the U.S. The majority of these firms are from India, Korea, and Taiwan.

In summary, my results suggest that listing via a non-exchange traded depositary receipt program is value enhancing for firms, from certain countries. In particular, it appears that Level 1 firms from Colombia, Japan, Mexico, Poland, and Switzerland and Rule 144a firms from Greece, Hong Kong, Australia, and Italy enjoy sizable valuation gains from listing in the U.S. In the next section, I examine via regression analysis whether these results are robust to controls for growth opportunities.

7.6 Regression Analysis and Results

In order to examine the relation between cross listing and value, I estimate panel regressions of the form outlined in Chapters 4-6:

$$q_{it} = \alpha + X_{it}\delta + \beta CL_{it} + Year_t + c_i + u_{it} \quad (7.1)$$

Where each variable is as before. I estimate separate regressions for both Level 1 and Rule 144a firms. I explicitly acknowledge the endogeneity of the cross listing decision, and attempt to estimate the causal effect of listing on value by addressing the endogeneity issue in two ways: with firm level controls for growth opportunities, and with firm-fixed effects.

First, I control for growth opportunities at the level of the firm. I calculate firm growth opportunities as the two-year geometric average sales growth. It may well be the case that the valuation improvements experienced by some listed firms may well have been anticipated. Equation 7.1 is estimated via ordinary least squares. The standard errors are clustered by firm, and I include time fixed effects in order to account for contemporaneous correlation.

Next because of my concerns over violations of strict exogeneity, I estimate the following:

$$q_{it} = \alpha + X_{it}\delta + \beta CL_{it} + \zeta \overline{X_i} + u_{it} \qquad (7.2)$$

Where $\overline{X_i}$ are Mundlak (1978) corrections i.e. $\overline{X_i} = \frac{1}{T}\sum_{s=1}^{T} X_{it}$.

I outline in Table 7.6, coefficient estimates of the impact of listing by depositary receipt level, for each individual country. For each specification (Equation 7.1 and 7.2), I provide the coefficient estimate of the cross listing dummy, the number of observations, and the coefficient of determination (i.e. R^2). Firm and industry controls are included (and Mundlak (1978) correction terms for our pooled ordinary least squares estimates) but are not reported. I begin by examining the results for Level 1 firms. First, it is important that I stress the importance of examining both the statistical and economic significance of our results. Specifically, because I am carrying out the analysis on a country-by-country basis, the number of observations varies sizably across countries. Consequently, while in some instances I am unable to attach statistical significance to our findings, the magnitude of the coefficient estimates are such, that it is impossible to argue that valuation difference is not economically significant. For example, only Level 1 firms from Mexico, Netherlands, and New Zealand are worth significantly more than their domestic counterparts after listing in the U.S. The results are consistent with those documented earlier for both Mexico and the Netherlands. Interestingly, the inclusion of firm and industry controls suggests that Level 1 firms from New Zealand are now worth significantly more than domestic firms. I find that given our controls for endogeneity, Level 1 firms from Colombia, Japan, Poland, and Switzerland are no longer valued more highly relative to non-cross-listed firms. In three of the four cases, the estimated coefficient is negative, and statistically different from zero. The 'cross listing discount' reported for Level 1 firms from Switzerland is economically significant, albeit not statistically so. Level 1 firms from India enjoy the largest 'cross listing premium', but the valuation difference is not different

from zero[49]. Level 1 firms from Austria, Finland, France, Norway, and Thailand enjoy a sizable and economically significant listing premium over their counterpart non-cross-listed domestic firms. In contrast, I find twelve statistically significant 'cross listing discounts'. Listing in the U.S. is not value enhancing for Level 1 firms from amongst others, Brazil, Chile, China, Hong Kong, Italy, Sweden, and Turkey. For all countries, the coefficient estimates are in line with the summary measures presented in Table 7.4: relative to non-cross-listed firms, cross listed firms from these countries lose value around the time of listing. Firms from Chile experience the largest 'cross listing discount'. Finally, I find that Level 1 firms from Peru, Spain, Malaysia, and Greece experience a statistical, but economic 'cross listing discount'. In summary, the results from Table 7.6 suggest that for the majority of firms, non-exchange trading in the U.S. is not associated with enhanced value. However, there are some notable exceptions.

Next I turn my attention towards Rule 144a firms. The results are outlined in the remaining columns of Table 7.6. The conclusions that I drew for Level 1 firms can, by-and-large be replicated here. For the majority of Rule 144a firms, trading in the U.S. does not enhance value. Rule 144a programs are associated with lower value (relative to domestic firms) for the average firm from 19 different countries, 11 of which are both economically and statistically significant. Firms from France, Germany, Norway, India, Finland, Singapore, Spain, and the U.K. experience the greatest losses. In contrast, I document only 4 statistically significant 'cross listing premia': Chile, Peru, Portugal, and Switzerland. Of the remainder, only Italian firms are valued economically higher than domestic Italian firms. Finally, the results also highlight sizable differences between the different depositary receipt programs within the same country. For example, the fortunes of Rule 144a firms from Peru and Chile contrast notably with the performance of their Level 1 counterparts: Rule 144a Peruvian and Chilean firms are worth more post-listing. In contrast, Level 1 firms are worth considerably less. In the case of firms from Mexico, Norway, India, and the Netherlands, the roles are reversed. In this instance, Level 1 firms experience the greatest gains from listing. Finally, I find that for firms from Spain,

[49] The p-value for the coefficient on the cross listing dummy for Indian firms is 0.22. In both specifications, both firm and industry growth rates are highly significant.

Singapore, and Switzerland, the gains from listing are consistent across the different depositary receipt levels. For example, the ordinary least squares coefficient estimates for Spanish Level 1 and Rule 144a firms are (0.21) and (0.18), respectively.

Finally, I try and identify a pattern in the data. Specifically, I examine whether firms listing choices are correlated with enhanced value post-listing? For example, it may well be the case that firms from a particular country may list after a firm from the same country experiences post-listing valuation gains. For example, given that the majority of Australian firms trade over-the-counter as Level 1 issues (Refer to Table 2.3), a Level 1 issue may be associated with enhanced value for these firms. On the other hand, the decision to list may be driven in terms of the costs, rather than the benefits from listing. Specifically, KKZ (2005) show using logit analysis that firms from a low disclosure regime are less likely to exchange cross list. This suggests that the costs, and not necessarily the potential benefits from listing, influence firms listing decision, given that on theoretical grounds, these firms have the most to gain from listing (See BB (2006)). If this is the case, it suggests that listing choice and value may not be correlated.

To examine these issues I reproduce the main points Table 2.3 in Table 7.7. Here, I present the breakdown of each depositary receipt level by country. I summarise the results from Table 7.6, and indicate whether the results indicate a cross listing premium or discount. Where the premium/discount are economically, but not statistically significant, the text is depicted in bold. Finally, I outline in column 2, whether firms are from high or low disclosure regimes, based upon LLSV (1998) anti-director rights index. Firms trade domestically in high disclosure regimes if their countrys' anti-director rights index is 4 or greater. In column 3, I predict, based upon the findings of KKZ (2005), whether these firms are more or less likely to exchange cross-list. Based on their analysis, firms from low disclosure regimes are less likely to exchange list, and thus more likely to non-exchange list (Level 1/Rule 144a).

I begin by examining whether firms listing choices are correlated with enhanced value post-listing. If this proposition were to hold, I would expect that firms from Australia, Austria, Belgium,

Brazil, Germany, Hong Kong, Japan, Malaysia, Mexico, Norway, New Zealand, Singapore, South Africa, and Thailand gain most from a Level 1 issue. Similarly, Rule 144a issues domiciled in Colombia, Greece, Hungary, India, Malaysia, Poland, Portugal, Taiwan, and Turkey would also be expected to gain from trading in the U.S. Firms from Peru and the Phillipines are equally likely to trade either over-the-counter or under Rule 144a. The results are mixed. For example, for Level 1 issues, I find only one statistically significant premium (Netherlands), and four economically significant premiums (Austria, Norway, New Zealand, and Thailand). In contrast, the remainder trade at a discount after listing. For example, while all Malaysian firms trade in the U.S. as Level 1 issues, our results suggest that these firms do not gain in value from doing so (although the discount is not statistically significant). However, I do uncover statistically significant listing discounts for firms from Brazil, Germany and Hong Kong.

The results for Rule 144a firms are more encouraging. In this instance, I identify 7 listing premia (out of 9), of which 2 are statistically significant. On the other hand, firms from India, Malaysia, and Turkey, who list predominantly as Rule 144a issues, trade at a statistically significant discount. In summary, my results provide mixed evidence in support of the proposition that listing choice and post-listing value are correlated.

7.7 Concluding Remarks

In this chapter I examine on a country-by-country basis, the relative valuation gains of non-exchange trading in the U.S. for a sample of firms from 39 countries. I am primarily motivated by the tendency of multi-country studies to generalise their results. Given the popularity of non-exchange programs for non-U.S. firms, it seems plausible to argue that this form of depositary receipt program must prove beneficial for some firms. I try and identify these firms.

Using valuation metrics, I attempt to examine the causal effect of listing on firm value. I control for the endogeneity of the cross-listing decision by first, controlling for growth opportunities at the level of the firm, and second, I employ a variant of a firm-fixed effects model, which is robust to violations of strict exogeneity.

My results suggest that cross listing causes value for Level 1 firms from Mexico, Netherlands, and New Zealand. Furthermore, while I am unable to attach statistical significance to our findings, listing via a Level 1 depositary receipt program generates an economically significant 'cross listing premium' for certain firms e.g. Austria and Thailand. In contrast, firms from Brazil and Sweden are amongst those for which I document economically and statistically significant 'cross listing discounts'. Firms from Hungary, Malaysia, Singapore, and Spain are also worth less (relative to domestic firms) but not statistically so. I document similar trends for Rule 144a firms. By and large, trading in the U.S. under Rule 144a is associated with a 'cross listing discount' for the majority of firms. For example, firms from France, Germany, Norway, India, Finland, Singapore, Spain, and the U.K. experience the greatest losses. In contrast, I uncover only 4 statistically significant 'cross listing premia'.

Next, the effect of listing for each depositary receipt level can vary sizable within the same country. For example, Rule 144a firms from Peru and Chile contrast notably with the performance of their Level 1 counterparts: Rule 144a Peruvian and Chilean firms are worth more post-listing. In contrast, Level 1 firms are worth considerably less. In the case of firms from Mexico, Norway, India, and the Netherlands, the roles are reversed. This suggests that firms from certain countries may well be best suited towards either a Level 1 or Rule 144a listing. At this point, it is unclear as to why this occurs, and thus may warrant further study.

Finally, there does appear to be a relationship between the valuation gains to listing and the listing choice of firms from a particular country. It appears that on average, if a firms lists in the U.S. under the same depositary receipt level as chosen by the majority of its domestic counterparts, they will gain from listing in the U.S.

Table 7.1: % Change in q for all Level 1 firms up to five-years post-listing (relative to list-year).

	1 Year Post-List	2 Years Post-List	3 Years Post-List	4 Years Post-List	5 Years Post-List	Average [+1, +5]
Mean	(5.82)	(5.29)	(8.47)	(10.05)	(13.76)	(8.68)
1st Percentile	(59.54)	(60.09)	(61.36)	(60.09)	(67.77)	(61.77)
25th Percentile	(12.64)	(18.02)	(21.16)	(23.54)	(28.68)	(20.81)
Median	(3.16)	(3.16)	(6.96)	(7.59)	(12.02)	(6.58)
75th Percentile	4.97	5.31	7.75	7.55	3.99	5.91
99th Percentile	68.31	71.01	76.12	122.92	93.10	86.29
Minimum	(64.90)	(70.95)	(63.31)	(69.16)	(75.26)	(68.71)
Maximum	113.29	112.55	91.92	145.15	123.57	117.30
Firms (Obs)	346	304	268	246	220	276.8
Positive (Obs)	157 (45%)	117 (38%)	107 (40%)	93 (38%)	73 (33%)	109.4 (38.8%)
Negative (Obs)	189 (55%)	187 (62%)	161 (60%)	153 (62%)	147 (67%)	167.4 (61.2%)

In this table, I report the percentage change in value, as measured by q, for Level 1 firms for each cross-listing year up to five-years post-listing, relative to the listing year. For each year in the post-listing period, I report the change for the mean and median Level 1 firm. In addition, I present estimates for different percentiles of the overall distribution: 1st, 25th, 50th, and 99th percentiles. I also report the minimum and maximum percentage change for each year relative to the list year. In the bottom panel of Table 7.1, I also report for each post-listing year, the number of firms, and the absolute and percentage number of positive and negative observations.

Table 7.1(a): % Change in q for Level 1 firms with positive post-listing performance post-listing.

	1 Year Post-List	2 Years Post-List	3 Years Post-List	4 Years Post-List	5 Years Post-List	Average [+1, +5]
Mean	13.32	16.18	18.49	23.11	24.92	19.20
1st Percentile	0.15	0.06	0.02	0.01	0.02	0.052
25th Percentile	2.49	2.95	3.96	4.74	4.33	3.69
Median	6.97	8.81	10.81	13.32	12.99	10.58
75th Percentile	17.36	18.74	24.42	31.44	35.31	25.45
99th Percentile	80.47	95.71	91.80	145.15	123.57	107.34
Minimum	0.038	0.05	0.00	0.01	0.02	0.024
Maximum	113.29	112.55	91.92	145.15	123.57	117.30
Firms (Obs)	157	117	107	93	73	109.4

In this table, I replicate the analysis presented in Table 7.1 for all those Level 1 firms with positive-post-listing performance. For each year in the post-listing period, I report the change for the mean and median Level 1 firm. In addition, I present estimates for different percentiles of the overall distribution: 1st, 25th, 50th, and 99th percentiles. I also report the minimum and maximum percentage change for each year relative to the list year. The numbers of firms are reported in the final row.

Table 7.1(b): % Change in q for Level 1 firms with negative post-listing performance post-listing.

	1 Year Post-List	2 Years Post-List	3 Years Post-List	4 Years Post-List	5 Years Post-List	Average [+1, +5]
Mean	(15.41)	(17.47)	(20.48)	(21.86)	(24.67)	(19.98)
1st Percentile	(64.21)	(68.14)	(63.11)	(64.90)	(71.89)	(66.45)
25th Percentile	(22.87)	(25.77)	(30.67)	(32.50)	(39.10)	(30.18)
Median	(10.80)	(14.06)	(17.58)	(19.38)	(21.84)	(16.73)
75th Percentile	(4.14)	(6.24)	(6.74)	(9.76)	(11.08)	(7.59)
99th Percentile	(0.001)	(0.15)	(0.86)	(0.27)	(0.57)	(0.37)
Minimum	(64.90)	(70.95)	(63.31)	(69.16)	(75.26)	(68.72)
Maximum	(0.0001)	(0.02)	(0.36)	(0.23)	(0.08)	(0.138)
Firms (Obs)	189	187	161	153	147	167.4

In this table, I replicate the analysis presented in Table 7.1 for all those Level 1 firms with negative-post-listing performance. For each year in the post-listing period, I report the change for the mean and median Level 1 firm. In addition, I present estimates for different percentiles of the overall distribution: 1st, 25th, 50th, and 99th percentiles. I also report the minimum and maximum percentage change for each year relative to the list year. The numbers of firms are reported in the final row.

Table 7.2: % Change in q for all Rule 144a firms up to five-years post-listing (relative to list-year)

	1 Year Post-List	2 Years Post-List	3 Years Post-List	4 Years Post-List	5 Years Post-List	Average [+1, +5]
Mean	(10.09)	(16.51)	(23.39)	(27.52)	(27.52)	(21.00)
1st Percentile	(72.47)	(77.68)	(75.20)	(73.83)	(72.40)	(74.32)
25th Percentile	(17.99)	(31.52)	(34.84)	(44.45)	(40.42)	(33.84)
Median	(8.60)	(20.96)	(23.11)	(30.10)	(31.18)	(22.79)
75th Percentile	2.31	0.29	(1.24)	0.00	1.88	0.648
99th Percentile	49.21	50.38	48.40	65.54	59.40	54.59
Minimum	(78.36)	(77.87)	(80.29)	(79.62)	(72.53)	(77.73)
Maximum	72.78	72.07	56.73	75.74	67.55	68.97
Firms (Obs)	150	140	131	118	105	128.8
Positive (Obs)	53 (35%)	40 (29%)	31 (24%)	31 (26%)	32 (30%)	37.4 (28.8%)
Negative (Obs)	97 (65%)	100 (71%)	100 (76%)	87 (74%)	73 (70%)	91.4 (71.2%)

In this table, I report the percentage change in value, as measured by q, for Rule 144a firms for each cross-listing year up to five-years post-listing, relative to the listing year. For each year in the post-listing period, I report the change for the mean and median Rule 144a firm. In addition, I present estimates for different percentiles of the overall distribution: 1st, 25th, 50th, and 99th percentiles. I also report the minimum and maximum percentage change for each year relative to the list year. In the bottom panel of Table 7.2, I also report for each post-listing year, the number of firms, and the absolute and percentage number of positive and negative observations.

Table 7.2(a): % Change in q for Rule 144a firms with positive post-listing performance post-listing

	1 Year Post-List	2 Years Post-List	3 Years Post-List	4 Years Post-List	5 Years Post-List	Average [+1, +5]
Mean	11.64	14.13	16.19	16.14	12.32	14.08
1st Percentile	0.01	0.00	0.00	0.00	0.00	0.002
25th Percentile	1.39	3.75	5.05	4.25	3.14	3.52
Median	5.31	8.00	11.27	10.44	8.37	8.68
75th Percentile	16.20	25.07	24.46	20.19	13.13	19.81
99th Percentile	72.78	72.07	56.73	75.74	67.55	68.97
Minimum	0.01	0.00	0.00	0.00	0.00	0.002
Maximum	72.78	72.07	56.73	75.75	67.55	68.98
Firms (Obs)	53	40	31	31	32	37.4

In this table, I replicate the analysis presented in Table 7.2 for all those Rule 144a firms with positive-post-listing performance. For each year in the post-listing period, I report the change for the mean and median Rule 144a firm. In addition, I present estimates for different percentiles of the overall distribution: 1st, 25th, 50th, and 99th percentiles. I also report the minimum and maximum percentage change for each year relative to the list year. The numbers of firms are reported in the final row.

Table 7.2(b): % Change in q for Rule 144a firms with negative post-listing performance post-listing.

	1 Year Post-List	2 Years Post-List	3 Years Post-List	4 Years Post-List	5 Years Post-List	Average [+1, +5]
Mean	(17.18)	(24.88)	(28.05)	(31.00)	(32.57)	(26.74)
1st Percentile	(78.36)	(77.78)	(77.75)	(79.62)	(72.53)	(77.21)
25th Percentile	(25.16)	(37.57)	(42.57)	(47.48)	(46.93)	(39.94)
Median	(12.84)	(23.53)	(28.23)	(31.03)	(30.17)	(25.16)
75th Percentile	(4.32)	(7.12)	(10.32)	(9.76)	(14.86)	(9.28)
99th Percentile	(0.02)	(0.27)	(0.29)	(0.01)	(1.02)	(0.32)
Minimum	(78.36)	(77.87)	(80.29)	(79.62)	(72.53)	(77.73)
Maximum	(0.02)	(0.02)	(0.01)	(0.01)	(1.02)	(0.22)
No. of firms (Obs)	97	100	100	87	73	91.4

In this table, I replicate the analysis presented in Table 7.2 for all those Rule 144a firms with negative-post-listing performance. For each year in the post-listing period, I report the change for the mean and median Rule 144a firm. In addition, I present estimates for different percentiles of the overall distribution: 1st, 25th, 50th, and 99th percentiles. I also report the minimum and maximum percentage change for each year relative to the list year. The numbers of firms are reported in the final row.

Table 7.3: Valuation of cross-listed and non-cross-listed firms.

		NCL	Level 1						Rule 144a					
		q	ALL q	D(q)	Pre-q	D(q)	Post-q	D(q)	q	ALL q	D(q)	Pre-q	D(q)	Post-q
1	Argentina	1.33	-	-	-	-	-	-	1.25	(0.08)	1.52	0.19	1.17	(0.16)
2	Australia	1.85	1.98	0.13	2.19	0.34	1.93	0.08	1.47	(0.38)	1.02	(0.83)	1.76	(0.09)
3	Austria	1.38	1.56	0.18	1.81	0.43	1.53	0.15	1.31	(0.07)	-	-	1.31	(0.07)
4	Belgium	1.51	1.53	0.02	1.39	(0.12)	1.57	0.06	-	-	-	-	-	-
5	Brazil	0.76	0.67	(0.09)	0.59	(0.17)	0.70	(0.06)	0.80	0.04	-	-	0.80	0.04
6	Chile	1.61	1.18	(0.43)	1.25	(0.36)	1.13	(0.48)	2.01	0.40	3.18	1.57	1.97	0.36
7	China	1.19	1.14	(0.05)	1.17	(0.02)	1.14	(0.05)	1.12	(0.07)	-	-	1.12	(0.07)
8	Colombia	1.32	1.17	(0.15)	1.20	(0.12)	1.03	(0.29)	1.34	0.02	1.82	0.50	1.33	0.01
9	Denmark	1.50	1.07	(0.43)	3.71	2.21	1.06	(0.44)	-	-	-	-	-	-
10	Finland	1.49	1.44	(0.05)	1.25	(0.24)	1.46	(0.03)	1.32	(0.17)	-	-	1.32	(0.17)
11	France	1.53	1.65	0.12	1.74	0.21	1.88	0.35	1.24	(0.29)	1.05	(0.48)	1.14	(0.39)
12	Germany	1.53	1.34	(0.19)	1.36	(0.17)	1.32	(0.21)	1.35	(0.18)	-	-	1.35	(0.18)
13	Greece	1.99	1.78	(0.21)	2.88	0.89	1.47	(0.52)	1.34	(0.65)	1.14	(0.85)	2.31	0.32
14	Hong Kong	1.48	1.43	(0.05)	1.73	0.25	1.37	(0.11)	2.20	0.72	1.14	(0.34)	2.20	0.72
15	Hungary	1.42	1.45	0.03	2.46	1.04	1.38	(0.04)	1.65	0.23	1.88	0.46	1.55	0.13
16	India	1.64	2.42	0.78	2.69	1.05	2.00	0.36	1.34	(0.30)	2.21	0.57	1.29	(0.35)
17	Ireland	1.63	1.27	(0.36)	1.25	(0.38)	1.30	(0.33)	1.88	0.25	-	-	1.88	0.25
18	Israel	1.50	1.16	(0.34)	1.18	(0.32)	1.11	(0.39)	-	-	-	-	-	-
19	Italy	1.40	1.31	(0.09)	2.17	0.77	1.26	(0.14)	1.39	(0.01)	1.09	(0.31)	1.59	0.19
20	Japan	1.65	1.63	(0.02)	1.61	(0.04)	1.69	0.04	-	-	-	-	-	-
21	Korea	1.20	1.30	0.10	1.29	0.09	1.25	0.05	1.18	(0.02)	1.19	(0.01)	1.16	(0.04)
22	Malaysia	1.62	1.72	0.10	2.15	0.53	1.41	(0.21)	-	-	-	-	-	-
23	Mexico	1.28	1.45	0.17	1.37	0.09	1.57	0.29	1.24	(0.04)	1.28	0.00	1.22	(0.06)
24	Netherlands	1.61	1.85	0.24	1.48	(0.13)	2.02	0.41	1.86	0.25	-	-	1.86	0.25
25	Norway	1.56	1.24	(0.32)	1.24	(0.32)	1.24	(0.32)	1.33	(0.23)	1.23	(0.33)	1.35	(0.21)
26	New Zealand	1.75	1.24	(0.51)	3.69	1.94	1.12	(0.63)	-	-	-	-	-	-
27	Peru	1.10	1.16	0.06	1.68	0.58	1.14	0.04	1.78	0.68	-	-	1.78	0.68
28	Phillipines	1.29	1.33	0.04	1.53	0.24	1.26	(0.03)	1.47	0.18	1.49	0.20	1.46	0.17
29	Poland	1.47	1.11	(0.36)	1.08	(0.39)	1.19	(0.28)	1.23	(0.24)	1.16	(0.31)	1.26	(0.21)
30	Portugal	1.33	1.23	(0.10)	1.30	(0.03)	1.22	(0.11)	1.86	0.53	2.27	0.94	1.77	0.44
31	Singapore	1.62	1.39	(0.23)	1.51	(0.11)	1.36	(0.26)	1.15	(0.47)	1.14	(0.48)	1.15	(0.47)
32	South Africa	1.57	1.83	0.26	1.35	(0.22)	1.28	(0.29)	1.47	(0.10)	3.81	2.24	1.45	(0.12)
33	Spain	1.56	1.28	(0.28)	2.40	0.84	1.67	0.11	1.66	0.10	1.52	(0.04)	1.47	(0.09)
34	Sweden	1.63	1.36	(0.27)	1.26	(0.37)	1.36	(0.27)	1.85	0.22	-	-	1.85	0.22
35	Switzerland	1.38	1.58	0.20	1.50	0.12	1.81	0.43	2.28	0.90	1.93	0.55	2.61	1.23
36	Taiwan	1.76	-	-	-	-	-	-	1.96	0.20	2.45	0.69	1.83	0.07
37	Thailand	1.41	1.79	0.38	2.19	0.78	1.70	0.29	1.22	(0.19)	-	-	1.22	(0.19)
38	Turkey	1.74	1.56	(0.18)	4.02	2.28	1.50	(0.24)	1.33	(0.41)	1.32	(0.42)	1.37	(0.37)
39	U.K	1.77	1.82	0.05	1.95	0.18	1.71	(0.06)	1.76	(0.01)	-	-	1.76	(0.01)

		NCL	Level 1						Rule 144a					
		q	ALL q	D(q)	Pre-q	D(q)	Post-q	D(q)	q	ALL q	D(q)	Pre-q	D(q)	Post-q
	Sample	**1.55**	**1.54**	**(0.01)**	**1.65**	**0.10**	**1.50**	**(0.05)**	**1.37**	**(0.18)**	**1.38**	**(0.17)**	**1.36**	**(0.19)**

In this table, I compare the value of cross-listed to non-cross-listed firms. In column 2, I outline the average value of non-cross-listed firms by country. For Level 1 and Rule 144a firms, I calculate the average value of q for both sets of firms, pre and post-listing. In the remaining columns, I calculate the mean valuation difference (D(q)) between cross-listed and non-cross-listed (NCL) firms, over the entire sample period, and for each sub-period. The mean valuation difference between the cross-listed and non-cross-listed firms is calculated as the difference between the average q of listed firms and the average q of non-cross-listed firms, over the entire sample period.

Table 7.4: Median valuation before and after cross listing.

	Country	Level 1 ADRs						Rule 144a ADRs					
		Tobin's q			Relative q			Tobin's q			Relative q		
		Before	After	Difference	Before	After	Difference	Before	After	Difference	Before	After	Difference
1	Argentina	-	-	-	-	-	-	1.52	1.17	**(0.35)***	1.11	0.88	**(0.23)****
2	Australia	2.19	1.93	**(0.26)****	1.10	0.87	**(0.23)*****	1.02	1.76	**0.74****	0.61	0.76	0.15
3	Austria	1.81	1.53	**(0.28)*****	1.15	0.93	**(0.22)*****	-	1.31	-	-	0.77	-
4	Belgium	1.39	1.57	**0.18***	0.93	0.90	(0.03)	-	-	-	-	-	-
5	Brazil	0.59	0.70	**0.11*****	0.77	0.66	**(0.11)****	-	0.80	-	-	0.67	-
6	Chile	1.25	1.13	**(0.12)****	0.78	0.69	**(0.09)****	3.18	1.97	**(1.21)***	1.34	1.11	**(0.23)***
7	China	1.17	1.14	**(0.03)****	0.97	0.88	**(0.09)*****	-	1.12	-	-	0.92	-
8	Colombia	1.20	1.03	**(0.17)****	0.88	1.04	**0.16***	1.82	1.33	(0.49)	1.13	1.04	(0.09)
9	Denmark	3.71	1.06	**(2.65)*****	1.98	0.63	**(1.35)*****	-	-	-	-	-	-
10	Finland	1.25	1.46	0.21	0.96	0.85	**(0.11)***	-	1.32	-	-	0.80	-
11	France	1.74	1.88	0.14	1.00	1.01	0.01	1.05	1.14	**0.09*****	0.61	0.62	0.01
12	Germany	1.36	1.32	(0.04)	0.73	0.73	0.00	-	1.35	-	-	0.75	-
13	Greece	2.88	1.47	**(1.41)****	1.19	0.67	**(0.52)*****	1.14	2.31	**1.17*****	0.58	0.84	**0.26****
14	Hong Kong	1.73	1.37	**(0.36)*****	0.98	0.79	**(0.19)*****	1.14	2.20	1.06	0.58	1.38	0.80
15	Hungary	2.46	1.38	(1.08)	1.33	0.89	(0.44)	1.88	1.55	(0.33)	1.09	1.04	(0.05)
16	India	2.69	2.00	(0.69)	0.94	0.80	(0.14)	2.21	1.29	**(0.92)*****	0.77	0.62	**(0.15)*****
17	Ireland	1.25	1.30	0.05	0.75	0.67	(0.08)	-	1.88	-	-	1.08	-
18	Israel	1.18	1.11	**(0.07)***	0.60	0.72	0.12	-	-	-	-	-	-
19	Italy	2.17	1.26	**(0.91)*****	1.21	0.84	**(0.37)*****	1.09	1.59	**0.50*****	0.79	0.93	**0.14****
20	Japan	1.61	1.69	0.08	0.83	0.90	**0.07***	-	-	-	-	-	-
21	Korea	1.29	1.25	(0.04)	1.00	0.93	(0.07)	1.19	1.16	(0.03)	0.92	0.89	(0.03)
22	Malaysia	2.15	1.41	**(0.74)*****	0.94	0.74	**(0.20)*****	-	-	-	-	-	-
23	Mexico	1.37	1.57	0.20	1.00	1.11	0.11	1.28	1.22	(0.06)	0.90	0.90	0.00
24	Netherlands	1.48	2.02	**0.54*****	0.76	1.05	**0.29*****	-	1.86	-	-	0.93	-
25	Norway	1.24	1.24	0.00	0.72	0.64	(0.08)	1.23	1.35	**0.12***	0.76	0.69	(0.07)
26	New Zealand	3.69	1.12	**(2.57)****	1.99	0.60	**(1.39)****	-	-	-	-	-	-
27	Peru	1.68	1.14	**(0.54)*****	1.24	0.92	**(0.32)*****	-	1.78	-	-	1.52	-
28	Phillipines	1.53	1.26	(0.27)	0.78	0.81	0.03	1.49	1.46	(0.03)	0.76	0.96	**0.20***
29	Poland	1.08	1.19	**0.11****	0.53	0.80	**0.27*****	1.16	1.26	0.10	0.59	0.83	**0.24*****
30	Portugal	1.30	1.22	(0.08)	0.85	0.89	0.04	2.27	1.77	(0.50)	1.56	1.25	(0.31)
31	Singapore	1.51	1.36	**(0.15)****	0.77	0.76	(0.01)	1.14	1.15	0.01	0.57	0.72	**0.15****
32	Spain	1.35	1.28	(0.07)	0.79	0.77	(0.02)	3.81	1.45	**(2.36)****	1.94	0.82	**(1.12)****
33	South Africa	2.40	1.67	**(0.73)*****	1.21	0.89	**(0.32)*****	1.52	1.47	(0.05)	0.76	0.79	0.03
34	Sweden	1.26	1.36	0.10	0.97	0.72	**(0.25)***	-	1.85	-	-	0.89	-
35	Switzerland	1.50	1.81	**0.31****	1.12	1.15	0.03	1.93	2.61	**0.68****	1.52	1.47	(0.05)
36	Taiwan	-	-	-	-	-	-	2.45	1.83	**(0.62)*****	1.04	0.90	**(0.14)*****
37	Thailand	2.19	1.70	**(0.49)*****	1.10	1.01	(0.09)	-	1.22	-	-	0.87	-
38	Turkey	4.02	1.50	**(2.52)*****	1.96	0.76	**(1.20)*****	1.32	1.37	0.05	0.60	0.81	**0.21****

	Country	Level 1 ADRs						Rule 144a ADRs					
		Tobin's q			Relative q			Tobin's q			Relative q		
		Before	After	Difference	Before	After	Difference	Before	After	Difference	Before	After	Difference
39	U.K	1.95	1.71	**(0.24)*** **	0.95	0.77	**(0.18)*** **	-	1.76	-	-	0.76	-
	Sample	**1.65**	**1.50**	**(0.15)*** **	**0.93**	**0.83**	**(0.10)*** **	**1.38**	**1.36**	**(0.02)** **	**0.89**	**0.83**	**(0.06)*** **

In this table I outline the median value of Level 1 and Rule 144a firms, pre and post-listing. The valuation difference is calculated by taking the median value of cross-listed firms post-listing less the median value of firms pre-listing. Level 1 ADRs trade over-the-counter as 'Pink-Sheet' issues and Rule 144a firms' trade on Portal to Qualified Institutional Buyers (QIB's). All firms are obtained from the Worldscope Country Lists. All information on firms cross-listed in the U.S. are obtained from the Bank of New York, and cross-referenced with data provided by Deutsche-Bank, JP Morgan and Citibank. I employ Tobin's *q* as our valuation metric. Tobin's q is calculated as [(Book Value of Total Assets – Book Value of Equity + Market Value of Equity)/Book Value of Total Assets]. Relative q is calculated as q divided by the mean q value of all domestic firms for each year in the sample.

Table 7.5: Breadth of percentage valuation gains/losses post-listing by country.

	Country	Level 1						Rule 144a					
		Mean	**Median**	**Min**	**Max**	**Positive**	**Negative**	**Mean**	**Median**	**Min**	**Max**	**Positive**	**Negative**
1	Argentina	-	-	-	-	-	-	0.13	0.13	0.00	0.27	2/2	0/2
2	Australia	(0.05)	(0.02)	(0.87)	0.82	12/24	12/24	0.09	0.09	0.09	0.09	1/1	0/1
3	Austria	(0.16)	(0.21)	(0.62)	0.14	2/9	7/9	-	-	-	-	-	-
4	Belgium	0.10	0.10	0.06	0.14	2/2	0/0	-	-	-	-	-	-
5	Brazil	0.30	0.28	(0.10)	0.89	16/18	2/18	-	-	-	-	-	-
6	Chile	(0.11)	(0.11)	(0.11)	(0.11)	0/1	1/1	(0.29)	(0.29)	(0.51)	(0.07)	0/2	2/2
7	China	(0.04)	(0.03)	(0.31)	0.13	3/7	4/7	-	-	-	-	-	-
8	Colombia	(0.15)	(0.15)	(0.15)	(0.15)	0/1	1/1	(0.09)	(0.09)	(0.25)	0.08	1/2	1/2
9	Denmark	(0.17)	(0.16)	(0.29)	(0.05)	0/3	3/3	-	-	-	-	-	-
10	Finland	(0.21)	(0.21)	(0.75)	0.33	1/2	1/2	-	-	-	-	-	-
11	France	(0.05)	(0.02)	(0.59)	0.16	4/9	5/9	0.005	0.005	(0.002)	0.01	1/2	1/2
12	Germany	(0.22)	(0.04)	(0.87)	0.10	4/15	11/15	-	-	-	-	-	-
13	Greece	(0.31)	(0.31)	(0.31)	(0.31)	0/1	1/1	0.005	0.005	0.005	0.005	1/1	0
14	Hong Kong	(0.12)	(0.09)	(0.75)	0.61	16/59	43/59	-	-	-	-	-	-
15	Hungary	(0.34)	(0.34)	(0.34)	(0.34)	0/1	1/1	(0.19)	(0.18)	(0.51)	0.10	1/4	3/4
16	India	(0.39)	(0.41)	(0.72)	(0.03)	0/4	4/4	(0.39)	(0.38)	(0.95)	0.20	3/4	21/24
17	Ireland	(0.24)	(0.28)	(0.45)	0.01	1/3	2/3	-	-	-	-	-	-
18	Israel	(0.08)	(0.08)	(0.08)	(0.08)	0/1	1/1	-	-	-	-	-	-
19	Italy	(0.17)	(0.17)	(0.30)	(0.03)	0/2	2/2	0.16	0.23	(0.12)	0.36	2/3	1/3
20	Japan	(0.10)	(0.02)	(0.91)	0.32	8/21	13/21	-	-	-	-		
21	Korea	0.02	0.04	(0.14)	0.14	3/4	1/4	(0.02)	(0.02)	(0.11)	0.15	6/17	11/17
22	Malaysia	(0.30)	(0.41)	(0.54)	(0.05)	0/7	7/7	-	-	-	-		
23	Mexico	(0.11)	(0.24)	(0.44)	0.37	3/11	8/11	(0.03)	0.007	(0.48)	0.11	5/9	4/9
24	Netherlands	(0.25)	(0.28)	(0.64)	0.004	2/7	5/7	-	-	-	-	-	-
25	Norway	(0.10)	(0.004)	(0.42)	0.11	3/7	4/7	0.07	0.07	0.07	0.07	1/1	0/1
26	New Zealand	0.09	0.09	0.01	0.17	2/2	0/2	-	-	-	-	-	-
27	Peru	(0.29)	(0.29)	(0.58)	0.0005	1/2	1/2	-	-	-	-	-	-
28	Phillipines	(0.32)	(0.26)	(0.72)	0.0001	1/3	2/3	(0.33)	(0.33)	(0.37)	(0.28)	0/2	2/2
29	Poland	0.17	0.17	0.17	0.17	1/1	0/1	(0.06)	(0.03)	(0.16)	(0.02)	0/4	4/4
30	Portugal	(0.34)	(0.34)	(0.65)	(0.03)	0/2	2/2	(0.10)	(0.10)	(0.10)	(0.10)	0/1	1/1
31	Singapore	(0.20)	(0.13)	(0.48)	0.06	1/11	10/11	0.01	0.01	0.01	0.01	1/1	0/1
32	Spain	(0.25)	0.01	(0.86)	0.08	2/3	1/3	(0.92)	(0.92)	(0.92)	(0.92)	0/1	1/1
33	South Africa	(0.17)	(0.11)	(1.04)	0.60	5/21	16/21	(0.04)	(0.04)	(0.04)	(0.04)	0/1	1/1
34	Sweden	(0.08)	0.06	(0.55)	0.11	3/4	1/4	-	-	-	-	-	-
35	Switzerland	0.12	0.14	(0.04)	0.26	3/4	1/4	0.29	0.29	0.29	0.29	1/1	0/1
36	Taiwan	-	-	-	-	-	-	(0.34)	(0.35)	(0.80)	0.03	2/33	31/33
37	Thailand	(0.31)	(0.24)	(0.85)	0.04	1/10	9/10	-	-	-	-	-	-
38	Turkey	(0.33)	(0.33)	(0.33)	(0.33)	0/1	1/1	(0.24)	(0.14)	(0.47)	(0.11)	0/3	3/3
39	U.K	(0.12)	(0.04)	(1.02)	0.37	15/36	21/36	-	-	-	-	-	-

Country	Level 1						Rule 144a					
	Mean	Median	Min	Max	Positive	Negative	Mean	Median	Min	Max	Positive	Negative
ALL	(0.11)	(0.08)	(1.04)	0.89	115/319	204/319	(0.21)	(0.12)	(0.95)	0.36	28/115	87/115

Table 7.6: Regression estimates of the 'Cross-Listing Premium' by country.

	Country	Level 1						Rule 144a					
		OLS			POLS			OLS			POLS		
		β	Obs	R^2	β	Obs	R^2	β	Obs	R^2	β	Obs	R^2
1	Argentina	-	-	-	-	-	-	(0.06)			(0.06)		
2	Australia	(0.07)	1133	0.10	(0.11)	985	0.10	0.02	985	0.12	0.019	985	0.10
3	Austria	**0.27**	315	0.27	**0.26**	315	0.24	**(0.05)**	260	0.37	**(0.08)**	260	0.33
4	Belgium	(0.009)	421	0.28	0.013	421	0.20	-	-	-	-	-	-
5	Brazil	**(0.13)****	685	0.06	**(0.13)*****	685	0.03	**(0.04)*****	576	0.05	**(0.04)***	576	0.02
6	Chile	**(0.61)*****	388	0.19	**(0.57)*****	388	0.08	**0.088***	382	0.18	**0.11****	382	0.08
7	China	**(0.07)****	253	0.12	**(0.08)****	253	0.09	(0.03)	221	0.12	(0.02)	221	0.07
8	Colombia	**(0.49)*****	132	0.33	**(0.54)*****	132	0.13	0.04	127	0.34	0.004	127	0.13
9	Denmark	(0.09)	553	0.12	(0.09)	553	0.11	-	-	-	-	-	-
10	Finland	0.39	448	0.24	0.40	448	0.22	**(0.10)*****	441	0.24	**(0.13)****	441	0.21
11	France	0.34	2609	0.16	0.34	2609	0.15	**(0.25)*****	2474	0.17	**(0.23)*****	2474	0.15
12	Germany	**(0.24)***	2457	0.31	**(0.24)***	2457	0.30	**(0.21)***	2328	0.31	**(0.22)***	2328	0.30
13	Greece	(0.19)	695	0.44	(0.06)	695	0.20	0.002	680	0.44	0.01	680	0.20
14	Hong Kong	**(0.22)***	1117	0.04	**(0.23)****	1117	0.03	-	-	-	-	-	-
15	Hungary	(0.29)	122	0.43	(0.29)	122	0.39	0.09	102	0.53	0.08	102	0.45
16	India	1.04	1005	0.14	1.07	1005	0.11	**(0.19)*****	966	0.16	**(0.20)*****	966	0.13
17	Ireland	-	-	-	-	-	-	-	-	-	-	-	-
18	Israel	-	-	-	-	-	-	-	-	-	-	-	-
19	Italy	**(0.21)****	698	0.19	**(0.22)****	698	0.16	0.23	655	0.21	0.24	655	0.19
20	Japan	**(0.12)***	3915	0.22	(0.10)	3915	0.19	-	-	-	-	-	-
21	Korea	0.005	1663	0.11	(0.003)	1663	0.09	(0.03)	1663	0.11	**(0.03)***	1663	0.09
22	Malaysia	(0.18)	1385	0.25	(0.19)	1385	0.19	-	-	-	-	-	-
23	Mexico	**0.43*****	347	0.22	**0.41*****	347	0.18	(0.0001)	231	0.12	(0.007)	231	0.06
24	Netherlands	**0.77*****	699	0.37	**0.73*****	699	0.33	**(0.082)****	626	0.42	**(0.12)*****	626	0.39
25	Norway	0.48	496	0.12	0.50	496	0.11	**(0.19)*****	433	0.14	**(0.18)*****	433	0.13
26	New Zealand	**0.99***	159	0.16	0.90	159	0.14	-	-	-	-	-	-
27	Peru	(0.42)	94	0.19	(0.36)	94	0.11	**0.55*****	82	0.31	**0.37*****	82	0.15
28	Phillipines	**(0.26)***	309	0.17	(0.24)	309	0.10	0.04	286	0.17	0.05	286	0.11
29	Poland	**(0.22)****	178	0.22	**(0.28)****	178	0.12	0.02	166	0.22	0.02	166	0.12
30	Portugal	(0.03)	228	0.12	(0.05)	228	0.05	**0.20*****	217	0.23	**0.20*****	217	0.13
31	Singapore	(0.17)	800	0.09	(0.22)	800	0.05	**(0.12)*****	718	0.10	**(0.15)*****	718	0.05
32	Spain	(0.21)	527	0.08	(0.22)	527	0.05	**(0.18)*****	502	0.07	**(0.18)*****	502	0.04
33	South Africa	(0.08)	1025	0.12	(0.06)	1025	0.10	(0.01)	854	0.11	(0.02)	854	0.09
34	Sweden	**(0.37)****	809	0.27	**(0.35)***	809	0.26	(0.002)	782	0.27	0.008	782	0.26
35	Switzerland	0.22	731	0.16	0.24	731	0.15	**0.12***	698	0.16	**0.14***	698	0.16
36	Taiwan	-	-	-	-	-	-	(0.02)	877	0.22	(0.02)	877	0.18
37	Thailand	0.34	1044	0.19	0.31	1044	0.12	0.05	967	0.18	0.02	967	0.10

	Country	Level 1						Rule 144a					
		OLS			POLS			OLS			POLS		
		β	Obs	R^2	β	Obs	R^2	β	Obs	R^2	β	Obs	R^2
38	Turkey	**(0.22)****	585	0.16	**(0.28)****	585	0.12	**(0.08)***	552	0.18	**(0.09)***	552	0.13
39	U.K	0.05	4646	0.10	0.06	4646	0.13	**(0.22)*****	4386	0.15	**(0.23)*****	4386	0.14
	Sample	(0.05)	33931	0.11	(0.05)	33931	0.11	**(0.06)*****	31384	0.12	**(0.06)*****	31384	0.11

In this table I report ordinary and pooled least squares estimates of the impact of cross-listing on the value of Level 1 and Rule 144a firms. For each country, I estimate regressions of the following form; for the ordinary least squares we estimate $q = \alpha + \beta CL_{it} + \gamma X_{it} + u_{it}$. In the case of our pooled ordinary least squares estimates, I estimate the following $q = \alpha + \beta CL_{it} + \gamma_1 X_{it} + \gamma_2 \overline{X_{it}} + u_{it}$.

Table 7.7: Intra-country ADR composition and the cross-listing premium

Country	ADR	Logit	EXCH %	Level 1	%	Premium/Discount	Portal	%	Premium/Discount
Argentina	High	Level 2/3	**63.64**	1	4.55	-	7	31.82	Discount
Australia	High	Level 2/3	19.23	99	**76.15**	Discount	6	4.62	Premium
Austria	Low	Level 1/Portal	**5**	16	**80**	**Premium**	3	15	Discount
Belgium	Low	Level 1/Portal	25	3	**75**	Premium	0	0	-
Brazil	Low	Level 1/Portal	41.86	46	**53.49**	**Discount*** **	4	4.65	**Discount***
Chile	High	Level 2/3	**80**	2	8	**Discount*** **	3	12	**Premium****
China	-	-	**42.50**	16	40	**Discount****	7	17.50	Discount
Colombia	Low	Level 1/Portal	11.11	3	3.33	**Discount*** **	5	**55.56**	Premium
Denmark	Low	Level 1/Portal	**44.44**	4	**44.44**	Discount	1	11.11	-
Finland	Low	Level 1/Portal	**50**	2	20	**Premium**	3	30	**Discount****
France	Low	Level 1/Portal	**57.38**	20	32.79	**Premium**	6	9.84	**Discount*** **
Germany	Low	Level 1/Portal	42.31	26	**50**	**Discount***	4	7.69	**Discount***
Greece	Low	Level 1/Portal	29.41	4	23.53	Discount	8	**47.06**	Premium
Hong Kong	High	Level 2/3	6.78	109	**92.37**	**Discount****	1	0.85	-
Hungary	-	-	8.33	3	25	**Discount**	8	**66.66**	Premium
India	High	Level 2/3	16.92	1	1.54	**Premium**	53	**81.54**	**Discount*** **
Ireland	High	Level 2/3	**56.52**	7	30.43	-	3	13.04	-
Israel	Low	Level 1/Portal	**53.33**	6	40	-	1	6.67	-
Italy	Low	Level 1/Portal	**48.94**	14	29.79	**Discount****	10	21.28	**Premium**
Japan	High	Level 2/3	21.25	121	**75.63**	**Discount**	5	3.13	-
Korea	Low	Level 1/Portal	17.07	3	7.32	Discount	31	**75.61**	**Discount***
Malaysia	High	Level 2/3	0.00	17	**100**	Discount	0	0.00	-
Mexico	Low	Level 1/Portal	34.57	36	**44.44**	**Premium*** **	17	20.99	Discount
Netherlands	Low	Level 1/Portal	**55.32**	18	38.30	**Premium*** **	3	6.38	**Discount*** **
Norway	High	Level 2/3	36.84	9	**47.37**	**Premium**	3	15.79	**Discount*** **
New Zealand	High	Level 2/3	42.86	4	**57.14**	**Premium**	0	0	-
Peru	Low	Level 1/Portal	20	4	**40**	**Discount**	**4**	**40**	**Premium*** **
Philippines	Low	Level 1/Portal	20	6	**40**	**Discount**	6	**40**	Premium
Poland	-	-	5.88	3	17.65	**Discount****	13	**76.47**	Premium
Portugal	Low	Level 1/Portal	3.33	2	22.22	Discount	4	**44.44**	**Premium*** **
Singapore	High	Level 2/3	7.41	22	**81.48**	**Discount**	3	11.11	**Discount*** **
South Africa	High	Level 2/3	16	54	**72**	Discount	9	12	Discount
Spain	High	Level 2/3	**55.56**	4	22.22	**Discount**	4	22.22	**Discount*** **
Sweden	Low	Level 1/Portal	**60**	7	35	**Discount***	1	5	Premium
Switzerland	Low	Level 1/Portal	**44.44**	9	33.33	**Premium**	6	22.22	**Premium***
Taiwan	Low	Level 1/Portal	12.77	0	0	-	41	**87.23**	Discount
Thailand	Low	Level 1/Portal	0	15	**88.24**	**Premium**	2	11.76	Premium
Turkey	Low	Level 1/Portal	4.55	6	27.27	**Discount****	15	**68.18**	**Discount***
U.K	High	Level 2/3	**53.65**	83	43.23	Premium	6	3.13	**Discount*** **

Table 7.8: Mean valuation before and after listing.

	Country	Level 1 ADRs						Rule 144a ADRs					
		Tobin's q			Relative q			Tobin's q			Relative q		
		Before	After	Difference	Before	After	Difference	Before	After	Difference	Before	After	Difference
1	Argentina	-	-	-	-	-	-	1.64	1.29	**(0.35)****	1.12	0.89	**(0.23)****
2	Australia	2.55	2.21	**(0.34)****	1.27	1.01	**(0.26)*****	1.02	2.03	1.01	0.61	0.88	0.27
3	Austria	1.98	1.71	(0.27)	1.22	1.03	(0.19)	-	1.26	-	-	0.77	-
4	Belgium	1.52	1.61	0.09	0.95	0.89	(0.06)	-	-	-	-	-	-
5	Brazil	0.58	0.74	**0.16*****	0.80	0.71	**(0.09)****	-	0.74	-	-	0.75	-
6	Chile	1.24	1.15	**(0.09)****	0.78	0.69	**(0.09)****	2.90	2.10	**(0.80)****	1.33	1.13	**(0.20)***
7	China	1.27	1.16	**(0.11)****	1.00	0.89	**(0.11)****	-	1.16	-	-	0.93	-
8	Colombia	1.20	1.03	**(0.17)****	0.86	0.78	(0.08)	1.82	1.44	(0.38)	1.13	1.08	(0.05)
9	Denmark	4.02	1.65	**(2.37)*****	2.19	0.98	**(1.21)*****	-	-	-	-	-	-
10	Finland	1.96	1.49	(0.47)	1.17	0.85	**(0.32)****	-	1.31	-	-	0.78	-
11	France	2.22	2.13	(0.09)	1.26	1.18	(0.08)	1.06	1.18	0.12	**0.60*****	0.62	0.02
12	Germany	1.75	1.48	**(0.27)****	0.88	0.80	(0.08)	-	1.66	-	-	0.90	-
13	Greece	3.41	1.81	**(1.60)****	1.21	0.75	**(0.46)*****	1.16	2.50	**1.34****	0.58	1.11	**0.53****
14	Hong Kong	2.14	1.62	**(0.52)*****	1.14	0.92	**(0.22)*****	1.16	2.53	1.37	0.58	1.23	0.65
15	Hungary	2.46	1.61	(0.85)	1.33	1.01	(0.32)	2.02	1.90	(0.12)	1.14	1.23	0.09
16	India	2.98	2.66	(0.32)	1.07	1.18	0.11	2.46	1.63	**(0.83)*****	0.89	0.72	**(0.17)*****
17	Ireland	1.52	1.36	(0.16)	0.88	0.75	**(0.13)***	-	1.88	-	-	1.08	-
18	Israel	1.19	1.11	(0.08)	0.60	0.72	0.12	-	-	-	-	-	-
19	Italy	2.07	1.34	**(0.73)*****	1.23	0.87	**(0.36)*****	1.19	2.23	**1.04*****	0.85	1.36	**0.51*****
20	Japan	1.90	1.82	(0.08)	0.96	0.99	0.03	-	-	-	-	-	-
21	Korea	1.29	1.31	0.02	0.99	0.98	(0.01)	1.21	1.23	0.02	0.93	0.93	0.00
22	Malaysia	2.37	1.76	**(0.61)*****	1.03	0.89	**(0.14)***	-	-	-	-	-	-
23	Mexico	1.53	1.62	0.09	1.10	1.17	0.07	1.34	1.35	0.01	0.98	0.97	(0.01)
24	Netherlands	2.01	2.19	0.18	0.98	1.18	**0.20***	-	1.78	-	-	0.89	-
25	Norway	1.54	1.85	0.31	0.85	0.96	0.11	1.22	1.33	0.11	0.76	0.71	(0.05)
26	New Zealand	3.20	1.71	**(1.49)***	1.69	0.86	**(0.83)****	-	-	-	-	-	-
27	Peru	1.86	1.15	**(0.71)*****	1.53	0.92	**(0.61)*****	-	1.88	-	-	1.59	-
28	Phillipines	1.77	1.34	**(0.43)*****	0.86	0.84	(0.02)	1.62	1.75	0.13	0.85	1.07	0.22
29	Poland	1.07	1.27	0.20	0.52	0.79	**0.27*****	1.18	1.65	0.47	0.61	1.07	**0.46****
30	Portugal	2.47	1.39	**(1.08)*****	1.19	1.03	(0.16)	2.27	2.01	(0.26)	1.56	1.44	(0.12)
31	Singapore	1.75	1.69	(0.06)	0.86	0.92	0.06	1.14	1.15	0.01	0.57	0.69	**0.12****
32	Spain	2.09	1.58	(0.51)	1.16	0.87	(0.29)	3.88	1.55	**(2.33)*****	1.99	0.83	**(1.16)*****
33	South Africa	2.53	1.80	**(0.73)*****	1.27	0.97	**(0.30)*****	1.53	1.51	(0.02)	0.75	0.84	0.09
34	Sweden	2.14	1.55	**(0.59)****	1.20	0.80	**(0.40)*****	-	1.82	-	-	0.87	-
35	Switzerland	1.51	1.86	0.35	1.06	1.11	**0.05****	1.89	2.53	**0.64*****	1.42	1.49	0.07
36	Taiwan	-	-	-	-	-	-	2.82	2.07	**(0.75)*****	1.25	1.05	**(0.20)*****
37	Thailand	2.44	1.89	**(0.55)*****	1.34	1.24	(0.10)	-	1.79	-	-	1.09	-
38	Turkey	3.97	1.60	**(2.37)*****	2.00	0.84	**(1.16)*****	1.58	1.60	0.02	0.73	0.85	0.12

	Country	Level 1 ADRs						Rule 144a ADRs					
		Tobin's q			Relative q			Tobin's q			Relative q		
		Before	After	Difference	Before	After	Difference	Before	After	Difference	Before	After	Difference
39	U.K	2.26	1.95	**(0.31)*** **	1.06	0.87	**(0.19)*** **	-	1.89	-	-	0.82	-
	Sample	**1.99**	**1.74**	**(0.25)*** **	**1.08**	**0.75**	**(0.33)*** **	**1.87**	**1.67**	**(0.20)*** **	**0.98**	**0.93**	**(0.05)** **

Chapter 8: Concluding Remarks

Over the course of the last two decades, the international cross-listing market was characterised by an increased tendency on the part of foreign firms to list in the U.S. Elsewhere, the vast majority of international exchanges experienced a decline in their allocation of foreign lists. At its height, the number of American Depositary Receipt programs numbered almost 2,200. Over the course of the same period (1995-2002), the number of foreign firms trading on the London Stock Exchange fell from 531 to 382. In this thesis, I examine two issues relating to equity cross-listing in the United States.

First, I examine whether listing in the U.S. enhances investor protection. At present, the extant literature suggests that foreign firms are unable to completely bond to the U.S. regime (as domestic U.S. firms do). Studies by BF (2006) and LRW (2006) conclude that for these firms exchange-listing in the U.S. is 'incomplete'. In this thesis, I do not contribute to this debate. I do the following. I examine whether the ordinary/domestic shareholders of exchange-traded firms (as opposed to the depositary receipt shareholders), are better protected, compared to other non-cross-listed domestic firms, under the U.S. governance regime. My results suggest that these investors are better protected, ex-post. The domestic investors of Level 1 firms are also better protected, although this enhanced protected is driven by improvements in firm-level governance post-listing.

In the remaining chapters, I examine the valuation effects of listing abroad. My approach differs from others. First, I abstract from the previous tendency on the part of others to examine the valuation effects of listing using event studies. The logic in doing so is outlined in Chapter 2. Like DKS (2004), I employ valuation metrics, but unlike them, I examine value, both over (event) time and in calendar time (as they do). My results highlight the importance of examining both.

First, listing abroad enhances value for Irish firms that trade on international exchanges (U.S. and U.K.). This result is in stark contrast to the cross-sectional valuation discount reported by DKS (2004). In Chapter 5, I examine the effects of listing in the U.S. for emerging market

firms. First, I find that while the 'cross-listing premium' documented by DKS (2004, 2006) persists in calendar time for exchange-traded firms; it fails to persist in event time. I find that the greatest gains to exchange listing occur on the year of listing, but fall-off thereafter. Like CNR (2006, pg. 17) I conclude that "there is no such thing as a cross listing premium".

In the remaining chapters, I examine the effects of listing in the U.S. on the value of all non-exchange traded depositary receipt issues. In general, I find that trading in the U.S. does not enhance value for these firms. However, in Chapter 7, I find that listing in the U.S. does enhance value for firms from certain countries.

Taken together, my results suggest that, but for a particular sub-set of firms, listing in the U.S. does not enhance value. In general, listing is associated with lower value. I find that after five years of listing, cross-listed firms are worth less in every period relative to their pre-listing value. Nonetheless, the results do not necessarily suggest that firms should not list in the U.S. For example, I show in Chapter 3 that listing enhances the governance of listed firms. Others have shown that listing is associated with enhanced monitoring (i.e. analyst following, institutional investor following), greater liquidity, enhanced growth opportunities, and a relaxation of financial constraints. However, my results suggest that these do not manifest into greater firm value.

Finally, my work has highlighted issues that may warrant further work. First, the majority of the thesis is related to international cross listing in the U.S. It may be worth extending the analysis towards examining listing on other non-U.S. international exchanges. For example, in 2005, the majority of exchange cross-listings were initiated, not in the U.S., but on the Luxembourg Stock Exchange. This suggests that listing in Luxembourg has surpassed the U.S. as the most attractive location to list abroad. What remains unanswered is why?

Next, PRZ (2004) and SS (2004) highlight the preference of firms to cross-list on geographically close markets. In this regard, YL (2006) find that Chinese firms gain most from

listing internationally on geographically close markets (rather than listing in the U.S.) It may be worth extending this analysis to include the full international cross-listing market.

Finally, the results from Chapter 7 suggest that firms from particular countries gain from listing in the U.S. On closer examination, I find some evidence that suggest that those firms that perform well in the U.S., are those for which the majority of its domestic counterparts also list under the same depositary receipt level. It may well be that the superior performance of early lists, influenced the listing behaviour of those firms that followed suit. However, within the sub-set of firms that perform well, it is difficult to identify any common themes. For example, Level 1 firms from such diverse countries as Norway and Thailand gain from trading over-the-counter. It may be worth examining what causes these firms to outperform, both other cross-listed firms (from different countries), and domestic firms. An analysis, along the lines of DFR (2005), and KR (2006) may well provide some insights.

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