International Center for Finance at Yale

A Theoretical Analysis of the Investor Protection Regulations Argument for Global Listing of Stocks

Oren Fürst (Fuerst)

Yale School of Management

This Version: September 10, 1998

ABSTRACT

Global listing of stocks has become a major topic in international capital markets. Many argue that the U.S. investor protection system discourages foreign firms from listing and raising capital in the U.S. However, there has recently been an increase in the number of foreign firms listing their shares in the U.S.

This paper analyzes managers' decision as to which international market to cross-list their firms' shares on. It is shown that when markets differ in their regulatory environment, regulatory strictness may enable managers of highly profitable foreign firms to credibly convey their private information regarding their firms' future prospects. Through listing on the market with strict regulatory environment, those managers deliberately accept additional regulatory exposure, related to investor protection. That increased exposure, however, is more than offset by higher stock prices. The general setting of cross-listing is also shown to be applicable for global public offerings. Furthermore, in contrast to the claim that the strict regulatory environment deters firms from listing on that market, it is shown that a large differential between markets with respect to the regulatory strictness may, in fact, increase the number of firms listing on the market with stricter regulations. The implications of the model are consistent with the empirical evidence regarding global cross-listing.

I am grateful to Nahum Melumad, Trevor Harris and Amir Ziv, for their comments and insights. I also thank Rick Antle, Dennis Caplan, Alex Dontoh, Michael Kirschenheiter, David Kreps, Barry Nalebuff, James Ohlson, Roberta Romano, Bharath Sarath, Brett Trueman and participants in seminars at Haas-Berkeley, Columbia, Fuqua-Duke, Hebrew, INSEAD, London Business School, Ann Arbor-Michigan, Kellogg-Northwestern, Stern-NYU, Stanford, Anderson-UCLA, Wharton, Yale, the International Competition for Order Flow conference and the 1996 Northeast AAA Regional Meeting for their suggestions. I also thank the comments and assistance of managers and officials in numerous non-U.S. firms, the Tokyo Stock Exchange, London Stock Exchange, NYSE, AMEX, NASDAQ, Salomon Brothers and Merrill Lynch.

JEL Classifications: K00; F3; M40

Correspondence: Oren Fuerst, Yale SOM, 135 Prospect Street, New Haven, CT 06511.
e-mail: oren.fuerst@yale.edu; Tel/Fax: (203) 432 5973

1. Introduction and Literature Review

Foreign companies offer the largest growth potential for the major exchanges around the world (World Securities Law Report 1996a, 1996b; Adler 1995). As the globalization of capital markets continues, the U.S. and foreign exchanges are competing to have more international firms list on their exchanges and raise capital under their umbrellas. The principal international competition for the U.S. exchanges comes from the London Stock Exchange (LSE).[1]

In order to attract foreign firms, stock exchanges may stress their "corporate friendly" regulatory regime (Dwyer 1996), decrease the cost of listing (e.g., World Securities Law Report 1996a, 1996b; Tokyo Stock Exchange 1996), or focus on "geographic-fit" (Price 1996; World Securities Law Report 1996c). In contrast, the U.S. regulatory environment is cited as deterring foreign issuers from listing securities and raising capital in the United States (e.g., Bloomenthal 1996; Cochrane 1994).

Recently, the International Accounting Standards Committee (IASC) has suggested a reform, which would allow up to 4,000 of the world's largest companies to list in New York, Toronto and Tokyo using international accounting standards (many exchanges, such as London, already accept accounts prepared under the International Accounting Standards). The committee of the world stock market regulators (IOSCO) will decide about this reform during 1998. In this paper, I argue that the willingness to be exposed to strict investor protection regulations, of which the accounting regulatory environment constitutes only one component, may suffice as a means to credibly convey to investors, managerial private information.[2]

Specifically, I model managers' decision as to which international market to list their firms' shares on. It is argued that managers of highly profitable firms may be able to convey their private information regarding their firms' future prospects more effectively in an environment which imposes a *stricter regulatory regime* related to investor protection than in those environments where such a regime is looser. The additional regulatory exposure that is borne by these managers is offset by higher stock prices for their firms' shares.

The empirical literature discusses the case of an international listing, where a firm listed on its own domestic stock exchange becomes listed on another major market.[3] One line of that research focuses on *foreign firms* whose shares are listed in the *U.S.* (e.g., Fuerst, 1998; Miller, 1996; Foerster and Karolyi 1996). A general finding is that the

announcement of U.S. listing is associated with a positive market reaction. Such results are interpreted as supporting the theory that dual international listing dismantles part of international market segmentation. That segmentation, in turn, is driven by various barriers to international cash flow (e.g., Cooper and Kaplanis 1995; Errunza and Losq 1985). An alternative interpretation is that dual-listing enhances shareholder base, which leads to a higher stock price (see Merton 1987 for the theoretical argument).

However, given the globalizations of capital markets, and the fact that barriers to international capital flows are being lowered in many countries, it is not clear that the capital markets segmentation argument is the major reason for global listing. Furthermore, given the fact that most institutional investors can invest across markets (and certainly across the major ones), it is not clear what impacts a foreign firm's decision in deciding between the major capital markets, and in particular London and NYSE/NASDAQ/AMEX.

The model presented here indicates that the announcement of a listing decision could be accompanied by a positive market reaction—even when there is no market segmentation or any difference between the markets with respect to liquidity or investor base.[4]

The U.S. regulatory environment is cited as deterring foreign issuers from listing securities and raising capital in the United States (Bloomenthal 1996; Cochrane 1994) on the basis of costs associated with several factors. First, foreign firms listing on U.S. securities exchanges/ NASDAQ must participate in the continuous disclosure system under the Securities Exchange Act of 1934. Second, foreign issuers may incur extended delays in raising capital due to lengthy registration procedures required under the Securities Act of 1933. Third, they may have to disclose business information that would not have been required in other markets. While these particular factors are not unique to the United States, major non-U.S. exchange registration and disclosure requirements do not equal the comprehensiveness of those of the U.S. securities markets (Saudagaran and Biddle 1995; Allen and O'Conner 1992).[5, 6]

However, the actual cost of conforming to U.S. GAAP may be minor for corporations that are the potential U.S. issuers (Corrigan 1997; Warbrick 1994). In addition, the revised IAS eliminates many of the differences between U.S. GAAP and International GAAP (Harris 1995; Cairns 1995). Furthermore, the superiority of the 20-F quantitative

reconciliation over other sources of information is unclear, in particular due to timeliness considerations (e.g., Chan and Seow 1996; Alford and Jones 1995; Amir et al. 1993).[7]

In addition to the above mentioned arguments, foreign firms listing their shares on U.S. exchanges, as opposed to exchanges in other countries, expose themselves to a broader civil and criminal liability, given the anti-fraud provisions of the securities acts and enforcement efforts by the SEC, stock exchanges, investors and their representatives (Frost and Pownall 1994; Cox 1992). That may be a main argument suggested as deterring foreign firms from coming to the U.S., as suggested in the following quote:[8]

> "…[F]or many ADR issuers, the American investor remains a demanding, fickle and even dangerous creature…as [former] SEC commissioner J. Carter Beese observes, 'Our shareholder litigation is legendary in other parts of the world and unparalleled among developed countries.' After a recent tour of emerging markets, Beese concluded that 'excessive, frivolous litigation is rapidly becoming the No. 1 concern of companies that are eligible to list but choose not to – overtaking concern about U.S. GAAP."
>
> Davis (1994)

Foreign listings on U.S. exchanges have increased, though, both absolutely and relative to other major stock exchanges. For example, during 1996, non-U.S. firms raised a total of $ 19.4 billions through 154 offerings of ADR Level III. That was an increase of 50% from the number of offerings in 1995.

In this paper, I analyze the decision of a foreign firm that wishes to list its shares on a major international exchange, based on those factors perceived to deter foreign firms from listing in the U.S. The analysis relies on the differences between the regulatory environments confronted by foreign firms deciding between two major capital markets. I show that managers of highly profitable foreign firms may convey their private information regarding their firms' future prospects more effectively in an environment which imposes a *stricter regulatory regime (related to investor protection)* than in an environment where such a regime is looser.[9] It is clear that other means of conveying the firms' future prospects might be used as well. However, the adaptive learning literature (e.g., Cooper et al. 1997) discusses the issue of equilibrium selection. It is suggested that an equilibrium selected historically due to a good reason (in this case, the cross-listing due to high barriers to international capital flow in the past) is more likely to emerge as the equilibrium of choice after its original reason of being the sole equilibrium vanishes (in this case, equilibrium for information conveyance). Finally, the empirical evidence (in particular Fuerst 1997) is consistent with the predictions of the model: 1) foreign firms

listing in the U.S. do achieve abnormal operating performance in the years following the listing; 2) U.S. firms cross-listing abroad do not achieve such abnormal operating performance (indicating that the IPR argument was not a factor in the cross-listing decision, as the home environment is strict); 3) the market reaction to the cross-listing announcement is correlated with the expected improvement in operating performance of the cross-listing firms (as derived from the listing decision) and 4) the abnormal operating performance is more pronounced, the less strict is the regulatory environment in the home market.

Huddart et al. (1998) present a model whose main result is that exchanges competing for trading volume will engage in a "race to the top" in which the disclosure requirements (defined as the precision of the public information) increase. While the general thrust of their results is similar to mine, their results are fundamentally different.[10] In my setting, in addition to the home market, two competing markets would most likely to co-exist (in terms of foreign firms listing on them) when the difference in their regulatory strictness is not too large but not too small. That is, differences in the regulatory environment allow for that co-existence and paradoxically, the exchanges benefit from it.

If the exchanges would have the same regulatory environment, firms would choose the one with the lowest listing costs, and hence any rents the exchanges benefit from would have been eliminated.

The rest of the paper is organized as follows: In Section 2, the model is presented. In Section 3 the possible equilibria are derived, and the market reaction to the announcement of both the listing location and profitability report is analyzed. Section 4 examines the impact of various parameter values. The analysis includes: i) the impact of the difference between the markets, with respect to the costs borne by any foreign firm that cross-lists, and ii) the impact of the difference in regulatory strictness (with respect to investor protection) between markets, and between different types of firms. Section 5 examines public offerings and Section 6 concludes with some remarks.

2. The Setting

The general setting draws upon the one used in an auditing context by Melumad and Ziv (1997). Consider a two-period setting where a foreign firm's profitability, defined as its ability to maintain its current profitability, can have in the second period one of two possible values: high (denoted by H) and low (denoted by L). Without loss of generality, I set L=0 (once the firm's profitability is realized in the second period, it is the only

information used in valuing its operating value. As a result, the firm's value after the second period can be normalized to be either H or L, and L could be set to equal zero).

The population includes two types of firms: Good-type firms (type G) and Bad-type firms (type B). A firm's type is known only to its manager. The proportion of the type-G (B) firms in the population is λ (1-λ). A type G (B) firm would have high profitability realized in the second period with probability p_G (p_B), where $p_G > p_B$.

The firm's shares are currently listed on its home-market stock exchange. The firm's risk- neutral manager holds an equity stake of ρ.[11] The manager wishes to broaden the firm's investor base and considers a listing of the firm's shares on either the U.S. public market, or on an alternative market.[12, 13]

In the first period, the firm reports its profitability and the market on which it will list its shares. The reported profitability and market location are used by (risk-neutral) investors in order to update their beliefs regarding the firm's value. The report can be of high profitability (H) or of low profitability (L). The market on which the firm lists its shares is denoted by the subscript j, $j \in \{U, A\}$, where U denotes listing on the U.S. market and A denotes listing on the alternative market (hereafter, Market A). The two markets differ only in two respects: 1) the additional costs borne by any firm listing on the U.S. market (hereafter, *non-discriminating costs*), and 2) the *Investor Protection Regulations exposure* that a firm and its manager assume if the firm is listed on that market.

A decision to list on the U.S. market, as opposed to market A, involves additional costs, of which an amount K is borne by any firm listing in the U.S., regardless of its type. These costs, for example, represent the incremental costs which accrue during the listing process (e.g., due to lengthy registration process), as well as the present value of any additional costs related to the steady state of being a U.S. public firm. Any cost differential between types is captured by the Investor Protection Regulations exposure differential (see below). As an illustration, although the general setting does not deal with capital raising, the investment bankers' fees for seasoned public equity offerings in Europe are typically around 3% of the proceeds, versus around 5% of the proceeds for similar firms in the U.S. (Lapper 1996a).

I define Investor Protection Regulations to include the set of rules, regulations, disciplinary agents and their enforcement efforts that provide investors with protection from a manager issuing a profitability report that is inappropriate, given the information

she had at the time of its issuance (hereafter, misreporting). The only information considered is information regarding the firm's profitability. I do not differentiate between voluntary and mandatory disclosure of information. However, I follow the interpretation of Rule 10b-5 of the Securities Exchange Act of 1934 (and similar requirements in Market A), which requires the manager to release all material information (Skinner 1994; Trueman 1994).

Disciplinary agents may include regulatory agencies (for example, in the U.S., the SEC), investors and their representatives (for example, litigation lawyers). If the firm reports high profitability, but low profitability is subsequently realized, the disciplinary agents initiate an investigation of the report issued, searching for potential misreporting. In either of the markets, if the manager is held liable for misreporting, she bears a damage of $D(1-\rho)$, of which a portion γ (where $0 \leq \gamma \leq 1$) is received by the investors.[14] That reflects the notion that the manager does not compensate himself for the damage he suffered from his own deeds.[15] The damage amount borne by the manager includes direct costs (e.g., a monetary penalty and/or a jail sentence, in the case of criminal charges) as well as indirect costs (e.g., reputation loss causing a lower future compensation). The assumption of similar damage award in both markets is consistent with the interpretation that reputation is a major component of D (e.g., Livingston 1996, for an examination of the association between SEC enforcement, management turnover and future employment of ousted managers).[16] In the analysis, I assume that initiating an investigation is costless, and therefore an investigation is always conducted in any case of low realization following a high profitability report. However, the probability of such an investigation resulting in a legal action is captured by η_{ij} (see below). Whereas the "strike suit" phenomenon usually refers to *price declines*, in my model, an investigation is initiated in the case of low profitability *realization* following a high profitability *announcement*. This is consistent with the notion in Lev (1995) and in Francis, Philbrick and Schipper (1994a; 1994b).[17]

The parameter η_{ij} represents the (prior) probability that a manager of a type-i firm, listed on market j, will be held liable for misreporting high profitability, when low profitability was subsequently realized. Implicitly, I assume the existence of a mechanism similar to a court system with an imperfect verification technology (e.g., Melumad and Thoman 1991, 1990). That mechanism determines whether the high profitability report was appropriate, given the information the manager had at the time of

its issuance. It is clear that the model simplifies reality, where most cases are settled out of court. However, settlement agreements usually reflect the litigated parties' expectations regarding the outcome of a non-settled litigation process (for a detailed overview of the settlement literature, see Cooter and Rubinfeld 1989).[18] It is assumed that a manager of a good-type firm has a lower probability of being held liable for misreporting than a manager of a bad-type firm (i.e., $\eta_{Gj} \leq \eta_{Bj}$ for any market j).

I assume that the risk of being held liable for misreporting is greater in the U.S. market, relative to that risk in market A. Therefore, it is assumed that the probability of being held liable for misreporting in the U.S. is higher than the corresponding probability in market A (i.e., $\eta_{iU} \geq \eta_{iA}$ for any firm type i).

One could interpret that assumption as following one of two possible (non-mutually exclusive) scenarios:

1) More disclosure is required in the U.S. Regardless of the information value (assumed in the model to be zero) of required disclosure other than the profitability, a larger set of required disclosure requirements exposes the manager to a higher probability of being held liable for omitting or misstating *some* required information.

2) The same disclosure is required in both markets. Under this scenario, η_{ij} captures the product of: a) the probability of type i-firm's manager being held liable for misreporting, conditioned on legal action being pursuit (that probability is equal in both markets) and b) the probability of an investigation being conducted to result in legal action (that probability is higher in the U.S.).

Alternatively, η_{ij} represents the probability (of a manager of type-i firm) being held liable for misreporting, given the same evidence (and that probability is higher in the U.S.). The assumption of a higher probability of legal action (and/or a higher probability of being held liable for misreporting) in the U.S. could be explained by: increased activity of class action lawyers in the U.S.; increased enforcement efforts by U.S. regulatory agencies when compared with other markets, and by broad interpretation of the liability provisions of U.S. securities laws (e.g, Bloomenthal and Wolff 1996; Morse 1996).

Investors take into account their expectations regarding the proceeds from the investigation procedure (given that the manager is held liable for misreporting), $\gamma D(1-\rho)$. It is assumed that all the shares are listed on the market where the listing took place (i.e., all the shares become depositary receipts). This assumption is consistent with the notion

that U.S. securities regulations are applicable extraterritorially, so that investors purchasing the underlying shares in the home country can file a suit based on the reports filed by the firm in the U.S. (The Metropolitan Corporate Counsel, 1995). As a result, the proceeds from the investigation procedure are shared among all investors.

The manager's objective is to maximize the weighted average of her wealth in the first and second period. Managerial short term orientation can be motivated by: liquidity considerations (e.g., the manager can borrow only against her current value of holdings, or she intends to sell a portion of her holdings before the end of the second period) and/or by compensation considerations (manager's compensation is based on the firm's short-term value). The objective function can be summarized as follows:

(1.1.) $\text{Max}_{r\in\{H,L\},j\in\{U,A\}}\ \rho[\omega MV_{rj} + (1-\omega)(p_i H - K_j)] - (1-\rho)(1-p_i)M_r\eta_{ij}D$

Where: MV_{rj} is the market value of a firm issuing a report $r\in\{H,L\}$ in market $j\in\{U,A\}$; ω $(1-\omega)$ reflects the weight the manager assigns to the market value of her holdings in the first (second) period; K_j reflects the non-discriminating cost differential of listing in the U.S.(that is, $K_U=K$ and $K_A=0$), and $M_r\in\{0,1\}$ reflects the type of report the firm issues ($M_H=1$ and $M_L=0$).

For expository purposes, I shall define $MV_{ij}=FP_{ij}+IN_{ij}-K_j$, where the components reflect: i) a component corresponding to the expectations of future profitability (FP_{rj}); ii) a component corresponding to the non-discriminating cost differential (K_j), and iii) a component corresponding to the expected proceeds from an investigation procedure (IN_{rj}).

Considering that the manager cannot affect the realization in the second period, and decomposing the market value of the firm, it is trivial to transform (1.1) and to represent the maximization problem as follows:

(1.2.) $\text{Max}_{r\in\{H,L\},j\in\{U,A\}}\ \rho\,[FP_{rj} + IN_{rj}-(1+\tau)K_j] - g(1-p_I)M_r\eta_{ij}$

Where $g = (1-\rho)D/\omega$; $\tau=(1-\omega)/\omega$.

The first part in the manager's objective function, $\rho\,[FP_{rj}+IN_{rj}-(1+\tau)K_j]$, reflects the value of her holdings of the firm's shares. The remaining terms in the objective function, $g(1-p_i)M_r\eta_{ij}$, reflect the expected costs related to the personal liability exposure, given the market location and profitability report. Note that a low profitability report does not cause the manager any expected regulatory exposure (related to investor protection). Consequently, no expectations regarding proceeds from the damage award are included in the corresponding market value. In my model, the manager cannot refrain from listing

the firm's shares in either the U.S. or market A. However, to the extent that liquidity benefits are insignificant, a "no listing" decision is similar to a decision to list on market A with a low profitability report (saving the expense of the non-discriminating cost differential and investor protection exposure).

The sequence of events can be summarized as follows:

In the first period :

1. Each manager privately observes her firm's type (i.e., type-G vs. type-B).
2. Each manager, correctly anticipating investors' beliefs for the four groups (H/ U.S., H/ market A, L/ U.S., L/ market A), strategically decides (and announces): I) whether to list the firm's shares on market A or on the U.S. market and ii) what report to issue regarding the firm's profitability.
3. Investors form their beliefs about the firm's future profitability (and value), based on the manager's announced decision regarding the market location and the firm's profitability report.
4. The listing takes place.

In the second period:

5. The firm operates, realizes profits, sells its operations and liquidates. When the first period report is of high profitability, but the second period realization is of low profitability, the manager is subsequently investigated for potential misreporting in the first period.

3. Equilibria

3.1. Potential Equilibria

The equilibria concept used for purposes of the analysis is the Sequential Equilibrium, a refinement of the Nash concept, developed by Kreps and Wilson (1982).[19] Given the multiplicity of Sequential Equilibria, I limit the analysis to equilibria satisfying the "Intuitive Criterion," a refinement of the Sequential Equilibrium concept, introduced by Cho and Kreps (1987), and the "calculated beliefs," a refinement introduced by Melumad and Thoman (1990).[20, 21]

Lemmas 1 and 2 in the appendix describe the feasible equilibrium. While in perfectly separating equilibria, the good-type firms issue a different report from that of the bad-type firms, in the pooling equilibria, both types issue a similar report in the same market. In the partially separating equilibria, some of the firms from both types issue the same report in the same market, while some firms from one type announce a different

combination of report and market.[22] When the markets do not differ significantly with their regulatory strictness, firms will pool in the market with loose regulatory environment. Intuitively, as long as it is feasible for the low quality firms to mimic the high quality ones, only low profitability reports will be issued, and all firms will list on the market with lower listing costs. It is clear that exchanges wishing to maximize their revenues (being part of the listing costs) would not necessarily benefit from such pooling.[23] Separation (or partial separation) that does not involve listing by any firm in the U.S. occurs when the difference in regulatory strictness and listing costs is large. The higher the non-discriminating costs are, the lower is the difference in regulatory strictness that is required in order to be in equilibrium that does not involve listing in the U.S.

In the following analysis, though, I shall focus on equilibria that are consistent with the current real-life situation where at least some firms are listed on the market with strict regulations:

Proposition 1: *There are two classes of possible calculated beliefs equilibria involving listing in the U.S.:*

Perfectly Separating Equilibria:

All bad-type firms issue a low profitability report in market A. Good-type firms issue a high profitability report in the U.S. (equilibrium S2).

Partially Separating Equilibria:

i) All good-type firms issue a high profitability report in the U.S., and bad-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS7); ii) All bad-type firms issue a low profitability report in market A, and good-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS3).

Proof: *For proofs of all propositions, see Appendix A.*

Investor Protection Regulations exposure is the instrument which allows for non-pooling equilibria. Although the regulations and law enforcement mechanisms are costly to the firm's managers, the managers' willingness to bear these costs conveys information to investors.[24] Note that when the Investor Protection Regulations exposure equals zero (i.e., D=0, or $\eta_{GU}=\eta_{BU}=0$), no listing in the U.S. will occur.

Hereafter, I focus on cases where the components of the Investor Protection Regulations have positive values.

3.2. Market Reaction to the Listing Announcement

The combined announcement of the listing location and the particular profitability report issued constitutes an information event. Hence, a market reaction can be analyzed. However, in order to compare the market reaction to the announced listing decision and profitability report, the market value should be compared to a benchmark. In this case, the benchmark is the market value prior to the announcement of the profitability report and the market location (hereafter, MV). The components of this price reflect expectations regarding: i) *the future profitability of the firm* (hereafter, FPMV); ii) the *non-discriminating cost differential* (hereafter, KMV); and iii) proceeds from an *investigation procedure* (hereafter, INMV); that is,

(3.1) MV= FPMV – KMV + INMV.

FPMV is similar ex-ante for each of the equilibria and is based on prior beliefs regarding the population of firms. Proposition 2 suggests that (when some separation occurs), reported high profitability in the U.S. results in a positive market reaction (corresponding to the *future profitability* component), while a similar report in market A may result in a negative market reaction. In short, the market on which the listing takes place conveys information regarding the firm's profitability.

Proposition 2: *In any non-pooling equilibria, the market reaction (corresponding to the future profitability component) to a high profitability report is strictly positive.*

The underlying intuition is that the proportion of good-type firms to all firms reporting high profitability is larger than their proportion in the entire population of firms. Investors incorporate that fact into their expectations; consequently, there is a positive market reaction.

In each equilibrium, the expectations corresponding to the non-discriminating cost differential component are based on the proportion of firms expected to announce U.S. listing. The ex-post expense depends upon the listing decision: it equals the non-discriminating cost differential (K) in the case of a U.S. listing, and it equals zero in the case of a market A listing. In the case of a U.S. listing, the difference between the expected and the ex-post amount has a negative effect on the market value after the announcement.[25] That negative reaction could possibly reverse the positive reaction corresponding to the expected profitability. However, after incorporating the constraints

on the non-discriminating cost differential (K), this appears *not* to be the case. For example, in equilibrium S2, for firms reporting high profitability in the U.S. market, the combined reaction is $[(P_G-P_B)H-K](1-\lambda)$. However, from the conditions on K corresponding to that equilibrium (see Appendix A), the term cannot be negative.

When the term corresponding to the investigation procedure (IN_{rj}-INMV) is added, proposition 2 can be extended to include the three components of the market value.[26]

Observation 1: *The market reaction to a U.S. listing and a high profitability report is strictly positive.*

Observation 1 is consistent with documented evidence (e.g., Fuerst 1998; Miller 1996; Foerster and Karolyi 1996) of a positive market reaction associated with the announcement of listing (or the listing itself) in the U.S. by foreign firms.

As the argument is based on information asymmetry regarding the future prospect of the listing firms, a direct implication of Proposition 1 and Observation 1 is that the firms cross-listed on the U.S. market will achieve better operating performance in the years following the listing than firms that did not list there. That is the main research question in Fuerst (1998). Note, that enhanced improved operating performance is not derived as an implication from the other theories regarding global listing. Furthermore, Fuerst (1998) analyzes the components of the market reaction and shows that the positive market reaction is affected by the predicted portion of the improved post-listing operating performance of the cross-listing firms, and to a lesser extent, by market segmentation.

The investigation procedure component cannot reverse an otherwise negative market reaction. None of the positive market reactions is driven by expectations regarding the proceeds from an investigation procedure. Regulatory strictness, however, plays a role in the manager's decisions, indirectly affecting the expectations regarding the profitability component. In sum, the threat confronted by the manager is more valuable to investors as a vehicle for the manager to credibly convey her information than it is to them a source of income by itself.[27]

Observation 2: *Investors' proceeds from an investigation procedure cannot reverse an otherwise negative market reaction.*

3.3. The manager's Benefits from the Availability of Global Listing

In section 3.2., I analyze the market reaction to the announcement of U.S. listing with a high profitability report. The benchmark for that analysis is the market value of a firm prior to announcing its listing location and profitability. Such value incorporates

investors' expectations regarding that announcement. An alternative benchmark is the market value that would have prevailed, had the firm been unable to list its shares on either the U.S. market or on market A. That benchmark allows for the assessment of the potential change in the manager's wealth due to the *availability* of international stock exchanges.[28] Following the arguments regarding the insignificance of the non-discriminating cost differential (as discussed in the first section), I assume in the following observation that there is no non-discriminating cost differential (i.e., K=0). I consider the change in the manager's wealth in all cases involving listing in the U.S. (i.e., equilibria S2, PS3, and PS7).

Observation 3: *Ceteris paribus, when there is no non-discriminating cost differential (i.e., K=0), in every non-pooling equilibrium, listing on the U.S. market and reporting high profitability have a positive wealth effect (relative to domestic trading) for a manager of a good-type firm if at least one of the following holds:*

1) There is a large enough portion of bad-type firms in the population (1-λ).

2) There is a large enough difference in the probability of achieving high profitability by a good- type firm (p_G) and the probability of a bad-type firm (p_B) doing so.

For details of the wealth benefits in each of the relevant equilibria, refer to Appendix D.

Observation 4 suggests that managers of highly profitable firms may benefit from the availability of international stock exchanges if the benefits from separation are large enough to offset the additional exposure related to regulatory strictness. Once the population includes many good-type firms, however, the gains from separation decrease, and the availability of international listing may not be beneficial. As an illustration, assume that separation still prevailed in the extreme case where the prior probability of a firm being a good-type firm is close to one. U.S. listing with a high profitability report may not be beneficial to the manager of that firm. That is because the IPR exposure borne by the manager is not fully offset by a change in the market value (as the updated beliefs do not differ much from the priors). Alternatively, if the difference between the good-type and bad-type firms' probabilities of achieving high profitability is sufficiently large, then the benefits from separation will be large enough to offset the additional IPR exposure.

4. The Impact of Various Parameter Values

The following analysis of the listing decision focuses on the partially separating equilibria where only some of the good-type firms list on the U.S. market and report high profitability. Therefore, the comparative statics analysis focuses on equilibrium PS3. This equilibrium is of interest since it involves some separation between the types and are consistent with the observation that not all the highly profitable foreign firms list on the U.S. market.

The proportion of good-type firms listing on the U.S. market with a high profitability report (α_{HU}) corresponds positively to changes in the non-discriminating cost differential (K). A larger non-discriminating cost differential decreases the benefits from a U.S. listing. However, in order for the partially separating equilibrium to sustain, the benefits from listing on market A should decrease as well. Consequently, the portion of good firms listing on market A (the U.S. market) decreases (increases). It is interesting to observe that only once some separation already occurs, can "money burning" be used as a means to strengthen the information conveyance; that is, once some separation prevails, the higher the non-discriminating cost differential is, the higher is the level of separation.

Similarly, the portion of good-type firms listing on the U.S. market with a high profitability report, α_{HU}, increases with an increase in the corresponding investigation parameter, η_{GU}. Intuitively, the higher is the threat to the manager, the more credible is the information conveyance, and hence the more pronounced the separation is. When η_{GU} increases, the benefits from the U.S. listing decrease. In order for the partially separating equilibrium to sustain, however, the benefits from listing on market A should decrease as well, through a reduction (increase) in the number of good-type firms listing on market A (the U.S. market).

The portion of good-type firms listing on the U.S. market with a high profitability report (α_{HU}), however, is affected negatively by changes in the IPR parameter of the good-type firms listed on market A (η_{GA}); that is, a decreased difference between the regulatory strictness of the markets lessens the relative attractiveness of a U.S. listing.

The damage borne by the manager (if held liable for misreporting) is a major driver allowing the manager to credibly convey to investors her private information regarding the firm's future prospects. It is interesting to analyze the cases for which investors receive only a small portion of the damage borne by the manager. These cases can be interpreted as descriptive of situations where reputation damage constitutes a large

portion of the damage borne by the manager if she is held liable for misreporting. In the partially separating equilibrium, where only some of the good-type firms list on the U.S. market with a high profitability report, increasing the damage borne by a manager (if held liable for misreporting), increases the number of good-type firms listing on the U.S. market. Again, the higher the threat is to the manager, the more credible is the information conveyance, and the more pronounced is the separation.

An analysis of the cases where D, the portion of the maximum damage borne by the manager, D, that is received by investors is not sufficiently small, reveals that the impact of a higher D could go in either direction. Intuitively, as investors become less concerned about the difference in quality between the firms (as they are compensated by the proceeds from the damage borne by the manager), U.S. listing becomes less effective as a means to convey information regarding the firm's quality.

Observation 4: *In equilibrium involving some (but not all) good-type firms listing on the U.S. market and reporting high profitability (i.e., $1>\alpha_{GU}>0$): i) the larger the non-discriminating cost differential (K) is, the larger is the number of good-type firms listing (i.e., $\frac{\partial \alpha_{GU}}{\partial K} > 0$); ii) the higher is the prior probability of a manager of a good type firm being held liable for misreporting in the U.S. (η_{GU}), the larger is the number of good-type firms listing on the U.S. market, (i.e., $\frac{\partial \alpha_{GU}}{\partial \eta_{GU}} > 0$) and iii) when the portion of D that is received by the investors is sufficiently small, the larger D is, the maximum damage borne by the manager if held liable for misreporting, the larger is the number of good-type firms listing on the U.S. market (i.e., $\frac{\partial \alpha_{GU}}{\partial D} > 0$).*

See Appendix A for the proof and Example 1 for an illustration of the impact of changes in η_{GA} and D on α_{HU}.

Many U.S. and international firms carry directors' and officers' (D&O) insurance. In most cases, the insurance pays the majority of monetary fines incurred by managers when they are held liable for misreporting (Alexander 1994, 1993, 1991). It is possible to incorporate into the model insurance that depends on the market (and/or report) where the listing takes place. The damage the manager may bear would include (in the case of full insurance of the monetary portion of the damage) mainly reputation damage (as well as potential jail "service"). The insurance premium, however, would be borne by all firms deciding to list on the same market. Investors' expectations will take into account the

impact of the insurance on the manager's decisions. Although the information conveyed is expected to be less credible, the qualitative results should not change. However, following the results of the comparative statics, for a given net damage borne by a manager of a firm listed in the U.S. (if she is held liable for misreporting), the overall impact of increased insurance coverage would be affected by two forces: 1) a lower threat to the manager, which tends to moderate the informativeness of the listing decision, and 2) a higher insurance premium for any firm listing in the U.S., which strengthens the informativeness of the listing decision. Furthermore, it is clear that D&Os may be able to convey their private information through the selection of insurance coverage.

5. Public Offerings

In recent years, a significant portion of the firms seeking global listing has been raising capital in the global marketplace (Lapper 1996b). For example, in the first nine months of 1996, about $45 billion were raised by around 300 firms in global equity offerings, compared with about $10 billion in 1990, raised by less than 150 firms (Lapper 1996b). The significance of global offerings is also increasing in relative terms. For example, the amount raised in global offerings in the first three quarters of 1996 was around 60% of the amount raised by American firms on NYSE and NASDAQ. In 1994, the ratio was around 30% (calculations based on FIBV 1994, 1992 and Lapper 1996b). The general setting can be applied to the case of global public offerings. I assume that the damage borne by the manager (if held liable for misreporting) is not received by the investors. That assumption is consistent with the manager's reputation loss comprising a major part of the damage he bears. The assumption simplifies the solution, although the results incorporating part of the damage amount received by the investors should not differ substantively from the following scenario.

The only significant change from the setting analyzed before is that, during the listing process, new shares are being issued. The portion of equity to be issued is endogenously determined by the market value at the time of the issue.[29]

Consider a foreign firm whose shares are currently listed on its home-market stock exchange. Prior to the equity offering, the equity portion not held by the manager is ϕ ($0<\phi<1$).

The firm seeks to raise an amount (A) to be added to its operating assets. The amount required, however, cannot be easily obtained from its home equity or debt markets.

Many foreign firms can raise capital in their home markets, but large firms from relatively low capitalization markets may find that a public offering in the major capital markets is the only effective alternative (Lapper 1995).

With regard to debt issuance, it is found that equity is the most common source of external financing for large firms in emerging markets. That is explained mainly by institutional incentives. For example, there is a debt to equity ceiling for South Korean firms, and there is a lower corporate tax rate in Turkey for firms with a high enough portion of their equity owned by the public (The Economist 1995; Weisbrod and Lee 1993). Furthermore, governments facing debt crisis are constrained in their ability to sell bonds, and might favor equity sales through privatization of state-owned firms (Vickers and Yarrow 1991).

It is clear that capital structure decisions may also be used to convey information to investors at the time of the offering (e.g., Myers and Majluf 1984; Ross 1977). These are not considered within the current setting, as they would have distracted the attention from the impact of the listing and reporting decisions. As a result, the firm conducts equity offering in one of the major stock exchanges. The firm's manager has to decide in which market the offering will take place. In addition, as part of the offering process, the firm must report its profitability. As a result, the firm issues shares that will constitute, after the offering, a portion, A/MV_{rj} of the firm's equity, where MV_{rj} reflects the market value corresponding to the announced profitability report, r, and the market in which the offering takes place, j.[30]

The manager has to decide: a) whether the equity offering will take place in the U.S. market or in market A, and b) what profitability report to issue. Her objective is to maximize her wealth at the second period. As the firm conducts only one public offering and the amount required is common knowledge, that assumption is similar to an assumption regarding a maximization of a weighted average of the wealth in the two periods. I assume the following objective function for its expository elegance.

The objective function can be summarized as follows:

(5.1) $$\text{Max}_{r\in\{H,L\},j\in\{U,A\}} \; p_I H - \left[\frac{\phi(MV_{rj}-A)+A}{MV_{rj}}\right]\left[p_i H + (1-p_i)M_r \eta_{ij} D\right].$$

The first part in the objective function ($p_I H$) reflects the value of the firm at the end of the second period. The second part of the objective function includes two components:

1) $\left[\frac{\phi(MV_{rj}-A)+A}{MV_{rj}}\right]$ reflects the portion of the firm that following the global public offering is not owned by the manager, and 2) $\left[p_i H+(1-p_i)M_r \eta_{ij} D\right]$, a component corresponding to the value of the firm at the end of the second period and the expected damage borne by the manager.

Intuitively, the manager wishes to maximize her share of the value of the firm at the end of the second period, while minimizing her expected damage. While she cannot affect the firm's type, she can focus on minimizing the portion of the shares she has to be diluted by in order to raise the required capital. That is obtained through a maximization of the market value at the public offering.

Rearranging the terms and considering that the manager cannot affect the firm's type, the maximization problem can be represented as follows:

(5.2.) Max $_{r\in\{H,L\},j\in\{U,A\}}$ $- [\phi + I/MV_{rj}][(1-p_I)M_t \eta_{ij} D]$

where: $I=A(1-\phi)$.

Investors' expectations are similar to those in the general setting, and it follows that all the propositions and observations which were analyzed previously remain intact (see Appendix E for select details of the results).

I show above that the case of public offering is similar to the general case of global listing—listing on a market with strict regulatory environment enables managers to credibly convey to investors their private information regarding their firms' future prospects.

This is consistent with Miller (1996), that documents a positive market reaction when foreign firms raise capital through public offering (that is, issue ADR level III on NYSE, AMEX or NASDAQ), while a negative market reaction accompanies the announcement of capital raising through privately placed DRs (that is, Rule 144A ADRs). His results contrast the findings in the literature regarding U.S. firms (Wruck, 1989; Maulis and Korwar, 1986) which documents a positive market reaction to privately placed equity and a negative market reaction to public offerings.

6. Concluding Remarks and Policy Implication

This paper analyzes the listing decisions of foreign firms, when deciding between listing on major capital markets. It is demonstrated that managers of foreign firms may credibly convey their private information regarding their firms' future prospects through the decision to list on a market with strict regulatory environment. Specifically, by assuming additional regulatory exposure (related to investor protection), these managers separate their firms from firms with lower future profitability. As a result, they are compensated by higher market values. The main predictions of the model regarding a positive market reaction to the cross-listing announcement and the abnormal post-listing operating performance of the firms are consistent with the empirical evidence.

Furthermore, when some separation between types occurs, a comparative statics analysis indicates that the higher is the difference in the strictness of investor protection regulations between the competing global markets (or the higher the damage amount borne by a manager if held liable for misreporting the firm's profitability), the more likely is the firm to list on the strict market.

The public debate focuses on disclosure requirements for foreign firms. However, it is shown in this setting that even when the information provided in both markets is similar, differences in the regulatory environment (for example, in the enforcement efforts) may suffice for managers to credibly convey their private information regarding the future of their firms. The notion of credibility of the information conveyed, rather than the information itself should be the central issue.

The setting here does not consider the exchanges themselves as strategic players, but it indicates it might be of the exchanges interest to create layers of regulatory environment. In that respect, the U.K. is providing such an environment. Firms can be listed on the International Exchange of the London Stock Exchange, or become listed as any U.K. firm, operating under a stricter set of rules and regulations. In the U.S., however, the existence of such layers is limited, as only institutional investors can invest in the two layers that provide organized trading: the ADR level 144A on PORTAL and the organized exchanges (AMEX, NYSE and NASDAQ).[31]

Individual investors, some of which referred to by the legislators as "widows and orphans" might be the ones at disadvantage from the current system. Institutional investors do not suffer from differences in transaction costs between transactions abroad and in the U.S. (and in fact, most of their investments in foreign firms listed in the U.S. is

conducted in the foreign firms' home markets) and benefit from the availability of ADR issued under Rule 144A. Individual investors, on the other hand, are constrained to a smaller selection of international stocks, while not benefiting from reduced transaction costs associated with local trading. An implication of the model might be that in order to maximize the number of firms listed on the U.S., a finer spanning of the regulatory strictness might be of interest to investors, firms and the exchanges.

Example 1

Figure 1 demonstrates the impact of changes in η_{GU} on the portion of good-type firms listing on the U.S. market (α_{GU}). The example is for PS3, and for the parameter values: p_B=0.4; p_G=0.7; H=1000; ρ=0.1; K=50; λ=0.5; γ=0.2; ω=0.8; D within the range 80-130 and η_{GU} within the range 0.3-0.6. That is, the manager is relatively short-term oriented, with an equity holding of 10%. Half of the population consists of high quality firms, and there is a relatively large difference between types with respect to the probability of achieving high profitability in the second period. Investors receive 20% of the damage amount if the manager is held liable for misreporting, and the damage amount is approximately the value of the manager's equity holdings when the firm realizes high profitability.

Within the above parameter ranges, α_{HU} corresponds positively to changes in D and/or η_{GU}.

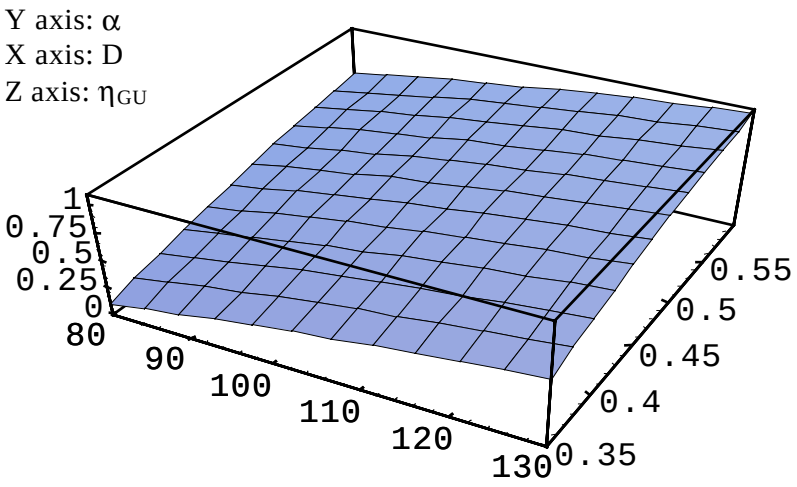

Figure 2- The impact of η_{GU} and D on α_{HU}

Summary of Notations:

H, L	Profitability measure with two possible values, high (denoted by H) and low (denoted by L).
$r \in \{H,L\}$	The possible reports issued.
$j \in \{U,A\}$	The market on which the firm lists its shares; U denotes a U.S. listing and A denotes listing on an alternative market.
G, B	Two possible types of firms. G (B) denotes a good (bad) type firm.
λ $(1-\lambda)$	The prior probability of a firm being of type G (B).
p_G (p_B)	The probability of type-G (B) firm achieving high profitability in the second period; $p_G > p_B$.
γ	The portion of the damage award collected by investors ($0 \leq \gamma \leq 1$).
η_{ij}	The probability of a type-i firm's manager being held liable for misreporting when she has issued high profitability report in market j and low profitability was subsequently realized. $\eta_{Gj} \leq \eta_{Bj}$ for any market j; $\eta_{iA} \leq \eta_{iU}$ for any type-i firm.
α_{rj}	The proportion of good-type firms reporting r in market j.
β_{rj}	The proportion of bad-types firms reporting r in market j.
ρ	The portion of the firm's equity held by the manager.
R_j	A binary variable, with a value 1, when j=U, and a value 0 when j=A.
A	The amount to be raised in a public offering.
D	The damage borne by the manager if she is held liable for misreporting and has no equity holdings.
g	An identity: $g= D(1-\rho)$.
I	An identity: $I= A(1-\phi)$.
K	The amount to be borne by any firm listing its shares on the U.S. market, as opposed to listing on the alternative market.
MV_{rj}	The market value of the firm, corresponding to a report r in market j.
ω $(1-\omega)$	The weight the manager assigns to the market value of her holdings in the first (second) period.

Appendix A -- Market Values and Possible Equilibrium

Lemma 1: *There are three, possibly overlapping, classes of sequential equilibria that satisfy the "Intuitive Criterion":*

Perfectly Separating Equilibria:

All bad-type firms issue a low profitability report in market A. Good-type firms issue a high profitability report in the U.S. (equilibrium S2), or in market A (equilibrium S1).

Pooling Equilibria:

Both firm types list on the U.S. market with the same (high or low) profitability report (equilibria P4 and P3), or they list on market A with the same (high or low) profitability report (equilibria P2 and P1).

Partially Separating Equilibria:

Equilibria involving a U.S. Listing:

i) All good-type firms issue a high profitability report in the U.S., and bad-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS7); ii) All bad-type firms issue a low profitability report in market A, and good-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS3); iii) All bad-type firms issue a high profitability report in market A, and good-type firms randomize between a high profitability report in both markets (equilibrium PS4); iv) All bad-type firms issue a low profitability report in the U.S., and good-type firms randomize between a low profitability report in the U.S. and a high profitability report in the U.S. or in market A (equilibria PS5 and PS6).

Equilibria with Listing only on Market A:

i) All good-type firms issue a high profitability report, and bad-type firms randomize between a low profitability report and a high profitability report (equilibrium PS1);

ii) All bad-type firms issue a low profitability report, and good-type firms randomize between a low profitability report and a high profitability report (equilibrium PS2). [32]

Proof: The proof of the Lemma is in three steps. First, we derive the market value corresponding to firms issuing the various reports. Then, we describe the potential

equilibria and describe how some of these equilibria cannot be sustained. Finally, we describe the ranges of the parameters for which the various equilibria can be sustained.

The market value corresponding to firms issuing a report, $r \in \{H,L\}$ in market $j \in \{U,A\}$ reflects investors' expectations regarding: i) the future profitability of the firm (FP_{rj}), ii) the costs borne by any firm listing in market j (K_j) and iii) proceeds from an investigation procedure (IN_{rj}). The expectations are based on investors' updated beliefs regarding the probabilities of type-i firm's manager deciding to list on market j and report profitability r (α_{rj} for good-type managers and β_{rj} for bad-type managers).

(A1) $MV_{rj} = FP_{rj} + IN_{rj} - K_j$

Where:

$$FP_{rj} = \frac{\lambda\alpha_{rj}p_G + \beta_{rj}(1-\lambda)p_B}{\lambda\alpha_{rj} + \beta_{rj}(1-\lambda)}H$$

$$IN_{Hj} = \frac{\lambda\alpha_{Hj}(1-p_G)\eta_{Gj} + \beta_{Hj}(1-\lambda)(1-p_B)\eta_{Bj}}{\lambda\alpha_{Hj} + \beta_{Hj}(1-\lambda)}D(1-\rho)\gamma$$

$\Sigma\Sigma\alpha_{rj}=1$; $\Sigma\Sigma\beta_{rj}=1$; $K_U = K$; $K_A = 0$; $IN_{Lj}=0$.

All the potential strategies are displayed on the summary table, followed by the sketches of elimination rules that narrow the list to the possible Sequential Equilibria (Kreps and Wilson, 1982) that satisfy the "Intuitive Criterion" (Cho and Kreps, 1987). In each cell of Table 1, there is either a letter or a combination of letters and numbers. A letter refers to an elimination rule indicating this equilibrium cannot be sustained.

Summary Table-Potential Strategies

Bad type firms[33]⇒ Good type firms⇓	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1 $\alpha_{HU},\alpha_{LU},\alpha_{HA}=0,\alpha_{LA}=1$	**P1**	a	e	A	a	a	a	a	a	a	e	e	a	a	a
2 $\alpha_{HU},\alpha_{LU}=0,\alpha_{HA}=1,\alpha_{LA}=0$	**S1**	**P2**	k	B	b	b	b	b	k	**PS1**	k	k	b	b	b
3 $\alpha_{HU}=0,\alpha_{LU}=1,\alpha_{HA},\alpha_{LA}=0$	t	a	**P3**	A	a	a	a	a	a	a	v	a	a	a	a
4 $\alpha_{HU}=1,\alpha_{LU},\alpha_{HA},\alpha_{LA}=0$	**S2**	d	h	**P4**	d	d	k	d	d	w	k	h	**PS7**	h	k
5 $\alpha_{HU},\alpha_{LU},\alpha_{HA},\alpha_{LA}>0$	r	r	z	C	c	c	c	c	c	c	p	c	c	c	c
6 $\alpha_{HU},\alpha_{LU},\alpha_{HA}>0,\alpha_{LA}=0$	r	r	z	M	c	c	c	c	y	j	l	y	c	c	c
7 $\alpha_{HU},\alpha_{LU}>0,\alpha_{HA}=0,\alpha_{LA}>0$	r	r	n	M	a	a	c	a	a	a	g	a	c	a	c
8 $\alpha_{HU}>0,\alpha_{LU}=0,\alpha_{HA},\alpha_{LA}>0$	s	c	n	M	i	k	k	i	i	i	k	k	i	q	k
9 $\alpha_{HU}=0,\alpha_{LU},\alpha_{HA},\alpha_{LA}>0$	t	c	n	A	a	a	a	a	g	u	g	u	a	a	a
10 $\alpha_{HU},\alpha_{LU}=0;\alpha_{HA},\alpha_{LA}>0$	**PS2**	c	n	M	a	a	a	a	c	c	k	c	a	a	a
11 $\alpha_{HU},\alpha_{HA}=0;\alpha_{LU},\alpha_{LA}>0$	t	c	n	A	a	a	a	a	a	a	g	a	a	a	a
12 $\alpha_{HU}=0,\alpha_{LU},\alpha_{HA}>0,\alpha_{LA}=0$	**S3**	x	**PS6**	A	a	a	a	a	y	**PS8**	t	y	a	a	a
13 $\alpha_{HU}>0,\alpha_{LU},\alpha_{HA}=0,\alpha_{LA}>0$	**PS3**	c	k	M	o	o	k	o	c	c	k	n	i	a	k
14 $\alpha_{HU},\alpha_{HA}>0,\alpha_{LU},\alpha_{LA}=0$	s	**PS4**	k	M	k	k	k	q	k	**PS9**	k	k	q	q	k
15 $\alpha_{HU},\alpha_{LU}>0,\alpha_{HA},\alpha_{LA}=0$	r	r	**PS5**	M	a	a	c	a	a	f	t	o	c	a	c

P denotes a pooling equilibrium; S denotes a separating equilibrium, PS denotes a partially separating equilibrium. Small letter denotes an elimination rule.

In each row, the left-hand cell indicates the possible strategies by a good-type firm. The top cell in each column represents the corresponding strategy of a bad type firm in the same possible equilibrium. Below are verbal explanations of this possible strategies:

1- Pure strategy- report low profitability and list in market A (hereafter-LA).

2- Pure strategy- report high profitability and list in market A (hereafter- HA).

3- Pure strategy- report low profitability and list in the U.S. (hereafter- LU).

4- Pure strategy- report high profitability and list in the U.S. (hereafter- HU).

5- Mixed strategy- randomize between HU, LU, HA, LA.

6- Mixed strategy- randomize between HU,LU,HA.

7- Mixed strategy- randomize between HU,LU,LA.

8- Mixed strategy- randomize between HU, HA, LA.

9- Mixed strategy- randomize between LU, HA, LA.

10- Mixed strategy- randomize between HA, LA.

11- Mixed strategy- randomize between LU, LA.

12- Mixed strategy- randomize between LU, HA.

13- Mixed strategy- randomize between HU, LA.

14- Mixed strategy- randomize between HU, HA.

15- Mixed strategy- randomize between HU, LU.

The Elimination Rules:

Rule a: If both $\alpha_{Hj}=0$ and $\alpha_{Lk}\geq 0$ then $\beta_{Hj}=0$ (where $k\in\{U, A\}$).

Proof : If $\alpha_{Hj}=0$ and $\alpha_{Lk}\geq 0 \Rightarrow MV_{Lk}\rho \geq MV_{Hj}\rho-(1-p_G)g\eta_{Gj}-\rho\tau K_j \Rightarrow MV_{Lk}\rho > MV_{Hj}\rho-(1-P_B)g\eta_{Bj}-\rho\tau K_j \Rightarrow \beta_{Hj}=0$ (by using $p_G>p_B$; $\eta_{Bj}\geq\eta_{Gj}$).

Rule b: If $\alpha_{HA}=1$ then $\beta_{HU}=0$.

Proof : If $\alpha_{HA}=1\Rightarrow$ HU will be interpreted as a bad-type firm, so the bad-type firm has no incentive to announce HU.

Rule c: If $\beta_{Hj}>0$ then $\alpha_{Lj}=0$.

Proof: $\beta_{Hj}>0\Rightarrow MV_{Hj}\rho-(1-p_B)\eta_{Bj}g-\rho\tau K_j \geq MV_{Lj}\rho \Rightarrow MV_{Hj}\rho-(1-p_G)\eta_{Gj}g-\rho\tau K_j > MV_{Lj}\rho \Rightarrow \alpha_{Lj}=0$.

Rule d: If $\alpha_{HU}=1$ and $\beta_{HU}=0$ then $\beta_{LA}=1$. Similarly, if $\alpha_{HU}=1$ and $\beta_{HU}>0$ then $\beta_{HA}=0$.

Proof: If $\alpha_{HU}=1$ and $\beta_{HU}=0$ then $FP_{HA}= FP_{LA}= FP_{LU}= p_BH \Rightarrow \beta_{LA}=1$ (using $K>0$; $\eta_{Bj}>0$).

Similarly, if $\alpha_{HU}=1$ and $\beta_{HU}>0$ then $FP_{HA}= FP_{LA}= p_BH \Rightarrow \beta_{HA}=0$ (using $K>0$; $\eta_{Bj}>0$).

Rule e: If $\alpha_{LA}=1$ then $\beta_{LA}=1$.

Proof: Any other alternative exposes the bad-type firm to expenses, where it is known to be bad (all good type firms report low profitability in market A).

Rule f: If $\alpha_{HU}+\alpha_{LU}=1$ then $\beta_{HA}= 0$.

Proof: $\alpha_{HU}+\alpha_{LU}=1 \Rightarrow MV_{HA}= MV_{LA}+ \gamma g(1-p_B)\eta_{BA} \Rightarrow \rho MV_{HA}- g(1-p_B)\eta_{BA} \Rightarrow \rho MV_{LA}- (1-\gamma)g(1-p_B)\eta_{BA} < \rho MV_{LA} \Rightarrow \beta_{HA}=0$.

Rule g: It cannot be the case that α_{LU}, α_{LA}, β_{LU} and β_{LA} are all positive.

Proof: Consider $\tau=0$. If α_{LU}, α_{LA} , β_{LU} and $\beta_{LA} >0 \Rightarrow MV_{LU}= MV_{LA} \Rightarrow FP_{LU} - K= FP_{LA}$ but there is no difference in the non-discriminating cost differential for the two types $\Rightarrow \alpha_{LU}=\beta_{LU} \Rightarrow FP_{LU} = FP_{LA}$. Contradiction. It is clear that the same applies for $\tau>0$.

Rule h: If $\alpha_{HU}=1$ then $\beta_{HA}=0$.

Proof: $\alpha_{HU}=1 \Rightarrow FP_{HA} = FP_{LA}=p_BH \Rightarrow MV_{HA}= MV_{LA}+ \gamma g(1-p_B)\eta_{BA} \Rightarrow \rho MV_{HA}- g(1-p_B)\eta_{BA}< \rho MV_{LA} \Rightarrow \beta_{HA}=0$.

Rule i: It cannot be the case that α_{Hj},α_{LA}, β_{Hj} and β_{LA} are all positive.

Proof: If the good-type firm's manager is indifferent, bad-type firm's manager cannot be indifferent. $\rho MV_{LA} = \rho MV_{Hj}- (1-p_G)g\eta_{Gj} -\tau\rho K_j \Rightarrow MV_{LA}\rho > MV_{Hj} \rho- (1-p_B)g\eta_{Bj} -\tau\rho K_j \Rightarrow \beta_{Hj}=0$ (by using $p_G>p_B$; $\eta_{Gj}<\eta_{Bj}$).

Rule j: If $\beta_{HA}+\beta_{LA}=1$ and $\alpha_{LU}>0$ then $\alpha_{HU}=0$.

Proof: If $\beta_{HA}+\beta_{LA}=1$ and α_{LU}, $\alpha_{HU}>0 \Rightarrow \rho MV_{LU}= \rho p_GH=\rho MV_{HU}-(1-p_G)g\eta_{GU}= \rho[p_GH+\gamma (1-p_G)g\eta_{GU}]-(1-p_G)g\eta_{GU} \Rightarrow \gamma(1-p_G)g\eta_{GU}= (1-p_G)g\eta_{GU}$. Contradiction.

Rule k: If $\alpha_{LU}=0$ then $\beta_{LU}=0$.

Proof: LU exposes bad firms to incremental expenses, where they are known to be of the bad-type.

Rule l: If β_{HU}, $\beta_{HA}=0$, it cannot be the case that α_{HU},$\alpha_{HA} >0$.

Proof: If β_{HA}, $\beta_{LA}=0$ and α_{HU},$\alpha_{HA} >0 \Rightarrow \rho MV_{HU}-g\eta_{GU}(1-p_G) -\tau\rho K = \rho MV_{HA}- g\eta_{GA}(1-p_G)$. But since $FP_{HU}=FP_{HA}=p_GH \Rightarrow [\rho\gamma-1]g(1-p_G)(\eta_{GU}-\eta_{GA})-K > 0$. Contradiction.

Rule m: If $\beta_{HU}=1$ then $\alpha_{HU}=1$.

Proof: If $\beta_{HU}=1 \Rightarrow$ 1) $\rho MV_{HU}-g\eta_{BU}(1-p_B) -\tau\rho K_U >\rho MV_{HA} - g\eta_{BA}(1-p_B) \Rightarrow \rho MV_{HU}-g\eta_{GU}(1-p_G) -\tau\rho K_U> \rho MV_{HA} - g\eta_{GA}(1-p_G)$; 2) $\rho MV_{HU}-g\eta_{BU}(1-p_B)> \rho MV_{LU} \Rightarrow \rho MV_{HU}-g\eta_{GU}(1-$

p_G)> ρMV_{LU} and 3) ρMV_{HU}-$g\eta_{BU}(1-p_B)$ -$\tau\rho K_U$ > $\rho MV_{LA} \Rightarrow \rho MV_{HU}$-$g\eta_{GU}(1-p_G)$ -$\tau\rho K_U$> ρMV_{LA}.

Rule n: If $\beta_{LA}=0$ then $\alpha_{LA}=0$.

Proof: If ρMV_{Hj} -$g\eta_{Bj}(1-p_B)$ -$\tau\rho K_j \geq \rho MV_{LA} \Rightarrow \rho MV_{LA} < \rho MV_{Hj}$ -$g\eta_{Gj}(1-p_G)$ -$\tau\rho K_j$. Similarly, for $\rho MV_{LA} < \rho MV_{LU}$ -$\rho\tau K \Rightarrow \alpha_{LA}=0$.

Rule o: If $\alpha_{HA}=0$ then $\beta_{HA}=0$.

Proof: Similar to rule K.

Rule p: If $\beta_{HU},\beta_{HA}=0$ then it cannot be that $\alpha_{HU},\alpha_{HA}>0$.

Proof: If β_{HU}, $\beta_{HA}=0$ and $\alpha_{HU},\alpha_{HA}=0 \Rightarrow FP_{HU}= FP_{HA}$-K + $(\gamma-1)g(1-p_G)(\eta_{GU}-\eta_{GA}) \Rightarrow$ but $FP_{HU}=FP_{HA}=p_GH$ and $\gamma-1<0$. Contradiction.

Rule q: If $\alpha_{HU},\alpha_{HA}>0$ then it cannot be β_{HU}, $\beta_{HA}>0$ or $\beta_{HU}>0$, $\beta_{HA}=0$.

Proof: If $\alpha_{HU},\alpha_{HA}>0 \Rightarrow \rho MV_{HU}$-$g\eta_{GU}(1-p_G)$- $K\tau\rho= \rho MV_{HA}$-$g\eta_{GA}(1-p_G) \Rightarrow$ ρMV_{HU}-$g\eta_{BU}(1-p_B)$-$K\tau\rho< \rho MV_{HA}$-$g\eta_{BA}(1-p_B)$, using $p_G>p_B$ and $\eta_{Bj}\geq\eta_{Gj}$.

Rule r: If $\beta_{HU}=\beta_{LU}=0$ then it cannot be the case that α_{HU} and α_{LU} are both positive.

Proof: Similar to rule P.

Rule s: If $\beta_{LA}=1$ then it cannot be the case that α_{HU}, $\alpha_{HA}>0$.

Proof: If $\beta_{LA}=1$ and α_{HU}, $\alpha_{HA}>0 \Rightarrow \rho MV_{HU}$ -$g(1-p_G)\eta_{GU}$ -$K\tau\rho= \rho MV_{HA}$-$g(1-p_G)\eta_{GA} \Rightarrow$ Contradiction (using $FP_{HU}=FP_{HA}$ and $\eta_{GU}\geq \eta_{GA}$).

Rule t: If $\beta_{LA}=1$ then it cannot be the case that: 1) α_{LU} and α_{LA} are both positive, or 2) $\alpha_{LU}=1$. Similarly, if $\beta_{LU}+\beta_{LA}=1$, it cannot be the case that $\alpha_{LU}>0$ and $\alpha_{LA}=0$.

Proof: If $\beta_{LA}=1$ and α_{LU} and $\alpha_{LA}>0 \Rightarrow \rho MV_{LU}$-$\tau\rho K= \rho MV_{LA} \Rightarrow \rho FP_{LU}$ -$\rho K(1+\tau)=\rho FP_{LA}$, but there is no difference between types with regard to non-discriminating cost differential (K), so the bad firm will mimic the good type (similarly, it cannot be the case that $\alpha_{LU}=1$ and $\beta_{LA}=1$). Similarly, if $\beta_{LU}+\beta_{LA}=1$ and $\alpha_{LU}>0$ and $\alpha_{LA}=0 \Rightarrow \rho FP_{LA}= \rho p_BH= \rho FP_{LU}$-$\rho K(1+\tau)$; but the bad type will mimic the good type, and the equilibria will not hold.

Rule u: If $\alpha_{Lj}>0 \Rightarrow \beta_{Lj}>0$.

Proof : If $\alpha_{Lj}>0$ and $\beta_{Lj}=0 \Rightarrow FP_{Lj}=p_GH \Rightarrow$ the bad type will deviate and mimic the good type (both type of firms bear the same non-discriminating cost if listing in the U.S.) $\Rightarrow \beta_{Lj}>0$.

Rule v: If $\beta_{LU},\beta_{LA}>0$ then it cannot be the case that $\alpha_{LU}=1$.

Proof: If $\alpha_{LU}=1 \Rightarrow$ 1) $\rho MV_{LU} - \tau\rho K > \rho MV_{LA}$ and 2) $\rho MV_{LU} - \tau\rho K > \rho MV_{HU} - g(1-p_G)\eta_{GU} - K\tau\rho \Rightarrow \rho MV_{LU} - \tau\rho K > \rho MV_{HU} - g(1-p_B)\eta_{BU} - \tau\rho K$ and $\rho MV_{LU} - \tau\rho K > \rho MV_{HA} - g(1-p_G)\eta_{GA} \Rightarrow \rho MV_{LU} > \rho MV_{HA} - g(1-p_B)\eta_{BA} \Rightarrow \beta_{LU}=1$. Contradiction.

Rule w: If $\alpha_{HU}=1$ then it cannot be the case that β_{HA} and β_{LA} are both positive.

Proof: If $\alpha_{HU}=1$ and $\beta_{HA}, \beta_{LA}>0 \Rightarrow FP_{HA} + (\gamma-1)g(1-p_B)\eta_{BA} = FP_{LA}$, but $FP_{HA} = FP_{LA} = p_B H$ (since $\alpha_{HA}, \alpha_{LA}=0$) and $(\gamma-1)<0$. Contradiction.

Rule x: If $\beta_{HA}=1$ then it cannot be the case that $\alpha_{LU}, \alpha_{HA}>0$.

Proof: If $\beta_{HA}=1$ and $\alpha_{LU}, \alpha_{HA}>0 \Rightarrow \rho MV_{LU} - \tau\rho K < \rho MV_{HA} - g(1-p_B)\eta_{BA}$ and $\rho MV_{LU} - \tau\rho K = \rho MV_{HA} - g(1-p_G)\eta_{GA} > \rho MV_{HA} - g(1-p_B)\eta_{BA} \Rightarrow \beta_{HA}=0$. Contradiction (using $p_G > p_B$ and $\eta_{Bj} \geq \eta_{Gj}$).

Rule y: If $\beta_{LU}, \beta_{HA} >0$, then it cannot be the case that $\alpha_{LU}, \alpha_{HA}>0$.

Proof: If $\beta_{LU}, \beta_{HA}>0 \Rightarrow \rho MV_{LU} - \rho\tau K = \rho MV_{HA} - g(1-p_B)\eta_{BA} \Rightarrow \rho MV_{LU} - \tau\rho K < \rho MV_{HA} - g(1-p_G)\eta_{GA}$. Contradiction (using $p_G > p_B$ and $\eta_{Bj} \geq \eta_{Gj}$).

Rule z: If $\beta_{LU}=1$ then it cannot be the case that $\alpha_{HA}, \alpha_{HU}>0$.

Proof: If $\beta_{LU} = 1$ and $\alpha_{HA}, \alpha_{HU}>0 \Rightarrow \rho MV_{HA} - g(1-p_G)\eta_{GA} = \rho MV_{HU} - g(1-p_G)\eta_{GU} - \tau\rho K$, but $FP_{HA} = FP_{HU} = p_G H \Rightarrow$ Contradiction (using $\eta_{iU} \geq \eta_{iA}$; $\gamma-1<0$).

Applying the "calculated Beliefs" refinement eliminate most of the equilibria, and the result is Lemma 2. The above restriction requires that if for every off-equilibrium path belief for which the good (bad) type firm will deviate, the bad (good) type will deviate as well, the off-equilibrium path beliefs cannot be above (below) the prior, λ, that the firm is of the good-type. Specifically, it requires that whenever HA is off-the equilibrium path, it cannot be interpreted as higher than the average firm.

Proposition 1 contains a subset of the Equilibria in Lemma 2. Hence, a separate proof of Proposition 1 is redundant and therefore omitted.

Lemma 2: *There are three, possibly overlapping, classes of calculated beliefs equilibria:*

Perfectly Separating Equilibria:

All bad-type firms issue a low profitability report in market A. Good-type firms issue a high profitability report in the U.S. (equilibrium S2), or in market A (equilibrium S1).

Pooling Equilibria:

Both firm types list on market A with low profitability report (equilibrium P1).

Partially Separating Equilibria:

Equilibria involving a U.S. Listing:

i) All good-type firms issue a high profitability report in the U.S., and bad-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS7); ii) All bad-type firms issue a low profitability report in market A, and good-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS3).

Equilibria with Listing only on Market A:

iii) All good-type firms issue a high profitability report, and bad-type firms randomize between a low profitability report and a high profitability report (equilibrium PS1);

iv) All bad-type firms issue a low profitability report, and good-type firms randomize between a low profitability report and a high profitability report (equilibrium PS2).

Conditions for Existence of the Equilibria

In order to support each equilibrium, certain conditions must hold. I show below the conditions for all of the equilibria. However, a partial sketch of the conditions' development is shown for one of the equilibria. Detailed conditions for all equilibria are available from the author.[34]

In the following, set $C= \rho K(1+\tau)$.

PS1- The following should hold, so that a manager of a bad-type firm prefers a low profitability report in market A (so that the firm is interpreted as of the bad-type) over a high report in the U.S. market (and the firm being interpreted as of the good-type): $\rho p_G H- C+\rho\gamma g(1-p_G)\eta_{GU}-\eta_{BU}(1-p_B)g < \rho p_B H \Rightarrow C > \rho(p_G-p_B)H+ g[\eta_{GU}\gamma\rho(1-p_G)-\eta_{BU}(1-p_B)]$.

For the manager of the good type firm to prefer HA over a U.S. offering, it is sufficient to show that she prefers HA over HU, when HU is interpreted as being sent by a good type firm-

$\rho p_G H+\gamma\rho g(1-p_G)\eta_{GU}-\eta_{GU}(1-p_G)p_G -C <[1/(\lambda+(1-\lambda)\beta_{HA})][\rho H(\lambda p_G+(1-\lambda)p_B\beta_{HA})+\rho\gamma g(\lambda(1-p_G)\eta_{GA}+(1-\lambda)\beta_{HA}(1-p_B)\eta_{BA})] - g\eta_{GA}(1-p_G) \Rightarrow$

$(1-p_G)g[(\eta_{GU}-\eta_{GA})(\lambda(\gamma\rho-1)-(1-\lambda)\beta_{HA}) +\lambda\rho\gamma(1-\lambda)\beta_{HA}]+\rho H(p_G-p_B)\beta_{HA}(1-\lambda) < C(\lambda+(1-\lambda)\beta_{HA})+(1-\lambda)\beta_{HA}(1-p_B)\eta_{BA}$.

In addition, for the randomization parameters to be positive, it is required that $\rho H(p_G-p_B)+g(\rho\gamma(1-p_G)\eta_{GA}-(1-p_B)\eta_{BA}>0$.

PS2- $C > g(1-p_G)(\eta_{GA}-\eta_{GU})(1-\rho\gamma g)$.

PS3- $C < H\rho p_G - g[(1-p_G)(1-\rho\gamma\lambda)(\eta_{GU}-\eta_{GA})+ (1-p_B)(1-\lambda)\eta_{BA}\gamma\rho]$, and off-equilibrium path beliefs that HA is interpreted as sent by an average firm.

PS7 - $\rho H\lambda(p_G-p_B)> g[\rho\gamma(\lambda\eta_{GA}(1-p_G)+(1-\lambda)(1-p_B)\eta_{BA})-(1-p_B)\eta_{BA}]$, and also $C< (1-\lambda)\rho H\lambda(1-\beta_{HU})(p_G-p_B\lambda)/(\lambda+\beta_{HU}(1-\lambda))- g[\gamma\rho(\lambda\eta_{GA}(1-p_G)+(1-\lambda)\eta_{BA}(1-p_{BA})-(1-p_G)\eta_{GA}]$, with off-equilibrium path beliefs that HA is interpreted as sent by an average firm.

PS8- $C= (p_G-p_B)(\rho H-g\eta_{GA})$, and off-equilibrium path beliefs that HA is interpreted as sent by an average firm.

PS9- $C= \rho(p_G-p_B)H+g(1-p_G)[\eta_{GA}-\eta_{GU}(1-\gamma\rho)]- g(1-p_B)\eta_{BA}$.

S1- $C > (1-p_G)g\eta_{GA}(1-\rho\gamma)$, $\rho H(p_G-p_B) < g[\eta_{BA}(1-p_B) -\theta\rho\eta_{GA}(1-p_G)]$ and also $C> \rho H(p_G-p_B)$.

S2- $C< \rho H(p_G-p_B)-\eta_{GU}g(1-p_G)(1-\rho\gamma)$, $\rho H(1-\lambda)(p_G- p_B)>\eta_{GU}g(1-p_G)(1-\rho\gamma)$, $C< \rho H(1-\lambda)(p_G-p_B)-g(1-p_G)[\eta_{GU}(1-\rho\gamma)-\eta_{GA}]- \lambda\gamma N$, and $\lambda\rho H(p_G-p_B)<\eta_{BA}g(1-p_B)- \rho\gamma N$, where $N= \lambda(1-p_G)\eta_{GA}+(1-\lambda)(1-p_B)\eta_{BA}$, with off-equilibrium path beliefs that HA is interpreted as an average firm.

P1- $g(1-p_G)\eta_{GA}(1-\rho\gamma)>\rho H(p_G-p_B)(1-\lambda)$. When $C > \rho H(p_G-p_B)(1-\lambda)$, the equilibrium is supported even with off-equilibrium beliefs that LU means the sender is a good-type firm.

The Randomization Parameters

The randomization parameters are found by examining the conditions under which the corresponding type is indifferent between two combinations of a report and market. For example, in PS1, a manager of a bad-type firm is indifferent between a high profitability report and a low profitability report in the alternative market, while all the good-type firms issue a high profitability report in the alternative market. A manager of a bad-type firm is indifferent when:

$$\rho MV_{LA}=\rho MV_{HA}-g\eta_{BA}(1-p_B)\Rightarrow \rho p_B H=[1/(\lambda+(1-\lambda)\beta_{HA}][\rho H\lambda p_G + (1-\lambda)\beta_{HA}p_B]+\rho\gamma g[\lambda(1-p_G)\eta_{GA} + (1-\lambda)\beta_{HA}(1-p_B)\eta_{BA}][1/(\lambda+(1-\lambda)\beta_{HA})] \Rightarrow$$

$$\beta_{HA}= \lambda[\rho H(p_G-p_B)+g(\rho\gamma(1-p_G)\eta_{GA}-(1-p_B)\eta_{BA})]/[g(1-\lambda)\eta_{BA}(1-p_B)(1-\rho\gamma)].$$

The denominator is always positive, and the condition that the numerator is positive was stated before.

In a similar fashion, we derive the randomization terms in the other partially separating equilibria (detailed derivations of are available from the author). In addition, we derive the comparative statics covered by Observations 5-8.

PS2- $\alpha_{HA}= [g(1-\rho\gamma)(1-p_G)\eta_{GA}+(1-\lambda)p_BH]/ [p_GH\lambda(1-\rho)-g\eta_{GA}\lambda(1-p_G)(1-\rho\gamma)]$.

PS3- $\alpha_{HU}= [C + \eta_{GU}g(1-p_G)(1-\gamma\rho)-\rho(1-\lambda)(p_G-p_B)H]/ \lambda[C + \eta_{GU}g(1-p_G)(1-\gamma\rho)]$.

$$Sign(\frac{\partial\alpha_{HU}}{\partial C}) =Sign \{ \lambda\rho H(p_G-p_B)(1-\lambda) \}>0.$$

$$Sign(\frac{\partial\alpha_{HU}}{\partial \eta_{GU}}) = Sign\{ \lambda g(1-\rho\gamma)(1-p_G)[g\eta_{GU}(1-\gamma\rho)(1-p_G)+C]$$

$$-\lambda g(1-\rho\gamma)(1-p_G)[C+g\eta_{GU}(1-\gamma\rho)(1-p_G)-\rho H(p_G-p_B)(1-\lambda)] \}\Rightarrow$$

$$Sign \{\rho H(p_G-p_B)(1-\lambda)\}>0.$$

$$Sign(\frac{\partial\alpha_{HU}}{\partial g})=Sign \{ (\lambda g\eta_{GU}(1-\rho\gamma)(1-p_G)+C)(\eta_{GU} (1-\gamma\rho)(1-p_G)-(C+g\eta_{GU}$$

$$(1-p_G)-\rho H(p_G-p_B)(1-\lambda))(\lambda\eta_{GU}(1-\gamma\rho)(1-p_G))\}\Rightarrow Sign \{\rho H(p_G-p_B)(1-\lambda)>0.$$

PS7- $\beta_{HU}= [\lambda/(1-\lambda)][\rho H(p_G-p_B)- C - g(\eta_{BU}(1-p_B)-\eta_{GU}\gamma\rho)]/[C+ g(1-p_B)\eta_{BU}(1-\gamma\rho)]$.

Applying the "calculated Beliefs" refinement eliminate most of the equilibria, and the result is Lemma 2. The above restriction requires that if for every off-equilibrium path belief for which the good (bad) type firm will deviate, the bad (good) type will deviate as well, the off-equilibrium path beliefs cannot be above (below) the prior, λ, that the firm is of the good-type. Specifically, it requires that whenever HA is off-the equilibrium path, it cannot be interpreted as higher than the average firm.

Proposition 1 contains a subset of the Equilibria in Lemma 2. Hence, a separate proof of Proposition 1 is redundant and therefore omitted.

Lemma 2: *There are three, possibly overlapping, classes of calculated beliefs equilibria:*

Perfectly Separating Equilibria:

All bad-type firms issue a low profitability report in market A. Good-type firms issue a high profitability report in the U.S. (equilibrium S2), or in market A (equilibrium S1).

Pooling Equilibria:

Both firm types list on market A with low profitability report (equilibrium P1).

Partially Separating Equilibria:

Equilibria involving a U.S. Listing:

i) All good-type firms issue a high profitability report in the U.S., and bad-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS7); ii) All bad-type firms issue a low profitability report in market A, and good-type firms randomize between a low profitability report in market A and a high profitability report in the U.S. (equilibrium PS3).

Equilibria with Listing only on Market A:

v) All good-type firms issue a high profitability report, and bad-type firms randomize between a low profitability report and a high profitability report (equilibrium PS1);

vi) All bad-type firms issue a low profitability report, and good-type firms randomize between a low profitability report and a high profitability report (equilibrium PS2).

The Future Profitability Component of the Market Reaction

The ex-ante expectations are similar in every equilibria:

(A2) $FPMV = [\lambda p_G + (1-\lambda) p_B] H.$

The market reaction term depends on the report and market decision,

(A3) $$FP_{rj} - FPMV = \frac{(\alpha_{rj} - \beta_{rj})(p_G - p_B)\lambda(1-\lambda)}{\lambda\alpha_{rj} + \beta_{rj}(1-\lambda)} H$$

Proposition 2- Sketch of Proof

By plugging the applicable randomization values in (A3), it is straightforward to show that in all equilibria that include high profitability report in the U.S. (i.e., S2, PS3 and PS7), the market reaction is positive. For example, in PS3, all the bad-type firms list in the alternative market with a low profitability report. Some of the good-type firms list in the alternative market with a low profitability report, and some list in the U.S. with a high profitability report ($\alpha_{HU}+\alpha_{LA}=1$; $\beta_{LA}=1$). The market reaction (corresponding to the future profitability) to a high profitability report in the U.S. is-

(A4) $$FP_{HU} - FPMV = \frac{(\alpha_{HU})(p_G - p_B)(1-\lambda)}{\alpha_{HU}} H > 0.$$

With regard to listing in the alternative market, by plugging the applicable randomization values in (A3), it is straightforward to show that in equilibria S1, PS1 and PS2, a combination HA is associated with a positive market reaction. However, in PS4 the market reaction to that same announcement is negative. That is because all the bad type firms issue a high profitability report in market A, while only good-type firms issue a high profitability report in the U.S.

Appendix B -- The Non-Discriminating Cost Differential Component of the Market Reaction

The ex-ante expectations (corresponding to the non-discriminating cost differential) are based on the proportion of firms expected to list in the U.S:

(A5) $[(\alpha_{HU}+\alpha_{LU})\lambda+ (\beta_{HU}+\beta_{LU})(1-\lambda)] K$.

The ex-post component depends on the prevailing equilibrium and in the case of a U.S. listing equals K. As a result, one could derive the terms for the reaction to an announcement of U.S. listing (equation A6) and the alternative market (equation A7):

(A6) $[(\alpha_{HU}+\alpha_{LU})\lambda+ (\beta_{HU}+\beta_{LU})(1-\lambda)-1] K$.

(A7) $[(\alpha_{HU}+\alpha_{LU})\lambda+ (\beta_{HU}+\beta_{LU})(1-\lambda)] K$.

Equilibrium	In HU/LU	In HA/LA
S2: $\alpha_{HU}=1$; $\beta_{LA}=1$	$K(\lambda-1)$	λK
PS3: $\alpha_{HU}+\alpha_{LA}=1$;$\beta_{LA}=1$	$K(\lambda\alpha_{HU}-1)$	$\lambda K\alpha_{HU}$
PS7: $\alpha_{HU}=1$; $\beta_{HU}+\beta_{LA}=1$	$K[\lambda-1+(1-\lambda)\beta_{HU}]$	$K[1+(1-\lambda)\beta_{HU}]$

Appendix C -- The Proceeds from an Investigation Procedure Component of the Market Reaction

The ex-ante expectations term corresponding to the investigation term is:

(A8) $\gamma g [\lambda(\alpha_{HU}\eta_{GU}+\alpha_{HA}\eta_{GA})(1-p_G)+(1-\lambda)(\beta_{HU}\eta_{BU}+\beta_{HA}\eta_{BA})](1-p_B)$

The ex-post expectations term corresponds to the announcement. For a high profitability report, it is,

(A9) $\gamma g [\lambda\alpha_{Hj}(1-p_G)\eta_{Gj}+(1-\lambda)\beta_{Hj}(1-p_B)\eta_{Bj}]/ [\lambda\alpha_{Hj}+(1-\lambda)\beta_{Hj}]$.

	Reaction to HU	Reaction to HA	Reaction to LU/LA
S1		$\gamma g\eta_{GA}(1-p_G)(1-\lambda)$	$-\gamma g\lambda\eta_{GA}(1-p_G)$
S2	$\gamma g\eta_{GU}(1-p_G)(1-\lambda)$		$-\gamma g\lambda\eta_{GU}(1-p_G)$
PS1		$\gamma g[\lambda(1-p_G)\eta_{GA}+\beta_{HA}(1-\lambda)(1-p_B)\eta_{BA}][1/(\lambda+\beta_{HA}(1-\lambda))-1]$	$-\gamma g[\lambda\ \eta_{GA}(1-p_G)+(1-\lambda)\beta_{HA}\eta_{BA}(1-p_B)]$
PS2		$\gamma g\eta_{GA}(1-p_G)(1-\lambda\alpha_{HA})$	$-\gamma g\eta_{GA}(1-p_G)\lambda\alpha_{HA}$
PS3	$\gamma g\eta_{GU}(1-p_G)(1-\lambda\alpha_{HU})$		$-\gamma g\eta_{GU}(1-p_G)\lambda\alpha_{HU}$
PS7	$\gamma g[\lambda(1-p_G)\eta_{GU}+\beta_{HU}(1-\lambda)(1-p_G)\eta_{BU}][1/(\lambda+\beta_{HU}(1-\lambda))-1]$		$-\gamma g[\lambda\alpha_{HU}\eta_{GU}(1-p_G)+(1-\lambda)\beta_{HU}\eta_{BU}(1-p_B)]$

Appendix D -- Wealth Benefits from a Global Listing

The benchmark is the future profitability component of the ex-ante expectations; hence, the wealth effect is:

(A10)$[\rho MV_{HU} - \rho FPMV] - g(1-p_G)\eta_{GU}$

Where: $FPMV = [\lambda p_G + (1-\lambda) p_B]H$.

Equation (A10) can be decomposed:

(A11) $\rho[(\alpha_{HU}-\beta_{HU})/\nu](p_G-p_B)(1-\lambda)\lambda H + \rho g\gamma[\lambda\alpha_{HU}(1-p_G)\eta_{GU}+\beta_{HU}(1-\lambda)(1-p_B)\eta_{BU}]/\nu - g(1-p_G)\eta_{GU}$.

Where: $\nu = [\lambda\alpha_{HU}+\beta_{HU}(1-\lambda)]$

In S2 and PS3, the result is similar: $\rho H(1-\lambda)(p_G-p_B) - g(1-\rho\gamma)(1-p_G)\eta_{GU}$.

However, in PS7, the result is:

$\{\rho H\lambda(1-\beta_{HU})(p_G-p_B)(1-\lambda)+g[(1-\lambda)(\gamma\rho\beta_{HU})(1-p_B)\eta_{BU}-\lambda(1-p_G)\eta_{GU}(1-\gamma\rho)]\}/[\lambda+(1-\lambda)\beta_{HU}]$.

For each of the above equilibria, there is a range of (p_G-p_B), and $(1-\lambda)$ where the equilibrium holds, and in which the wealth term is positive.

Appendix E- - Global Public Offerings

1) The manager's objective function

The market value corresponding to firms which issue a report, $r \in \{H,L\}$ in market $j \in \{U,A\}$ reflects expectations regarding: i) the firm's future profitability (FP_{rj}), and ii) the cost borne by any firm listing in market j (K_j).

The market value is therefore:

(A12) $MV_{rj} = FP_{rj} - K_j$.

Where: FP_{rj}, and K_j are similar to the terms in Appendix A.

Incorporating the market value, the manager's objective function can be rearranged as follows:

(A13) $$\underset{r\in\{H,L\},j\in\{U,A\}}{\text{Min}} \frac{\phi[p_i H+(1-p_i)\eta_{ij}M_r][\lambda\alpha_{rj}(Hp_G-K_j)]+I[p_i H+(1-p_i)M_r\eta_{ij}D][\lambda\alpha_{rj}+(1-\lambda)\beta_{rj}]}{\lambda\alpha_{rj}(Hp_G-K_j)+(1-\lambda)\beta_{rj}(p_B H-K_j)}$$

2) Welfare comparison

The benchmark for the welfare comparison is the expected wealth in the domestic market:

(A14) $$p_i H\left[1-\left(\phi+\frac{I}{H(\lambda p_G+(1-\lambda)p_B)}\right)\right]$$.

For a manager of a good-type firm reporting high profitability in the U.S., the change in welfare can be expressed as:

(A15) $$\frac{-[\phi MV_{HU}+I][p_G+(1-p_G)\eta_{GU}D]MV_B+[MV_B\phi+I]p_G HMV_{HU}}{MV_B MV_{HU}}$$

where: $MV_B = \lambda p_G+(1-\lambda)p_B$.

The denominator is always positive, and the numerator can be rewritten as:

(A16) $I[MV_{HU}p_G-MV_B[p_G-(1-p_G)\eta_{GU}D]]-\phi MV_{HU}(1-p_G)\eta_{GU}DMV_B$.

Using the value of MV_{HU} in the term,

(A17) $\{I[p_G-W]H[p_G(\lambda p_G\alpha_{HU}+(1-\lambda)p_B\beta_{HU})-(\lambda p_G+(1-\lambda)p_B(\lambda\alpha_{HU}+(1-\lambda)\beta_{HU})]-$
$\phi H(1-p_G)\eta_{GU}D[\lambda p_G+(1-\lambda)p_B][\lambda p_G\alpha_{GU}+(1-\lambda)p_B\beta_{HU}]H\}/[\lambda\alpha_{HU}+(1-\lambda)p_B]$.

The denominator is always positive, and the numerator may be restated for the relevant equilibria-

In equilibria PS3 and PS4, the term can be rearranged:

(A18) $I[p_G-w]H[p_G^2-[\lambda p_G+(1-\lambda)p_B]]-\phi HW[\lambda p_G+(1-\lambda)p_B]H$.

where $W=(1-p_G)\eta_{GU}D$.

In equilibrium PS7, the term is:

(A19) $I[p_G-W]H[p_G[\lambda p_G+(1-\lambda)\beta_{HU}p_B]-[\lambda p_G+(1-\lambda)\beta_{HU}]]/[\lambda+(1-\lambda)\beta_{HU}]$ -
$\phi H^2W[\lambda p_G+(1-\lambda)p_B][\lambda p_G+(1-\lambda)p_B\beta_{HU}]/[\lambda+(1-\lambda)\beta_{HU}]$ and it is straightforward to show that Observation 4 applies here.

3) Randomization values

Below is the randomization value in the equilibrium that is addressed in the comparative statics:

PS3: $\alpha_{HU}= \frac{[(1-\lambda)p_B+p_G\lambda][H(T_3-\phi)]-I(1-\lambda)}{\lambda[I-Hp_G(T_3-\phi)]}$

where $T_3 = \frac{[(p_G H-K)\phi+I][p_G H+(1-p_G)\eta_{GU}D]}{[p_G H-K]p_G H}$

It is straightforward to show that Observations 4-6 remain intact.

References

Adler L., 1995, "Wall Street Targets Foreign Companies for Growth," The Reuters European Business Report, BC cycle, June 14.

Alexander-Cooper J., 1994, "The Value of Bad News in Securities Class Actions," UCLA Law Review, 41:1421-1450.

-- , 1993, "The Lawsuit Avoidance Theory of Why Initial Public Offerings are Underpriced," UCLA Law Review, 41:18-73.

---, 1991, "Do the Merits Matter? A Study of Settlements in Securities Class actions," Stanford Law Review, 43:498-598.

Alford A.W. and J.D. Jones, 1995, "Financial Reporting and Information Asymmetry: An Empirical Analysis of the SEC's Information Supplying Exemption for Foreign Companies," Working Paper, University of Pennsylvania and U.S. Securities and Exchange Commission, September 1995.

Allen F. and Faulhaber G.R., 1989, "Signaling by Underpricing in the IPO Market," Journal of Finance 23n2:303-324.

Allen S. and S. O'Connor eds., 1992, The G.T. Guide to World Equity Markets 1992, Euromoney Publications PLC and G.T. Management PLC.

Amihud Y. and H. Mendelson, 1986, "Asset Pricing and the Bid-Ask Spread," Journal of Financial Economics, 17: 223-249.

Amir E., T.S. Harris and E.K. Venuti , 1993, "A Comparison of the Value Relevance of U.S. versus Non U.S. GAAP Accounting Measures Using Form 20-F Reconciliation," Journal of Accounting Research 31 (Supplement): 230-264.

Bagwel L.S. and B.D. Bernheim, 1996, "Veblen Effects in a Theory of Conspicuous Consumption," The American Economic Review 86n3:349-373.

Baumol W. J. and B. G. Malkiel, 1992, "Redundant Regulation of Foreign Security Trading and U.S. Competitiveness," in Modernizing U.S. Securities Regulation (K. Lehn & R. Kamphuis eds., 1992), and also in Journal of Applied Corporate Finance 5, 19-27.

Bloomenthal H. S., 1996, Securities and Federal Corporate Law, Clark, Boardman and Callaghan V3B.

-- and S. Wolff, 1996, "Transnational Aspects of U.S. Securities Laws," in International Capital Markets and Security Regulations, H.S. Bloomenthal and S. Wolff eds., Clark Boardman and Callaghan.

Brancato C.K., 1996, Getting Listed on Wall Street- The Irwin Guide to Financial Reporting Standards in the U.S, Irwin Professional Publishing: NY.

Bray N., 1995, "London Stock Exchange is under Siege," Wall Street Journal, September 29.

Breeden R.C., 1994, "Foreign Companies and U.S. Securities Markets in a Time of Economic Transformation," Fordham International Law Journal 17:77-96.

Butterfield J. and J. Regan, 1995, “Stock Market Roundup,” Extel Examiner, December 21.

Cairns D., 1995, “Accountancy: World Moves Closer to International Standards - The Gaps in Global Financial Reporting Practice are Narrowing,” Financial Times May 11.

Chan K.C. and G.S. Seow, 1996, “The Association Between Stock Returns and Foreign GAAP Earnings vs. Earnings Adjusted to U.S. GAAP, Journal of Accounting and Economics 21:139-158.

Chemmanur, T., 1993, “The Pricing of Initial Public Offerings: A Dynamic Model with Information Production,” Journal of Finance 48: 285-304.

Cho I. and D. Kreps, 1987, “Signaling Games and Stable Equilibria,” Quarterly Journal of Economics CII:179-221.

Chowdhry B. and V. Nanda, 1991, “Multimarket Trading and Market Liquidity,” The Review of Financial Studies 4n3: 483-511.

Cochrane J. L., 1994, “Are U.S. Regulatory Requirements for Foreign Firms Appropriate?,” Fordham International Law Journal 17: 58-67.

Cooper D.J., S. Garvin and J.H. Kagel, 1997, "Adaptive Learning vs. Equilibrium Refinements in an Entry Limit Pricing Game," Economic Journal, 107(442):553-575.

Cooper I.A. and E. Kaplanis, 1995, “Partially Segmented International Capital Markets, Securities Market Equilibrium and Corporate Financial Policy,” Working Paper, Institute of Finance and Accounting, London Business School.

Cooter R.D. and D.L. Rubinfeld, 1989, “Economic Analysis of Legal Disputes and Their Resolution,” Journal of Economic Literature 27: 1067-1097.

Corrigan T. and R. Graham, 1996, “US regulators files fraud suit against Montedison,” Financial Times, November 22.

Cox J. D., 1992, “Rethinking U.S. Securities Laws in the Shadow of International Regulatory Competition,” Law & Contemporary Problems 55n4:157-198.

Coyle, R.C. 1995, The McGraw-Hill Handbook of American Depositary Receipt, McGraw-Hill.

Datar S.M., G.A. Feltham and J.S. Hughes, 1991, “ The Role of Audits and Audits Quality in Valuing New Issues,” Journal of Accounting and Economics 14: 3-49.

Davis S., 1994, “The allure of ADRs, “ Institutional Investor, September 1994.

Economist, 1995, “That’s the Way the Money Comes,” The Economist, November 11.

--, 1994, “Stockmarket Listings; Plunging into Foreign Markets,” The Economist, September 17.

Edwards F. R, 1992, “ Listing of Foreign Securities on U.S. Exchanges,” in Modernizing U.S. Securities Regulation: Economic and Legal Perspectives (K. Lehn & R. Kamphuis eds., 1992) 53-70, and also in Journal of Applied Corporate Finance 5, 28-36.

Errunza V. and E. Losq, 1985, “International Asset Pricing under Mild Segmentation: Theory and Tests,” Journal of Finance , 40n1: 105- 124.

Euromoney, 1992, International Securities Law, Euromoney Publications: London.

Feltham G.A., F.B. Gigler and J.S. Hughes, 1992, "The Effects of Line of Business Reporting on Competition in Oligopoly Settings," Contemporary Accounting Research, Fall 1992:1-23.

FIBV (International Federation of Stock Exchanges), Annual Report and Statistics, various issues.

Foerster S.R. and G.A. Karolyi, 1996, "The Effects of Market Segmentation and Illiquidity on Asset Prices: Evidence from Foreign Stock Listing in the U.S.," Working Paper, Ohio State University.

Francis J., D. Philbrick and K. Schipper ,1994a, "Earnings Surprises and Litigation Risk," Working Paper, University of Chicago.

---, 1994b, "Shareholder Litigation and Corporate Disclosure," Journal of Accounting Research 32n2:137-164.

Frost C.A. and G. Pownall, 1994, "Accounting Disclosure Practices in the United States and the United Kingdom", Journal of Accounting Research 32n1, 75-102.

Fuerst O., 1997, "The Post-Listing Operating Performance of Firms with Global Listing of Stocks," Working Paper, Yale School of Management.

Gigler F., J.S.Hughes and J. Rayburn, "International Accounting Standards for Line of Business Reporting and Oligopoly Competition," Contemporary Accounting Research, Fall 1994: 669-632.

Grinblatt M. and C.Y. Hwang, 1989, "Signaling and The Pricing of New Issues," Journal of Finance 44n2: 393-420.

Harris T. S., 1995, International Accounting Standards versus US-GAAP Reporting: Empirical Evidence based on Case Studies for Example, South Western College Publishing.

Huddart S., J.S. Hughes and M. Brunnermeier, "Disclosure Requirements and Stock Exchange Listing Choice in an International Context," Working Paper, Duke Unoiversity.

Jain B. A. and O. Kini, 1994, "The Post-Issue Operating Performance of IPO Firms," Journal of Finance 49n5: 1699-1726.

Janvey, R.S., 1992, Regulation of The Securities and Commodities Markets, Warren Gorham Lamont.

Kreps D. and R. Wilson, 1982, "Sequential Equilibria," Econometrica, 50:863-894.

Lapper R., 1996a, "Demands for Capital Grow," Financial Times, September 27, p.15.

--, 1996b, "International Investors Lap-Up the Equity Flood," Financial Times, September 30.

--, 1996c, "Banks Battle for Deals of the Decade," Financial Times, International Equity Survey, October 8.

--, 1995, "Survey of World Economy and Finance," Financial Times, October 6.

Lau S.T., J.D. Diltz and V.P. Apilado, 1994," Valuation Effects of International Stock Exchange Listings," Journal of Banking and Finance 18:743-755.

Lev B., 1995, "Disclosure and Shareholders Litigation," California Management Review 37n3: 8-28.

Livingston J.G., 1996, "Management-Borne Costs of Fraudulent and Misleading Financial Reporting," Working Paper, University of Rochester.

London Stock Exchange, 1996a, A Guide for Issuers- Listing Shares, London Stock Exchange.

--, 1996b, A Guide for Issuers-Listing Depositary Receipts, London Stock Exchange.

Melumad, N. D. and L. Thoman, 1991, "An Equilibrium Analysis of Optimal Audit Contracts," Contemporary Accounting Research 7n1:22-55.

---, 1990, "On Auditors and the Court in an Adverse Selection Setting," Journal of Accounting Research 28n1:77-120.

Melumad N. D. and A. Ziv, 1995, "A Theoretical Examination of the Market Reaction to Auditors' Qualifications," Forthcoming, Journal of Accounting Research.

Merton R.C.,1987, "A Simple Model of Capital Market Equilibrium with Incomplete Information," Journal of Finance 42n3:483-510.

Milgrom P. and J. Roberts, 1986, "Price and Advertising Signals of Product Quality," Journal of Political Economy 94n4:796-821.

Miller, D.P., 1996, "Why Do Foreign Firms List in the United States? An empirical Analysis of the Depositary Market," Working Paper, Graduate School of Management, University of California at Irvine.

Morse G.K., 1996, "United Kingdom", in International Capital Markets and Security Regulations, H.S. Bloomenthal and S. Wolff eds., Clark Boardman and Callaghan.

Myers S.C. and N.S. Majluf, 1984, "Corporate Financing and Investment Decisions when Firms have Information that Investors Do Not Have," Journal of Financial Economics 187-221.

Narayanan V.G., 1994, "An Analysis of Auditor Liability Rules," Journal of Accounting Research 32 (Supplement) 39-64.

Polinsky A.M. and D.L. Rubinfeld, 1996, "Optimal Awards and Penalties When the Probability of Prevailing Varies Among Plaintiffs," Rand Journal of economics 27n2:269-280.

Price C., 1996, "Easdaq Pins Hopes on Nasdaq," Financial Times September 30.

Reuters, 1992, "U.S. Suit Filed Over B.P. Dividend Cut," August 6.

--, 1990, "Saatchi and Saatchi Directors Sued by Shareholders," February 22.

Ross S.A., 1977, "The Determination of Financial Structure: The Incentive-Signaling Approach," Bell Journal of Economics 8: 23-40.

Rubinstein A., 1991, "Comments on the Interpretation of Game Theory," Econometrica 59n4:909-924.

Salomon Brothers, 1994, "Accessing the U.S. Equity Capital Markets, a Guide for Non-U.S. Issuers," Salomon Brothers, October 1994.

Saudagaran S.M and Biddle G. C., 1995, "Foreign Listing Location: A Study of MNCs and Stock Exchanges in Eight Countries," Journal of International Business Studies, Second Quarter, 319-341.

Schneider M.A., 1994, "Foreign Listings and the Preeminence of U.S. Securities Exchanges: Should the SEC Recognize Foreign Accounting Standards?," Minnesota Journal of Global Trade 3, Summer, 1994.

Teoh, S. H., T.J. Wong and G. Rao, 1993, "Earnings Management and the Long-Term Market Performance of Initial Public Offerings," Working Paper, UCLA.

Titman S. and B. Trueman, 1986, "Information Quality and the Valuation of New Issues," Journal of Accounting and Economics 8:159-172.

Tokyo Stock Exchange, Fact Book, various issues.

Trueman B., 1994, "Managerial Disclosures and Shareholder Litigation," Working Paper University of California at Berkeley.

Vickers J. and Yarrow G., 1991, "Economic Perspective on Privatization," Journal of

Economic Perspectives 5n2:111-132.

Warbrick, M. S., 1994, "Practical Company Experience in Entering U.S. Markets: Significant Issues and Hurdles from the Issuer's perspective," Fordham International Law Journal 17: 112.

Weisbrod S.R. and H. Lee, 1993, "The Role of Financial Intermediaries During Asset Deflation: Case Studies of Japan, Korea and Taiwan (China)," in Portfolio Investment in Developing Countries, S. Claessens and S. Gooptu eds., 228 World Bank Discussion Papers.

Witmer R., 1996, "Senate Overrides President's Veto; Securities Litigation Reform Bill Now Law," Securities Regulation and Law Report, January 5.

World Securities Law Report, 1996a, "Japanese Officials Mull Listing of Depositary Receipts on TSE," V2n5(May):15.

---, 1996b, "MoF Unveils Deregulation Measures Affecting Listing of Foreign Shares," V2n1(January):12-13.

---, 1996c, "Istanbul Exchange to Launch Market for Foreign Securities," V2n7(July):26.

Endnotes:

1 For example, by the end of 1994, the market capitalization of foreign equities traded on the LSE was $3,127 billion (compared to $1,221 billion of domestic equities), while in the New York Stock Exchange (NYSE) foreign equities were $218 billion (compared to $ 4,280 billion of domestic equities) – Bray (1995). Recently, however, more companies have listed on the NYSE relative to other major markets (Salomon Brothers 1994; Breeden 1994). For example, from 1991-1994, the NYSE "gained" 112 foreign listings, while Tokyo "lost" 30 and London "lost" 83. By the end of 1995, 247 foreign firms were listed on the NYSE, compared to 77 foreign firms on the Tokyo Stock Exchange and 531 foreign firms on LSE (Tokyo Stock Exchange 1996; New York Stock Exchange 1995; London Stock Exchange 1994).

2 The certification role of listing in a strict regulatory environment is consistent with the investment behavior of U.S. mutual funds. While many of these funds are not constrained to invest in firms with U.S. listed securities, they tend to invest in foreign firms with ADR. However, the actual investment is usually conducted in the firms' home market, if such market is liquid.

3 Much research has been done with respect to U.S. firms changing their domestic marketplace or adding another domestic marketplace (e.g., Baker et al. 1994; Kadlec and McConnell 1994). The documented positive market reaction was consistent with Merton's (1987) investor recognition factor (abnormal returns due to increased investor base) and Amihud and Mendelson's (1986) liquidity factors (abnormal returns related to decreased bid-ask spread).

4 Another line of research focuses on the listing of *U.S. firms* on *other stock markets* (e.g., Fuerst, 1998; Lau et al. 1994). A general finding is that foreign listing for U.S. firms is not associated with significant or permanent changes in shareholder wealth. That is consistent with the implications derived from the model presented here: once the shares are listed on the market with strict regulatory regime, listing on a market that does not add a substantial regulatory layer does not convey additional positive information regarding the firm's future prospects.

5 A foreign company may have its *existing* securities listed in the U.S. as American Depositary Receipts (ADRs): Level I (for trading over-the-counter) and Level II (for listing on a national securities exchange or NASDAQ). A foreign company may raise new capital in the United States via a public offering (using ADR Level III or via a direct public offering), or via a private placement. American Depositary Receipts are certificates representing a fractional ownership of a foreign security issued and traded abroad. These are issued by a depositary institution (e.g., a U.S. bank). The Depositary institution has to physically possess the underlying foreign security to back the ADRs issued (Coyle 1995; Janvey 1992)

6 Starting in October 1983, and unless specifically exempted, all foreign firms listing on U.S. exchanges/ NASDAQ are subject to the registration and reporting requirements of the Securities Act of 1933 (which relates to the distribution of securities) and the Securities Exchange Act of 1934 (which involves the trading of securities).

Under the Securities Exchange Act of 1934, the annual report of foreign firms listing on a U.S. exchange/NASDAQ must either conform to: 1) U.S. GAAP or 2) the accounting standards of the listing firm's home country, with *partial* reconciliation to U.S. GAAP. Nevertheless, the partial reconciliation to U.S. GAAP typically represents more disclosure than that required in other foreign markets (Brancato 1996). Under the Securities Act of 1933, the financial statements of a foreign company conducting its first public offering (in the U.S.) must follow U.S. GAAP or provide a *full* reconciliation to U.S. GAAP. Furthermore, the financial statements must include supplemental information that is required only in the United States. A U.S. public offering also subjects the foreign issuer to the reporting requirements of the Securities Exchange Act of 1934.

7 Indirect costs associated with the product market may arise as well. In particular, additional disclosure may have an impact on the firm's competitive position in the market (see for example Feltham et al. 1992 and Gigler et al. 1994. In my setting, these costs are included in the non-discriminating costs (see below).

8 Note that recent U.S. legislation attempts to minimize what is perceived to represent frivolous private securities litigation. However, the frequency of class action suit did not decline in the periods following that legislation.

9 William H. Donaldson, the former Chairperson of the NYSE, claims that foreign markets generally *offer less protection* to investors (Schneider 1994). Donaldson also suggests that foreign markets generally offer *less efficient* trading and settlement practices than U.S. markets. Nevertheless, studies indicate that other major foreign exchanges may be as efficient as the U.S. exchanges (e.g., Baumol and Malkiel 1992).

10 In my model, firms differ in their future profitability and hence have different tradeoffs in deciding on listing location. The managers of those firms have to consider his/her personal holdings in the firms, his/her personal liability as well as the listing cost borne by the firm, all of which depend on the listing location and the profitability report being issued, and on the private information the manager has regarding the true future profitability of the firm.

11 Alternatively, even without direct equity holdings, the manager's compensation can be affected by the market value of the firm, with ρ reflecting the sensitivity of the manager's compensation to the firm's market value at the time of the listing.

12 A foreign firm whose shares are listed abroad can register its current shares as ADR Level I. With ADR Level I the firm need not file reconciled reports. Although subject to the fraud rules (mainly Rule 10b-5), such a firm operates under a higher litigation threshold. In our model, firms listing depositary receipts on the alternative market (Global Depositary Receipts-GDRs) combined with ADR level I, are considered to be firms that "chose" market A. Similarly, firms listing on both the U.S. public market and on market A, are considered to be those which chose U.S. listing.

13 I assume that the alternative market has comparable liquidity to the U.S. market (liquidity-based arguments for market price differences are discussed extensively in the literature, e.g., Chowdhry and Nanda 1991). However, these studies do not compare the listing decision between two *similar* markets (with respect to liquidity). Our assumption is consistent with the current situation where the volume of foreign equity trading in LSE is comparable to foreign equity trading volume in NYSE (London Stock Exchange 1994). Therefore, any change in the market value due to added liquidity is reflected in the price prior to the decision. That is because the impact of liquidity is independent of the market where the listing takes place. This assumes that a general decision to list abroad was both made and announced. Note: Although dual-listing (on the U.S. market *and* on market A) adds a liquidity component to the price, it does not change the nature of the results.

14 Most of the recent class action suits and SEC enforcement actions against foreign firms listing in the U.S. were filed following a global public offering. Clearly, however, class action suits are also filed against foreign firms that did not raise new equity (e.g., Butterfield and Regan 1995).

15 The actual amount received by the investors is the damage award, minus legal costs and the manager's non-monetary and indirect costs. For further discussion regarding the reputation component of the damage payment, and the impact of management liability insurance, refer to Section 4.2.3.

16 Even if Dj differs between markets ($Dj \in \{U,A\}$), as long as $DU \geq DA$, the qualitative results do not change.

17 The damage amount in this model is exogenous and does not take into account the price decline. However, the literature suggests that the actual damages the managers suffers from is mostly of reputation nature (see comments above) and depends on the investigation procedure rather than the magnitude of the suit.

18 Recent studies incorporating similar assumptions include Narayanan (1994) and Polinsky and Rubinfeld (1996).

19 In general, a Sequential Equilibrium includes, in addition to specifying a strategy for each player (here, investors and the managers), a set of beliefs. The Sequential Equilibrium concept requires that (consistent) beliefs would be defined for every information set, including those off-the equilibrium path.

20 The "Intuitive Criterion" introduces restrictions on off-equilibrium path beliefs. In the case here, it requires that in any equilibrium no actions (i.e., combinations of announced profitability report and market listing) may exist that are not being taken but, if believed (by investors) to indicate a good-type firm, would have been taken by a manager of a good-type firm, but not by a manager of a bad-type firm. Such actions,

in turn, would have been interpreted by investors as indicating a good-type firm, and the equilibrium could not have sustained.

21 In general, the "Calculated Beliefs Criterion" (Melumad and Thoman 1991) requires that if for every off-equilibrium path belief for which the good (bad) type firm will deviate, the bad (good) type will deviate as well, the off-equilibrium path beliefs cannot be above (below) the prior, λ, that the firm is of the good-type.

22 One interpretation of the randomization values is that each firm represents a large set of firms. Each of these firms chooses an action where the payoff depends on the fraction of the population that selects each of the actions (Rubinstein 1991).

23 In this setting the regulatory environment is taken here as exogenous, as the investor protection regulatory environment is a result of regulators, entrepreneurial exchanges and agencies representing investors. The magnitude of changes the exchanges themselves control is rather limited, as the literature on firms switching from NASDAQ to NYSE indicate.

24 Ignoring the non-discriminating cost differential, none of the equilibria with some separation between types involves "money burning," where an action imposes the same cost on both types (e.g., Bagwell and Bernheim 1996; Milgrom and Roberts 1986). That is because there are differences (between types and between markets) in the probabilities of bearing the damage, $D(1-\rho)$.

25 The effect for all the relevant equilibria is shown in Appendix B.

26 The ex-ante term, the ex-post terms, and the market reaction corresponding to the investigation procedure in all the relevant equilibria are shown in Appendix C.

27 Note that in Melumad and Ziv (1995), the expectations regarding the proceeds from litigation can reverse an otherwise negative market reaction (in their case, to a qualified auditor's report). In our model, PS4 is the only equilibrium where the proceeds from an investigation procedure can potentially offset a negative market reaction (corresponding to the future profitability component). However, within the parameter ranges in which the equilibrium can prevail, such a case cannot occur.

28 Incorporating investors' expectations regarding the *probability* of allowing international listing would have moderated the wealth impact. However, incorporating the impact of added liquidity over domestic listing would have strengthened that impact.

29 For similar assumptions in the IPO literature, see Chemmanur (1993) and Allen and Faulhaber (1989).

30 Other means of conveying the firm's quality may be used in the process of capital raising. In the accounting context, these may include: the selection of auditor quality (Titman and Trueman 1986; Datar et al. 1991) or the use of an auditor (Melumad and Thoman 1991, 1990). However, the existence of an auditor does not preclude management's discretion in reporting the nature of the firm's profitability. That assumption is consistent with the findings regarding earnings' management in Initial Public Offerings (Jain and Kini, 1994; Teoh, Wong and Rao 1993).

31 ADR level I are not listed on the exchanges, and are traded either on the "Pink Sheets" or on the Electronic Bulletin Board (EBB), both of which has low reputation associated with them due to the U.S. penny stock schemes. Therefore, these should not be considered, at least at this point in time, as representing the liquid trading mechanism that I am referring to.

32 There are also some possible "knife edge" equilibria: 1) the perfectly separating equilibrium S3, where good-type firms randomize between a low profitability report in the U.S. and a high profitability report in market A and the bad-type firms issue a low profitability report in market A; 2) the partially separating equilibria PS8 and PS9, where both firm types randomize.

33 The numbers on top of each of the bad type firms columns refer to the corresponding row for the good type firms. For example, the cell numbered 1 refers to: βHU, βLU,$\beta HA=0$,$\beta LA=1$.

34 In equilibria where HU,HA, LU or LA are off the equilibrium path, off-equilibrium path beliefs supporting the equilibrium are that the firm issuing the above combined message is of the good-type, good-type, bad-type and bad-type, respectively; that is, a high profitability report is interpreted as a good-type firm and a low profitability report is interpreted as a bad-type firm. Whenever an equilibrium is supported by other off-equilibrium beliefs, they are specified.