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**Regulatory Arbitrage for Real: International Securities Regulation in a
World of Interacting Securities Markets**

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Regulatory Arbitrage for Real: International Securities Regulation in a World of Interacting Securities Markets

In recent years, the internationalization of securities markets has accelerated its pace and broadened in scope,¹ as it has become easier to trade securities around the world. A growing number of countries -- both developed and developing -- are opening their stock markets to foreign investors and abolish laws restricting their citizens from investing abroad. Companies that heretofore had to raise capital only domestically can now tap foreign sources of capital that demand lower rates of return. In order to do so, companies may list² their stocks on foreign stock exchanges while investors may trade overseas.³

US markets and investors are directly affected by this trend. Hundreds of American securities are traded on foreign stock exchanges by the larger US, Japanese, and

¹ As of July 1996, there were five foreign firms listed on the London Stock Exchange and one foreign firm listed on the New York Stock Exchange which were listed there before 1912. All of them were Canadian railway firms. Major industrial, financial, and mining foreign companies became listed during the post-World War II years. The steep growth in the number of foreign listings on both markets started only in the mid-1980. London Stock Exchange, letter to the author, 31 July 1996; New York Stock Exchange, letter to the author, 31 July 1996. For comprehensive statistics of foreign listings and turnover around the world, see London Stock Exchange, *Quality of Market Review* (current issue).

² For reasons of brevity the term "listing" is used throughout this work, although strictly speaking, listing is limited to a voluntary registration of a stock in a certain stock exchange by the issuing company. In reality, dealers can quote bid and ask prices for a stock without the issuer's consent. An unsponsored ADR (see text below) represents precisely such kind of security. Moreover, at least within the US domestic market, *stock exchanges* can and do formally list stocks notwithstanding the issuer's objections. See Yakov Amihud and Haim Mendelson, *A New Approach to the Regulation of Trading across Securities Markets*, 71 NY U. L. REV. 121 (1996).

³ Companies also make foreign listings to increase their stocks' liquidity, for marketing, and other financial and business reasons. See Gary C. Biddle and Shahrokh M. Saudagaran, *Foreign Listing Location: A Study of MNCs and Stock Exchanges in Eight Countries*, 26 J. INT'L BUS. STUD. 319 (1995); Kent H. Baker, *Why U.S. Companies List on the London, Frankfurt, and Tokyo Stock Exchanges*, 6 J. INT'L SECURITIES MARKETS 219 (1992); Usha R. Mittoo, *Managerial Perceptions of the Net Benefits of Foreign Listing: Canadian Evidence*, 4 J. INT'L FIN. MANAG. & ACC. 40 (1992).

European broker-dealers, that have established trading desks at the major securities markets around the world.⁴ At the same time, a growing number of foreign securities are traded in American markets, especially through the use of American Depository Receipts (ADRs).⁵ The internationalization of securities markets thus entails deeper integration between markets.

This Paper argues that the globalization of stock markets -- manifested *inter alia* by listing and trading on foreign exchanges -- also entails legal interdependence, particularly in what concerns securities regulation and corporate governance regimes. Securities and corporate laws are ideally enacted by each country to provide an efficient social order for investment and production.⁶ These laws directly affect the firms and individuals subject to them. Finance theory teaches us that the impact the law has on publicly traded firms is quick to get impounded in stock prices. In other words, the content of the law -- broadly defined, to encompass procedural and enforcement mechanisms -- directly affects stockholder value. Better laws mean higher stock prices and vice versa.

⁴ UNITED STATES SECURITIES AND EXCHANGE COMMISSION, MARKET 2000 -- AN EXAMINATION OF CURRENT EQUITY MARKET DEVELOPMENTS II-13 (1994) (hereinafter: MARKET 2000).

⁵ For extensive overviews see Mark A. Saunders, *American Depository Receipts: An Introduction to U.S. Capital Markets for Foreign Companies* 17 FORDHAM INT'L L. REV. 48 (1993); Douglas B. Spoons, *Exploring American Depository Receipts: The International Augmentation of U.S. Securities Markets*, 6 THE TRANSNT'L LAW. 181 (1993).

⁶ This is the public interest view of law making. Other views, e.g., public choice theory, are more skeptical with regard to the goals that are actually furthered by law makers and regulators. The arguments presented in the Paper apply with equal force, if not *a fortiori*, under such views as well. See, e.g., Enrico Colomabtto and Jonathan R. Macey, *A Public Choice Model of International Economic Cooperation and the Decline of the Nation State*, 18 CARDOZO L. REV. 925 (1996).

When a stock trades on more than one market a complex trading structure develops. Trading is split among several markets, but arbitrageurs stand ready to close any gap that develops between prices of the same security in each market. Such arbitrage transactions are virtually riskless and thus ensure that beyond the very short run only one price prevails for each security. The role played by each market, however, is different. With regard to each security, one market (usually in the firm's home country) operates as a dominant market, capturing most of the trading volume and leading the process of price discovery. Other markets function as satellites. They contribute less to price discovery and oftentimes free-ride the price information which emanates from the dominant market.

Markets' position as dominant or satellite reflects the distribution of informed traders among them -- a fact which bears direct regulatory consequences. On the one hand, informed trading promotes the informational efficiency of the market and may thus be deemed desirable. On the other hand, at least part of the informed trading may be considered intolerable according to some countries' standards when it is effected by certain categories of "insiders". It follows that when securities transactions are subject to more than one legal regime trading structure may be affected by all of these regimes. More importantly, the effectiveness of each regime is influenced by that of all the others. Should one country fail to curb insider trading insiders could in principle direct their trades to that market and thus frustrate the regulatory objectives of the other countries.

A similar story can be told about corporate disclosure. A firm that lists on several markets subjects itself to a number of different disclosure regimes. Being a public good, any piece of information disclosed pursuant to one regime is immediately available --

under the Efficient Capital Market Hypothesis (ECMH) -- to all the other markets and investors. It is not difficult to see a regulatory conflict developing where disclosure of a particular item is deemed beneficial to investors by regulators in country A but harmful by their counterparts in country B.

Regulatory arbitrage traditionally is mentioned to indicate a phenomenon whereby regulated entities migrate to jurisdictions imposing lower regulatory burdens. By doing so they exert a downward pressure on those jurisdictions that want to retain the regulated activity within their borders. The dynamic presented in this work is different in the sense that no migration of entities takes place. Firms remain under their original home country jurisdiction, but by opting into *another* regulatory jurisdiction they pit one regulatory regime against the other. For investors this means that they could sometimes have the best of all worlds but in other cases they might effectively end up with the worst. Stated from a regulatory policy viewpoint, regulators in country A can either enhance or debilitate a regulatory regime promulgated in country B. “Regulatory arbitrage” ceases to be a metaphor at this point and becomes a very real phenomenon. This Paper seeks to explain when and how do these effects take place.

Conducting a fruitful discussion of the legal and regulatory aspects pertaining to international securities markets requires first to discern the consequences of interaction between them. After all, there is little sense in discussing desirable legal rules before ascertaining what would be their expected outcomes and to what extent are they desirable indeed. Such analysis is important for assessing unilateral regulatory action; it absolutely essential when international regulatory initiatives are at issue, e.g., the International

Organization of Securities Regulators (IOSCO) or the European Union (EU). The legal scholarship has generally failed to undertake this task⁷ -- a fact which might make some recent analyses out of actual context. Unfortunately, there is also a dearth of integrative writing in the international finance literature.⁸ This work is thus unique in providing a comprehensive discussion of the numerous aspects associated with this important phenomenon.⁹ Perhaps more importantly, the analysis presented here is anchored in and critiques a wide array of empirical scholarship related to foreign listing -- neither of which exists so far.

The Paper proceeds as follows. Section A organizes the existing theory and evidence on multiple listing and capital market integration in order to create a coherent context for the policy oriented discussion that follows. Section B peeks into the “engine room” of international capital markets by discussing the effect of multiple listing on market microstructure, the flow of information, and patterns of informed trading. It then translates the theory and empirics of these issue into a set of regulatory concerns. Section

⁷ But see Jeffrey G. Macintosh, *International Securities Regulation: Of Competition, Cooperation, Convergence, and Cartelization*, Working Paper (1996), which slightly touches upon the issues discussed here.

⁸ The few existing reviews discuss international capital integration in general. See Rene M. Stulz, *International Portfolio Choice and Asset pricing: An Integrative Survey*, in R.A. JARROW, V. MAKSIMOVIC, AND W.T. ZIEMBA, EDs., 9 HANDBOOKS IN OPERATIONS RESEARCH AND MANAGERIAL SCIENCE, FINANCE, Ch. 6 (1995); Alan Alford, *Assessing Capital Market Segmentation: A Review of the Literature*, in STANLEY R. STANSELL, ED., INTERNATIONAL FINANCIAL MARKET INTEGRATION 3 (1993); Michael Adler and Bernard Dumas, *International Portfolio Choice and Corporation Finance: A Synthesis*, 38 J. FIN. 925 (1983). Understandably, these works do not pay specific attention to other issues which are relevant to foreign and multiple listing, such as its implications on market microstructure.

⁹ Note, however, that while I intend to be comprehensive, I do not purport to provide here a formal review of the international finance literature -- a task well beyond the scope and purpose of this work.

C assesses the role of capital market informational efficiency in the pricing of legal rules in an international setting and shows how national regulatory regimes might undermine one another. Section D concludes.

A. Foreign Listing and Capital Market Integration

1. Causes of Market Segmentation

The internationalization of securities markets is an outcome of demand and supply. Investors create the demand for foreign securities in order to diversify away some of the systematic risk pertaining to their domestic market and to achieve higher gains from securities that offer more attractive combinations of risk and return. An array of reasons drive supply side, i.e., the decision firms make to list their stock abroad. This Paper focuses on firms' financial motivations, as opposed to other business and managerial considerations which play a significant role in the intra-firm decision.¹⁰ It also abstracts from the motivations investors may have to invest in foreign securities and from the patterns these investments assume in practice (e.g., home bias¹¹). These aspects warrant separate discussion.

We start with the notion of market segmentation which is defined as a situation where assets having similar profiles of risk nevertheless command different levels of

¹⁰ See *supra* note 1.

¹¹ See, e.g., Raman Uppal, *The Economic Determinants of the Home Country Bias in Investors' Portfolios: A Survey*, in Frederick D.S. Choi and Richard M. Levich, *INTERNATIONAL CAPITAL MARKETS IN A WORLD OF ACCOUNTING DIFFERENCES* 13 (1994); Linda L. Tesar and Ingrid M. Werner, *Home Bias and the Globalization of Securities Markets*, National Bureau of Economic Research, Working Paper No. 4218 (1992).

expected return.¹² Under a capital asset pricing model (CAPM)¹³ framework, the only priced risk with integration should be the systematic risk relative to the *world* market. On the other hand, complete segmentation implies that only *national* factors, i.e., domestic systematic risk, should enter the pricing of assets. If markets are at least partially segmented, investors can enjoy segmentation gains by purchasing securities that offer higher yields for comparable levels of risk.¹⁴

The causes of segmentation -- also called investment barriers -- isolate markets from one another, thereby enabling return differentials to exist. By doing so they impede investors from availing themselves of these excess returns. From a social welfare point of view, investment barriers impede efficient allocation of investment capital and lower the total attainable welfare. The first question that needs to be tackled is thus what causes segmentation. The following taxonomy may be useful in addressing the potential sources of segmentation:¹⁵

¹² See Alan Alford, *Assessing Capital Market Segmentation: A Review of the Literature*, in STANLEY R. STANSELL, ED., *INTERNATIONAL FINANCIAL MARKET INTEGRATION* 3 (1993). The issue of segmentation should be distinguished from that of portfolio diversification. Market segmentation relates to securities' systematic risk while diversification (in an international setting) aims to eliminate or mitigate both firms' non-systematic risk *and* their national market systematic risk. See also Lonie Alasdair, David Power, and Donald Sinclair, *The Putative Benefits of International Portfolio Diversification: A Review of the Literature*, 15 *BRIT. REV. ECON. ISS.* 1 (1993).

¹³ The CAPM specifies that the price of an asset is a simple function of the level of the systematic risk of the asset, i.e., the degree to which it fluctuates in tandem with the whole market, compared to the risk of the market as a whole. For a short and accessible overview, see JESSE H. CHOPER, JOHN C. COFFEE, JR., AND RONALD J. GILSON, *CASES AND MATERIALS ON CORPORATIONS* 196-99 (4th ed. 1995).

¹⁴ Philip Jorion and Eduardo Schwartz, *Integration vs. Segmentation in the Canadian Stock Market*, 41 *J. FIN.* 603, 604 (1986).

¹⁵ The taxonomy draws and elaborates on Alford, *supra* note 12, 5-6.

Sources that affect the return which investors receive from international investment. One direct source of this type is taxes. In his pioneering work on international finance, Black modeled a world with different tax rates across national borders.¹⁶ For this reason, investors require different before-tax returns in order to garner the same after-tax returns. Another source with identical outcomes is differential transaction costs in purchasing foreign securities. Such costs may stem from a number of reasons: foreign exchange risk and foreign exchange fees paid to effect the transaction, brokerage fees paid to the broker-dealer in the foreign country in addition to domestic brokerage fees, additional clearing and settlement fees, etc. Such differences in tax and transaction costs would tend to create different effective prices for investors and, therefore, limit their selection of securities.

Sources that relate to the investor's ability to purchase a foreign security. A straightforward way to think about barriers to integration is as some kind of legal impediments to international capital flows, whether inbound or outbound.¹⁷ Countries may

¹⁶ Fisher Black, *International Capital Market Equilibrium with Investment Barriers*, 1 J. FIN. ECON. 337 (1974). See also Reuven S. Avi-Yonah, *The Structure of International Taxation: A Proposal for Simplification*, 74 TXL. REV. 1301, 1334 (1996) (citing additional sources).

¹⁷ The great majority of economic models dealing with international capital market integration have indeed assumed investment barriers to be of legal nature. See Cheol S. Eun and S. Janakiramanan, *Bilateral Cross-Listing and the Equilibrium Security Prices*, in RAJ AGGARWAL AND CHENG-FEW LEE, EDS., *INTERNATIONAL DIMENSIONS OF FINANCIAL MANAGEMENT - ADVANCES IN FINANCIAL PLANNING AND FORECASTING* vol. 4(B) 59 (1990) (hereinafter: Eun and Janakiramanan (1990)); Vihang R. Errunza and Etienne Losq, *Capital Flow Controls, International Asset Pricing, and Investors' Welfare: A Multi-Country Framework*, 44 J. FIN. 1025 (1989); Gordon J. Alexander, Cheol S. Eun, and S. Janakiramanan, *Asset Pricing and Dual Listing on Foreign Capital Markets: A Note*, 42 J. FIN. 151 (1987); Cheol S. Eun and S. Janakiramanan, *A Model of International Asset Pricing with a Constraint on the Foreign Equity Ownership*, 41 J. FIN. 897 (1986); Vihang R. Errunza and Etienne Losq, *International Asset Pricing under Mild Segmentation: Theory and Test*, 40 J. FIN. 105 (1985); Rene Stulz, *On the Effects of Barriers to International Investment*, 36 J. FIN. 923 (1981) (hereinafter: Stulz (1981)).

be in different levels of need for importing capital, contingent on their level of development, national saving rates, and a host of other factors. A capital importing country could allow a small number of domestic securities or a fund of domestic securities to be dual- or foreign-listed on a foreign capital market while simultaneously prohibiting its residents from investing in foreign securities. As the country's need to import capital diminishes, it may allow its residents to invest in foreign securities. This can be done by allowing foreign firms to list on the local market or by allowing local residents to purchase foreign securities or units of mutual funds that invest in foreign securities.¹⁸

Even capital importing countries may still prohibit foreigners from purchasing stocks of domestic firms. Such a policy may be implemented in a limited number of strategic industries, but it may also be applied across the board, relating to all domestic companies.¹⁹ In cases like that, other considerations may override the need for capital. Common among developing countries in particular is the desire to ensure that foreigners

¹⁸ Examples of this kind of segmentation abound. For instance, the State of Israel has for decades prohibited its residents from purchasing foreign stocks. In the early 1990s, the restrictions were eased, allowing residents to purchase units of local "world" mutual funds and stocks listed on major stock exchanges. In early 1997, Israeli residents were allowed also to purchase stocks which trade over the counter. See also Alford, *supra* note 12 (reporting that Ireland implemented a policy which allowed residents to invest up to Irish Punt 5000 annually, whereas prior to 1987 they were completely restricted from investing abroad); P.T. Hietala, *Asset Pricing in Partially Segmented Markets: Evidence from the Finnish Market*, 44 J. FIN. 697 (1989) (reporting that Finnish investors needed permission to invest internationally and that this permission was almost never given to individual investors).

¹⁹ See, e.g., Cathrine Bosner-Neal, Gregory Brauer, Robert Neal, and Simon Wheatly, *International Investment Restrictions and Closed-End Country Fund Prices*, 45 J. FIN. 523 (1990) (the premium on closed-end country funds decreases upon the announcement of a reduction in investment restrictions).

do not overtake the country's major economic assets and deprive local citizens from of the fruits of growth.²⁰

To generalize this point, we can identify three different parameters that characterize segmentation. First is the direction of segmentation barriers, i.e., whether they impede inbound or outbound capital flows. The second is the degree of segmentation which measures the difficulty to make a cross-border investment and ranges from zero difficulty to complete (and effective) prohibition. The gray area between complete integration and complete segmentation is called "partial integration" or "mild segmentation".²¹ The third parameter is the number of countries that implement investment barriers in the world system. Needless to say, that the legal system of each country may implement segmentation of various directions and degrees.²²

Sources that create informational barriers. A number of researchers have pointed out that even when investors can legally invest in foreign securities, they may simply not know of them, or, in a milder version -- may not know enough about them. Adler and Dumas argue that investors may be unaware of superior investment opportunities that

²⁰ See, e.g., Alford, *supra* note 12, at 5 (reporting that the Republic of Korea only allowed foreigners to buy shares of Korean companies through the Korea Fund, a closed-end mutual fund which trades on the NYSE and other international exchanges). Concerns about the national identity of those who control the national industrial flagships are by no means limited to developing countries, especially when multinational companies are involved. Such fears were rampant in Europe during the 1960s when American multinationals seemed to overtake the continent. See, e.g., JEAN-JACQUES SERVAN-SCHREIBER, *THE AMERICAN CHALLENGE* 3-30 (1968). They repeated in the 1980s in the United States, when Japanese and European MNCs were heavily investing here. See, e.g., Robert B. Reich, *Who is Us?*, 68 *Harv. Bus. Rev.* 53 (1990).

²¹ See Errunza and Losq, *supra* note 17.

²² Cf. Eun and Janakiraman (1990), *supra* note 17.

exist.²³ The costs of collecting and assessing information about foreign securities may not justify the investment. In a similar vein, Merton models a world in which investors only invest in those securities of which they are aware. In his model, expected returns decrease with the relative size of the firm's investor base.²⁴

But knowledge about firms is never dichotomous, i.e., either complete or totally absent. Investors have knowledge only about a partial set of the firms in the world, and they have only partial knowledge about this set of firms too. Information about foreign firms is often difficult to achieve due to difference in the depth and quality of financial disclosure.²⁵ Even where available, such information is more difficult to interpret and assess in light of language and cultural differences.

A different type of information barriers may be called "inverse information asymmetries". It refers to a situation where *foreign* investors know more about a domestic firm and are thus willing to pay a higher price for its stock, thereby lowering its cost of capital. I call this phenomenon inverse asymmetries because normally foreigners are assumed to know less about domestic firms, as noted above. I am not aware of a theoretical analysis of such barriers in the context of market segmentation, but in practice, cases of this kind are commonplace. For example, Israel is the second largest supplier of

²³ Michael Adler and Bernard Dumas, *Optimal International Acquisitions*, 30 J. FIN. 1 (1975).

²⁴ Robert Merton, *Presidential Address: A Simple Model of Capital Market Equilibrium with Incomplete Information*, 42 J. FIN. 743 (1987).

²⁵ See Jorion and Schwartz, *supra* note 14. Jorion and Schwartz categorize these barriers as "indirect barriers", as opposed to "legal barriers" that include tax considerations, ownership restrictions, and any other barrier linked to the country of origin of the security.

foreign stocks to the American stock markets (after Canada). One of the reasons that had caused this is the fact that Israeli high tech and biomedical start-up companies had found that Wall Street investors were evaluating their prospects much more favorably than their local market, thus allowing them to dramatically lower the cost of capital. What arguably drives this willingness is not Wall Street naivete but rather an existing infrastructure of securities analysts possessing superior knowledge and understanding of these fields and institutional investors who are more willing to assume this kind of risk.

Alford observes that researchers assume that one of these sources of segmentation is prevalent and drives the result. He argues that the empirical implications of these barriers are indistinguishable from each other. He equates investment barriers to tariffs and quotas that operate as international trade barriers, and argues that as the latter are indistinguishable, so are former.²⁶ This is not necessarily true. Different segmentation sources may affect the investment in different ways. Some sources, such as taxes, are (ideally) certain and negatively affect the yield. Other segmentation sources are best understood with the distinction between risk and uncertainty in mind.²⁷ When risk is involved, an investor may hold a position in a foreign security knowing that its price may fluctuate due to unexpected business conditions. She may also suffer a negative unpredictable price impact when coming to liquidate her holding due to liquidity

²⁶ Alford, *supra* note 12, at 6.

²⁷ Risk involves uncertainty about the actual occurrence of events when the likelihood of the occurrence can be estimated in terms of probability. Uncertainty is defined as risk that is not susceptible to measurement and hence to elimination. See FRANK KNIGHT, RISK, UNCERTAINTY, AND PROFIT 232-34 (1921)

constraints in that security. These contingencies, however, have known parameters and can be factored into the price *ex ante*. Under uncertainty, the investor simply does not know all the contingencies, as suggested by Adler and Dumas and by Merton.²⁸

2. General Tests of Integration

A number of methods have been used for empirically testing whether and to what extent international equity markets are segmented. Of primary relevance to this work are those which investigated the effects at the corporate level. But before we get to those studies, an overview of other empirical methods will be helpful for understanding the context in which the discourse in international finance takes place.

The first strand of studies conducts the analysis at the level of national equity markets. These studies generally analyze the behavior of national market indices. They focus on the relationship among national equity markets and the international transmission of shocks to stock prices. In very general terms, they assess the extent to which equity prices tend to move similarly across countries and regions.²⁹ It would be fair to say that a number of these studies find a growing degree of integration among certain markets,

²⁸ Indeed, Jorion and Schwartz, *supra* note 14, claim to distinguish between segmentation causes in Canadian stocks, some of which were multiple listed in the United States. They reject integration in both groups, and conclude that the source of segmentation can be traced to legal barriers.

²⁹ See, generally, JEFFREY A. FRANKEL, ED., *THE INTERNATIONALIZATION OF EQUITY MARKETS* (1994). For an overview of the literature see Paul Cashin, Manmohan S. Kumar and C. John McDermott, *International Integration of Equity Markets and Contagion Effects*, working paper WP/95/110, International Monetary Fund (1995).

particularly in the developed countries.³⁰ In particular, some studies conclude that cross-country stock investment seems to be an important channel for the transmission of volatility across national stock markets.³¹ Adler and Dumas, however, call this research avenue “misguided”. They claim that there national random factors (politics, etc.) which affect selectively the production activities of any one country. They are reflected in stock returns but this is no evidence for segmentation.³²

The more prominent group of studies test for integration by utilizing a capital asset pricing model adopted to the international setting. These models investigate the price behavior of groups of stocks from different countries against different factors. Or, if multiple listing is involved, the model would investigate whether multiple listed stocks are priced in an integrated market comprising the domestic and the foreign markets.³³

An International Capital Asset Pricing Model (ICAPM) would seek to correlate the movement of stock prices to changes in the stock markets in the domestic and the foreign market. It is difficult to generalize the findings of these works but in the main, they tend to find segmentation between markets, even where the two economies are thought to

³⁰ See, e.g., HALUK AKDOGAN, THE INTEGRATION OF INTERNATIONAL CAPITAL MARKETS: THEORY AND EMPIRICAL EVIDENCE (1995); Cashin *et al.*, *supra* note 29.

³¹ Cashin *et al.*, *supra* note 29, at 5.

³² Adler and Dumas, *supra* note 8, at 967.

³³ For an accessible overview of capital asset pricing models in a domestic setting and the methodological problems pertaining to such studies see RICHARD A. BREALEY AND STEWART C. MYERS, PRINCIPLES OF CORPORATE FINANCE ch. 8 (4TH ED. 1992); for a review of the international adaptations of these models see AKDOGAN, *supra* note 30.

be largely integrated, such as the US and Canada.³⁴ In addition to ICAPM tests, researchers used alternative pricing models such as the Arbitrage Pricing Theory model and consumption based pricing models to test for integration, with mixed results.³⁵

3. Effects on Price and Returns

No matter what was the source of international investment barriers, when they are present and sufficiently high economic theory tells us that domestic investors may decline to hold foreign equities.³⁶ Under the more realistic scenario of “mild segmentation” -- where markets are neither completely segmented nor completely integrated -- the securities accessible to the subset of investors would command a super risk premium.³⁷ Segmentation of this kind produces incentives for firms to dual-list their securities on foreign capital markets. By dual-listing their stock firms are expected to experience an increase in stock price since investors in the foreign market are willing to pay a higher

³⁴ See Errunza and Losq, *supra* note 17 (studying heavily traded securities from 9 LDCs and a random sample of US securities; results not statistically inconsistent with the mild segmentation hypothesis); Jorion and Schwartz, *supra* note 14 (finding segmentation between the Canadian and the US markets; tracing the source of segmentation to legal barriers based on the nationality of issuing firms); Usha Mittoo, *Additional Evidence on Integration in the Canadian Stock Market*, 47 J. FIN. 2035 (1992) (examining the integration of the Canadian and US stock markets; finding evidence consistent with segmentation in 1977-1981 and integration in 1982-1986); Stephen R. Foerster, and G. Andrew Karolyi, *The Effects of Market Segmentation and Illiquidity on Asset Prices: Evidence from Foreign Stocks Listing in the US*, Working Paper No. 96-6, Fisher College of Business, Ohio State University (1996) (studying US ADR listings by firms from 14 countries in Europe, Asia, Canada, and Australia) (Hereinafter: Foerster and Karolyi (1996)).

³⁵ Mittoo, *supra* note 34 (Using APT, finding that the Canadian stocks interlisted in the US are priced in an integrated market and segmentation is predominant for the non-interlisted Canadian stocks); Simon Wheatly, *Some Tests of International Equity Integration*, 21 J. FIN. ECON. 177 (1988) (using a consumption-based asset pricing model to find little evidence against international stock market integration).

³⁶ Stulz (1981), *supra* note 17.

³⁷ Errunza and Losq, *supra* note 17.

price for the stock in the firm's home market. The result is the stock having a lower expected return, namely, a lower cost of capital for the firm.³⁸

The implications on shareholder wealth are straightforward. From existing shareholder's point of view, their wealth increases as the value of their securities rises. Multiple listing can thus be a tool for increasing shareholder value almost by magic, simply by taking some procedural steps and bearing the administrative costs involved. There is little wonder, therefore, that multiple listing was subject to a large number of empirical studies. One part of these studies is interested in the general and more theoretic question whether capital markets in general are integrated or rather segmented; the other part simply asks whether foreign listing is a positive net value transaction for the firm.

All the studies, however, test the same thing, i.e., whether foreign listing is followed by a decrease in expected returns and an increase in stock prices, by using standard event study techniques. This methodology enables a researcher to isolate irregular fluctuations in stock returns in reference to some asset pricing model (most commonly the CAPM). If a change in the environment surrounding the company can be narrowly located in a certain point in time than this change could be the "event" the effect of which on stock returns could then be measured. An increase that is not explained by the pricing model -- an "abnormal return" -- would indicate a favorable change which

³⁸ Robert C. Stapleton and Marti G. Subrahmaniam, *Market Imperfection, Capital Market Equilibrium and Corporate Finance*, 32 J. FIN. 307 (1977) (using numerical analysis); Gordon J. Alexander, Cheol S. Eun, and S. Janakirmanan, *Asset Pricing and Dual Listing on Foreign Capital Markets: A Note*, 42 J. FIN. 151 (1987) (an economic model).

shareholders should be happy with, and vice versa.³⁹ In the case of foreign listing, the impact of barriers to international investment can be measured without specifying an asset pricing model and without specifying the exact nature of investment barriers.⁴⁰

In the following pages I provide a review of this empirical literature. Surprisingly, no comprehensive discussion of these studies seems to exist, which renders the work here unique in offering the reader such a broad perspective. In the present context, these studies also become observations in and as of themselves and constitute the basis for a higher level of critical analysis, albeit less rigorous. From a legal policy viewpoint such an analysis is indispensable if we are to form a position as to the desirability of multiple listing and the need to regulate it in any way. Exigencies of space, however, dictate extreme conciseness, so a tabular format is used. Table 1 summarizes the relevant studies.

[Table 1 about here].

Before we look at the results, note that the vast majority of the studies share the feature of using the listing date as the information event. It should be clear from the outset that this is a major weakness. An underlying presumption in using event studies is that

³⁹ Use of event study methodology entails the joint hypothesis problem -- the fact that by conducting the test both the ECMH and the asset pricing model are being tested. Since both of them are theories that need confirmation, an error in any of the two cannot be attributed to one of them. For an overview of the event study technique see STEPHEN A. ROSS, RANDOLPH W. WESTERFIELD, AND JEFFREY F. JAFFE, *CORPORATE FINANCE* (3RD ED. 1993). See also G. William Schwert, *Using Financial Data to Measure Effects of Financial Regulation*, 24 J. L. & ECON. 121 (1981); Stephen Brown and Jerold Warner, *Using Daily Stock Returns: The Case of Event Studies*, 14 J. FIN. ECON. 3 (1985).

⁴⁰ See Mustafa N. Gultekin, N. Bulent Gultekin, and Alessandro Penati, *Capital Controls and International Capital Market Segmentation: The Evidence from the Japanese and American Stock Markets*, 44 J. FIN. 849, 850-51 (1989) (“Given the current status of international asset pricing models..., we believe that generalized tests of capital market integration are likely to be uninformative”).

stock markets are semi-strong form efficient; that is, that stock prices reflect all publicly available information.⁴¹ Respectively, the event that is being studied is not the actual event itself but rather the corresponding “information event” -- the coming of information about the actual event into the public knowledge. The event study measures the impact of this “information shock” on the stock price.

With regard to foreign listings, the actual listing might take place well after the company had announced its intention to make the listing and had taken all the formal steps toward it, such as submitting an application to the stock exchange and filing a registration form (or its equivalent) with the national regulatory agency. In the interim period between publication and actual listing the information is most likely to get impounded in the stock price.⁴² Thus, studies that define the announcement date as the information event should as a rule be preferred, while others should be taken with a grain of salt.⁴³ Note, however, that the problematique pertains mostly to the event period “window”, which varies between three to seven days around the listing (i.e., the listing date plus 1 to 3 days before and after

⁴¹ This is the Efficient Capital Market Hypothesis (ECMH). A more detailed discussion of the ECMH and event study methodology is found in Section C below.

⁴² A more disturbing problem is that stock prices are sometimes likely to reflect the impact of a forthcoming foreign listing even before the announcement date. This may happen either because of insider trading or when analysts correctly assess the likelihood of a foreign listing and trade on this belief. The first and now classic test of the ECMH revealed that stock prices gradually reflect the impact of stock splits weeks and months before they are announced. Eugene Fama, L. Fisher, Michael Jensen, and Richard Roll, *The Adjustment of Stock Prices to New Information*, 10 INT’L ECON. REV. 1 (1969).

⁴³ See, e.g., Damodaran *et al.* (1993), Table 1 note b, at 6. Foerster and Karolyi (1993), Table 1 note d, indeed note that using the listing date allows for some uncertainty regarding when news of the interlisting reached the market. They are careful to note that in their sample the listing dates coincide or are very close to the announcement. This is not the general case, as is well exemplified by Darius P. Miller, *Why Do Foreign Firms List in the United States? An Empirical analysis of the Depository Receipt Market*, unpublished manuscript (1996), who tested for both the announcement and the listing dates.

the event). The post-listing period is usually measured in months, and is thus less susceptible to the event definition problem.⁴⁴

At first glance, the results seem decisively mixed. Indeed, there are cases where two studies of similar samples reach flatly contradicting conclusions.⁴⁵ But a closer examination reveals some regularities. First, the few studies that measured cumulative abnormal returns (CARs) in the pre-listing period report positive and statistically significant values. This can be explained by information leakage and insider trading before the listing that lead the market to interpret the listing favorably.⁴⁶

Second, virtually all the studies that measured CARs in the post-listing period report negative values that are almost always statistically significant.⁴⁷ In some cases, researchers state that the abnormal returns during the post-listing period practically erode the gains that accrued due to the listing. This is surprising. If segmentation gains are the right explanation for markets' favorable reaction to multiple listing, then there should be no reason for stock returns to be negative. They may decline -- indeed segmentation

⁴⁴ The methodological difficulty in using the listing as the information event is so obvious that one may wonder why it is used in so many studies. A possible conjecture is that this stems from convenience reasons. The listing is a clear cut event, the information about which can be readily collected by approaching the stock exchanges. The announcement is more ambiguous and the researcher has to sift through newswire services and similar sources which are not always available (for an example of such research see Miller, *supra* note 43). In addition, several studies also analyze the impact of foreign listing on stock price variance and other trading patterns. These phenomena can only be studied after actual trading begins.

⁴⁵ For example, Foerster and Karolyi (1993), Table 1 note d, reverse the findings of Alexander *et al.* (1988), Table 1 note a, with regard to the Canadian and US markets.

⁴⁶ See *supra* note 42.

⁴⁷ The only study where researchers report post-listing results that are positive is Sundaram and Logue (1996), Table 1 note m, which is not an event study.

theory predicts their decline -- since investment barriers that have led to a super premium are no longer in place, but they should not be negative.

One explanation for these findings is that the theory is grossly incorrect. This possibility does not seem likely, and in any event, will not be pursued here. Alternatively, the empirical technique may be inaccurate for some reason. This seems even less likely.⁴⁸ Finally, there may exist another reason the impact of which on stock prices simply overrides the impact of segmentation gains. Before we elaborate on this point, let us turn to the empirical findings regarding the listing period itself.

The listing “window” is the period where empirical results are evidently mixed. While some studies document positive and statistically significant abnormal returns, others find the opposite, namely, negative and significant abnormal returns. Yet a third group of studies find only non-significant changes in stock returns. In simple business terms, multiple listing may sometimes be a net profit transaction, sometimes a net loss one, and on some occasions simply be a neutral transaction.

In order to reveal some regularity in the findings, consider dividing the studies into two groups. One group would include the multiple listings by US firms on non-US markets. The second group would include the reverse transaction, namely, multiple listings in which companies from outside the United States listed on a US market. In the former

⁴⁸ The reason why this is less likely is mainly that technically, event studies are a well known technique. Substantively, after the listing takes place the multiple listed stocks are listed, among others, in the American market which is generally believed to be informationally efficient (in the semi-strong form).

group the listing event tends to be immediately followed by a decrease in abnormal returns. Howe and Kelm, for example, interpret their results as suggesting that for US firms there is a net cost to overseas listing. In the latter, markets tend to respond diametrically, i.e., with positive abnormal returns.

These generalizations should be read with caution, as they are not backed by direct statistical tests. Other factors may also be at work here as well.⁴⁹ However, there is reason to believe that foreign companies that list on American markets would profit more than their American counterparts who list overseas. This is due to differences in securities regulation regimes around the world. In the main, the securities market in the United States boasts a strict set of mandatory disclosure rules and a vast industry of securities houses and securities analysts. Taken together, the American market operates as a powerful monitoring and pricing system, *relative* to other national markets.⁵⁰ As a result, foreign companies that list on an American market can be seen as moving to a higher league.

Darius Miller's thoughtful study⁵¹ generally corroborates the claim that listing on a US stock exchange adds value due the improved regulatory regime the stock becomes

Thus, in order for the findings to be incorrect, a problem must lay with the ECMH. This option is explored below in Section C.2.

⁴⁹ One significant factor which might have the same effect on shareholder wealth as the quality of the regulatory regime is the level of liquidity. See Yakov Amihud and Haim Mendelson, *Asset Pricing and the Bid-Ask Spread*, 17 J. Fin. Econ. 223 (1986). However, U.S. firms listing abroad should also experience improved liquidity so liquidity alone probably cannot provide the whole explanation.

⁵⁰ The emphasis is on "relative". No claim is made here that the US market and/or its regulatory system are perfect; only that they probably operate better than their counterparts.

⁵¹ Miller *supra* note 43.

subject to.⁵² Miller distinguishes between levels of ADR programs (including the semi-private RADRs)⁵³ that are characterized by different levels of mandatory disclosure and liquidity. He reports that firms experience larger positive ARs upon announcement of an ADR program in a large market (NYSE, AMEX, and NASDAQ) compared with an ADR on the OTC market. He further reports that firms experience high positive and significant ARs upon announcing an upgrade from the OTC market to a larger market. Finally, he notes that firms located in emerging markets experience a larger increase in ARs than those domiciled in developed markets.

Clearly, these implied benefits cannot be gained by firms that had already listed on a US market and dual list their stocks abroad. These firms are already subject to a more stringent reporting regime and trade on a liquid market. From this position cross listing can be either a downward or at best neutral move, barring other non-financial considerations. This point is further elaborated in the following sections, but it will be noted here that the existing empirical evidence should not be interpreted as refuting the segmentation theory. With regard to foreign listings incoming to the US, segmentation

⁵² Cf. Eli Amir, Trevor S. Harris, and Elizabeth K. Venuti, *A Comparison of the Value-Relevance of US versus Non-US GAAP Accounting Measures Using Form 20-F Reconciliations*, 31 J. ACCT. RES. 230-63 (1993) (reconciliation of accounting data to US Generally Accepted Accounting Practices [GAAP] is value-relevant). That article is part of a burgeoning literature on the effect of international accounting practices on stock value. See, e.g., Carol A. Frost and Mark H. Lang, *Foreign Companies and U.S. Securities Markets: Financial Reporting Policy Issues and Suggestions for Research*, 10(1) ACCT. HORIZONS 95-109 (1996) (a survey).

⁵³ RADRs are depository receipts issued with respect to foreign securities under Rule 144A under the Securities Act of 1933 to “qualified institutional buyers”, i.e., chiefly institutional investors. Such issuances have a limited scope of offerees and entail much reduced disclosure duties. The RADRs trade on a separate closed trading system called PORTAL.

theory is clearly corroborated. As to outgoing foreign listings, other effects seem to erode the putative beneficial effects of segmentation gains.

4. Effects on Market Risk

It stems from the models on international asset pricing and dual listing that the domestic and risk exposure of a firm that lists abroad changes. With dual listing, the influence of the foreign market on the listing firm's stock returns will likely increase and the influence of the domestic market will decrease. Ideally, the dual-listed securities will be priced as if the international capital market were fully integrated. Consequently, these securities will be priced with reference to both their domestic and foreign market risks.⁵⁴ Thus, if the foreign and domestic markets are not perfectly correlated -- that is, if they are segmented -- a diversification effect should result from an international listing.⁵⁵

Within an ICAPM framework, an empirical testing of this hypothesis would look at the beta (β) term of the market model. In a domestic context, beta essentially indicates the manner in and degree to which the returns on a particular stock are correlated with changes in the market as a whole -- the systematic risk. When we come to an international setting, there is a number of ways to come about this question. A researcher could analyze the impact of a foreign listing by using the world market as a benchmark. The expected effect would be a decrease in beta -- the diversification effect mention above. Technically,

⁵⁴ Eun and Janakiramanan (1990), *supra* note 17.

⁵⁵ Stephen R. Foerster, and G. Andrew Karolyi, *International Listing of Stocks: The Case of Canada and the U.S.*, 24 J. INT'L BUS. STUD. 763 (1993) (hereinafter: Foerster and Karolyi (1993)).

however, this method is difficult to use.⁵⁶ Alternatively, a researcher could define two betas -- one domestic and one foreign -- which measure the correlation with the stock's home and host market, respectively.

Following the line of inquiry pursued in the previous section, Table 2 provides a concise summary of the available empirical evidence on this issue. In the main, no particular effect stands out immediately from the results. Some regularity can be sorted out if we again divide between inbound and outbound international listings with respect to the United States. The four studies that looked at outgoing listings by US firms uniformly find no significant changes in the domestic betas and (in the one study that tested it) no change in the foreign beta.

[Table 2 about here].

In other words, those stocks remain "American" in the sense that they continue to behave as part of the American market. The manner in which they fluctuate with their home market is not affected and no effect is documented from foreign markets. Howe and Madura conjecture that because these firms are large, well-established companies, it may well be that they have already mitigated the effects of segmentation through other

⁵⁶ The major difficulty is in finding a good proxy for the world portfolio. Researchers sometimes use one of the American market indexes, such as the S&P500, but in an international setting this is highly questionable. See Oscar Varela and Sang H. Lee, *The Combined Effects of International Listing on the Security Market Line and Systematic Risk for US Listings on the London and Tokyo Stock Exchanges*, in STANLEY R. STANSELL, ED., INTERNATIONAL FINANCIAL MARKET INTEGRATION 369, 373 and note 10 (1993).

mechanisms, such as foreign direct investment or mergers with foreign firms.⁵⁷ Even more plausibly, one could assume that the majority of ownership would continue to reside in the United States and the same for trading volume. This is very likely to preserve the American characters of those stocks. In any event, this evidence is consistent with an argument, that the multiple listing decision can definitely be motivated by non-financial reasons. While in most cases these reasons may be benign, in others they might adversely affect public investors.⁵⁸

The picture is slightly different when we look at foreign listings incoming to the United States. Here again we find three studies that report a non-significant decrease or no change in domestic betas. The news come from Miller's study. While for the whole sample he reports a non-significant increase in the beta with respect to the US market, in Level III ADRs the increase is significant. Moreover, firms located in free emerging markets experience a large increase in US beta, while US beta did not change significantly for firms located in developed countries and in restricted emerging markets.⁵⁹ These results generally support the segmentation hypothesis. More importantly, they clarify that in order for segmentation effects to be eroded the multiple listing has to be done on a serious scale -- namely, with raising of capital and foreign ownership evolving. When these are absent, the foreign listing might be motivated by reasons that could raise regulatory concerns.

⁵⁷ John S. Howe and Jeff Madura, *The Impact of International Listings on Risk - Implications for Capital Market Integration*, 14 J. BANKING & FIN. 1133, 1141 (1990).

⁵⁸ Cf., Amir N. Licht, *The Challenge of Multiple Listed Corporations to International Securities Markets*, unpublished manuscript, Harvard Law School (1997).

⁵⁹ Miller, *supra* note 43, at 26-27.

5. Externality Effects

The economic works referred to so far assume a two-country world with unidirectional segmentation barriers that are either complete or mild. Eun and Janakiramanan offer a richer model with a two-country world in which both the domestic and the foreign countries are cross-listing their securities on each other's capital market -- what they term "bilateral partial integration".⁶⁰

They argue that bilateral dual listing produces an externality effect of indirectly integrating the markets for pure domestic and foreign securities. As a result, pure domestic and foreign securities are priced subject to an indirect "other" market risk. The indirect market risks can be viewed as arising from a common response to changes in the portfolio comprising the dual-listed securities. Thus, dual-listing a stock causes pure domestic stocks to be correlated to the dual-listed stock, thus subjecting them to the externality effect of international pricing. Moreover, the transition from unilateral to bilateral dual-listing produces an "incremental" externality effect. The expected return on the pure domestic security is likely to increase, whereas the expected return on the pure foreign security is likely to decrease.

⁶⁰ Eun and Janakiramanan (1990), *supra* note 17. Within the general framework I advance above, they assume that existing investment barriers are eroded in both directions, creating bi-directional partial integration, where both inbound and outbound multiple listing are present.

Eun and Janakiramanan's theoretical conclusion is intriguing, but to my knowledge, only one study seems to test it empirically, finding no support for it.⁶¹ In my view, this should not be interpreted as refuting the theoretical prediction. As we have seen, empirical studies find difficulties in detecting direct effects on market risk, so market-wide externality effects might be even harder to detect. On the other hand, this may indicate that the problem is less severe as a practical matter.

6. Conclusion

A critical review of the theory and evidence on foreign and multiple listing shows that such listings do not always deliver on the promises predicted by theory, but in some cases they surely do. After touching upon the causes of market segmentation and general tests of market integration, we focused on the effects that multiple listing is expected to have on particular stocks. More precisely, the focus was turned to potential effects on stockholders. As a rough generalization, the cases that seem to behave more in line with existing economic theory are foreign listings incoming to the United States (typically as ADRs). Such stocks tend to experience the predicted positive abnormal returns -- reflecting a wealth increase for existing shareholders. In addition, stocks from less developed countries with liberal capital movement regulations also tend to assume a

⁶¹ Ian Domowitz, Jack Glenn, and Ananth Madhavan, *International Cross-Listings, Ownership Rights, and Order Flow Migration: Evidence from Mexico*, working paper, University of Southern California (1995) (finding no change in volatility and liquidity and no price effects in pure domestic Mexican stocks following US ADR listings by other Mexican firms; ruling out negative externalities). Note, that the authors do not refer explicitly to Eun and Janakiramanan's model.

greater degree of correlation with the new listing market, while other stocks tend to retain their domestic character in terms of systematic risk.

Multiple listings by US firms tend to realize very little of the market integration promise. The very observation that this is a general case is novel. Among the reasons for that difference we can enumerate the fact that both ownership and trading in US stocks remain predominantly American and are also very large in absolute terms. This would cause a listing on a foreign market to have a smaller effect on the stock valuation and fluctuation.

Multiple listing is a very complex phenomenon the effects of which may be difficult to determine in advance -- this is the lesson up to this point for regulatory policy makers. What stands out from American foreign listings in particular, but also from the non-US ones, is that cost of capital and capital market integration are not the sole, or even the main factors which determine the effects of multiple listing. This is only natural when we recall that these issues are not the main factors motivating the multiple listing decision in the first place. This obviously calls for caution, but also for a more exact and fine-grained analysis of the issue.

B. Multiple Listing, Market Microstructure, and Informed Trading

This Section explores the flow of information in an international multi-market setting, particularly where multiple listed stocks are involved. Methodologically, it takes a reverse direction along the process of price formation. It starts with the role transnational arbitrage plays in integrating national markets by implementing the “law of one price”. As

it constantly equalizes stock prices across markets, arbitrage activity in effect create one single market for each stock. Next, the Section looks more closely at the role of separate markets in the integration effect. As it happens, the various markets for each stock may have different weights in bringing about this effect -- a phenomenon known as dominant and satellite markets. Thirdly, this Section examines the special effect of informed traders on market structure and their expected behavior in a multi-market setting. Finally, the discussion turns to potential regulatory concerns which may arise as a consequence of informed trading. In particular, the Section discusses the degree to which the markets can be left to spontaneously enforce a policy against insider trading, or, in other words, the degree to which regulatory intervention may be warranted.

1. The Law of One Price

“One principle of economics holds that if an identical commodity or asset sells in two different markets, then the price of this item should be the same barring transaction costs. This is the *law of one price*. In international economics, this principle is referred to as Commodity Price Parity. Financial economics also has its version of the law of one price whereby two securities with identical payoffs in all states of the world should sell for the same price barring transaction costs.”⁶² In the context of capital market integration, the law of one price indeed embodies the concept of integration -- the situation where there are no differential risk premia (prices) for similar financial instruments traded in

⁶² Kiyoshi Kato, Scott Linn, and James Schallheim, *Are There Arbitrage Opportunities in the Market for American Depository Receipts?* 1 J. INT’L FIN. MARKETS, INSTITUTIONS & MONEY 73, *id.* (1991).

different locations.⁶³ To sum, markets are said to be perfectly integrated if the law of one price holds across them.⁶⁴

Departures from the law of one price may lead to arbitrage profits, i.e., profits generated from buying the underpriced security and selling the overpriced security. For the law to hold, there should be at least one arbitrageur who can execute cross-border trades at low cost. Indeed, in order to avoid the problems posed by using asset pricing models, commentators have argued that the extent to which the law of one price is violated should indicate the extent to which any two markets are not integrated (segmented).⁶⁵

The first and foremost question in discussing the stage of integration of any two markets would thus be “Are there any arbitrage opportunities between the two markets?”. The natural candidates for testing this question are multiple listed stocks. By definition, the “main” stock and its counterpart -- whether a depository receipt or the foreign listed stock -- *a priori* have the same payoffs. A considerable number of empirical studies indeed find that no arbitrage opportunities exist with regard to multiple listed stocks. Table 3 provides a comprehensive summary of these studies. Personal interviews with stock exchange officials are consistent with the formal tests.⁶⁶

⁶³ AKDOGAN, *supra* note 30, at 62.

⁶⁴ Zhiwu Chen and Peter J. Knez, *Measurement of Market Integration and Arbitrage*, 8 REV. FIN. STUD. 287, 288 (1995).

⁶⁵ Chen and Knez, *id.*

⁶⁶ E.g., Leif A. Vindevag, Vice President of the Stockholm Stock Exchange, telephone interview, 25 July, 1996 (market professionals in Stockholm share the notion that brisk arbitrage in Swedish dual-listed stocks exists between Stockholm, London’s SEAQ-I, and the NYSE; the spread in those stocks is very thin, close to transaction costs, and no gap develops between the markets).

[Table 3 about here].

The absence of arbitrage opportunities occurs mainly among developed markets, predominantly in OECD countries. In less developed markets which operate in a less liberalized legal environment, e.g., the Hungarian stock market, structural rigidities cause price differentials which are not closed by arbitrage even under very favorable conditions.⁶⁷ However, OECD markets also demonstrate some exceptions to the law of one price.⁶⁸

2. Dominant and Satellite Markets

A closer look at the multi-market environment in which multiple listing takes place reveals a very lively activity behind the facade of price uniformity suggested by the law of one price. As the starting point of the exploration consider a stock multiple listed on two or more markets. The markets are informationally segmented. That is, there are certain barriers to the flow of information between them due to technology constraints, telecommunication costs, and institutional arrangements. Having regard to the law of one

⁶⁷ This observation too is confirmed by personal impressions. Ian Domowitz, Jack Glenn, and Ananth Madhavan, *International Cross-Listings, Ownership Rights, and Order Flow Migration: Evidence from Mexico*, working paper, University of Southern California, at 24 (1995) (conversations with traders in Mexico and the US suggest that there are opportunities for profitable cross-country trading).

⁶⁸ Marco Pagano and Benn Steil, *Equity Trading I: The Evolution of European Trading Systems*, in BENN STEIL, ED., *THE EUROPEAN EQUITY MARKETS 1* (1996) cite two studies, in which some transaction prices struck in Milan fell outside the contemporaneous “touch” (spread) of SEAQ-I dealers. These trades, though, generally involved rather small amounts and were not very visible to the generality of market professionals. See also Kenneth A. Froot and Emil Dabora, *How Are Stock Prices Affected by the Location of Trade?* paper presented in the NYSE Conference on the Internationalization of Stock Markets, December 8, 1995 (1995), which is discussed in the following subsection.

price, the question is whether these markets would behave as exact clones in terms of price behavior?

The first study to directly tackle this question analyzed the price relationship among stocks dually listed on the NYSE and regional stock exchanges.⁶⁹ It found that the regional stock exchanges are best characterized as satellites, but not pure satellites, of the NYSE. The innovation of the consolidated ticker tape in 1975 facilitated faster disclosure of information to the NYSE floor, but the consolidated tape did not cause complete integration of the NYSE and the regional exchanges, leaving the NYSE in the dominant position.⁷⁰ To date, the NYSE still retains this position.⁷¹ More recently, Chowdhry and Nanda provided a theoretical underpinning for the notion of dominant and satellite markets.⁷²

In the international arena we would expect the dominant/satellite market phenomenon to be more prominent than in a domestic setting. This is because markets are

⁶⁹ Kenneth D. Garbade and William L. Silber, *Dominant and Satellite Markets: A Study of Dually-Traded Securities*, 61 REV. ECON. & STAT. 455 (1979).

⁷⁰ The issue has not lost its relevance in the domestic US market. As explained in the following main text, the dominant/satellite market phenomenon reflects a deeper problem of ensuring the efficacy of the market as a price discovery mechanism. Since in the United States the stock market is segmented both geographically and institutionally (through the third and fourth markets) the issue is even more acute. For a discussion and a critique, see UNITED STATES SECURITIES AND EXCHANGE COMMISSION, MARKET 2000 -- AN EXAMINATION OF CURRENT EQUITY MARKET DEVELOPMENTS (1994); Joel Seligman, *Another Unspecial Study: The SEC's Market 2000 Report and Competitive Developments in the Untied States Capital Markets*, 50 BUS. LAW. 485 (1995).

⁷¹ Joel Hasbrouck, *One Security, Many Markets: Determining the Contributions to Price Discovery*, 50 J. FIN. 1175 (1995) (finding that the NYSE has a median share of 92.7% in the price discovery process of the thirty Dow stocks).

⁷² Bhagwan Chowdhry and Vikram Nanda, *Multinational Trading and Market Liquidity*, 4 REV. FIN. STUD. 483 (1991). For a discussion, see the following subsection.

more likely to be informationally segmented in such settings. In particular, we could expect the home market of a multiple listed stock to be the dominant market, because information about the company is more likely to stem from and be generated in that country, assuming that the home market country hosts the company management and the majority of its shareholders.

Empirical evidence tends to provide *prima facie* support for this prediction. A study of US stocks multiple listed on foreign markets found that the price volatility of foreign price movements fully reflect volatility on the domestic market (US), but only to a lesser extent the other way.⁷³ Similarly, a study of Israeli stocks multiple listed on the American OTC market finds that the domestic (Israeli) market acts as the dominant market and the foreign market acts as a satellite.⁷⁴ Another study finds that there exists a significant causal connection by which stock price behavior in the Tel Aviv Stock Exchange (TASE) affects the price in the US; however, price behavior in New York affects prices in TASE too, albeit in a limited manner.⁷⁵ Notably, where shareholding was more evenly divided between Israel and the US, this effect was attenuated, leading the researchers to conclude that in such cases the stock was more “international” in nature.

⁷³ D. Nuemark, P.A. Tinsley, and S.S. Tosini, *After Hours Stock Prices and Post Crash Hangovers*, 46 J. FIN. 159 (1991).

⁷⁴ Uri Ben-Zion, Shmuel Hauser, and Offer Lieberman, *A Characterization of Price Behavior of International Dual Stocks: An Error Correction Approach*, Working Paper No. 104, Center for Economic Studies, University of Munich (1996).

⁷⁵ Shmuel Hauser and Yael Tanchuma, *Transfer of Pricing Information between Internationally Dually Listed Stocks*, Working Paper, Israel Securities Authority (1995). Cf. Merav Arlozorov, *One Quarter of TASE Value Directly or Indirectly Influenced by US Market*, Israel’s Business Arena - Globes, www.globes.co.il, March 6, 1997 (citing a TASE study which distinguishes between the dominant markets of various Israeli multiple listed stocks).

Finally, a study of Siamese twin MNCs finds that each stock obeys the law of one price. However, the price movement of each *twin* stock is more affected by the market in which it is more heavily traded, creating gaps between the two twin stocks. These markets are, roughly, also where the majority of stockholders reside.⁷⁶

Cross-market arbitrage does not operate, or more precisely, is not fully effective in the very short term. The pattern of information arrival to the markets is such that more information is revealed in the dominant one while the satellites contribute to price discovery only occasionally. Market participants stand ready to close such gaps within short time intervals, but since information keeps on arriving in such an unbalanced manner, the satellite markets, figuratively speaking, keep on “chasing” the dominant one.

From the stock exchange’s viewpoint, having a status of a dominant market may be a mixed blessing. On the one hand, a dominant market draws more order flow and revenues. On the other hand, it creates a positive externality effect on the satellites through the timely dissemination of price information for which it is not compensated. After observing a newly discovered price in the dominant market, traders can route their orders to a satellite market, thus rendering it a free rider on the dominant market.

Particularly because there is a mixed blessing effect in each of the positions markets may assume (dominant or satellite), it is difficult to prescribe regulatory solutions. In the United States, the SEC has concluded that it would be preferable not to intervene in

⁷⁶ Froot and Dabora, *supra* note 67.

a similar situation involving the third and fourth markets.⁷⁷ In the European Union too, the issue was subject to deep controversies surrounding the drafting of the Investment Services Directive (ISD).⁷⁸

We now have at hand two issues that may warrant regulatory intervention. One is the integrative effect caused by transnational arbitrage; the other is the effect that market fragmentation has on the process of price formation. In order to formulate some policy guidelines we should thus look more closely at both of them, starting with the latter issue of market fragmentation.

3. Fragmentation, Consolidation, and Informed Trading

Market segmentation might warrant regulatory intervention if regulators perceived it to be detrimental to some valued interests, be it individual public investors or large commercial players. This Section lays the basis for assessing the desirability of intervention by portraying the forces that affect price discovery -- the process by which supply and demand interact to yield current prices -- absent such intervention.

A number of theories purport to describe the linkage between market structure (i.e., fragmented or consolidated markets), different types of traders, and the variance of return on a stock. These theories focus on stock price volatility within the very-short-term

⁷⁷ SEC, MARKET 2000, *supra* note 4.

⁷⁸ Council Directive of 10 May 1993 on Investment Services in the Securities Field, O.J. Eur. Comm. (No. L 141) (1993) (Council Directive 93/22/EEC) (hereinafter "ISD"). See Pagano and Steil, *supra* note 67; Benn Steil, *Equity Trading IV: The ISD and the Regulation of European Market Structure*, in BENN STEIL, ED., THE EUROPEAN EQUITY MARKETS 113 (1996).

time framework, often referred to also as the intraday period. The first -- the theory of noise⁷⁹ -- suggests that variance is caused by the overreaction of traders to each other's trades. Traders and market makers observe transactions and prices and trade on them as if they were information, while in fact, some of them are generated by traders lacking any knowledge on fundamental values. These traders are called "noise traders" or "liquidity traders", since they may be motivated by liquidity concerns.⁸⁰ Noise trading increases stock return variance because, by definition, it has nothing to do with fundamental valuation of the firm. The more noise trading there is, the higher the return variance is expected to be. Therefore, in cases where multiple listing increases the trading time, such as in listing in other time zones, it is expected to result in an increase in variance.

An alternative theory concentrates on the role of private information in generating variance. Although the models vary slightly in their definitions, in the main, they seek to describe strategies employed by informed traders to capitalize on their superior information and those employed by less informed traders to minimize their exploitation by the better informed.

⁷⁹ Fisher Black, *Noise*, 41 J. FIN. 529 (1986); Laurence H. Summers, *Does the Stock Market Rationally Reflect Fundamental Values?*, 41 J. FIN. 591 (1986); Kenneth R. French and Richard Roll, *Stock Return Variances: The Arrival of Information and the Reaction of Traders*, 17 J. FIN. ECON. 5 (1986).

⁸⁰ Liquidity concerns can be positive -- e.g., an unexpected surplus due to inheritance, etc. -- or negative -- e.g., a need to finance an exceedingly large expense such as a home purchase or tuition payment.

Starting in a domestic setting, Kyle⁸¹ models a market with three types of traders -- informed investors who trade to maximize gains from private information, random liquidity traders, and a specialist who infers about the private information from price and volume changes. In this model, return variance reflects the arrival of new information, so increases volume is associated with a higher variance.

In a model with several time periods, Admati and Pfleiderer⁸² add “discretionary liquidity traders” who lack private information but have discretion over the timing of their trades. In general, informed traders and discretionary liquidity traders will prefer to trade in a thick market where the specialist is less likely to discern their trades. Only random liquidity traders and informed traders with short lived information will trade in periods of thin market. This will result in a clustering of trades in certain periods and a higher return variance in these periods.

The next step is the move from a multi-period to multi-market environment. Here, two strands of arguments can be identified. In the first -- let us call it “the clustering model” -- Chowdhry and Nanda⁸³ analyze a situation in which a security trades in multiple markets simultaneously. Traders consist of small liquidity traders, large liquidity traders, e.g., institutional investors who can split their trades, and informed traders who can also split their trades. In this model, small liquidity traders tend to concentrate in the market

⁸¹ Albert S. Kyle, *Continuous Auctions and Insider Trading*, 53 *Econometrica* 1315 (1985).

⁸² Anat R. Admati and Paul Pfleiderer, *A Theory of Intraday Patterns: Volume and Price Variability*, 1 *REV. FIN. STUD.* 3 (1988).

⁸³ Chowdhry and Nanda, *supra* note 71.

with the largest number of those traders who are unable to move between markets. This market, in turn, will attract more trading by the informed traders as well as the large liquidity traders. This “winner takes most” feature results in a dominant/satellite market situation.⁸⁴

In addition, Chowdhry and Nanda argue that a location in which market makers make the price information public is less attractive to informed traders, because timely release of price information negatively affects the profits informed traders expect to make in subsequent periods in other markets as well. Similarly, a market location in which market makers crack down on insider trading leads to less aggressive trading by insiders. This may attract more small liquidity traders and may even attract the largest proportion of large traders as well as informed trading.

In the second strand of models scholars reach quite the opposite conclusion, namely, that informed traders would tend to split their trades across markets. Let us thus call them “the fragmentation models”. Freedman⁸⁵ allows informed traders to have long-lived information and to allocate their trades between two separate markets in which the security is cross listed. Here, cross listing provides informed traders with additional opportunities to trade on and profit from their long-lived information. Cross listing under this model provides a stronger incentive to collect (through observation) and produce (through analysis) more information about the firm which, in turn, is revealed in the

⁸⁴ The outcome is analogous to Admati and Pfleiderer’s temporal concentration.

market. Thus, cross listing results in the variance of stock price in the domestic stock exchange being higher.

Madhavan⁸⁶ pursues a similar line, advancing a model with noise traders who make a single transaction at a single time, large liquidity traders who trade over two periods, and informed traders. If dealers are subject to different price disclosure (transparency) rules, e.g., because they operate in different countries, then unconstrained dealers will not disclose trading information. A dealer who is legally required to disclose trades cannot extract any rents from trading in the first period because this information must be publicized.

As traders are heterogeneous, market fragmentation is likely to affect traders in different ways. In particular, the lack of disclosure is likely to benefit informed traders who are able to conceal their initial trades and thereby capture more of the value of their information through dynamic trading. Similarly, large liquidity traders also pursue dynamic strategies, so this intuition applies to them as well. However, since competing dealers break even on average, these gains come at the expense of noise traders.

Table 4 compiles the available empirical evidence regarding the effect of international multiple listing on informed and noise trading -- again, a novel exercise. When considered in their entirety, it is very difficult to come away with a coherent

⁸⁵ RUTH J. FREEDMAN, INTERNATIONAL CROSSLISTING: A THEORETICAL AND EMPIRICAL ANALYSIS, Ph.D. Dissertation, Stanford University (1991).

⁸⁶ Ananth Madhavan, *Consolidation, Fragmentation, and the Disclosure of Trading Information*, 8 REV. FIN. STUD. 579 (1995).

explanation for the results. First, some studies reach opposite findings as to the impact on return variance for similar samples.⁸⁷ More disturbing, however, are the interpretations drawn from the results. Three studies interpret a significant increase in return variance as consistent with higher level of informed trading.⁸⁸ Yet, two other studies offer the same interpretation to a finding of no impact on variance.⁸⁹ Worse still, the sixth study interprets the increase in variance as consistent with the noise trading theory.⁹⁰

[Table 4 about here].

The fundamental reason for this incoherence is the fact that the two competing hypotheses -- informed trading and noise trading -- basically lead to the same prediction that return variance is likely to increase following a multiple listing. In order to find support for one theory, the researcher has to assume the other theory away. This turns out to be a dubious exercise. To achieve this goal, some researchers turn to the models on fragmentation and consolidation of trading.⁹¹ However, this can be of little help, since in this respect there are conflicting predictions by different theories, as set forth above.

⁸⁷ Compare Barclay *et al.* (1990), Table 4 note a, and Damodaran *et al.* (1993), Table 4 note b, with Noronha *et al.* (1996), Table 4 note f, and Makhija and Nachtman (1989, 1990), Table 4 note e.

⁸⁸ Jayaraman *et al.* (1993), Table 4 note d; Noronha *et al.* (1996), Table 4 note f; Makhija and Nachtman (1989, 1990), Table 4 note e.

⁸⁹ Barclay *et al.* (1990), Table 4 note a; Damodaran *et al.* (1993), Table 4 note b.

⁹⁰ Howe *et al.* (1993), Table 4 note c.

⁹¹ Thus, Barclay *et al.* (1990) rely on Admati and Pfleiderer (1988) to assume that informed traders will cluster in the domestic market and variance will not increase. They explicitly assume that the increased trading time “should have little impact on the rate of dissemination of private information”. Howe *et al.* (1993) rely on Chowdhry and Nanda (1991) and on Barclay *et al.* (1990) to make the same assumption. Damodaran *et al.* (1993) follow the conclusion of Barclay *et al.* (1990) with little deliberation.

In the end, there is probably a grain of truth in both the informed trading and the noise trading hypotheses. In other words, a multiple listing is likely to be followed by a greater interest in the stock and a larger number of stockholders, which would lead to more noise (or liquidity) trading. At the same time, such greater interest may induce more research and the production of information about the stock. It seems intuitively true that informed traders would want to take advantage of informational (short run) segmentation between markets in order to maximize their gains from private information. Indeed, the SEC noted that with multiple listing, it occasionally happens that the terms of a transaction between two American parties are concluded in the US but are faxed abroad to be “printed” on the foreign tape.⁹²

It follows that there is probably also a basis in reality for both the clustering and the fragmentation of trading theories. In any event, it should be clear that both clustering and fragmentation of trading are driven by more than the economics of information. Other forces, including institutional and political ones, play a significant role in this process. The issue of stock exchange regulation at the market structure level is beyond the scope of this paper, but it should be noted that structural differences -- and, more importantly, structural diversity within a group of countries or markets -- will in general work to fragment trading among markets. The bitter disputes over transparency requirements during the negotiations towards the European Union’s ISD are indicative.⁹³

⁹² MARKET 2000, *supra* note 4.

⁹³ In those negotiations, countries like France and Italy (the Club Med group) argued for stringent transparency rules while countries like the United Kingdom and Germany (the North Sea

By and large, the complexity of real life situations implies the limited applicability of Chowdhry and Nanda's predictions from their clustering model. In other words, informed trading is something that dealers may not like, but, first, stock exchanges and countries may still tolerate for other reasons (see below); second, the dealers themselves may get compensated for the adverse effects of informed trading.⁹⁴ In any event, if any conclusion is to be drawn from the body of theoretic and empirical work, it is probably that informed trading increases significantly following a foreign listing.

4. Regulatory Concerns

Among the greater regulatory concerns with multiple listing is informed trading. In this subsection I point at a number of such concerns in light of the theoretical predictions and empirical data. Although I ask questions about optimal policies, neither here nor in other parts of this work do I advance one arguably efficient arrangement for the problem, in principle because there may be more than one good arrangement. Rather, I systematically analyze the circumstances which may lead to diversity in regulatory policies and arrangements. It goes without saying that some arrangements can be improved, but this is only a secondary thrust of the discussion here.

Alliance) argued that limited secrecy regarding trading transactions was essential. This controversy reflected the differences in market structure between the two groups. In a typical order-driven Club Med market, e.g., the Paris Bourse, a high level of transparency may improve the market's functioning as a price discovery mechanism. On the other hand, in a typical quote-driven North Sea market, like London's SEAQ-I, full transparency would undermine dealers' ability to unwind positions they are obliged to take as market makers. See STEIL, *THE EUROPEAN EQUITY MARKETS*, *supra* note 67; Amir N. Licht, *Stock Market Integration in Europe*, CAER II Discussion Paper No. 15, Harvard Institute for International Development (1998).

⁹⁴ Gregory M. Noronha, Atyula Sarin, and Shahrokh M. Saudagaran, *Testing for Micro-structure Effects of international Dual Listings using Intraday Data*, 20 J. BANKING & FIN. 965-983 (1996) (finding

The finance literature often uses the terms “informed trading” and “insider trading” interchangeably in reference to trading on private information. “Private information”, in turn, is used as a general term for both transaction information and company information. The former -- often referred to simply as “price information” -- relates to the details of recent tradings, e.g., price, size, and identity of traders. The latter relates to fundamental information about the firm and its business.⁹⁵ In the following discussion more tightly defined terms are required.

The important distinction is between two categories of trading on information. “Informed trading” is the most general category: it subsumes all traders who hold any private information about the stock, either with regard to the issuing company -- “company information” -- or to recent transactions -- “transaction information”. For that matter, “trading on private information” will also include trading based on forecasts and opinions (“soft” information) and not only hard information. It is thus distinguished from “liquidity trading” which is divorced of any such quality. The term “insider trading” will be used in its legalistic sense to denote trading by persons who are in special relationships with the firm, as defined by the law. Most notable among these are managers and other office holders -- “insiders”.

In light of these distinctions let us reexamine the theoretical arguments with a view to assess them as candidates for informing regulatory policy making.

that spreads do not decline following multiple listing, which is explained by the increased level of informed trading).

As a general feature, virtually all the finance discourse builds on the premise that in designing their trading strategy, traders are only concerned with the price effect of their trades. To be sure, small liquidity traders are sometimes limited to their domestic market. But, the mobile traders (with mobility defined over time periods and across markets) are generally interested in minimizing the impact of their trades on the price. This is definitely a true picture with regard to large liquidity traders (including market makers) who often seek to gradually “work” large positions into the market. This is also the case with respect to informed traders who trade on private information they acquire legitimately, such as institutional investors trading on forecasts prepared by their stock analysts.

This is *not*, however, the case with regard to insider trading. For insiders, the price effect is only of secondary importance. Their first and foremost concern is not to get caught. This is true, of course, if they are subject to a legal system which proscribes insider trading and can effectively enforce this prohibition. For American insiders, for instance, the disutility from adverse price effects certainly dwarfs in comparison with the disutility from being charged and jailed for engaging in insider trading.⁹⁶ By routing their trade orders to a market where these conditions do not hold they can evade detection.

⁹⁵ Of course, this type of information can relate to general conditions of the economy that might affect the company and its business.

⁹⁶ In their discussion of cracking down on insider trading, Chowdhry and Nanda contemplate a sanction of divestiture of the benefits gained by engaging in insider trading. Such a sanction would have a greater effect on the insider compared with the price effect alone but it ratifies the nature of the situation for the insider as a non-losing game: either she gets off with the profits or she has to turn them back. Except for the transaction costs, it is difficult to see what would deter insiders from engaging in insider trading under such a legal regime. Recognizing this reality, Congress has amended the Securities Laws twice during the 1980s and significantly increased both the civil and criminal penalties for insider trading. Insider Trading Sanctions Act of 1984; Insider Trading and Securities Fraud Enforcement Act of

The private information held by large liquidity traders is mainly the size of the position they want to take or unwind. In most cases this information would be short lived, as the trader would like to complete the transaction within a minimal period of time. In such a case, the incentive to trade on parallel markets could be considerable. For genuine insiders the private information they trade on is generally more long lived than the information other informed traders trade on. They may thus have a longer time horizon over which to split their trades.⁹⁷ This could diminish the incentive to route the trade to foreign markets but at the same time, could be used in conjunction with such evasion strategy.

In the aggregate, therefore, the Freedman-Madhavan fragmentation model may provide a more plausible story about insider trading than Chowdhry and Nanda's clustering model, although both should definitely be borne in a regulator's mind.⁹⁸ Translated into regulatory policy, this means that in order to *effectively* enforce an anti-insider trading rule in a multiple listed corporation an interested regulator would have to cover all the markets on which the stock trades. She would then have to create an integrated picture of the trading. The SEC indeed encourages the signing of Surveillance

1988. Both amendments seem to have had little effect on the level and profitability of insider trading in the United States. H. Nejat Seyhun, *The Effectiveness of Insider-Trading Sanctions*, 35 J. L. & ECON. 149 (1992).

⁹⁷ Seyhun provides evidence that the percentage of abnormal profitability grows over time, i.e., the longer the holding period the higher the profit. This may be an indication that insiders enjoy access to and profit from long lived information. See H. Nejat Seyhun, *The Effectiveness of Insider-Trading Sanctions*, 35 J. L. & ECON. 149 (1992).

⁹⁸ Note, that no claim is made that insider trading will migrate abroad completely. Even for a top executive insider there are difficulties in effecting a transaction abroad, although these could be overcome.

Sharing Agreements (SSAs) between U.S. and foreign securities exchanges that are linked or on which derivative products trade.⁹⁹ But it is not clear in what manner it deals with multiple listed stocks. In the EU, some securities regulators were in 1996 actively preparing to undertake such a task, which would require extensive exchange of trading data among stock exchanges and regulators, while others were not.¹⁰⁰

and some European regulators are taking active steps to achieve such comprehensive regulatory cover, albeit in different ways and degrees.

An intriguing feature of Chowdhry and Nanda's model is that market makers have incentives to voluntarily crack down on insider trading. They argue that

“Since market makers have incentives to institute surveillance systems *voluntarily*, we conclude that regulatory action may not be required to achieve that goal. Competition for market-making services would induce market makers to run “clean market.” As a result of this desire to project a clean image, market makers may even choose to cooperate with regulatory agencies such as the SEC.”¹⁰¹

Although the logic of their argument is compelling, a number of reasons stand out to warrant regulatory intervention and avoid total reliance on private sector anti-insider trading measures. First, it is important to note that in an international setting, Chowdhry

More significantly, the Chowdhry and Nanda argument means that if a trader effected the whole transaction in a foreign market -- a satellite market in all likelihood -- she could draw too much attention.

⁹⁹ Michael D. Mann, Joseph G. Mari, and George Lavdas, *International Agreements and Understandings for the Production of Information and Other Mutual Assistance*, 29 INT'L LAW. 780, 837-38 (1995).

¹⁰⁰ Licht, *supra* note #, at 36.

and Nanda's argument has only limited applicability. In an international multi-market environment, legislatures and regulatory agencies may have differential opinions on the desirability of a prohibition on insider trading. In the absence of a governmental surveillance system, dealers may find themselves limited to deterring all informed traders by timely publicizing of transaction information but this could prove counter-productive from their point of view.¹⁰²

Second, even if adopted by dealers, such counter-measures would be too crude. Transaction information reflects more than the information contributed by insiders; it may reflect, in a highly structured form, the existence of private information in general. If a company insider places a sell order because she has confidential information regarding her company's sales prospects in the coming quarters, or if a pension plan puts such an order because its stock analyst advised it to do so, or if it is in an unexpected need for cash to pay some retirement benefits -- in all these cases transaction information and the traders' strategies may be the same. A dealer's counter strategy of publicizing transaction information cannot distinguish between these traders although there may be compelling policy reasons to do so.

Third, any prospects for a private sector sponsored crack-down on insider trading exist only in quote-driven (dealer) markets. In order-driven (auction) markets there are no

¹⁰¹ Chowdhry and Nanda, *supra* note 71, at 501 (italics in the original).

¹⁰² In real life dealerized markets, market makers become akin to large liquidity traders when they absorb a large order from institution investors and need to gradually unwind the position with minimal price effect. This greatly decreases their incentive to disclose transaction information -- a fact which was at the center of the transparency dispute in drafting the ISD.

market makers per se who provide liquidity by standing ready to buy and sell at quoted prices. In such markets, the equivalent of the market maker's spread is the difference between the best buy and sell limit orders, which is set continuously by the entirety of market participants. On the one hand, this means that traders are less exposed to the same degree of adverse selection problem that market makers face. On the other hand, there are no dealers to rely on for cracking down on insider trading. It requires very little to see that a severe collective action problem would arise in such circumstances -- a fact which puts the responsibility for taking anti-insider trading measures with the national regulator or the stock exchange, at best. These players, however, may have different agendas.¹⁰³

Fourth, the goals which determine a dealer's trading strategy are not necessarily the same as those which a national regulator would like to advance. That is, unless the regulatory agency is captured by this particular section of the industry.¹⁰⁴ This brings us to the fundamental issue of regulatory policy goals.

One parameter by which securities regulation policies are sometimes judged is the so-called "fairness" of markets. Markets are arguably fair when traders are treated equally. Now, recall that in Madhavan's fragmentation model, informed traders capture more of the value of their private information, dealers break even, and noise traders bear the costs

¹⁰³ Indeed, Chowdhry and Nanda honestly admit that their discussion ignores the potential role of stock exchanges as strategic players attempting to maximize fees or order flows. Chowdhry and Nanda, *supra* note 71, at 508.

¹⁰⁴ The notion of a "captive agency" is well represented with regard to the securities industry. For examples in the United States, see David D. Haddock and Jonathan R. Macey, *Regulation on Demand: A Private Interest Model with an Application to Insider Trading Regulation*, 30 J. L. & ECON. 311(1987). In

of this informational asymmetry. If we translated “noise traders” to “individual investors” or, worse yet, “Aunt Minnie from Omaha”, we would start to see the potential regulatory and political problem. The problem gets complicated even further because these terms are not equivalent. Noise traders also include program trading by large institutional investors, and individual investors also include Bill Gates. Any measure that would work evenly across the board is bound to have *differential* effects on the different kinds of investors.

To the extent that the private information relates only to large liquidity traders there is little basis to warrant disclosure on their behalf. However, insofar as company insiders are involved, the question takes shape as a distributive issue (some would say “allocation of property rights in information”¹⁰⁵) between insiders and other investors.

The other general parameter commonly used to assess regulatory policy is the extent to which it promotes “market efficiency”. Overall, a good policy should encourage price formation and discovery in order to promote better informational efficiency, and in turn, allocational efficiency. Here, too, there may be a conflict of interests between dealers and national policy makers. The former prefer to see as little informed trading as possible taking place in “their” market. According to Chowdhry and Nanda’s clustering model,

the European Union, see *The ISD and the Regulation of European Market Structure*, in BENN STEIL, ED., *THE EUROPEAN EQUITY MARKETS* 113 (1996).

¹⁰⁵ Cf. Jonathan R. Macey and Geoffrey P. Miller, *Good Finance, Bad Economics: An Analysis of the Fraud on the Market Theory*, 42 *STAN. L. REV.* 1059 (1990).

they can also take active steps to drive them away. The latter also see the market as “theirs” but only want to curb illegal insider trading.¹⁰⁶

With respect to large liquidity traders, a regulatory agency should have no particular preference as to the disclosure of transaction information. Driving these traders to foreign markets (or to less-organized or “upstairs” markets) could only hamper the informativeness of the major market. This issue too boils down to a distributive conflict between dealers and large traders in which a regulator could well side with the traders. First, regulators may be giving weight to the positive externalities created by the major market as a central price discovery mechanism and may want to encourage it. Second, regulators may want to directly subsidize large liquidity traders in their capacity as institutional investors because they perform a number of beneficial services to the market which have a character of a public good, e.g., information analysis and monitoring of their portfolio companies.

As regards insider trading, the meaning of an anti-insider trading policy may vary. Some regulators may be satisfied with diverting insider trading abroad and letting foreigners bear the costs of informational asymmetry. Others may think it necessary to eliminate insider trading altogether, which would then require something more fundamental than just driving insiders to trade abroad. In all of these cases dealers have little standing, and moreover, national regulatory policy may readily differ.

¹⁰⁶ There is a limit to how much information can be made public. In order to keep markets functioning, a certain amount of information has to remain private in order to ensure some benefits for

C. The Interaction between Legal Regimes

In well functioning capital markets the price system is a “mechanism for communicating information”.¹⁰⁷ The markets, therefore, are the arenas and mechanisms for price discovery about the priced asset. In conventional finance theory, market efficiency is actually a shorthand for market informational efficiency. That is, a market would be deemed more efficient if prices reflected more information within shorter periods of time. The assumption that stock markets are informationally efficient is quite common, either explicitly or implicitly. It is mostly known as the Efficient Capital Market Hypothesis (ECMH). Indeed, this assumption underlies most of the studies in the previous sections.

Taken seriously, the ECMH in its semi-strong form means that *everything* is supposedly reflected in stock prices, provided that it is public information.¹⁰⁸ Within such a broad category we should definitely include the law of the land. After all, in modern countries laws are published and are generally within the knowledge of the populace. To the extent that a legal rule -- say, a provision setting income tax rates -- has an effect on a firm’s business prospects, we should expect it to affect its share price.

information collection and research. See Sanford J. Grossman and Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393 (1980).

¹⁰⁷ F. Hayek, *The Use of Knowledge in Society*, American Economic Review (1945), cited in SANFORD J. GROSSMAN, *THE INFORMATIONAL ROLE OF PRICES* 1 (1989).

¹⁰⁸ For an overview of the three forms of market efficiency, see BREARLY AND MYERS, *supra* note 33, Chs. 8, 13.

The core question of this Section is: What would happen to stock prices if several legal regimes were in play? The subject matter of such multiple legal systems could be the company itself, its stockholders, its stock in and as of itself, or trading in the stock. In particular, I seek to describe the interaction between multiplicity of legal regimes and the price system -- how the law affects the price and how the price affects the law. I argue that through the price system -- specifically, through the implementation of the law of one price by transnational arbitrage transactions -- national legal systems affect one another.

The Section opens with an exploration of how legal rules get priced through market efficiency in one domestic economy and to what extent can we isolate specific “price tags” for particular legal rules. The examples I use relate mainly to corporate governance problems in the United States. Those who are familiar with the implementation the ECMH and event studies in this context may thus want only to skim the first two subsections. The discussion then moves to international settings, where more than one legal system may apply. I offer a model for understanding how foreign legal rules come to apply and how they are priced. Next, I portray the processes whereby an integrated legal regime is created from its national components. Finally, some regulatory consequences of this novel form of regulatory arbitrage are discussed.

1. Finding the Price of Legal Rules

Finance scholars seem to agree that the ECMH holds in its semi-strong form in major securities markets in the United States, notwithstanding some sticking questions

regarding its validity.¹⁰⁹ Almost three decades after Fama's seminal article on market efficiency,¹¹⁰ the way the topic is presented to students of finance still reflects a deep belief in market efficiency.¹¹¹ Following the steps of the finance literature, writers on securities regulation have made the ECMH the epistemic basis for many analyses.¹¹² More importantly, in the United States, the ECMH is the epistemic basis for regulatory action,¹¹³ and -- since the Supreme Court decision in *Basic*¹¹⁴ and the Seventh Circuit's decision in *Wielgos*¹¹⁵ -- also for judicial reasoning.

In addition to securities regulation, the ECMH plays a central role in many debates on the efficiency and desirability of legal rules in corporate law. At least some scholars believe that legal regimes, whether privately or publicly ordered, are rapidly reflected in securities prices. According to Easterbrook and Fischell,

¹⁰⁹ See below Sub-section 2.

¹¹⁰ Eugene Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 24 J. FIN. 383 (1970).

¹¹¹ See, e.g., RICHARD A. BREALEY AND STEWART C. MYERS, *supra* note 33, ch. 13.

¹¹² See, e.g., Doanld C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851 (1992).

¹¹³ For a review and critique see Langevoort, *supra* note 110; Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 CARDOZO L. REV. 909 (1994).

¹¹⁴ *Basic, Inc. v. Levinson*, 485 U.S. 224 (1988) (doing away with the reliance requirement in securities fraud claims where presentations were made to the market).

¹¹⁵ *Wielgos v. Commonwealth Edison Co.*, 892 F.2d 509 (7th Cir. 1989) (the price of a large widely held corporation is assumed to have incorporated the knowledge of all market participants regarding the business prospects of the company).

“No one can read the *Journal of Financial Economics* and come away with a sense that investors fail to adjust prices to the smallest change in corporate structure and legal rules”.¹¹⁶

When coupled with an ability to measure the impact on stock prices, the ECMH can produce powerful tools for assessing the desirability of legal arrangements by using event studies. As noted earlier, this methodology enables a researcher to isolate irregular fluctuations in stock returns in reference to some asset pricing model (most commonly the CAPM) or simply to a “market model” which adjusts the stock’s return for the return on the market.¹¹⁷ A change in the legal regime applicable to the company would be defined as the “event”, such that its effect on stock returns could be measured.

The tender offer is the phenomenon that has attracted the greatest amount of attention in terms of efforts to empirically measure its effects on stock prices.¹¹⁸ More than the sheer scope of the phenomenon, the intensity of events surrounding tender offers seems to have captured the imagination of the academia and the public alike. In response to the growing trend of hostile (i.e., unsolicited) takeovers, states enacted laws that impede hostile bidders from completing the takeover.¹¹⁹

¹¹⁶ FRANK H. EASTERBROOK AND DANIEL R. FISCHER, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* Ch. 8, at note 4 (1991).

¹¹⁷ *See supra* Section A.3.

¹¹⁸ FRANK H. EASTERBROOK AND DANIEL R. FISCHER, *supra* note 114, at 193.

¹¹⁹ *See* JESSE H. CHOPER, JOHN C. COFFEE, JR., AND RONALD J. GILSON, *CASES AND MATERIALS ON CORPORATIONS* 1053 *et seq.* (4th ed. 1995); ROBERTA ROMANO, ED., *FOUNDATIONS OF CORPORATE LAW* Ch. VI (1993); EASTERBROOK AND FISCHER, *supra* note 114, Ch. 7.

In spite of wide disagreement among scholars about most aspects of takeover regulation, there seems to be a consensus on the undesirability of these anti-takeover laws, particularly in the extreme form assumed by the more recent of them. Consistent with the theoretical standpoint, event studies of enactments of anti-takeover laws demonstrate statistically significant decreases in the value of companies affected by these laws.¹²⁰ The empirical evidence thus confirms the theoretical argument that such harsh laws decrease firm value by limiting stockholders' opportunities to get favorable tender offers which, in turn, decrease the level of managerial discipline imposed by the market for corporate control. Stated generally, legal rules have a price which the stock market should be able to discover.

Theory and evidence are in agreement with regard to anti-takeover laws which makes them an easy case. Finding the price of legal rule can run into difficulties for a number of reasons which are sketched in the following paragraphs. These difficulties, however, apply only to the *measurement* of price impact and do not question the validity of the ECMH itself which is discussed further below.

Problems with the Theory. Difficulties start to arise when theory offers different (and sometimes conflicting) views about the value of a legal rule, i.e., whether it is good or bad. For example, the American debate over state competition for corporate charters

¹²⁰ Jonathan M. Karpoff and Paul H. Malatesta, *The Wealth Effect of Second-Generation State Takeover Legislation*, 25 J. FIN. ECON. 291 (1989). In this study, the authors also survey previous studies of the subject. Although the reviewed studies do not reach uniform findings, Karpoff and Malatesta are able to explain the variety of results on methodological grounds. See also Jeffrey Netter and Annette Poulsen, *State Corporation Laws and Shareholders: The Recent Experience*, 18 Fin. Manag. 29 (1989).

was cast in most fundamental terms -- whether it is a “race for the bottom”, a “race for the top”, or rather to some midway optimum.¹²¹ Several event studies of reincorporations shed very little light on the question as the results are indecisive at best. This might seem surprising, because reincorporation is a relatively clean cut event; it does not require the physical migration of company headquarters in order to change its law. Nevertheless, event studies of reincorporations do not report significant changes of any sort in stock returns.¹²² Although certain “pro-competition” scholars argue that this in fact supports their argument,¹²³ it does not require much to see that one cannot infer support for any theory from lack of evidence.

Problems with the Facts or Circumstances. The facts surrounding the event may be such that they overshadow the event itself and make it impossible to isolate its effect. Lucian Bebchuk argues that evidence of insignificant or positive effects on stock returns in of reincorporations does not constitute evidence that state competition for corporate charters benefits shareholders. First, the new corporate law package may include some

¹²¹ The classic expositions are William L. Cary, *Federalism and Corporate Law: Reflections upon Delaware* 83 YALE L. J. 663 (1974) and Ralph K. Winter, Jr., *State Law, Shareholder Protection, and the Theory of the Corporation* 6 J. LEGAL STUD. 251 (1977). For representative views, see ROBERTA ROMANO, THE GENIUS OF AMERICAN CORPORATE LAW (1993); Roberta Romano, *The State Competition Debate in Corporate Law*, 8 CARDOZO L. REV. 709 (1987); EASTERBROOK AND FISHELL, *supra* note 114, Ch. 8; Melvin A. Eisenberg, *The Structure of Corporation Law* 89 COLUM. L. REV. 1461 (1989); Joel Seligman, *The Case for Federal Minimum Corporate Law Standards*, 49 MD L. REV. 947 (1990); Lucian A. Bebchuk, *Federalism and the Corporation: The Desirable Limits on State Competition in Corporate Law*, 105 HARV. L. REV. 1435 (1992).

¹²² Peter Dodd & Richard Leftwich, *The Market for Corporate Charters: “Unhealthy Competition” Versus Federal Regulation*, 53 J. BUS. 259 (1980); Roberta Romano, *Law as a Product: some Pieces of the Incorporation Puzzle*, 1 J. L. ECON. & ORG. 225 (1985); Elliot J. Weiss and Lawrence J. White, *Of Econometrics and Indeterminacy: A Study of Investors’ Reactions to ‘Changes’ in Corporate Law*, 75 CALIF. L. REV. 551 (1987); Jeffrey Netter and Annette Poulsen, *State Corporation Laws and Shareholders: The Recent Experience*, 18 FIN. MGMT. 29 (1989).

desirable provisions the effect of which obscures the negative effect of other undesirable provisions.¹²⁴ Second, companies usually reincorporate in conjunction with another significant positive event, e.g., when they are about to go public, initiate a merger and acquisition program, etc.¹²⁵ In such a case, the market may react positively to the news on the assumption that the reincorporation a necessary ingredient of the project or in anticipation of improved business results.

Problems with the Methodology. Recall, that what event studies measure is the impact of the informational rather than the actual event.¹²⁶ For an event study to succeed the information about it should come to the market as a surprise. Otherwise, prices would impound the information as it gradually leaks into the market due to insider trading or accurate predictions of market professionals.

Unfortunately, these problems tend to cluster. In the case of reincorporation, for instance, what we have is a change the theoretical effect of which on the firm is controversial; is an integral part of a broader structural change; and by the time it is effected it is often hardly news at all. And this is true for an event that at least in principle is a well defined one.¹²⁷

¹²³ See, e.g., ROMANO, FOUNDATIONS, *supra* note 117, at 92.

¹²⁴ Bebchuk, *supra* note 119, at 1449-50.

¹²⁵ Romano, *Law as a Product*, *supra* note 120.

¹²⁶ See *supra* Section A.3.

¹²⁷ It should be iterated that reincorporation is given here only by way of example. Although clear cut changes in corporate governance laws are rare, the United States does provide some additional examples, such as the case of laws allowing companies to limit directors' liability. For background, see JESSE H. CHOPER, JOHN C. COFFEE, JR., AND RONALD J. GILSON, CASES AND MATERIALS ON

2. The Limits of Market Efficiency and the ECMH

Pricing of legal rules is not only difficult to gauge statistically. It is also difficult to undertake at the substantive level, i.e., as part of pricing the firm's "fundamentals". It is by now widely acknowledged that strictly speaking, the ECMH does not hold. A very large body of empirical literature documents "anomalies", i.e., persisting phenomena that seem to contradict the ECMH's basic prediction for semi-strong efficiency -- that market prices reflect all publicly available information.¹²⁸ These anomalies, however, are now treated mostly as evidence of failures in our understanding of how assets are valued rather than of the market being confused.¹²⁹

More fundamental critiques maintain that the formation of stock prices, particularly from a dynamic aspect, simply does not obey the rational expectations assumption which underlies the ECMH. The structure of trading as well as the composition of traders, the arguments go, cause prices to be grossly skewed from

CORPORATIONS 72-116 (1995). Empirical studies did not find significant stock price effects upon firms' proposals to opt out of the duty of care. Michael Bradley and Cindy Schipani, *The relevance of the Duty of Care Standard in Corporate Governance*, 75 IOWA L. REV. 1 (1989); Vahan Janjigian and Paul J. Bolster, *The Elimination of Director Liability and Stockholder Returns: An Empirical Study*, 13 J. FIN. RES. 53 (1990); Roberta Romano, *Corporate Governance in the Aftermath of the Insurance Crisis*, 39 EMORY L. J. 1155 (1990).

¹²⁸ One of the most famous anomalies is the "size effect", i.e., the tendency of small company stocks to outperform large company stocks on a risk adjusted basis. See Symposium, 12 J. FIN. ECON. 3 (1983). For reviews of anomalies in general see Eugene Fama, *Efficient Capital Markets: II*, 46 J. FIN. 1575 (1991); William K.S. Wang, *Some Arguments that the Stock Market is Not Efficient*, 19 U.C. DAVIS L. REV. 341 (1986); E. ELTON AND MARTIN J. GRUBER, MODERN PORTFOLIO THEORY AND INVESTMENT ANALYSIS CH 15 (1984). Another anomaly is the "January effect", in which stocks perform systematically better in a single month. Richard Thaler, *Anomalies: The January Effect*, 1 J. ECON. PERSP. 197 (1987); Wang, *id.*; Fama, *id.* Seemingly unexplained anomalies also exist with regard to other time periods. See Richard Thaler, *Anomalies: Weekend, Holiday, Turn of the Month, and Intraday Effects*, 1 J. ECON. PERSP. 169 (1987). Some of these anomalies, however, may be explained by reasons of market microstructure.

fundamental values -- including, for that matter, the value of applicable legal regimes. In the extreme, this may cause market to develop “bubbles” and experience crashes.¹³⁰ Even under the harshest critique, however, fundamental information is not claimed to be irrelevant. Particularly because a host of elements may be effecting the behavior of stock prices in ways that are not entirely predictable, the importance of fundamental information should be greater.¹³¹

Informational inefficiency also stems from the fact that information collection and analysis is costly. In order for market participants to have incentive to engage in information collection and analysis there has to be an interim stage when the information is

¹²⁹ CHOPER, COFFEE, AND GILSON, *supra* note 125, at 200; Fama, *supra* note 108.

¹³⁰ The main critique of the rational expectation theory is the theory of noise. See J. Bradford De Long et al., *Noise Trader Risk in Financial Markets*, 98 J. POL. ECON. 703 (1990) (summarizing the noise trader model); Black, *supra* note 78; Summers, *supra* note 78; French and Roll, *supra* note 78. Representative discussions from a legal policy perspective include Lynn Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611 (1995); Paul G. Mahoney, *Is There a Cure for ‘Excessive’ Trading?*, 81 VA. L. REV. 713 (1995); Lynn A. Stout, *The Unimportance of Being Efficient: An Economic Analysis of Stock Market Pricing and Securities Regulation*, 87 MICH. L. REV. 613 (1988).

A related strand of critique of the ECMH claims that it is wrong because stock markets demonstrate non-linear and chaotic processes. For a review, see Lawrence A. Cunningham, *From Random Walk to Chaotic Crashes: The Linear Genealogy of the Efficient Capital Market Hypothesis*, 62 GEO. WASH. L. REV. 546 (1994).

In a different vein, information economists maintain that such phenomena are explicable assuming rational investors that nevertheless develop heterogeneous expectations due to limits on information collection or to different interpretations. See Jeremy C. Stein, *Informational Externalities and Welfare-reducing Speculation*, 95 J. POL. ECON. 123 (1987); Milton Harris and Artur Raviv, *Differences of Opinion Make a Horse Race*, 6 REV. FIN. STUD. 473 (1993). For legal analysis see Lynn Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611 (1995); Lynn A. Stout, *Agreeing to Disagree over Excessive Trading*, 81 VA. L. REV. 751 (1995).

¹³¹ But see Stout, *The Unimportance of Being Efficient*, *supra* note 128. Stout’s analysis, however, suffers from a long list of difficulties, *inter alia*, the implicit premise that fundamental (as opposed to informational) efficiency is irrelevant. In the main, Stout does not distinguish between a situation where stock prices are skewed with respect to fundamental values but are still affected by information about them, and a situation where no relation whatsoever exist between prices and

not publicly available.¹³² Based on this insight, Gilson and Kraakman show that the market's efficiency with respect to particular kinds of information depends on the cost of acquiring it. It follows, that capital market efficiency is directly linked to the structure of the information market.¹³³

The American stock market usually receives high grades for informational efficiency, but in certain sectors the mechanisms of market efficiency perform rather poorly so the ECMH may not hold. A case in point is stocks of small issuers and over-the-counter stocks.¹³⁴ The reasons are structural: under Gilson and Kraakman taxonomy, semi-strong form efficiency is driven by "professionally informed" traders, who devote resources to acquire information and their careers to honing evaluative skills. By competing with each other they bring the market to Grossman and Stiglitz's efficient level of inefficiency.¹³⁵ Where small issuer stocks are involved, newswire services do not disseminate news about them as intensively as they do with respect to large companies, and a much smaller number of stock analysts follow the stock.¹³⁶ The market then *knows* less and *understands* less about these stocks.¹³⁷

information. The latter, which is echoed in her argument, is clearly false, in light of a vast empirical evidence.

¹³² Grossman and Stiglitz, *supra* note 104.

¹³³ Ronald J. Gilson and Reinier Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984).

¹³⁴ JAMES D. COX, ROBERT W. HILLMAN, AND DONALD C LANGEVOORT, *SECURITIES REGULATION: CASES AND MATERIALS* 40-41 (4th ed. 1991).

¹³⁵ Grossman and Stiglitz, *supra* note 104.

¹³⁶ COX ET AL. *supra* note 132 at 41, cite a 1977 SEC report which found that fewer than 1000 of the more than 10,000 companies then filing reports with the SEC were followed closely by one or more analysts at any time. Moreover, neither analysts nor financial institutions closely followed companies with

The limits to market informational efficiency apply with full force to “legal information”, i.e., legal rules and changes in legal regimes. Thus information about states’ general laws generally would not pass unnoticed, and hence, unpriced. On the other hand, legal information about small issuers -- say, the content of their bylaws -- might not have the same price effect as it is would in widely held stocks.¹³⁸

3. Multiple Sources of Legal Rules

This Section discusses how pricing mechanisms deal with multiple legal regimes in light of the ECMH. In the present work, I focus mainly on legal information about securities regulation and corporate governance. The following subsections discuss the pricing of foreign legal rules in more detail and then the interaction between legal regimes.

From an economic/finance point of view, a number of legal regimes may have an impact on the stock. “The stock”, for that matter, stands for a host of different

assets less than \$50 million and slightly more than half of the sample would not follow a firm whose assets did not exceed \$100 million. Although the information is rather dated, it seems intuitively that the situation today could only be worse in terms of the relative number of closely followed stocks, among others, because of the rising trend of indexing investment by institutional investors which calls for less close monitoring.

¹³⁷ Relatedly, there is broad consensus that the market for initial public offerings (IPOs) of common stock is outrightly inefficient. Most commentators agree that the reason is structural; it stems from underwriters’ underpricing and selling techniques of IPOs in order to minimize their risk and ensure full floatation. See Tim Loughran and Jay R. Ritter, *The New issues Puzzle*, 50 J. FIN. 23 (1995); Seha M. Tinic, *Anatomy of Initial Public Offerings of Common Stock*, 43 J. FIN. 789 (1988); Kevin Rock, *Why New Issues Are Underpriced*, 15 J. FIN. ECON. 187 (1986); Jonathan A. Shayne and Larry D. Soderquist, *Inefficiency in the Market for Initial Public Offerings*, 48 VAN. L. REV. 965 (1995) (surveying many other studies); Richard A. Booth, *Discounts and Other Mysteries of Corporate Finance*, 79 CAL. L. REV. 1053 (1991); Louis Lowenstein, *Shareholder Voting Rights: A Response to SEC Rule 19c-4 and to Professor Gilson*, 89 COLUM. L. REV. 979 (1989).

¹³⁸ Note, that no “nobody-reads-the-prospectus-anyhow” argument is made here. There is little dispute that most investors indeed do not read the prospectus (or other formal disclosure statements later on). But, for the disclosed information to be priced it is sufficient that *some* investors read and evaluate it.

constituencies that have an interest in it. These include the issuing company, company shareholders, other potential investors, and professional market participants (e.g., traders). Moreover, I posit that the level of impact exerted by each legal system varies across different issue areas. Certain topics may effectively be influenced by one legal system, while others may be influenced by both systems -- again, with varying proportions of influence. This relative level of influence varies with the degree that an issue area is company- (issuer-) oriented or rather transaction- (trading-) oriented.¹³⁹

Consider a stock which is multiple listed on two markets in two jurisdictions. How and to what extent does each market affect the “law of the stock”, i.e., the legal regime that applies to it? In such a scenario, there are two potential sources of law affecting the stock: one is the legal regime of the domestic market; the other is the legal regime of the foreign market. As a rule, the domestic market will be the country where the company is incorporated and headquartered. In most cases it is also where the lion’s share of trading takes place.

A graphic presentation may be useful for illustrating the abstract argument.

Consider a two-dimensional space -- a square -- where one dimension stands for the nature of the issue area. An issue may be entirely company-related, e.g., the definition of

¹³⁹ At first glance, the question might seem like a traditional (one may say “old fashioned”) question of conflict of laws. Under that view, the question boils down to determining the “law of the stock” by analogy from determining the “law of the contract” in private international law jurisprudence. This is not my intention. The major goal of the conflict of laws jurisprudence is to determine *one* legal regime the provisions of which govern the case. This is a useful -- indeed, indispensable -- step for a court to take when it is required to adjudicate a case. While a court can adjudicate the case according to a law foreign to its own, it must choose one unique law for that purpose. The thrust of the argument in the test is different.

“stock” and the bundle of rights attached to it or the structure and operation of company institutions such as the board of directors, committees, etc. Alternatively, an issue area it may be entirely transaction-related, e.g., rules concerning insider trading. Finally, it could be a combination of both.

The second dimension represents the sources of law, or the level of influence by each of the two potentially applicable legal systems. Legal impact may stem solely from one system, solely from the other, or be a combination of both. What determines the location of an issue area along this dimension is the extent to which it is classified as either a “company law” issue or a “securities regulation” one.¹⁴⁰

Figure 1 depicts this model. The vertical sides of the square represent the nature of the issue in a similar fashion. A purely issuer-oriented subject would lie along the top side, and purely transaction-oriented issue would lie along the bottom side. Issues that involve aspects of both would lie along a horizontal line in the middle of the square.¹⁴¹ The horizontal sides of the square represent the sources of law. An issue area governed solely by domestic law would lie along the left-hand side of the square; similarly, an issue area that is influenced only by the foreign law would lie along the right-hand side of the square. If both the domestic and foreign legal systems claim an interest in the issue with equal force, the issue would lie along a vertical line in the middle of the square.

¹⁴⁰ More profoundly, what underlies the latter classification is the distinction between “private” and “public” in legal theory. [cite, including critique].

¹⁴¹ Note, that no argument is made here as to a functional or causal connection between the two variables. That is, I do not argue that one of the two variable is an independent variable whereas the other

[Figure 1 about here].

To get a feeling about the working of this presentation model, consider how some specific subjects would be located within the square. Consider first the core of company law. By convention, this issue is governed by the company's home country (i.e., domestic) law.^{142, 143} By definition, it is purely issuer-oriented. Therefore, it is located in the upper left corner of the square as depicted by point no. 1.

is dependent upon it. Rather, both the sources of law *and* the nature of the issue area determine the location of the latter within the space delineated by the square.

¹⁴² Defining a company's national law is not always straightforward, and indeed is an aspect of the discussion in the main text. The country-of-incorporation is the prevailing rule of corporate nationality in the common law countries, including the United States. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW OF THE UNITED STATES, Section 213 (1987) (hereinafter: RESTATEMENT) ("For purposes of international law, a corporation has the nationality of the state under the laws of which the corporation is organized"). But this is by no means the sole rule. Under most continental European systems the nationality of a corporation is determined according to the *siege social* (or *siege reel*) of the corporation, which emphasize the principal place of management, and also look behind the formal designation of a principal office. In practical effect, it is an additional requirement, since jurisdictions using that standard, such as the French, require that a firm be incorporated in the state where it has its *siege*. RESTATEMENT, Section 213, comment c.

The case of MNCs is governed by the same rule. According to the RESTATEMENT, although the MNC is an established feature of international economic life, it has not yet achieved special status in international law or in national legal systems. The rule stated herein applies to each incorporated entity in the MNC group, so that the law of the MNC is the aggregate of the laws of its components, which are basically the laws of the incorporation countries. *Id.*, comment f. See Yitzhak Hadari, *The Structure of the Private MNE*, 71 MICH. L. REV. 731 (1973); Detlev Vagts, *The Multinational Enterprise*, 83 HARV. L. REV. 739 (1970).

Exceptions to the rules stated above can be found in treaties as well as in case law, particularly with respect to piercing-of-the-veil cases. For an overview, see Phillip I. Blumberg, *The Corporate Entity in an Era of Multinational Corporations*, 15 DELAWARE J. CORP. L. 283 (1990).

¹⁴³ This is where conflict of laws rules and the present argument are connected. Although in theory foreign countries could claim an interest in how their citizens or residents are treated as shareholders of domestic companies, this is not the case in practice. The reason may be that one of the ways to conceive of the company is as a contractual arrangement. Seen this way, the corresponding conflict of laws rule would also be contractual, i.e., it would defer to the parties to determine their law. As a (default) rule, this would be the company's national law. The contractual nature of the company is discussed in numerous sources. For a seminal symposium, See Symposium, *Contractual Freedom in Corporate Law* 89 COLUM. L. REV. 1395 (1989).

Second, consider the subject of disclosure duties imposed on the company (as opposed, for instance, to disclosure duties owed by controlling shareholders or insiders). This again is a company-oriented issue, so it will lie along the top of the square. Its exact location there, however, may vary. In most cases, the laws of the home country would apply in full, so the variance in locations would stem from the foreign country.¹⁴⁴ If we take the law of the United States as an example, disclosure duties owed by foreign firms vary considerably as a function of the circumstances in which their securities come to the hands of US investors. Point no. 2 in Figure 1, which represents this issue area, thus depicts only one possible location.

The third example is takeover regulation and is interesting in that it combines features of issuer- and transaction-oriented aspects. While the core problems arising with respect to takeovers relate to corporate governance, the technical working of takeovers involves a considerable amount of securities regulation issues. As a result, foreign countries seem to defer somewhat to the legal regime of the home country.¹⁴⁵ The corresponding location of the issue in Figure VI.1 would thus be in the middle area of the square's left hand half.

Finally, consider the case of insider trading. This is a purely transaction related issue, so it lies along the bottom of the square. Since insider trading can take place in any of the markets where the stock trades, each country is expected to prescribe some laws

¹⁴⁴ In certain cases, the home country's disclosure rules do not apply, as exemplified, again, by Israeli issuers that are only listed overseas.

with regard to it. A priori, there is no reason to assume that one country should waive the option to regulate insider trading on its market. To be sure, the particular manner of regulation may vary greatly, e.g., from strict prohibition coupled with severe sanctions to open tolerance of the conduct. But no matter what the policy is, some policy is likely to exist in both countries. Point no. 4 is thus depicted in the middle of the bottom side of the square.

4. Pricing of Foreign Legal Rules

Having shown that a number of legal regimes may apply to a multiple or foreign listed stock, I argue in this section that each regime may be subject to several pricing processes. We have seen above that the law applicable to a stock is one of the components informing its pricing by the market. Qualitatively, what the law says about the rights and duties of shareholders, managers, and maybe other constituencies should have an effect on the stock's expected returns just like any other economic factor such as energy prices or tax rates. It follows immediately, that when a stock is subject to several legal regimes, all of them may be weighted into the pricing process. The interesting question, however, is how.

Consider a world with two countries, D and F, each with its own equity market. Stocks from both countries are cross listed on both countries' markets.¹⁴⁶ In this world,

¹⁴⁵ This generalization requires elaboration which will not be undertaken here.

¹⁴⁶ There are alternative ways for making foreign stock available to domestic investors and vice versa, so a stock does not necessarily have to be multiple listed for that purpose. *See supra* note 5. The

both D and F operate in a double capacity. First, they operate as providers of legal regimes applicable to all stocks regardless of the stocks' "country of origin", as discussed in the previous section. Second, each country's market operates as a "pricing center", receiving and digesting all publicly available information and impounding it into stock prices.¹⁴⁷ Within this framework, legal information is part and parcel of that input, and should clearly affect the price.

For those who enjoy more formal notation, let L_i denote the law of each country, such that L_D is the law of country D and L_F the law of country F. Let P_i be the pricing function implemented by each country's market for evaluating information and impounding it into stock prices, with i again being either D or F. Note, that by indexing P , I imply an assumption that markets may vary in their evaluation of information, or at a minimum of legal information. This assumption clearly requires -- and will receive -- further elaboration. The product of the pricing process is $P_i(L_i)$, and Figure 2 depicts the four different combinations it may assume.

[Figure 2 about here].

case of multiple listing is the most interesting, however, as it brings about interaction between the two systems in its fullest scale.

¹⁴⁷ In a multi-market world the picture of pricing centers may be slightly different but with essentially the same features. One pricing center would be the firm's domestic market -- the economic market where the company is headquartered and managed. In most cases this would also constitute the country of the home stock exchange. However, when companies only list their stocks abroad the home market and the home stock exchange do not overlap (recall the numerous Israeli stocks that are listed only on US markets, *supra* Section B.2). The other pricing center is the foreign market where the stock trades, either solely or in addition to the home market. When the stock trades on a number of markets, there will naturally be more than one foreign pricing center.

The pricing process of a legal regime practically can be broken down to a number of separate subjects (and theoretically to the “smallest change in legal rules” in Easterbrook and Fischell’s phrasing). Country D may put a certain “price tag” on its corporate governance regime as well as on country F’s one, a separate price tag for each country’s disclosure regimes, and so on for takeover regulation, insider trading regulation, etc.¹⁴⁸ To be sure, all these price tags are imaginary. In the end, there is only one real price tag -- the actual stock price as determined during the trading. Indeed, under this logic, there does not exist even a separate price tag for the entire legal regime. But for the purposes of the present analysis it is useful to disaggregate the price into its ingredient mini-price tags and trace the source of each one of them separately.

How well can markets perform in their pricing center capacity with regard to foreign legal information. A related question worthy of discussion is What are the elements that inform the pricing process. I tackle these questions in this order.

a) Pricing of Foreign Rules

At first blush, one could infer from the ECMH that markets should do a very good job in evaluating and pricing of foreign legal regimes. What drives this intuition is the fact that legal regimes are among the most widely known information. They are laid down in written texts that are publicly available, and they are followed and analyzed by a very large

¹⁴⁸ For the purpose of clarity I avoid excessive indexing, although one could denote such different price tags with $P_i(L_i^k)$, with k denoting each legal issue area. Taken to the extreme, k would stand for each statutory subsection, each court decision, and even the personality of the current SEC commissioners, for that matter.

and sophisticated legal community. They are also closely followed by the business community that is swift to react to changes in the legal environment, as demonstrated by the empirical evidence in the US.

A closer look reveals gaps in the ability of markets to price foreign laws compared with their domestic legal system. Markets should do a better job in pricing their own laws. Several reasons create this difference. First, no matter how efficient the official printing office is, there will always be gaps between the sheer amount of legal sources available domestically and overseas. Second, no matter how hard regulators and other law makers (including the courts) try to promulgate bright line rules, there will always exist cases where no clear cut legal opinion is available.¹⁴⁹ In such cases jurists turn to general principles of the legal system, to analogous cases from related fields, and eventually to their “hunch” about the working of the system. Third, a substantial amount of legal information may exist in “soft” form. Under this category I include unwritten but nevertheless very effective policies, ranging from “administrative guidance” a la the Japanese Ministry of Finance to personal preferences of people in positions of power, in the spirit of former SEC Chairman Shad’s pledge to “come down on insider trading with hobnailed boots”.¹⁵⁰ In all these cases, local lawyers and businesspersons enjoy a

¹⁴⁹ Although the yearn for bright line rules is commonplace in American jurisprudence, in my view it is a highly dubious goal. *See, e.g.,* [a couple of sources on rules and standards].

¹⁵⁰ Insider Trading Sanctions and SEC Enforcement Legislation: Hearing on H.R. 559 before the the subcommittee on Telecommunications, Consumer Protection, and Finance of the House Committee on Energy and Commerce, 98th Cong., 1st Sess., 2 (1983).

superiority over foreign ones in terms of access to information and in the expertise required to transform it to prices.¹⁵¹

The classification of stock markets to “dominant” and “satellites”¹⁵² thus gains a new dimension. The existing finance literature -- both domestic and international finance -- treats the markets where stocks are multiple listed as *sources* of information. While this is unquestionably a major element, an additional aspect of their role as price discovery mechanisms is their relative position in *processing* new information.¹⁵³ As it happens, dominance in the provision of information would generally coincide with dominance in the pricing thereof.¹⁵⁴

The fact that foreign markets may be satellites of the domestic market does not entail that they are unimportant. Recall that satellite markets do contribute to the amount of information and to price discovery, even if at a lesser degree than the dominant market. Thus, there is a reason to assume that satellite markets make a similar contribution to the

¹⁵¹ One need not go overseas to see this point. Consider the ability of a small town lawyer to assess the merits of a complicated securities regulation case versus that of a seasoned Wall Street lawyer to do so. The latter enjoys an especially superior position in terms of expertise that can only be acquired over time and through repetitive dealing in the field. A fortiori, this holds to foreign laws.

¹⁵² See *supra* Section B.2.

¹⁵³ Conceptually, one can look upon these two functions as facets of a single role of information provision, and distinguish between “primary information” -- i.e., unprocessed data collected and disseminated in each market, and “secondary information” -- i.e., a processed product of the primary information, such as analyses, forecasts, etc. That should not affect conclusions from the discussion. Cf. Gilson and Kraakman, *supra* note 131, at 594 (providing a taxonomy of information costs: acquisition costs, processing costs, and verification costs).

¹⁵⁴ The argument here is closely related to the argument I made in Section A.1 with regard to “inverse information asymmetries” -- a situation where foreign investors know more (and better understand) about a domestic firm and are thus willing to pay a higher price for its stock. In the present context the superior information and understanding also covers the dynamic aspect of on-going trading.

evaluation process of information, including legal information. In a certain way, it might be possible for a foreign market to contribute -- in relative terms -- to the information processing stage more than its relative share in providing raw data. Such could be the case, for instance, if a firm listed its stock in a foreign market where other firms, which share the same feature -- e.g., a particular corporate governance structure -- were also listed. The foreign market in this scenario could be better equipped to analyze the information and thus have a relative advantage over the domestic one.

b) What Informs the Pricing Process?

Pricing -- that is, the process of attributing monetary value to something that is non-monetary in nature -- is essentially a judgment-making process. As in any other judgment making process, there have to be two elements in the process. One element is the input information, which is discussed above. Another necessary element is some kind of a reference base, a template against which the data can be examined. In other words, the entity making the judgment has to have some theory, or at least some prior beliefs, about what constitutes good and bad. In our case, a market determining the price of a stock has to have some valuation theory which would assign values, positive or negative, to news.¹⁵⁵

¹⁵⁵ Although the terms are somewhat similar, one should not confuse the valuation theory referred to in the text with asset pricing models, such as the CAPM. In the case of CAPM, for instance, the pricing model is indeed completely divorced from fundamentals to which the valuation theory alludes. While the detachment between stock prices and fundamentals is of concern to scholars, it is generally agreed that the latter still affects stock prices.

Broadly speaking, the valuation theory of economic information is economics. News about energy prices should affect stock prices to the degree to which market participants estimate the firm's reliance on energy. Similarly, if a company introduced a structural change, such as a breakup or a merger, business management and industrial organization theories would inform traders in determining the new stock price.¹⁵⁶ Although one could find competing theoretical models for many such situations, what is important is that this kind of theoretical knowledge is shared by people in all countries.

It is less clear what theory determines whether legal rules are good or bad. Economic analysis of law purports to transform legal discourse to economic terms and rely on economic reasoning in order to reach normative conclusions. At this stage, however, this discipline is far from settled and serious controversies abound even with regard to fundamental questions. In any event, in most countries economic analysis is not generally accepted (or even known) as a normative theory. Clearly, this does not prevent market participants in those countries from forming an opinion about the law, and for that matter, about foreign laws as well. In doing so, they may turn to ethical principles (e.g., equity, fairness), cultural norms, or plain path-dependent traditions. The important point is that they must use *something* as a reference.

¹⁵⁶ This is not to say that all judgments with regard to stock prices are based solely on formal theory. People can also buy and sell securities based on very personal tastes or experience. Legend has it that Peter Lynch, when heading the Magellan mutual fund, decided to invest in Dunkin' Donut stocks because he liked their coffee. Even in this case, however, the decision was anchored in some business logic about the importance of the firm's product quality as opposed to a scenario where Mr. Lynch would have reached the investment decision after reading in the coffee residues (had there been any).

It follows directly from this observation that markets in different countries may differ considerably in respect with the value of the same legal rules. In a certain sense, the situation resembles the general scenario in which traders with different tastes determine a market clearing price. Here, too, such valuations (preferences) do get into the pricing process. The situations are not identical, though, because in the pricing of legal rules the underlying basis for creating these valuations might be highly contested, while the existence of different preferences for other assets is generally acceptable.

5. Interaction of Legal Regimes

I have thus far established how certain legal issues can be subject to concurrent legal regimes, emanating from the two countries D and F, and that the price of a legal rule from country i is a function of market evaluations of both D and F. This can be written as $P_{DF}(L_i) = P_{DF}[P_D(L_i), P_F(L_i)]$. As demonstrated in Figure 2, this could yield four separate valuations. The question we face now is: How do these different valuations of different rules interact?

For the sake of clarity it may be useful first to follow an example and later on to generalize from it. The example refers to mandatory disclosure rules. Assume that a stock is offered in an international IPO to public investors in D and F. Such an offering would typically entail subjecting the issuer to the full fledged disclosure requirements of both countries. The crucial point is that by virtue of the nature of information as a public good any information that is disclosed by the issuer in fulfillment of one disclosure regime is immediately available in both markets. Disclosure regulation calls for disclosure about long lists of specific items, either as part of financial statements or in addition to such

statements. It is sufficient that a particular item -- say, a breakdown of earnings by the top five company officers -- appears in the disclosure list prescribed by one country for the item to be disclosed. The outcome of two applicable disclosure regimes is thus neither one nor the other but rather a unified regime which is a special sum of both.¹⁵⁷

Assume for simplicity that the disclosure regime prescribed by D (call it “regime D”) is a subset of the regime prescribed by F (“regime F”). In other words, regime F includes all the disclosure items called for by regime D and then some. Is it true that regime F is better than regime D and would thus be more highly valued by investors? Not necessarily. Although there exists a global trend among securities regulators to strengthen national disclosure regimes, it is far from clear that in designing a disclosure policy, “more” necessarily equals “better”. A number of reasons may lead to diversity in disclosure regimes.

First, the mainstream justification for mandatory disclosure has been that such a principle is an efficient means for subsidizing the production of information which is a public good by nature and thus tends to be underprovided.¹⁵⁸ These subsidies principally benefit the large market participants who are first in line to take advantage of the information. It is easy to see how different countries might have differing tastes for

¹⁵⁷ One can think of this outcome as a logical “or” operation, according to which it is sufficient that one out of two variables takes a positive (“1”) value -- in the present context, by requiring disclosure of a certain item -- for the outcome to be positive.

¹⁵⁸ John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717 (1984). See also Joel Seligman, *The Obsolescence of Wall Street: A Contextual Approach to the Evolving Structure of Federal Securities Regulation*, 93 MICH. L. REV. 649 (1995).

subsidizing the big players in the financial sector (even if individual investors are hard to make better off by limiting such subsidies).

Second, scholars argue that issuers will in general disclose the correct amount of information *voluntarily* so that investors do not infer from the issuer's silence that its situation is worse than it actually is. Some of these scholars justify the mandatory disclosure system by market failure, i.e., the positive externalities that corporate disclosure confers upon competing firms.¹⁵⁹ More extreme positions question the necessity of a mandatory disclosure regime altogether.¹⁶⁰

Third, mandatory disclosure might be unnecessary where shareholders have alternative sources for information about the company affairs. Thus, it is possible that in non-American corporate governance structures that feature relatively large holdings and active monitoring of the management, there is an ameliorated need for public disclosure, which few individual investors read anyhow.¹⁶¹

¹⁵⁹ FRANK H. EASTERBROOK AND DANIEL R. FISCHER, *supra* note 114, Ch. 11. Mahoney, too, claims that mandatory disclosure is justified, but only in order to cope with agency problems, and should therefore be much more limited than today's regime. Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. CHIC. L. REV. 1047 (1995).

¹⁶⁰ See, e.g., ROBERTA ROMANO, *THE GENIUS OF AMERICAN CORPORATE LAW* ch. 6 (1993); George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 (1973); George J. Benston, *The Costs and Benefits of Government-Required Disclosure: SEC and FTC Requirements*, in D. DEMOTT, ED. *CORPORATIONS AT THE CROSSROADS: GOVERNANCE AND REFORM* 37 (1980).

¹⁶¹ The main examples are the German co-determination and large holding structure and the Japanese *keiretsu*. See, generally, Theodor Baums, *Corporate Governance in Germany -- System and Recent Developments*, in MATS ISAKSSON AND ROLF SKOG, *ASPECTS OF CORPORATE GOVERNANCE* 31 (1993); Hwa-Jin Kim, *Markets, Financial Institutions, and Corporate Governance: Perspectives from Germany*, 26 *Law & Pol. Int'l Bus.* 371 (1995); Ronald J. Gilson and Mark J. Roe, *Understanding the Japanese Keiretsu: Overlaps between Corporate Governance and Industrial Organization* 102 *YALE L. J.* 871 (1993).

Fourth, disclosure regimes may be heavily influenced by idiosyncratic cultural factors. Accounting scholars have shown that national accounting systems -- which constitute a major part of many disclosure regime -- demonstrate culture driven features. These features include, *inter alia*, uniformity versus flexibility, conservatism versus optimism, and most importantly, secrecy versus transparency. These qualities are connected to more profound cultural dimensions such as individualism-collectivism, uncertainty avoidance, masculinity-femininity, and power.¹⁶² Since countries clearly differ along these criteria it would be surprising if their legal regimes did not.

Fifth, it should be acknowledged that disclosure is not costless. In addition to administrative costs, disclosure may be costly for the disclosing company when the disclosed information could help its competitors. Once disclosed, the company cannot prevent the information from reaching other parties, who can use it for their own benefit and to the disclosing company's detriment. Cases where it was argued that disclosure requirements are actually destructive to issuers include reporting of results with a line-of-business breakdown and, more recently, of exposure to market risk.¹⁶³

It is thus evident that a host of different reasons may cause two regimes to differ. To simplify our example even further, assume for a moment that all the disclosure duties

¹⁶² Sidney Gray, *Towards a Theory of Cultural Influence on the Development of Accounting Systems Internationally*, 24 *Abacus* 1 (1988). For empirical evidence supporting this taxonomy see M. Perera, *Towards a Framework to Analyze the Impact of Culture on Accounting*, 24 *INT'L J. ACCOUNTING* 42 (1989).

¹⁶³ On line-of-business reporting see Edmund W. Kitch, *The Theory and Practice of Securities Disclosure*, 61 *BROOKLYN L. REV.* 763, 792-98 (1995). On exposure-to-risk disclosure see Merton H. Miller and Christopher L. Culp, *The SEC's Costly Disclosure Rules*, *Wall Street Journal*, 25 April 1996, p. A14.

imposed by regime F are universally agreed to benefit investors. In this case, the price tag of the unified disclosure regime will be determined by the value of the more demanding (stringent) regime F, while regime D will have no effect on it. Formally, we would say that the pricing function is Maximum, i.e., $P_{DF}(L_D, L_F) = \text{Max} [P_{DF}(L_D), P_{DF}(L_F)]$. Conversely, if the extra duties prescribed by F were to decrease the stock's value, the pricing function would be Minimum. Under this scenario, regime F would again be the decisive factor in determining the value of the unified regime, but its effect here will be negative with regard to the baseline of regime D.

A different way to think about the interaction between the two legal regime is to analyze it as creating an externality effect. Where regime F, by virtue of its enhanced disclosure duties, increases stock value we can say that country F confers a positive externality upon country D. The opposite is also true, i.e., a value-decreasing regime F would be seen in country D as creating a negative externality. The critical point is that no matter how one describes the effect of the interaction -- i.e., either as a Maximum (Minimum) function or as a positive (negative) externality -- one has to employ some normative theory to judge the putative benefit (damage) of each regime. Such a theory would imply the direction of the interactive effect.

The same logic can be applied to other issue areas. In particular, it is not difficult to show that the conduct of insider trading can be regarded in profoundly different ways by different national regulators, again for a number of reasons which partly resemble the

ones discussed above in relation with disclosure regulation.¹⁶⁴ Takeover regulation, trading transparency rules, etc., are also subject to differing views and normative theories.

6. Arbitrage Transactions and Legal Rules

This Section culminates the discussion by explaining how transnational arbitrage transactions help in conveying the effects of national legal regimes to other countries and, in effect, create an integrated legal environment.

The idea is quite simple. Recall from Section # that arbitrage transactions across national markets are the mechanism that gives effect to the law of one price. Where this law holds, the two markets are said to be integrated. In reality, the law of one price operates to clear the valuation differences across markets with regard to the full range of factors influencing the stock's value. In the narrower context of legal rules, the law of one price is the actual manifestation of the thought exercise conducted in the previous section. Although both legal regimes apply to the stock, each with its own price tag, only one actual price can exist in each point of time. Arbitrage transactions are the mechanism that drives and yields the product of the Maximum and Minimum functions postulated above. They are the force that realizes the integrated legal regime, because absent price equality different prices would have prevailed in each market, reflecting *inter alia* the segmentation of the legal regimes.

¹⁶⁴ Some of the reasons can be inferred from the discussion in Section B.4 , which details the various policy concerns at the market microstructure level. Additional consideration may also arise. *See* ROBERT C. CLARK, CORPORATE LAW Ch. 8 (1986).

To see the point more clearly, let us now take insider trading regulation as an example. Assume that regime D is laxer than regime F in terms of insider trading regulation. Such laxity could involve lack of (or narrowly defined) prohibitions on insider trading, nominal punishments, or ineffective enforcement mechanisms of whatever prohibitions that do exist in the book of laws. Assume further that at least Country F's normative theory sees insider trading as bad.¹⁶⁵ Such theory would attach higher price tags to regimes that curb insider trading, and vice versa for lax regimes.

Consider now a company listed in market F which cross lists its stock in market D. In doing so, it opens the door for higher levels of insider trading that can be effected with impunity in market D. The very moment that such opportunity becomes available, market participants will factor into the stock price the higher risk of being at the "sucker" side of a transaction. Transnational arbitrage, through the law of one price, will convey this discount back to market F.

This effect would be most problematic if the two countries had really strong but opposite opinions as to what is the better rule on a certain issue. We assume that regulations are promulgated to advance the public interest. In the specific context of stock markets, regulators can hope to increase shareholder value by adopting good regulations.¹⁶⁶ Now, if country F thought that D's rule is really bad its market would erode

¹⁶⁵ This view could be limited to genuine insider trading or it could apply also to other forms of informed trading.

¹⁶⁶ This is a simple exposition of the public interest view on regulation. Other, more skeptical views also exist -- especially public choice theory -- and were applied to questions of securities regulation. However, the analysis in the main text does not change under such alternative views. What changes is the

some of the value which country D hoped to create by enacting its rule. This would clearly undermine the purpose of D's regulatory policy.

The effect of transnational arbitrage is prominent mainly with regard to trading related rules such as insider trading regulation. This is because trading regimes might seem at first glance to be limited to their national market. As regards issuer related rules such as disclosure requirements, it is apparent that each country's laws apply to the stock no matter where it trades since their subject is not a particular stock certificate but rather the issuer. The main mechanism working to disseminate the effects of each country's issuer-related rules is the ECMH, by disseminating the disclosed information to all markets.¹⁶⁷

In this context, I would like cautiously to put forward an even more far reaching possibility. Recall Eun and Janakiraman's argument, that dual listing exerts an externality effect on purely domestic (single listed) stocks. In the framework of their model, they argue that dual listing a stock indirectly integrates capital markets to the extent that pure domestic stocks are correlated to the dual listed stock, thus subjecting them to the externality effect of international pricing.¹⁶⁸ The argument has a strong intuitive appeal. Applied to the issue of legal rules, it implies that any change in the

particular interests that are being promoted by regulatory regimes. See Enrico Colomabtto and Jonathan R. Macey, *A Public Choice Model of International Economic Cooperation and the Decline of the Nation State*, 18 CARDOZO L. REV. 925, 925 (1996); Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 CARDOZO L. REV. 909 (1994); JONATHAN R. MACEY, *INSIDER TRADING: ECONOMICS, POLITICS AND POLICY* (1991).

¹⁶⁷ Thus analysis thus refutes Jorion and Schwartz's argument that the "equalization of prices [in dual listed stocks] does not necessarily indicate integration for these common securities, because some factors may be priced in one market and not in the other". Jorion and Schwartz, *supra* note 14, at 606.

¹⁶⁸ Eun and Janakiraman (1990), *supra* note 17.

securities regulation regime in one country might affect the value of stocks in another country even if they have no relation with the former. The notion is intriguing, but requires discussion which exceeds the present scope.

To sum, the same forces which bring about economic integration also engender an outcome of legal integration, so to speak. This outcome entails important repercussions. National regimes of securities law reflect each country's tradition, culture, economic structure and interests -- in short, its policy. As we have seen, policies of different countries need not be identical, and oftentimes they may even be antithetical. To the extent that such policies are reflected in securities' prices -- which we expect them to be -- they inevitably come to a clash. Thus, foreign listing becomes a medium through which undesired effects can propagate from one country to another.

7. Empirical Testability

My last step of inquiry will be an attempt to find support in the empirical literature for the theoretical analysis and argument put forward in the preceding pages. While no conclusive evidence is available (and perhaps cannot be available), the more carefully conducted studies are generally consistent with my theory.

A relatively easy-to-test part of the argument relates to the ECMH and particularly the effectiveness of transnational arbitrage in swiftly equalizing stock prices. As noted in Section #, there is ample evidence that the law of one price generally holds among most developed stock markets and also -- albeit to a lesser degree -- in less developed ones. Problems start to arise with regard to the more central elements of the argument.

Unfortunately, event studies do not yield unequivocal results even in the relatively “clean” case of reincorporations, which foreign listing somewhat resemble. Foreign listings, indeed, may fare worse than reincorporations in most of the aspects that make reincorporation event studies inconclusive.

First, the underlying theory about the expected effect of a foreign regime -- what I called the normative theory -- is less conclusive in the foreign listing context than it is with regard to corporate laws of states in the US. Second, the facts and circumstances that surround a foreign listing -- e.g., new business opportunities, changes in stock liquidity, etc. -- may effectively obscure the effect of the foreign legal regime, which is likely to be quite subtle. Third, in the great majority of event studies of international listings, the informational event was defined as the listing date, which was not conducive to the kind of inquiry pursued here -- a point to which I will return momentarily. Finally, the scope of the “new regime” brought about by a foreign listing is much wider than that in reincorporations, which is limited to corporate law provisions. Testing of isolated rules seems to verge on impossibility.¹⁶⁹

Notwithstanding the above, a certain amount of support may be found in the results of expected returns tests of foreign listings incoming to versus those outgoing from the US. As a broad generalization, the former systematically tend to increase shareholder value whereas the latter tend to do the opposite and exhibit negative abnormal returns.

¹⁶⁹ In addition, Alford, *supra* note 12, observes that researchers assume that one source of segmentation is prevalent, but argues that the empirical implications of these barriers are indistinguishable from each other.

This is consistent with the view that the American regulatory regime is generally better than that in many other countries.¹⁷⁰ Particularly interesting is the case of foreign listed American stocks. Disclosure and other issuer-related rules did not become laxer following the foreign listing as American laws continue to apply to these stocks. The negative effect experienced by these stocks may thus attest to the importance of trading rules.

The best evidence is provided by Miller.¹⁷¹ He reports that foreign firms that had already cross listed their stock in the US experience economically and statistically significant positive abnormal returns upon announcing an upgrade from the OTC market to a large market. One of the major differences between the two situations is that firms in the OTC market are not subject to the American disclosure regime (subject to certain conditions) while listing in a larger market subjects them to that regime. The empirical results can thus be interpreted as reflecting an extra value which the enhanced disclosure duties, coupled with more intense following and monitoring by stock analysts, confer upon stockholders. The significance of this finding lies in the fact that these upgrades are a relatively clean event. That is, unlike foreign listings (and reincorporations, for that matter), there is little noise in the form of other factors which might be driving the results.¹⁷²

8. A Regulatory Agenda

¹⁷⁰ Note, that in many non-US countries (especially in the EU) both issuer- and trading-related regulation have been tightened significantly since the time when most of the studies were conducted.

¹⁷¹ Miller, *supra* note 43.

¹⁷² Another possible benefit is improved liquidity. Miller's study is also praiseworthy due to its careful definition of the informational event.

Virtually all the existing literature on international securities regulation is occupied with two basic issues: one is the question of regulatory competition among national regulatory regimes;¹⁷³ the other is the related problem of extraterritorial application of such regimes (extraterritorial jurisdiction).¹⁷⁴ At the heart of the debate stands the likelihood of detrimental regulatory arbitrage -- the so called “race to the bottom” -- if issuers migrated to markets with lower-quality regulation. The alternatives to this scenario are a beneficial “race to the top” or to some middle-range “optimum”. From these scenarios different conclusions may be drawn as to the need for regulatory intervention.

The literature which focus solely on regulatory competition fails to acknowledge that national regimes of securities regulation not only compete as substitutes for one another but also actively and *simultaneously* interact with one another. In some cases they may exert positive externalities on the regulated subjects of a particular regime; in other cases they might do the opposite. In the latter case, foreign and multiple listing might actually debilitate certain segments of other regulatory regimes.

¹⁷³ See, e.g., Bevis Longstreth, *A Look at the SEC's Adaptation to Global Market Pressure*, 33 COLUM. J. TRANSN'T'L L. 319 (1995); James D. Cox, *Regulatory Competition in Securities Markets: An Approach for Reconciling Japanese and United States Disclosure Philosophies* 16 HASTINGS INT'L & COMP. L. REV. 149 (1993); James D. Cox, *Rethinking US Securities Laws in the Shadow of International Regulatory Competition* 55:4 L. & CONTEMP. PROBS. 157 (Autumn 1992); Joseph A. Grundfest, *Internationalization of the World's Securities Markets: Causes and Regulatory Consequences*, in MARVIN H. KOSTERS AND ALLAN H. MELTZER, EDS., INTERNATIONAL COMPETITIVENESS IN FINANCIAL SERVICES 349 (1991); 1991 J. FIN. SERV. RES. 349.

¹⁷⁴ See, e.g., Stephen J. Choi and Andrew T. Guzman, *The Dangerous Extraterritoriality of American Securities Law*, 17 NORTHWESTERN J. INT'L L. & BUS. 207 (1996); Philip R. Wolf, *International Securities Fraud: Extraterritorial Subject Matter Jurisdiction*, 8 NY INT'L L. REV. 1 (1995); Gunnar Schuster, *Extraterritoriality of Securities Laws: An Economic Analysis of Jurisdictional Conflicts*, L. & Pol. Int'l bus. 165 (1994); Donald C. Langevoort, *Schoenbaum Revisited: Limiting the Scope of Antifraud Protection in an Internationalized Securities Marketplace* 55:4 L. & CONTEMP. PROB.

The common usage of regulatory arbitrage indicates a migration trend toward the more lenient regulatory regimes and is often associated with the notion of “a race for the bottom”. In that context, it is the downward pressure on regulators which decried. The dynamics presented in this work is different in the sense that no migration of entities takes place. Firms remain under their original home country jurisdiction, but by opting into *another* regulatory jurisdiction they pit one regulatory regime against the other. Regulatory arbitrage may thus be wider and deeper than what first meets the eye. Rather than a notional concept indicating a trend toward lesser (and implicitly, worse) regulated jurisdictions, the regulatory arbitrage described here is for real.

In the composite legal regime created by foreign or multiple listing regulatory objectives of its component regimes might get frustrated by other regimes. It is important to note that this effect does not necessarily stem from under-regulation by a particular regime. Indeed, it may well be that by imposing high regulatory requirements one country can impede another country’s *laissez-faire* policy or even a broader deregulation plan.

From the argument forwarded in this work stems a regulatory agenda on two levels. First, a better understanding of the bases for the normative theory underlying securities laws has to be developed. In order for one set of rules to be seen as “eroding” the effect of another, the country promulgating the latter set has to view the former set as “bad law”. From the fact that the former set of rules is in force one can infer that the

241 (Autumn 1992); Merritt B. Fox, *Insider Trading in a Globalizing Market: Who Should Regulate What?*, 55 L. & CONTEM. PROB. 263 (Autumn 1992), 1994 SEC. L. REV. 355 (reprinted).

promulgating country considers them favorably or is at least oblivious to them. In other words, there may be good reasons for such diversity.

Since the two countries are interlocked as a result of stock market integration, they should have an interest in resolving such differences. In order to achieve that goal there first has to be an understanding of the legislative logic behind each country's set of rules. I use "legislative logic" here to denote not only the legislative purpose -- which may be outdated, obscure, or simply irrelevant -- but rather the broader circumstances that have led to the present situation, including path-dependence, interest groups activity, etc.

Second, provided that certain discrepancies between national securities regulation regimes may be viewed as detrimental, a theory about regulatory cooperation in this field should be developed. It is now a widespread observation that economic interdependence entails a need for regulatory cooperation.¹⁷⁵ In the area of securities regulation most of the attention so far has been mostly paid to the regulation of financial institutions active in the field, from securities houses to banks to stock exchanges.¹⁷⁶

What is still missing is a theory about regulatory cooperation in the very fundamental issues -- the first principles -- of securities regulation: mandatory disclosure, fraud, and others. In the main, states should be interested in each other's regulatory policy in these matters and may be interested in higher levels of cooperation. Depending of the

¹⁷⁵ See, e.g., OECD, *REGULATORY CO-OPERATION FOR AN INTERDEPENDENT WORLD* (1994).

¹⁷⁶ See, e.g., TONY PORTER, *STATES, MARKETS AND REGIMES IN GLOBAL FINANCE* (1993); but cf. Joel P. Trachtman, *Unilateralism, Bilateralism, Regionalism, Multilateralism, and Functionalism: A Comparison with Reference to Securities Regulation*, 4 *TRANSN'L L. & CONT. PROB.* 69 (1994).

type of potential conflict among them, cooperation may take shape as regulatory harmonization , agreed-upon (even if tacitly) regulatory competition, or some other shape. Respectively, states would need to establish the necessary institutions for maintaining such cooperation.¹⁷⁷

D. Conclusion

This Paper offers a systematic analysis of the implications of stock market integration chiefly from the perspective of securities regulators.

Section A opens with a critical review of the theory and evidence pertaining to the effects of foreign and multiple listing, with a special focus on potential effects on stockholders. This important financial phenomenon has received little attention, notwithstanding the fact that it characterizes a considerable number of the world's large multinational corporations and a growing number of smaller companies that use this vehicle to "go international". The Section concludes from the existing empirical evidence that multiple listing does not always deliver on the promises predicted by theory. In light of the ubiquity of the phenomenon, the Section advocates for a careful and detailed analysis thereof as a basis for regulatory action.

Section B starts this endeavor by looking first at the impact that foreign listing might have on securities markets' microstructure. Two main features of market

¹⁷⁷ I deal with this question separately. See Amir N. Licht, *Games Commissions Play: 2x2 Games of International Securities Regulation*, working paper, John M. Olin Center on Law, Economics, and Business, Harvard Law School (1997).

microstructure stand out with this respect. One is the existence of dominant and satellite markets in respect with contribution to the process of price discovery. In an international context, such a situation translates to positive externalities and free riding among states. The second feature is the particular patterns of informed trading likely to exist in a multi-market environment. Here the financial theory does not seem to be settled, and in fact, points at two opposite scenarios -- one in which informed trading concentrates in one (dominant) market and another in which informed trading spreads across several markets. This makes it difficult for a securities regulator to establish an informed basis for her policy in this field. The Section thus discusses the regulatory concerns in this regard, under the assumption that informed trading will take place in more than one market and in light of the distinction between informed trading in general and illegal insider trading.

Section C offers a new analytical framework for the interaction between legal regimes of securities regulation. The cornerstone of the analysis is the familiar notion that legal rules can have a price much like any other element which might affect the issuing company. Although this notion is open to a number of qualifications, it is nonetheless a useful guide for the rest of the discussion. In the second half of this Section I show how legal regimes interact with respect to multiple listed stocks in ways that might be seen as debilitating national regulatory regimes. I argue in particular that this effect is inevitable in modern securities markets in light of the Efficient Capital Market Hypothesis and transnational arbitrage transactions. The conclusion I advance for policy makers is not that countries should rethink their interlinking with other market. That trend seems irreversible and, indeed, to bear beneficial payoffs. What needs to be done, therefore, is to develop a

better understanding of the causes of regulatory diversity among nations. On that basis, a theory of cooperation in securities regulation should be a useful tool for any organized effort to institutionalize such cooperation.