

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

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I. INTRODUCTION

In recent years, the internationalization of securities markets has accelerated its pace and broadened in scope as it has become easier to trade securities around the world. By the end of 1996, the number of foreign listed companies in major markets was quite substantial,¹ as indicated in the Table I. A growing number of countries—both developed and developing—are opening their stock markets to foreign investors and abolishing laws restricting their citizens from investing abroad. Companies that previously 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

1. See James L. Cochrane et al., *Foreign Equities and U.S. Investors: Breaking Down the Barriers Separating Supply and Demand*, 2 STAN J. L. BUS. & FIN. 241 (1996). 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 that 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-1980s. Letter from Lesley Middleton, Quality of Markets Department, London Stock Exchange to author (July 31, 1996) (on file with author); Letter from Pamela V. Dottin, New York Stock Exchange to author (July 31, 1996) (on file with author).

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 represents precisely such kind of security. See *infra* note 5 and accompanying text. Moreover, at least within the U.S. domestic market, *stock exchanges* can and do formally list stocks notwithstanding the is-

U.S. markets and investors are directly affected by this trend. Hundreds of American securities are traded on foreign stock exchanges by the larger U.S., Japanese, and European broker-dealers that have established trading desks at the major securities exchanges 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 Depositary Receipts (ADRs).⁵ The internationalization of securities markets thus entails deeper integration between markets.

This Article argues that the globalization of stock markets—manifested *inter alia* by listing and trading on foreign stock 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 be reflected 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.

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

suer's objections. See Yakov Amihud & Haim Mendelson, *A New Approach to the Regulation of Trading Across Securities Markets*, 71 N.Y.U. L. REV. 1411 (1996).

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

4. U.S. SECURITIES AND EXCHANGE COMMISSION, MARKET 2000—AN EXAMINATION OF CURRENT EQUITY MARKET DEVELOPMENTS 11-13 (1994) [hereinafter MARKET 2000].

5. For extensive overviews, see Mark A. Saunders, *American Depositary Receipts: An Introduction to U.S. Capital Markets for Foreign Companies* 17 FORDHAM INT'L L.J. 48 (1993); Douglas B. Spoor, *Exploring American Depositary Receipts: The International Augmentation of U.S. Securities Markets*, 6 TRANSNAT'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 this Article apply with equal force, if not *a fortiori*, under such views as well. See, e.g., Enrico Colombatto & Jonathan R. Macey, *A Public Choice Model of International Economic Cooperation and the Decline of the Nation State*, 18 CARDOZO L. REV. 925 (1996).

TABLE I
FOREIGN LISTINGS ON PRIMARY MARKETS^a

PRIMARY MARKET	DOMESTIC SECURITIES	FOREIGN SECURITIES	TOTAL SECURITIES
<i>United States</i>			
American	688	63	751
NASDAQ	5,167	416	5,583
New York	2,602	305	2,907
<i>Europe</i>			
Amsterdam	185	216	401
Brussels	146	145	291
German (Frankfurt)	436	205	641
London	2,171	533	2,704
Luxembourg	54	224	278
Paris	406	187	593
Swiss	213	235	448
<i>Far East</i>			
Singapore	215	30	245
Tokyo	1,766	67	1,833

a. London Stock Exchange, Quality of Markets Division (Letter from Doreen Hughes, London Stock Exchange, to author (Dec. 9, 1997) (on file with author)).

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 often free-ride the price information that emanates from the dominant market.

A market's 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 affected by certain categories of "insiders." It follows that when securities transactions are subject

to more than one legal regime, the 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 indicates 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 Article 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. As a result, investors 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 Article explains when and how these effects take place.

Conducting a fruitful discussion of the legal and regulatory aspects pertaining to international securities markets first requires discerning the consequences of interaction between them. After all, there is little sense in discussing desirable legal rules before ascertaining their expected outcomes and indeed the extent of their desirability. Such analysis is important for assessing unilateral regulatory action; it is absolutely essential when international regulatory initiatives are being considered by such organizations as 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 phenomenon.⁹ Perhaps more importantly, the analysis presented here is anchored in and critiques a wide array of empirical scholarship related to foreign listing—a task not yet undertaken in the existing literature.

Part II of this Article 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. Part III 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 issues into a set of regulatory concerns. Part IV 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.

II. FOREIGN LISTING AND CAPITAL MARKET INTEGRATION

A. *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 re-

7. *But see* Jeffrey G. Macintosh, INTERNATIONAL SECURITIES REGULATION: OF COMPETITION, COOPERATION, CONVERGENCE, AND CARTELIZATION (Working Paper 1996) (touching briefly upon the issues discussed here).

8. The few existing reviews discuss international capital integration in general. *See* Alan Alford, *Assessing Capital Market Segmentation: A Review of the Literature*, in INTERNATIONAL FINANCIAL MARKET INTEGRATION 3 (Stanley R. Stansell ed., 1993); René M. Stulz, *International Portfolio Choice and Asset Pricing: An Integrative Survey*, in 9 HANDBOOKS IN OPERATIONS RESEARCH AND MANAGERIAL SCIENCE, Ch. 6, at 201 (R. A. Jarrow et al. eds., 1995); Michael Adler & 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, as that is a task well beyond the scope and purpose of this work.

turn. An array of reasons drives the supply side, i.e., the decision firms make to list their stock abroad. This Article focuses on firms' financial motivations, as opposed to other business and managerial considerations which play a significant role in the intra-firm decision. It also abstracts from the motivations investors may have to invest in foreign securities and the patterns these investments assume in practice (e.g., home bias¹⁰). These aspects warrant separate discussion.

This Article starts with the notion of market segmentation, defined as a situation where assets having similar profiles of risk nevertheless command different levels of expected return.¹¹ Philip Jorion and Eduardo Schwartz note that, under a capital asset pricing model (CAPM)¹² framework, the only priced risk with integration should be the systematic risk relative to the *world* market.¹³ On the other hand, complete segmentation implies that only *national* factors, i.e., domestic systematic risk, should enter into the pricing of assets.¹⁴ If markets are at least partially segmented, investors can enjoy segmentation gains by purchasing securities that offer higher yields for comparable levels of risk.

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

10. See, e.g., 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); Raman Uppal, *The Economic Determinants of the Home Country Bias in Investors' Portfolios: A Survey*, in INTERNATIONAL CAPITAL MARKETS IN A WORLD OF ACCOUNTING DIFFERENCES 13 (Frederick D.S. Choi and Richard M. Levich eds., 1994); Kenneth R. French & James M. Poterba, *Investor Diversification and International Equity Markets*, 81 AM. J. ECON. REV. 222 (1981).

11. See Alford, *supra* note 8. 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 *id.*; Lonie Alasdair et al., *The Putative Benefits of International Portfolio Diversification: A Review of the Literature*, 15 BRIT. REV. ECON. ISSUES 1 (1993).

12. 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 ET AL., CASES AND MATERIALS ON CORPORATIONS 196-99 (1995).

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

14. *Id.*

that needs to be tackled is thus what causes segmentation. The following taxonomy may be useful in addressing the potential sources of segmentation:¹⁵

1. *Sources Affecting the Return Investors Receive From International Investment*

One direct source of this type is taxes. In his pioneering work on international finance, Fischer 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 of segmentation with identical outcomes is differential transaction costs in purchasing foreign securities. Such costs may result from 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, and additional clearing and settlement fees. Such differences in tax and transaction costs tend to create different effective prices for investors and, therefore, limit their selection of securities.

2. *Sources Relating 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 have different levels of need for importing capital, depending on their level of development, national saving rates, and a host of other factors. A

15. The taxonomy draws and elaborates on Alford, *supra* note 8, at 5-6.

16. See Fischer 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 TEX. L. 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 a legal nature. See Cheol S. Eun & S. Janakiraman, *Bilateral Cross-Listing and the Equilibrium Security Prices*, in 4(B) INTERNATIONAL DIMENSIONS OF FINANCIAL MANAGEMENT—ADVANCES IN FINANCIAL PLANNING AND FORECASTING 59 (Raj Aggarwal and Cheng-Few Lee eds., 1990); Gordon J. Alexander et al., *Asset Pricing and Dual Listing on Foreign Capital Markets: A Note*, 42 J. FIN. 151 (1987); Vihang R. Errunza & Etienne Losq, *Capital Flow Controls, International Asset Pricing, and Investors' Welfare: A Multi-Country Framework*, 44 J. FIN. 1025 (1989); Vihang R. Errunza & Etienne Losq, *International Asset Pricing Under Mild Segmentation: Theory and Test*, 40 J. FIN. 105 (1985); Cheol S. Eun & S. Janakiraman, *A Model of International Asset Pricing with a Constraint on the Foreign Equity Ownership*, 41 J. FIN. 897 (1986); René M. Stulz, *On the Effects of Barriers to International Investment*, 36 J. FIN. 923 (1981).

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.¹⁸ 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.¹⁹

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.²⁰ In these cases, other considerations may override the need for capital. Common among developing countries in particular is the desire to ensure that foreigners do not overtake the country's major economic assets and deprive local citizens from the fruits of growth.²¹

To generalize this point, three different parameters can be identified that characterize segmentation. First is the direction of bar-

18. See Alexander et al., *supra* note 17.

19. 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 global 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 Alford, *supra* note 8 (reporting that Ireland implemented a policy which allowed residents to invest up to 5000 Irish *punt* annually, whereas prior to 1987 they were completely restricted from investing abroad); Pekka 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).

20. See Cathrine Bonser-Neal et al., *International Investment Restrictions and Closed-End Country Fund Prices*, 45 J. FIN. 523 (1990) (showing that the premium on closed-end country funds decreases upon the announcement of a reduction in investment restrictions).

21. See, e.g., Alford, *supra* note 8, 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 over 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 were 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). For a balanced analysis, see EDWARD M. GRAHAM & PAUL R. KRUGMAN, *FOREIGN DIRECT INVESTMENT IN THE UNITED STATES* 25-32 (1995).

riers causing the segmentation, 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."²² The third parameter is the number of countries that implement investment barriers in the world system. Needless to say, the legal system of each country may implement segmentation of various directions and degrees.²³

3. Sources Creating 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 may not know enough about them. Michael Adler and Bernard Dumas argue that investors may be unaware of superior investment opportunities that exist.²⁴ The costs of collecting and assessing information about foreign securities may not justify the investment. In a similar vein, Robert Merton models a world in which investors only invest in those securities of which they are aware.²⁵ In his model, expected returns decrease with the relative size of the firm's investor base.²⁶

But knowledge about firms is never either totally complete or totally absent. Investors have knowledge about only a partial set of the firms in the world, and they have only partial knowledge about this set of firms. Information about foreign firms is often difficult to obtain due to differences in the depth and quality of financial disclosures.²⁷ Even where available, such information is more difficult to interpret and assess in light of language and cultural differences.

A different type of information barrier 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

22. See Errunza & Losq (1985), *supra* note 17.

23. See Eun & Janakiraman (1990), *supra* note 17.

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

25. Robert Merton, *Presidential Address: A Simple Model of Capital Market Equilibrium with Incomplete Information*, 42 J. FIN. 483, 485-86 (1987).

26. *Id.*

27. See Jorion & Schwartz, *supra* note 13. Jorion and Schwartz categorize these barriers not as "legal barriers" but as "indirect barriers" that include tax considerations, ownership restrictions, and any other barrier linked to the country of origin of the security. *Id.*

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

Alan Alford observes that researchers assume that one of these sources is prevalent and drives the segmentation 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 in effect, so are the former.²⁸ 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.²⁹ 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 liquidating her holding due to liquidity 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.³⁰

28. Alford, *supra* note 8, at 6.

29. 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 H. KNIGHT, *RISK, UNCERTAINTY, AND PROFIT* 232-34 (1921).

30. Indeed, Jorion and Schwartz, *supra* note 13, 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 based on the nationality of issuing firms.

B. *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 Article are those studies which investigated the effects at the corporate level. But before discussing those studies, an overview of other empirical methods is helpful for understanding the context in which the discourse in international finance takes place.

The first strand of studies conducts the integration 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.³¹ It would be fair to say that a number of these studies find a growing degree of integration among certain markets, particularly in the developed countries.³² 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.³³ Adler and Dumas, however, call this research avenue "misguided." They claim that there are national random factors, such as politics, which selectively affect the production activities of any one country. They are reflected in stock returns, but that this is no evidence of segmentation.³⁴

The more prominent group of studies test for integration by utilizing a capital asset pricing model adapted to the international setting. These models investigate the price behavior of groups of stocks from different countries against different factors. Or, if multiple listing were involved, the model would investigate whether multiple listed stocks are priced in an integrated market comprising the domestic and the foreign markets.³⁵

31. See generally THE INTERNATIONALIZATION OF EQUITY MARKETS (Jeffrey A. Frankel ed., 1994). For an overview of the literature, see Paul Cashin et al., *International Integration of Equity Markets and Contagion Effects* (International Monetary Fund Working Paper No. WP/95/110, 1995).

32. See, e.g., HALUK AKDOGAN, THE INTEGRATION OF INTERNATIONAL CAPITAL MARKETS: THEORY AND EMPIRICAL EVIDENCE (1995); Cashin et al., *supra* note 31.

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

34. Adler & Dumas, *supra* note 8, at 967.

35. 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 (1991). For a review of the international adaptations of these models see AKDOGAN, *supra* note 32.

An International Capital Asset Pricing Model (ICAPM) would seek to correlate the movement of stock prices to changes in 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 be largely integrated, such as the United States and Canada.³⁶ In addition to ICAPM tests, researchers used alternative pricing models such as the Arbitrage Pricing Theory (APT) model and consumption based pricing models to test for integration, with mixed results.³⁷

C. *Effects on Price and Returns*

No matter what 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.³⁸ Under the more realistic scenario of “mild segmentation”—where markets are neither completely segmented nor completely integrated—some securities are accessible only to a subset of investors and thus command a super risk premium.³⁹ 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 price for the stock. The result is the stock having a lower expected return, and therefore a lower cost of capital for the firm.⁴⁰

36. See Errunza & Losq, *supra* note 17 (studying heavily traded securities from 9 LDCs and a random sample of U.S. securities; results not statistically inconsistent with the mild segmentation hypothesis); Jorion & Schwartz, *supra* note 13 (finding segmentation between the Canadian and the U.S. 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 U.S. stock markets; finding evidence consistent with segmentation in 1977-1981 and integration in 1982-1986); Stephen R. Foerster & G. Andrew Karolyi, *The Effects of Market Segmentation and Illiquidity on Asset Prices: Evidence from Foreign Stocks Listing in the U.S.* (Fisher College of Business, Ohio State University Working Paper No. 96-6, 1996) (studying U.S. ADR listings by firms from 14 countries in Europe, Asia, Canada, and Australia) [hereinafter Foerster & Karolyi (1996)].

37. Mittoo, *supra* note 36 (finding that APT suggests the Canadian stocks interlisted in the U.S. 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).

38. Stulz, *supra* note 17.

39. Errunza & Losq (1985), *supra* note 17, at 105.

40. Gordon J. Alexander et al., *Asset Pricing and Dual Listing on Foreign Capital Markets: A Note*, 42 J. FIN. 151 (1987) (using an economic model); R.C. Stapleton & M.G.

The implications for shareholder wealth are straightforward. From the 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 is the subject of a large number of empirical studies. Some of these studies are interested in the general and more theoretical question of whether capital markets in general are integrated or segmented; the other studies simply ask whether foreign listing is a positive net value transaction for the firm.

All the studies, however, test the same thing—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 located at a specific point in time, the effect of such an “event” 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 shareholders should be happy with, and vice versa.⁴¹ 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.⁴²

The following pages provide a review of this empirical literature. In this context, these studies also become observations in and of themselves and constitute the basis for a higher level of critical analysis, albeit less rigorous. From a legal policy viewpoint such an

Subrahmanyam, *Market Imperfections, Capital Market Equilibrium and Corporation Finance*, 32 J. FIN. 307 (1977) (using numerical analysis).

41. The 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 tested. Since both are theories that require confirmation, an error in either of the two cannot be attributed to one theory or the other. For an overview of the event study technique see STEPHEN A. ROSS ET AL., *CORPORATE FINANCE* (1993); Stephen J. Brown & Jerold B. Warner, *Using Daily Stock Returns: The Case of Event Studies*, 14 J. FIN. ECON. 3 (1985); G. William Schwert, *Using Financial Data to Measure Effects of Financial Regulation*, 24 J. L. & ECON. 121 (1981).

42. See Mustafa N. Gultekin et al., *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.”).

analysis is indispensable if a position is to be formed 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 II summarizes the relevant studies.

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 stock prices reflect all publicly available information.⁴³ The event that should be studied is not the actual event itself but rather the corresponding "information event"—the appearance of information about the actual event in the public awareness. The event study purports to measure 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 has announced its intention to make the listing and has 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 be reflected in the stock price.⁴⁴ Thus, studies that define the announcement date as the information event are, as a rule, preferred, while others should be taken with a grain of salt.⁴⁵ Note, however, that the problem pertains mostly to the event period "window," a three to seven day period around the time of the listing (i.e., the listing date plus one to three days before and after the event). The post-listing period is

43. Markets are said to be "semi-strong form efficient" in this regard. The origin of this term is the Efficient Capital Market Hypothesis (ECMH), which is discussed in greater detail in Part IV, *infra*.

44. 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 effect may result either from insider trading or from analysts correctly assessing the likelihood of a foreign listing. The first and now classic test of this type revealed that stock prices gradually reflect the impact of stock splits weeks and months before they are announced. Eugene Fama et al., *The Adjustment of Stock Prices to New Information*, 10 INT'L ECON. REV. 1 (1969).

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

TABLE II
THE EFFECT OF FOREIGN LISTING
ON STOCK PRICES AND EXPECTED RETURNS

STUDY / METHODOLOGY / SAMPLE	FINDINGS ^a
<p>ALEXANDER ET AL. (1988)^b <i>Event study-listing date</i> 34 listings in the U.S. by foreign firms, including from Canada</p>	<ul style="list-style-type: none"> • CARs peak three months before listing and then decline, indicating segmentation. • CARs were significantly lower (and negative) in the post-dual-listing period. No corresponding increase in stock price as theory would suggest. • Decline in returns was significant only for non-Canadian stocks, indicating integration between Canadian and U.S. markets.
<p>DAMODARAN ET AL. (1993)^c <i>Event study-listing date</i> 276 listings on TokSE and LSE by firms listed on a U.S. exchange</p>	<ul style="list-style-type: none"> • No evidence of a positive listing effects on returns. • The days immediately around the dual listing have insignificant negative excess returns.
<p>DOMOWITZ ET AL. (1995)^d <i>Event study-listing date</i> 26 U.S. ADR listings (various levels) by Mexican Firms</p>	<ul style="list-style-type: none"> • Insignificant positive CARs prior to listing. • Little price effect with regard to Level III ADRs. • No significant externality on the price of pure local stocks.
<p>FOERSTER AND KAROLYI (1993)^e <i>Event study-listing date</i> 49 listings on U.S. markets by Canadian firms</p>	<ul style="list-style-type: none"> • Positive significant CARs before listing. • Positive significant CARs during listing period, supporting the market segmentation hypothesis. • Negative significant CARs after listing. • Return patterns vary by industry.
<p>FOERSTER AND KAROLYI (1996)^f <i>Event study-listing date;</i> <i>ICAPM-listing date</i> 161 U.S. ADR listings by firms from 14 countries in Europe, Asia, Canada, and Australia</p>	<ul style="list-style-type: none"> • Positive significant CARs before listing. • Positive significant CARs during listing period. • Negative significant CARs after listing, which erode most, but not all, of the previous yields. • Positive significant alpha before listing. • Negative significant alpha after listing. • Results differ by region, not necessarily in way predicted by segmentation theories. Return patterns also vary by industry.
<p>HOWE AND KELM (1987)^g <i>Event study-announcement date</i> 165 listings (first, second, and third) on stock exchanges in Paris, Basel, and Frankfurt by U.S. firms</p>	<ul style="list-style-type: none"> • Negative abnormal returns in the period surrounding the announcement of the listing, suggesting a net cost to overseas listing.
<p>JAYARANAN ET AL. (1993)^h <i>Event study-listing date</i> 95 U.S. ADR listings by firms from Japan, UK, Australia, France, Germany, Italy, and Sweden</p>	<ul style="list-style-type: none"> • Positive significant ARs on the listing day, suggesting there is value associated with ADR listing.

<p>LEE (1991)^l <i>Event study-listing date</i> 141 listings on TorSE and LSE by U.S. firms</p>	<ul style="list-style-type: none"> • Negative, but insignificant, ARs on the actual listing and CARs in the period surrounding it, suggesting that overseas listing has no significant impact on shareholder wealth.
<p>MARR ET AL. (1991)^l <i>Event study-announcement date</i> 32 Euroequity and 196 domestic equity offerings by U.S. firms</p>	<ul style="list-style-type: none"> • Negative stock price response on announcement. • After controlling for firm characteristics, the negative stock price responses for Euroequity issues become proportionately smaller with the larger the offshore tranche grows. This is consistent with the hypothesis that new financial instrument enable firms to reduce international investment barriers.
<p>MCGOUN (1987)^k <i>Event study-listing date</i> Listings on the LSE, TokSE, and TorSE by U.S. firms</p>	<ul style="list-style-type: none"> • Negative post-listing return pattern.
<p>MILLER (1996)^l <i>Event study-announcement date, listing date</i> 183 U.S. ADR listings of all levels by firms from 35 countries (both developed and developing)</p>	<ul style="list-style-type: none"> • Positive significant ARs during announcement period. • Low positive and insignificant ARs in the pre-announcement period. • Low insignificant ARs in the post-announcement period. • Low negative and insignificant ARs before listing. • Negative significant ARs after listing. • Firms experience larger positive ARs upon announcement of an ADR in a large market compared with an ADR on OTC market. • Firms experience high positive and significant ARs upon announcing an upgrade from the OTC market to a large market (NYSE, AMEX, NASDAQ). • Positive significant ARs upon announcing a Level III ADR (capital raising). • Firms located in emerging markets experience a larger increase in AR than those domiciled in developed markets, consistent with international market segmentation.
<p>REILY ET AL. (1990)^m <i>Event study-listing date</i> Listings on the TokSE by U.S. firms</p>	<ul style="list-style-type: none"> • Negative post-listing ARs
<p>SUNDARAM AND LOGUE (1996)ⁿ <i>Examining valuation metrics (price-to-book, price-to-cash-earnings, price-to-earnings); event study-listing date</i> 80 U.S. ADR listings on NYSE or AMEX by firms from 14 countries (mostly developed)</p>	<ul style="list-style-type: none"> • Using country benchmarked ratios - the value of cross-listed stocks experienced a positive significant rise of 4-10% relative to the stock prices in the home markets. • Using worldwide industry benchmarked ratios - a positive significant rise of 4-10% relative to global industry counterparts. • No cross-sectional logic was found in the results. • In the event study - Negative significant ARs immediately after listing; negative but insignificant CARs around listing date.
<p>TING LAU ET AL. (1994)^o <i>Event study-application, acceptance, and listing dates</i> 346 listings on 10 foreign exchanges by U.S. firms</p>	<ul style="list-style-type: none"> • No ARs on application date. • Positive but insignificant daily ARs around acceptance date. • Positive significant CARs during acceptance period. • Negative ARs on listing date. • Negative CARs in the post-listing period.

<p>VARELA AND LEE (1993)^P <i>ICAPM-listing date</i> <i>111 listings on LSE and TokSE by</i> <i>U.S. firms (mostly MNCs)</i></p>	<ul style="list-style-type: none"> • LSE listings show a significant negative alpha term. • TokSE listings show no significant alpha term. • Significant decrease in alpha term in both markets, indicating that international listings decrease required returns.
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Abbreviations in Table I

AR	Abnormal Returns
CAR	Cumulative Abnormal Returns
LSE	London Stock Exchange
TokSE	Tokyo Stock Exchange
TorSE	Toronto Stock Exchange

- a. Reference to significance/insignificance in the findings column is to statistical significance, usually at 0.05 level.
- b. Gordon J. Alexander et al., *International Listings and Stock Returns: Some Empirical Evidence*, 23 J. FIN. & QUANT. ANAL. 135 (1988).
- c. Aswath Damodaran et al., *The Effects of International Dual listings on Stock Price Behavior* (New York University Salomon Brothers Working Paper No. S-93-41, 1993).
- d. Ian Domowitz et al., *Market Segmentation and Stock Prices: Evidence from an Emerging Market* (University of Southern California Working Paper, 1995).
- e. Stephen R. Foerster & G. Andrew Karolyi, *International Listing of Stocks: The Case of Canada and the U.S.*, 24 J. INT'L BUS. STUD. 763 (1993).
- f. Stephen R. Foerster & G. Andrew Karolyi, *The Effects of Market Segmentation and Illiquidity on Asset Prices: Evidence from Foreign Stocks Listing in the U.S.* (Ohio State University Fisher College of Business Working Paper No. 96-6, 1996).
- g. JOHN S. HOWE & KATHRYN KELM, *THE STOCK PRICE IMPACT OF OVERSEAS LISTINGS*, 16 FIN. MGMT. 51 (1987).
- h. Narayanan Jayaraman et al., *The Impact of International Cross Listings on Risk and Return - The Evidence from American Depository Receipts*, 17 J. BANKING & FIN. 91 (1993).
- i. Insup Lee, *The Impact of Overseas Listing on Stockholder Wealth: The Case of the London and Toronto Stock Exchanges*, 18 J. BUS. FIN. & ACCT. 583 (1991).
- j. Wayne Marr et al., *On the Integration of International Capital Markets: Evidence from Euroequity Offerings*, 20:4 FIN. MGMT. 11 (Winter 1991).
- k. E. McGoun, *The Value Impact of American Stock Listing on Foreign Stock Exchanges* (1987) (unpublished Ph.D. dissertation, Indiana University), cited in Oscar Varela & Sang H. Lee, *The Combined Effects of International Listing on the Security Market Line and Systematic Risk for U.S. Listings on the London and Tokyo Stock Exchanges*, in INTERNATIONAL FINANCIAL MARKET INTEGRATION 369 (Stanley R. Stansell ed., 1993).
- l. Darius P. Miller, *Why Do Foreign Firms List in the United States? An Empirical Analysis of the Depository Receipt Market* (unpublished manuscript) (1996).
- m. F. K. Reily et al., *A Dual Overseas Listing: The Impact on Returns, Risk, and Trading Volume* (Oct. 1990) (unpublished paper) (presented at the meeting of the Financial Management Association) cited in Varela & Lee, *supra* note k, at 369.
- n. Anant K. Sundaram & Dennis E. Logue, *Valuation Effects of Foreign Company Listings on U.S. Exchanges*, 27 J. INT'L BUS. STUD. 67 (1996).
- o. Sie Ting Lau et al., *Valuation Effects of International Stock Exchange Listings*, 18 J. BANKING & FIN. 743 (1994).
- p. Varela & Lee, *supra* note k, at 369.

usually measured in months, and is thus less susceptible to the event definition problem.⁴⁶

At first glance, the results seem decisively mixed. Indeed, there are cases where two studies of similar samples reach flatly contradictory conclusions.⁴⁷ But a closer examination reveals some patterns. 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 led the market to interpret the listing favorably.⁴⁸

Second, virtually all the studies that measured CARs in the post-listing period report negative values that are almost always statistically significant.⁴⁹ 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 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 too seems unlikely.⁵⁰ Fi-

46. 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 practice continues for reasons of convenience. The listing is a clear-cut event, about which information can be readily collected by approaching the stock exchanges. The announcement is a more difficult event to identify and research, as the investigator is forced to sift through newswire services and similar sources that are not always available (for an example of such research see Miller, *supra* note 45). In addition, several studies among those cited in Table 1, *supra*, also analyze the impact of foreign listing on stock price variance and other trading patterns. These phenomena can be studied only after actual trading begins.

47. For example, Foerster and Karolyi (1993), Table 1 note e, reverse the findings of Alexander et al. (1988), Table 2 note b, with respect to the Canadian and U.S. markets.

48. See Fama et al., *supra* note 44.

49. The only study in which researchers reported positive post-listing results is Sundaram and Logue (1996), Table 1 note n, which is not an event study.

50. The reason why this possibility is unlikely is that event studies are a well-known technique. Substantively, after the listing takes place the multiple listed stocks are listed, in, among others, the American market, which is generally believed to be informationally efficient (in the semi-strong form). Thus in order for the findings to be incorrect, some problem must lie with the ECMH. This option is explored in Part IV.B, *infra*.

nally, there may exist another reason the impact of which simply overrides the impact of segmentation gains on stock prices. Before elaborating on this point, the empirical findings regarding the listing period itself should be examined.

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 finds 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 pattern in the findings, consider dividing the studies into two groups. One group would include the multiple listings by U.S. firms on non-U.S. markets. The second group would include the reverse transaction, namely, multiple listings in which companies from outside the United States listed on a U.S. market. In the former 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 U.S. firms there is a net cost to overseas listing.⁵¹ 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.⁵² 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 general, 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

51. John S. Howe & Kathryn Kelm, *The Stock Price Impact of Overseas Listings*, 16 FIN. MGMT. 51 (1987).

52. 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 & 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.

other national markets.⁵³ As a result, foreign companies that list on an American market can be seen as moving to a higher league.

Darius Miller's thoughtful study⁵⁴ generally corroborates the claim that listing on a U.S. stock exchange adds value due to the improved regulatory regime to which the stock becomes subject.⁵⁵ Miller distinguishes between levels of ADR programs (including the semi-private RADRs)⁵⁶ that are characterized by different degrees of mandatory disclosure and liquidity. He reports that firms experience larger positive abnormal returns 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 abnormal returns 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 abnormal returns than those domiciled in developed markets.

Clearly, these implied benefits cannot be gained by firms that had already listed on a U.S. 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 parts of the Article, 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 United States, segmentation theory is clearly corroborated. As to outgoing foreign listings, other effects seem to erode the putative beneficial effects of segmentation gains.

53. The emphasis is on "relative." No claim is made here that the U.S. market or its regulatory system is perfect; only that they probably operate better than their counterparts.

54. Miller *supra* note 45.

55. See Eli Amir et al., *A Comparison of the Value-Relevance of U.S. versus Non-U.S. GAAP Accounting Measures Using Form 20-F Reconciliations*, 31 J. ACCT. RES. 230-63 (1993) (reconciliation of accounting data to U.S. Generally Accepted Accounting Practices [GAAP] is value-relevant). This article is part of a burgeoning literature on the effect of international accounting practices on stock value. See, e.g., Carol A. Frost & 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).

56. Rule 144A Depository Receipts (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. RADRs trade on a separate closed trading system called PORTAL.

D. *Effects on Market Risk*

Changes in the domestic and risk exposure of a firm that lists abroad stems from the models on international asset pricing and dual listing. 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.⁵⁷ 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.⁵⁸

Within an ICAPM framework, an empirical testing of this hypothesis would look at the beta-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. In an international setting, there are a number of ways to consider 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 mentioned above. Technically, however, this method is difficult to use.⁵⁹ Alternatively, a researcher could define two betas, one domestic and one foreign, that measure the correlation with the stock's home and host market respectively.

Following the line of inquiry pursued in the previous part of the Article, Table III 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 again be identified if the inbound and outbound international listings with respect to the United States are considered separately. The four studies that looked at outgoing listings by U.S. firms uni-

57. Eun & Janakiraman (1990), *supra* note 17.

58. Stephen R. Foerster & 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 & Karolyi (1993)].

59. 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&P 500, but in an international setting this technique is highly questionable. See Oscar Varela & Sang H. Lee, *The Combined Effects of International Listing on the Security Market Line and Systematic Risk for U.S. Listings on the London and Tokyo Stock Exchanges*, in INTERNATIONAL FINANCIAL MARKET INTEGRATION 369, 373 & n.10 (Stanely R. Stansell ed., 1993).

TABLE III
THE EFFECT OF FOREIGN LISTING ON MARKET RISK

STUDY / METHODOLOGY / SAMPLE	FINDINGS ^a
FOERSTER AND KAROLYI (1993)^b <i>49 listings on U.S. markets by Canadian firms</i>	<ul style="list-style-type: none"> • A slight negative but non-significant shift in beta (market risk) with regard to the Canadian market.
HOWE AND MADURA (1990)^c <i>68 listings in France, Germany, Japan, and Switzerland by large U.S. MNCs</i>	<ul style="list-style-type: none"> • A slight but non-significant decline in domestic beta, indicating that they are not affected by an international listing. • Foreign betas were insignificantly different from zero, both before and after the listing. • Interpretation: markets are already reasonably integrated, or listing is an ineffective mechanism for reducing segmentation. Alternatively: MNCs have already mitigated segmentation effects.
MADURA ET AL. (1991)^d <i>26 U.S. ADR listings by firms from Europe, Japan, and Australia</i>	<ul style="list-style-type: none"> • No significant change in domestic beta for the whole sample, indicating that issuance of ADRs generally did not influence the sensitivity of a firm's returns to its domestic market or to the U.S. market. • UK firms experience a significant increase in domestic beta. • The firm's stock prices become driven by combined (U.S. plus domestic) market movements overall. • The dispersion of the firm's stock returns is reduced in some cases.
MILLER (1996)^e <i>178 U.S. ADR listings of all levels by firms from 35 countries (both developed and developing)</i>	<ul style="list-style-type: none"> • No significant change in firms' domestic beta (with regard to their home market). • A non-significant increase in the beta with respect to the U.S. market for the whole sample. In Level III ADRs the increase is significant. • Firms located in free emerging markets experience a large increase in U.S. beta. U.S. beta did not change significantly for firms located in developed countries and in restricted emerging markets.
REILY ET AL. (1990)^f <i>Listings on the TokSE by U.S. firms</i>	<ul style="list-style-type: none"> • No significant change in systematic risk (domestic beta).
TING LAU ET AL. (1994)^g <i>346 listings on 10 foreign exchanges by U.S. firms</i>	<ul style="list-style-type: none"> • No significant impact on domestic risk.
VARELA AND LEE (1993)^h <i>111 listings on LSE and TokSE by U.S. firms (mostly MNCs)</i>	<ul style="list-style-type: none"> • No significant change in systematic risk for the whole sample. Listings on TokSE are followed by a decrease in risk, while listings on the LSE are followed by an increase. Note: systematic risk was actually domestic beta, since a U.S. index was used.

Abbreviations in Table II

LSE London Stock Exchange
TokSE Tokyo Stock Exchange
TorSE Toronto Stock Exchange

a. Reference to significance/non-significance in the findings column is to statistical significance, usually at 0.05 level.

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

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

d. Jeff Madura et al., *Use of ADRs to Circumvent Segmented Markets and Its Effects on Risk*, 5 J. INT'L SEC. MKTS. (1991).

e. Darius P. Miller, *Why Do Foreign Firms List in the United States? An Empirical Analysis of the Depository Receipt Market* (1996) (unpublished manuscript).

f. F.K. Reily et al., *A Dual Overseas Listing: The Impact on Returns, Risk, and Trading Volume* (Oct. 1990) (unpublished paper) (presented at the meeting of the Financial Management Association), cited in Oscar Varela & Sang H. Lee, *The Combined Effects of International Listing on the Security Market Line and Systematic Risk for U.S. Listings on the London and Tokyo Stock Exchanges*, in INTERNATIONAL FINANCIAL MARKET INTEGRATION 369 (Stanley R. Stansell ed., 1993).

g. Sie Ting Lau et al., *Valuation Effects of International Stock Exchange Listings*, 18 J. BANKING & FIN. 743 (1994).

h. Varela & Lee, *supra* note f, at 369.

formly found no significant changes in the domestic betas and, in the one study that tested it, no change in the foreign beta.

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 together 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 mechanisms, such as foreign direct investment or mergers with foreign firms.⁶⁰ Even more plausibly, one could assume that the majority of ownership and trading volume would continue to reside in the United States. This is very likely to preserve the American characters of those stocks. In any event, this evidence is consistent with the 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.⁶¹

The picture is slightly different when looking at foreign listings incoming to the United States. Here again there are three studies that report a non-significant decrease or no change in domestic betas. The news, however, comes from Miller’s study. While for the whole sample he reports a non-significant increase in the beta with respect to the U.S. market, in Level III ADRs the increase is significant.⁶² Moreover, firms located in free emerging markets experienced a large increase in U.S. beta while U.S. beta did not change significantly for firms located in developed countries and in restricted emerging markets.⁶³ 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.

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

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

62. Level III ADRs are ADRs issued in a public offering intended to raise new equity capital. They trade on national stock exchanges and entail fulfillment of U.S. disclosure duties.

63. Miller, *supra* note 45, at 26-27.

E. *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 firms in both the domestic and the foreign countries are cross-listing their securities on each other's capital market—what they term “bilateral partial integration.”⁶⁴

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. 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.

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.⁶⁵ 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.

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

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

F. *Conclusion*

A critical review of the 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, the effects that multiple listing is expected to have on particular stocks was examined. 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 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 U.S. 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 is the fact that both ownership and trading in U.S. 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.

The lesson up to this point for regulatory policy makers is that multiple listing is a very complex phenomenon, the effects of which may be difficult to determine in advance. What stands out from American foreign listings in particular, but also from the non-U.S. ones, is that cost of capital and capital market integration are not the sole, or even the main factors that determine the effects of multiple listing. This is only natural when one recalls that these issues are not the main factors motivating the multiple listing decision in the first place.⁶⁶ This obviously calls for caution, but also for a more exact and fine-grained analysis of the issue.

III. MULTIPLE LISTING, MARKET MICROSTRUCTURE, AND INFORMED TRADING

This part explores the flow of information in an international multi-market setting, particularly where multiple listed stocks are

66. See *supra* note 3.

involved. Methodologically, it takes a reverse direction along the process of price formation. It starts with the role that transnational arbitrage plays in integrating national markets by implementing the "law of one price." By constantly equalizing stock prices across markets, arbitrage activity in effect creates one single market for each stock. Next, there is a closer look 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, the special effect of informed traders on market structure and their expected behavior in a multi-market setting are examined. Finally, the discussion turns to potential regulatory concerns which may arise as a consequence of informed trading. In particular, this part discusses the degree to which the markets can be left to spontaneously enforce a policy against insider trading, or conversely, the degree to which regulatory intervention may be warranted.

A. *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.⁶⁷

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 different locations.⁶⁸ To summarize, markets are said to be perfectly integrated if the law of one price holds across them.⁶⁹

Departures from the law of one price may lead to arbitrage profits, generated from buying the underpriced security and selling

67. Kiyoshi Kato et al., *Are There Arbitrage Opportunities in the Market for American Depository Receipts?* 1 J. INT'L FIN. MARKETS, INSTITUTIONS & MONEY 73 (1991).

68. AKDOGAN, *supra* note 32, at 62.

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

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.⁷⁰

The first and foremost question in discussing the stage of integration of any two markets would thus be whether there are 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 IV provides a comprehensive summary of these studies. Personal interviews with stock exchange officials are consistent with the formal tests.⁷¹

The absence of arbitrage opportunities occurs mainly among developed markets, predominantly in OECD countries. In less developed markets that operate in a less liberalized legal environment, e.g., the Hungarian stock market, structural rigidities cause price differentials that are not closed by arbitrage even under very favorable conditions.⁷² However, OECD markets also demonstrate some exceptions to the law of one price.⁷³

70. *Id.*

71. See, e.g., Telephone Interview with Leif A. Vindevag, Vice President of the Stockholm Stock Exchange (July 25, 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).

72. Austin Murphy & Zoltan Sabov, *An Analysis of Intermarket Pricing in an Embryonic Environment*, 5 J. INT'L FIN. MKTS. INST. & MONEY 57 (1995). This observation is confirmed by personal impressions. See Domowitz et al., *supra* note 65, at 24 (conversations with traders in Mexico and the U.S. suggest that there are opportunities for profitable cross-country trading).

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

B. *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. With regard to the law of one 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.⁷⁴ 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.⁷⁵ To date, the NYSE still retains this position.⁷⁶ More recently, Chowdhry and Nanda [DM: do we need first names, Bhagman amd Vikram?] provided a theoretical underpinning for the notion of dominant and satellite markets.⁷⁷

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 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

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

75. The issue has not lost its relevance in the domestic U.S. market, because the dominant/satellite market phenomenon reflects the deeper problem of ensuring the efficacy of the market as a price discovery mechanism. Because the U.S. stock market is segmented both geographically and institutionally (through the third and fourth markets) the issue there is even more acute. For a discussion and a critique, see MARKET 2000, *supra* note 4; 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).

76. 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).

77. Bhagwan Chowdhry & Vikram Nanda, *Multimarket Trading and Market Liquidity*, 4 REV. FIN. STUD. 483 (1991). For a discussion, see the following subpart.

TABLE IV
ARBITRAGE OPPORTUNITIES IN MULTIPLE LISTED STOCKS

STUDY / SAMPLE	FINDINGS
BEN ZION ET AL. (1996)^a <i>5 Israeli firm stocks dually listed on the Tel Aviv SE and on the U.S. OTC market</i>	<ul style="list-style-type: none"> • Arbitrage opportunities are generally not available. (See note a.)
DOMOWITZ ET AL. (1995)^b <i>4 Mexican firm stocks listed also as U.S. ADRs (various levels)</i>	<ul style="list-style-type: none"> • The average returns in both markets are very similar, suggesting that there is efficient arbitrage across markets.
FROOT AND DABORA (1995)^c <i>3 Siamese twin stocks, multiple listed, inter alia, on the NYSE and LSE</i>	<ul style="list-style-type: none"> • Each company's stock obeys the law of one price, indicating the existence of cross-border arbitrage.
HAUSER AND TANCHUMA (1995)^d <i>5 Israeli firm stocks dually listed on the Tel Aviv SE and on the U.S. OTC market</i>	<ul style="list-style-type: none"> • The average returns are not significantly different between the two markets.
JORION AND SCHWARTZ (1986)^e <i>98 Canadian stocks multiple listed on various U.S. markets</i>	<ul style="list-style-type: none"> • Finding few arbitrage opportunities.
KATO ET AL. (1991)^f <i>23 stocks listed in England, Japan, and Australia and also as U.S. ADRs</i>	<ul style="list-style-type: none"> • Finding no arbitrage opportunities.
MURPHY AND SABOV (1995)^g <i>7 Hungarian firm stocks dually listed on the Budapest and Vienna SEs</i>	<ul style="list-style-type: none"> • Arbitrage opportunities are found at the black market foreign exchange rate. • Arbitrage opportunities are found even at the official exchange rate and after adjusting for high transaction costs, presumably due to low volume and bureaucratic delays. These discrepancies were found to be falling over time.
PAGANO AND ROELL (1991)^h <i>14 Italian blue chip stocks dually listed on the Milan SE and LSE</i>	<ul style="list-style-type: none"> • Milan prices were generally—but not always—within London quotes (spread).
PAGANO AND ROELL (1993)ⁱ <i>16 stocks dually listed on London's SEAQ-I and the Paris Bourse</i>	<ul style="list-style-type: none"> • The markets are perfectly arbitrated: in a sample of 380 perfectly time-matched observations, not a single unexploited arbitrage opportunity was found.

Abbreviations in Table III

LSE	London Stock Exchange
NYSE	New York Stock Exchange
SE	Stock Exchange

a. Uri Ben-Zion et al., *A Characterization of Price Behavior of International Dual Stocks: An Error Correction Approach* (University of Munich Center for Economic Studies Working Paper No. 104, 1996). The findings here may be a repetition of the findings reported in Shmuel Hauser & Yael Tanchuma, *Transfer of Pricing Information between Internationally Dually Listed Stocks* (Israel Securities Authority Working Paper, 1995).

b. Ian Domowitz et al., *Market Segmentation and Stock Prices: Evidence from an Emerging Market* (University of Southern California Working Paper, 1995).

c. Kenneth A. Froot & Emil Dabora, *How Are Stock Prices Affected by the Location of Trade?* (presented at the NYSE Conference on the Internationalization of Stock Markets, Dec. 8, 1995).

d. Hauser & Tanchuma, *supra* note a.

e. Philip Jorion & Eduardo Schwartz, *Integration vs. Segmentation in the Canadian Stock Market*, 41 J. FIN. 601 (1986).

f. Kiyoshi Kato et al., *Are There Arbitrage Opportunities in the Market for American Depository Receipts?* 1 J. INT'L FIN. MKTS. INST. & MONEY 73 (1991).

g. Austin Murphy & Zoltan Sabov, *An Analysis of Intermarket Pricing in an Embryonic Environment*, 5 J. INT'L FIN. MKTS. INST. & MONEY 57 (1995).

h. Marco Pagano & Ailsa Roëll, *Dually-Traded Italian Equities: London vs. Milan*, LSE Financial Markets Group Discussion Paper No. 116, CEPR Discussion Paper No. 564 (1991).

i. Marco Pagano & Ailsa Roëll, *Shifting Gears: An Economic Evaluation of the Reform of the Paris Bourse*, in FINANCIAL MARKET LIBERALIZATION AND THE ROLE OF BANKS 52 (V. Conti & R. Hamoui eds., 1993).

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 U.S. stocks multiple listed on foreign markets found that foreign price movements fully reflected price volatility existing on the domestic (U.S.) market, but that U.S. price movements reflected only to a lesser extent the volatility on foreign markets.⁷⁸ Similarly, a study of Israeli stocks multiple listed on the American OTC market found that the domestic (Israeli) market acts as the dominant market and the foreign market acts as a satellite.⁷⁹ Another study found that there exists a significant causal connection by which stock price behavior in the Tel Aviv Stock Exchange (TASE) affects the price in the United States; however, price behavior in New York affects prices in TASE too, albeit in a limited manner.⁸⁰ Notably, where shareholding was more evenly divided between Israel and the U.S., this effect was attenuated, leading the researchers to conclude that in such cases the stock was more "international" in nature. Finally, a study of stocks of Siamese twin MNCs found that both stocks obey the law of one price.⁸¹ However, the price movement of each of the twin stocks 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.⁸²

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

78. David Nuemark et al., *After-Hours Stock Prices and Post-Crash Hangovers*, 46 J. FIN. 159 (1991).

79. Uri Ben-Zion et al., *A Characterization of Price Behavior of International Dual Stocks: An Error Correction Approach* (Center for Economic Studies, University of Munich Working Paper No. 104, 1996).

80. See Shmuel Hauser & Yael Tanchuma, *Transfer of Pricing Information between Internationally Dually Listed Stocks* (Israel Securities Authority Working Paper, 1995); see also Merav Arlozorov, *One Quarter of TASE Value Directly or Indirectly Influenced by U.S. Market*, Israel's Business Arena - Globes (March 6, 1997), <<http://www.globes.co.il>> (citing a TASE study that distinguishes between the dominant markets of various Israeli multiple listed stocks).

81. Siamese twin companies are pairs of companies with corporate charters that fix the division of current and future equity cash flows of each pair of twins. The stock prices should therefore trade in lockstep, in a ratio given by the proportional division of cash flows. Froot & Dabora, *supra* note 73, at 2.

82. *Id.*

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 a similar situation involving the third and fourth markets.⁸³ In the European Union too, the issue was subject to deep controversies surrounding the drafting of the Investment Services Directive (ISD).⁸⁴

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.

C. *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 part lays the basis for assessing the desirability of regulatory intervention by portraying the forces that affect price discovery—the process by which supply and demand interact to yield current prices—absent such intervention.

83. MARKET 2000, *supra* note 4.

84. See Council Directive 93/22/EEC on Investment Services in the Securities Field, 1993 O.J. (L 141) 127 [hereinafter ISD]; Pagano & Steil, *supra* note 73; Benn Steil, *Equity Trading IV: The ISD and the Regulation of European Market Structure*, in THE EUROPEAN EQUITY MARKETS 113 (Benn Steil ed., 1996).

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 time framework, often referred to also as the intraday period. The first—the theory of noise⁸⁵—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 reflected real 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.⁸⁶ 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 that may be employed by informed traders to capitalize on their superior information and those that may be employed by less informed traders to minimize their exploitation by the better informed.

Starting in a domestic setting, Kyle⁸⁷ 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 increased volume is associated with a higher variance.

In a model with several time periods, Anat Admati and Paul Pfleiderer add “discretionary liquidity traders” who lack private

85. Fischer 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 & Richard Roll, *Stock Return Variances: The Arrival of Information and the Reaction of Traders*, 17 J. FIN. ECON. 5 (1986).

86. Liquidity concerns can be positive—an unexpected surplus due to inheritance, for example, or negative, such as a need to finance an exceedingly large expense, such as a tuition payment or the purchase of a home.

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

information but have discretion over the timing of their trades.⁸⁸ 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 thin market periods. 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 a multi-market environment. Here, two strands of arguments can be identified. In the first—what one may call “the clustering model”—Chowdhry and Nanda⁸⁹ 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 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.⁹⁰

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 traders.

In the second strand of models scholars reach quite the opposite conclusion, namely, that informed traders would tend to split their trades across markets. These could thus be called “the fragmentation models.” Freedman⁹¹ allows informed traders to have long-lived information and to allocate their trades between two sepa-

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

89. Chowdhry & Nanda, *supra* note 77.

90. The outcome is analogous to Admati and Pfleiderer's temporal concentration. See Admati & Pfleiderer, *supra* note 88.

91. Ruth J. Freedman, *INTERNATIONAL CROSSLISTING: A THEORETICAL AND EMPIRICAL ANALYSIS* (1991) (unpublished Ph.D. dissertation) (on file with the Stanford University Library).

rate 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 market. Thus, cross listing results in a higher variance of stock prices in the domestic stock exchange.

Madhavan⁹² 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—for example, when 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 V 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 explanation for the results. First, some studies reach opposite findings as to the impact on return variance for similar samples.⁹³ More disturbing, however, are the interpretations drawn from the results. Three studies interpret a significant increase in return variance as consistent with a higher level of informed trading.⁹⁴ Yet, two other studies offer the same interpretation to a finding of no impact on

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

93. 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.

94. 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.

variance.⁹⁵ Worse still, the sixth study interprets the increase in variance as consistent with the noise trading theory.⁹⁶

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.⁹⁷ However, this can be of little help, since in this respect there are conflicting predictions by different theories, as set forth above.

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, occasionally the terms of a transaction between two American parties are concluded in the U.S. but are faxed abroad to be “printed” on the foreign tape.⁹⁸

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 mar-

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

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

97. 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.

98. MARKET 2000, *supra* note 4.

TABLE V
THE EFFECT OF FOREIGN LISTING
ON INFORMED AND NOISE TRADING

STUDY / SAMPLE	FINDINGS
BARCLAY ET AL. (1990) ^a <i>Cross-listings on TokSE by U.S. firms</i>	<ul style="list-style-type: none"> • Cross listing had no impact on the variance of the NYSE close-to-close returns on the stocks. Interpreted as consistent with the private information models and inconsistent with the noise trading and public information models.
DAMODARAN ET AL. (1993) ^b <i>276 listings on TokSE and LSE by firms listed on a U.S. exchange</i>	<ul style="list-style-type: none"> • Volume increases but no change in variance after the dual listing. Interpreted as consistent with the informed trading hypothesis.
HOWE ET AL. (1993) ^c <i>Cross listings in Basel, Frankfurt, Paris, and Tokyo by U.S. firms</i>	<ul style="list-style-type: none"> • A significant increase in anticipated volatility following overseas listings. Interpreted as supporting noise theory.
JAYARAMAN ET AL. (1993) ^d <i>95 U.S. ADR listings by firms from Japan, UK, Australia, France, Germany, Italy, and Sweden</i>	<ul style="list-style-type: none"> • Return variance increased significantly after the listing of the ADR. Interpreted as consistent with the informed trading hypothesis, since informed traders are likely to trade in both markets.
MAKHIIJA AND NACHTMANN (1989, 1990) ^e <i>Cross listings on LSE and TokSE by U.S. firms</i>	<ul style="list-style-type: none"> • A significant increase in the NYSE close-to-close variance of returns on the stocks. Interpreted as supporting the private information hypothesis.
Noronha et al. (1996) ^f <i>Cross listings on TokSE and LSE by U.S. firms</i>	<ul style="list-style-type: none"> • Volume and return variance. Interpreted as an indication that the level of informed trading increases.

Abbreviations in Table IV

LSE London Stock Exchange
NYSE New York Stock Exchange
TokSE Tokyo Stock Exchange

a. Michael J. Barclay et al., *Private Information, Trading Volume, and Stock-Return Variances*, 3 REV. FIN. STUD. 233 (1990).

b. Aswath Damodaran et al., *The Effects of International Dual Listings on Stock Price Behavior* (New York University Salomon Brothers Working Paper No. S-93-41, 1993).

c. John S. Howe et al., *International Listings and Risk*, 12 J. INT'L MONEY & FIN. 99 (1993).

d. Narayanan Jayaraman et al., *The Impact of International Cross Listings on Risk and Return—The Evidence from American Depository Receipts*, 17 J. BANKING & FIN. 91 (1993).

e. A. K. Makhija & R. Nachtmann, *Variance Effects of Cross-listing in NYSE Stocks in Tokyo*, 1 PAC. BASIN CAP. MKT. RES. 215 (1990), cited in Jayaraman et al. (1993), *supra* note d; A. K. Makhija & R. Nachtmann, *Empirical Evidence on Alternative Theories of Stock Return Variances: The Effect of Expanded Trading Time on NYSE-LSE Cross-Listed Stocks* (University of Pittsburgh Working Paper, 1989), cited in Jayaraman et al. (1993), *supra* note d.

f. Gregory M. Noronha et al., *Testing for Micro-structure Effects of International Dual Listings Using Intraday Data*, 20 J. BANKING & FIN. 965 (1996).

kets—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.⁹⁹

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; and second, the dealers themselves may get compensated for the adverse effects of informed trading.¹⁰⁰ In any event, if any conclusion is to be drawn from the body of theoretical and empirical work, it is probably that informed trading increases significantly following a foreign listing.

D. *Regulatory Concerns*

In this part of the Article, I will discuss a number of regulatory concerns with multiple listing in light of theoretical predictions and empirical data. Among the most significant of these concerns is informed trading. Although I ask questions about optimal policies, I do not advance one arguably efficient arrangement for the problem, because I believe 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.

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 in-

99. 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 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 Pagano & Steil, *supra* note 73; AMIR N. LICHT, *Stock Market Integration in Europe* (Harvard Inst. for Int'l Dev. CAER II Discussion Paper No. 15, 1998).

100. Gregory M. Noronha et al., *Testing for Micro-structure Effects of International Dual Listings using Intraday Data*, 20 J. BANKING & FIN. 965 (1996) (finding that spreads do not decline following multiple listing, which is explained by the increased level of informed trading).

formation. 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.¹⁰¹ In the following discussion, a more careful definition of terms is required.

It is important to distinguish 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 directors, managers, and other office holders—“insiders.”

In light of these distinctions, let us reexamine the theoretical arguments which may inform regulatory policy making. As a general feature, virtually all the finance discourse builds on the premise that in devising 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 of adverse price ef-

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

fects is less significant than the disutility of being charged and jailed for engaging in insider trading.¹⁰² By routing their trade orders to a market where these conditions do not hold they can evade detection.

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.¹⁰³ This could diminish the incentive to route the trade to foreign markets but at the same time, could be used in conjunction with such an 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.¹⁰⁴ 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

102. 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 than the price effect alone. The sanction, however, would fail to eliminate the incentives of the insider because he would either make off with the profits or simply have to give 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. See Insider Trading and Securities Fraud Enforcement Act of 1988, 15 U.S.C. § 78t-1 (1997); Insider Trading Sanctions Act of 1984, 15 U. S. C. § 78u(d)(2) (1997). Neither amendment seems to have substantially affected 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).

103. 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. Seyhun, *supra* note 77.

104. Note that no claim is made that insider trading will migrate abroad completely. Even top executive insiders face significant (though not insurmountable) difficulties in effecting a transaction abroad. The Chowdhry and Nanda argument implies that if a trader effected the whole transaction in a foreign market—a satellite market in all likelihood—she could draw unwanted attention to herself.

signing of Surveillance Sharing Agreements (SSAs) between the United States and foreign securities exchanges that are linked or on which derivative products trade.¹⁰⁵ But it is not clear in what manner such agreements deal with multiple listed stocks. In the European Union, some securities regulators, in 1996, were actively preparing to undertake such a task, which would require extensive exchange of trading data among stock exchanges and regulators, while others were not.¹⁰⁶

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.¹⁰⁷

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 and Nanda's argument has only limited applicability. In an international multi-market environment, legislatures and regulatory agencies may have different 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.¹⁰⁸

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

105. Michael D. Mann et. al, *International Agreements and Understandings for the Production of Information and Other Mutual Assistance*, 29 INT'L LAW. 780, 837-38 (1995).

106. Licht, *supra* note 97, at 36.

107. Chowdhry & Nanda, *supra* note 77, at 501 (italics in original).

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

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 fund 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 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.¹⁰⁹

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 the case unless the regulatory agency is captured by this particular section of the industry.¹¹⁰ 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

109. Chowdhry and Nanda admit that their discussion ignores the potential role of stock exchanges as strategic players attempting to maximize fees or order flows. Chowdhry & Nanda, *supra* note 77, at 508.

110. The "captive agency" argument has been advanced with regard to the securities industry as well. See generally Colomatto & Macey, *supra* note 6. For examples in the United States, see David D. Haddock & Jonathan R. Macey, *Regulation on Demand: A Private Interest Model with an Application to Insider Trading Regulation*, 30 J. L. & ECON. 311 (1987). For examples in the European Union, see Benn Steil, *The ISD and the Regulation of European Market Structure*, in *THE EUROPEAN EQUITY MARKETS* 113 (Benn Steil ed., 1996).

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 of this informational asymmetry. Fairness seeking regulators may find it difficult to devise a coherent policy with regard to noise traders. If one translates "noise traders" to mean "individual investors" or, worse yet, "Aunt Minnie from Omaha," one could start to see the potential regulatory and political problem. The notion that Aunt Minnie is taken advantage of systematically whenever she buys stocks with her savings or sells them in retirement is hardly palatable and, indeed, gives rise to a lot of the anti-insider trading public sentiment in the United States.¹¹¹

The problem gets complicated even further because "noise traders," "individual investors," and "Aunt Minnie" are not equivalent. Noise traders include individual investors but also large institutional investors engaging in program trading. Individual investors, in turn, include not only Aunt Minnie but also Bill Gates. Any measure that would work evenly across the board is bound to have different effects on the different kinds of investors. Finally, fairness-based arguments are difficult to employ in support of compelling disclosure of private information by large liquidity traders, particularly as regards transaction information and future transactions. Although they may be harmed by the price impact of liquidating a big position by a large liquidity trader, individual noise traders cannot really argue for a right to know about such forthcoming transactions in advance. The situation is different with respect to company insiders. Legal doctrines deny them the benefits of private information. However, insofar as company insiders are involved, the question takes shape as a distributive issue (some would say an issue in the "allocation of property rights in information"¹¹²) between insiders and other investors. Different balances could be achieved when resolving such an issue.

The other general parameter commonly used to assess regulatory policy is the extent to which it promotes market efficiency.

111. The question whether anybody is taken advantage of and the general fairness issue in insider trading situations are still debatable. The classic exposition remains HENRY MANNE, *INSIDER TRADING THE THE STOCK MARKET* (1966). See also JONATHAN R. MACEY, *INSIDER TRADING: ECONOMICS, POLITICS AND POLICY* (1991).

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

Overall, a good policy should encourage faster price formation and discovery in order to promote better informational efficiency, and in turn, efficiency in resource allocation. Here, too, there may be a partial conflict of interest between dealers and national policy makers. Dealers prefer to see as little informed trading as possible taking place in "their" market. According to Chowdhry and Nanda's clustering model, dealers can take active steps to drive informed traders away. Alternatively, they can set a higher bid-ask spread in order to hedge against the likelihood of trading with informed traders.

Market regulators also see the market as "theirs." They do not, however, share the dealers' view with regard to informed trading in general. At best, they would only want to curb illegal insider trading.¹¹³ 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 major market's ability to provide information through prices. This issue too boils down to a distributive conflict between dealers and large traders in which a regulator could well side with the traders.¹¹⁴

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 them. Second, regulators may want to directly subsidize large liquidity traders in their capacity as institutional investors because they perform a number of services beneficial to the market as a whole, e.g., information analysis and monitoring of their portfolio companies. Such services may have the character of a public good, meaning that it is difficult to extract a price from market participants who enjoy these services. In this case, subsidies may be warranted.

As regards insider trading, the meaning of an anti-insider trading policy may vary. Some regulators may be satisfied with di-

113. 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 benefit accrues to those who conduct research and information collection. See Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393 (1980).

114. Note that the potential conflict of interest between dealers and regulators is only partial because dealers too are interested in increasing transaction volumes and, thereby, increasing revenue. By promptly publicizing transaction information or by increasing the bid-ask spread (which is equivalent to increasing the price for their services) they may well cause a decrease in transaction volume.

verting insider trading abroad and letting foreigners bear the costs of information 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.¹¹⁵

IV. THE INTERACTION BETWEEN LEGAL REGIMES

In well-functioning capital markets the price system is a “mechanism for communicating information.”¹¹⁶ 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 generally known as the Efficient Capital Market Hypothesis (ECMH). Indeed, this assumption underlies most of the studies referred to above.

Taken seriously, the ECMH in its semi-strong form means that *everything* is supposedly reflected in stock prices, provided that it is public information.¹¹⁷ Such a broad category should definitely encompass 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, the rule should affect the firm’s share price.

In the following discussion, I will address 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 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

115. See Donald C. Langevoort, *Fraud and Insider Trading in American Securities Regulation: Its Scope and Philosophy in a Global Marketplace*, 16 HASTINGS INT’L & COMP. L. REV. 175, 181 (1993).

116. F. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 527 (1945), cited in SANFORD J. GROSSMAN, *THE INFORMATIONAL ROLE OF PRICES* 1 (1989).

117. For an overview of the three forms of market efficiency, see Brealey & Myers, *supra* note 35, at 295-96.

of one price by transnational arbitrage transactions—national legal systems affect one another.

First, I will explore how legal rules get priced through market efficiency in one domestic economy and discuss to what extent one can isolate specific “price tags” for particular legal rules. The examples below relate mainly to corporate governance problems in the United States. Thus, those who are familiar with the implementation of the ECMH and event studies in this context may want only to skim parts IV.A. and IV.B. which follow. Second, I will discuss 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 affect prices. Third, I will examine the processes by which an integrated legal regime is created from its national components. Finally, I will discuss some regulatory consequences of this novel form of regulatory arbitrage.

A. *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.¹¹⁸ Almost three decades after Eugene Fama’s seminal article on market efficiency,¹¹⁹ the way the topic is presented to students of finance still reflects a deep belief in market efficiency.¹²⁰ Following the steps of the finance literature, writers on securities regulation have made the ECMH the epistemic basis for many analyses.¹²¹ More importantly, in the United States, the ECMH is the epistemic basis for regulatory action,¹²² and—since the Supreme Court decision in *Basic*¹²³ and the Seventh Circuit’s decision in *Wielgos*¹²⁴—judicial reasoning.

118. See *infra* Part IV.B.

119. Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970).

120. See, e.g., Brealey & Myers, *supra* note 35, ch. 13.

121. See, e.g., Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 853 (1992).

122. For a review and critique see Langevoort, *supra* note 115; Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 CARDOZO L. REV. 909, 927-37 (1994).

123. *Basic, Inc. v. Levinson*, 485 U.S. 224, 227 (1988) (eliminating the reliance requirement in securities fraud claims where presentations were made to the market).

124. *Wielgos v. Commonwealth Edison Co.*, 892 F.2d 509, 510 (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).

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 Frank Easterbrook and Daniel Fischel, “[n]o 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.”¹²⁵

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.¹²⁶ 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 the form of efforts to empirically measure its effects on stock prices.¹²⁷ 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 have enacted laws that impede hostile bidders from completing the takeover.¹²⁸

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.¹²⁹ The empirical evi-

125. FRANK H. EASTERBROOK & DANIEL R. FISCHEL, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* 215 n.4 (1991).

126. See discussion *supra* p. 13-14.

127. See EASTERBROOK & FISCHEL, *supra* note 125, at 193.

128. See CHOPER ET AL., *supra* note 128, at 1053-75; EASTERBROOK & FISCHEL, *supra* note 125, at 197-98; Jonathan M. Karpoff & Paul H. Malatesta, *The Wealth Effect of Second-Generation State Takeover Legislation*, 25 J. FIN. ECON. 291, 291-92 (1989).

129. Karpoff & Malatesta, *supra* note 128, at 309. In this study, the authors also survey previous studies of the subject. Although the reviewed studies do not reach uniform

dence confirms the theoretical argument that such laws decrease firm value by limiting stockholders' opportunities to get favorable tender offers and, thereby, decreasing the level of managerial discipline imposed by the market for corporate control. Stated generally, legal rules have a price that 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 a legal rule can give rise to difficulties for a number of reasons that 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 was cast in the most fundamental terms—whether it is a “race for the bottom,” a “race for the top,” or, rather, to some midway optimum.¹³⁰ 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 as it does not require the physical migration of company headquarters in order to change its law.¹³¹ Nevertheless, event studies of reincorporations do not report significant changes of any sort in stock returns.¹³² Although certain “pro-competition” scholars argue that

findings, Karpoff and Malatesta are able to explain the variety of results on methodological grounds. See also Jeffrey Netter & Annette Poulsen, *State Corporation Laws and Shareholders: The Recent Experience*, 18 FIN. MGMT. 29 (1989).

130. 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 EASTERBROOK & FISCHER, *supra* note 125, ch. 8; ROBERTA ROMANO, *THE GENIUS OF AMERICAN CORPORATE LAW* (1993); Lucian Arye Bebchuk, *Federalism and the Corporation: The Desirable Limits on State Competition in Corporate Law*, 105 HARV. L. REV. 1435 (1992); Melvin Aron Eisenberg, *The Structure of Corporation Law*, 89 COLUM. L. REV. 1461 (1989); Roberta Romano, *The State Competition Debate in Corporate Law*, 8 CARDOZO L. REV. 709 (1987); and Joel Seligman, *The Case for Federal Minimum Corporate Law Standards*, 49 MD. L. REV. 947 (1990).

131. ROMANO (1993), *supra* note 130, at 272.

132. See Peter Dodd & Richard Leftwich, *The Market for Corporate Charter: “Unhealthy Competition” versus Federal Regulation*, 53 J. BUS. 259 (1980); Netter & Poulsen, *supra* note 129; Roberta Romano, *Law as a Product: Some Pieces of the Incorporation Puzzle*, 1 J.L. ECON. & ORG. 225, 272 (1985); Elliot J. Weiss & Lawrence J.

this in fact supports their argument,¹³³ 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 of reincorporations does not constitute evidence that state competition for corporate charters benefits shareholders. First, the new corporate law package may include some desirable provisions that obscure the negative effect of other undesirable provisions.¹³⁴ 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.¹³⁵ In such a case, the market may react positively to the news on the assumption that the reincorporation is a necessary ingredient of the project or in anticipation of improved business results.

Problems with the Methodology

Recall, that event studies measure the impact of the informational event rather than the actual event.¹³⁶ 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. For instance, the theoretical effect of reincorporation on the firm is controversial. With regard to facts and circumstances, reincorporation is an integral part of a broader structural change. Yet, by the time it is effected, it is often hardly news at all. This is true for an event that at least in principle is a well-defined one.¹³⁷ As discussed further

White, *Of Econometrics and Indeterminacy: A Study of Investors' Reactions to 'Changes' in Corporate Law*, 75 CALIF. L. REV. 551 (1987).

133. See, e.g., ROMANO (1993), *supra* note 130, at 92.

134. Bebchuk, *supra* note 130, at 1449-50.

135. Romano, *supra* note 132, at 268.

136. See *supra* Part II.C.

137. It should be stated 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 examples, such as the case of laws allowing companies to limit directors' liability. For background, see CHOPER ET AL., *supra* note 128, at 73-114 (1995). Empirical studies did not find significant stock price effects upon firms' proposals to opt-out of the duty of care. See Michael Bradley & Cindy Schipani, *The Relevance of the Duty of Care*

below,¹³⁸ other events are likely to pose even greater measurement difficulties.

B. *The Limits of Market Efficiency and the ECMH*

Pricing of legal rules is not only difficult to gauge statistically, but also difficult to undertake at the substantive level, i.e., as part of pricing the firm's "fundamentals." Researchers widely acknowledge 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.¹³⁹ These anomalies, however, are now treated mostly as evidence of failures in our understanding of how assets are valued rather than evidence of the market being confused.¹⁴⁰

Another critique maintains 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 fundamental values—including, for that matter, the value of applicable legal regimes. In the extreme, this may cause the market to develop

Standard in Corporate Governance, 75 IOWA L. REV. 1, 59 (1989); Vahan Janjigian & Paul J. Bolster, *The Elimination of Director Liability and Stockholder Returns: An Empirical Investigation*, 13 J. FIN. RES. 53 (1990); Roberta Romano, *Corporate Governance in the Aftermath of the Insurance Crisis*, 39 EMORY L.J. 1155, 1183-88 (1990).

138. See *infra* Part IV.G.

139. For reviews of anomalies in general, see EDWIN J. ELTON & MARTIN J. GRUBER, MODERN PORTFOLIO THEORY AND INVESTMENT ANALYSIS 405-07 (1984); Eugene F. Fama, *Efficient Capital Markets: II*, 46 J. FIN. 1575 (1991); Eugene F. Fama, *Market Efficiency, Long-Term Returns, and Behavioral Finance* (University of Chicago Center for Research in Security Prices Working Paper No. 448, 1997); William K.S. Wang, *Some Arguments that the Stock Market is Not Efficient*, 19 U.C. DAVIS L. REV. 341 (1986). 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, *Size and Stock Returns, and Other Empirical Regularities*, 12 J. FIN. ECON. 3 (1983). Another anomaly is the "January effect," in which stocks systematically perform better in a single month. See Fama (1991), *supra*; Richard Thaler, *Anomalies: The January Effect*, 1 J. ECON. PERSP. 197 (Summer 1987); Wang, *supra*. Seemingly unexplained anomalies also exist with regard to other time periods. See Richard Thaler, *Anomalies: Seasonal Movement in Security Prices II: Weekend, Holiday, Turn of the Month, and Intraday Effects*, 1 J. ECON. PERSP. 169 (Fall 1987).

140. See CHOPER ET AL., *supra* note 128, at 200; Fama, *supra* note 119, at 1593. For a strong defense of market efficiency, see Fama (1997), *supra* note 139.

“bubbles” and experience crashes.¹⁴¹ Even under the harshest critique, however, fundamental information is not claimed to be irrelevant. The importance of fundamental information should be greater, particularly because a host of elements may be affecting the behavior of stock prices in ways that are not entirely predictable.¹⁴²

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 must be an interim stage when the information is not publicly available.¹⁴³ Based on this insight, Ronald Gilson and Reinier Kraakman show that the market’s efficiency with respect to particular kinds of information depends on the cost of acquiring it.¹⁴⁴ It follows that capital market efficiency is directly linked to the structure of the information market.

141. The main critique of the rational expectation theory is the theory of noise. See Black, *supra* note 85; J. Bradford De Long et al., *Noise Trader Risk in Financial Markets*, 98 J. POL. ECON. 703 (1990) (summarizing the noise trader model); French & Roll, *supra* note 85; Summers, *supra* note 85. Representative discussions from a legal policy perspective include Paul G. Mahoney, *Is There a Cure for “Excessive” Trading?*, 81 VA. L. REV. 713 (1995); Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 VA. L. REV. 611 (1995); and 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 strain of critique of the ECMH asserts that the ECMH 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 Milton Harris & Artur Raviv, *Differences of Opinion Make a Horse Race*, 6 REV. FIN. STUD. 473 (1993); Jeremy C. Stein, *Informational Externalities and Welfare-reducing Speculation*, 95 J. POL. ECON. 1123 (1987). For legal analysis see Lynn A. Stout, *Agreeing to Disagree over Excessive Trading*, 81 VA. L. REV. 751 (1995) and Stout, *Costly Casinos* (1995), *supra*, at 619. Finally, Fama (1997), *supra* note 139, at 6-8, reviews and rejects some recent behavioral models which purport to explain how the judgment biases of investors can produce certain anomalies.

142. *But see* Stout (1988), *supra* note 141. Stout employs an implicit premise that fundamental (as opposed to informational) efficiency is irrelevant. 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 exists between prices and information. The latter, which is echoed in her argument, is clearly false in light of vast empirical evidence.

143. See Grossman & Stiglitz, *supra* note 113.

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

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.¹⁴⁵ The reasons are structural. Under Gilson and Kraakman's 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, these traders bring the market to Sanford Grossman and Joseph Stiglitz's efficient level of inefficiency.¹⁴⁶ It is, therefore, important to note that newswire services do not disseminate news about small issuer stock as intensively as they cover news about large companies.¹⁴⁷ In addition, a much smaller number of stock analysts follow the small issuer stock than follow large company stock.¹⁴⁸ As a result, the market *knows* less and *understands* less about small issuer stocks.¹⁴⁹

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

145. See JAMES D. COX ET AL., *SECURITIES REGULATION: CASES AND MATERIALS* 40-41 (4th ed. 1991).

146. Grossman & Stiglitz, *supra* note 113.

147. COX ET AL., *supra* note 145, at 41

148. *Id.* Cox et al. cite a 1977 SEC report which found:

[F]ewer 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 assets less than \$50 million. Slightly more than half of the sample would not follow a firm whose assets did not exceed \$100 million..

Id.

Although the information is dated, it seems intuitive that the situation today could only be worse with respect to 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.

149. There is broad consensus that the market for initial public offerings (IPOs) of common stock is outright 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 Richard A. Booth, *Discounts and Other Mysteries of Corporate Finance*, 79 CAL. L. REV. 1053, 1091-92 (1991); Tim Loughran & Jay R. Ritter, *The New Issues Puzzle*, 50 J. FIN. 23, 46-47 (1995); Louis Lowenstein, *Shareholder Voting Rights: A Response to SEC Rule 19c-4 and to Professor Gilson*, 89 COLUM. L. REV. 979, 998-99 (1989); Kevin Rock, *Why New Issues Are Underpriced*, 15 J. FIN. ECON. 187 (1986); Jonathan A. Shayne & Larry D. Soderquist, *Inefficiency in the Market for Initial Public Offerings*, 48 VAN. L. REV. 965 (1995) (surveying many other studies); Seha M. Tinic, *Anatomy of Initial Public Offerings of Common Stock*, 43 J. FIN. 789 (1988).

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.¹⁵⁰

C. *Multiple Sources of Legal Rules*

This part of the Article 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. Parts IV.D-H discuss the pricing of foreign legal rules in more detail and then the interaction between legal regimes.

From an economic 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 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.¹⁵¹

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: the legal regime of the domestic market and the legal regime of the foreign market. As a rule, the domestic market will be the country where the company is incorporated and headquar-

150. 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). However, for the disclosed information to be priced it is sufficient that *some* investors read and evaluate it.

151. At first glance, the question might seem like a traditional (one might say “old fashioned”) conflict of laws issue. In that case, one would determine the “law of the stock” by analogy to the determination of the “law of the contract” in private international law jurisprudence. I do not intend to elaborate on this doctrine. The major goal of conflict of laws jurisprudence is to determine *one* legal regime—the provisions of which govern the case. This process 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 text is different.

tered. 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 such as the definition of “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 may be entirely transaction-related such as 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, or 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” issue.¹⁵² The more a certain subject could be classified as a “company law” issue, the more it would tend to be governed by one legal regime. On the other hand, the more it could be classified as a “securities regulation” issue, the more likely it is that both systems would have a claim to regulate it.

Figure I 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.¹⁵³ 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

152. More profoundly, what underlies the latter classification is the distinction between “private” and “public” in legal theory. See John H. Merryman, *The Public Law-Private Law Distinction in European and American Law*, 17 J. PUB. L. 3 (1968). The distinction has been the subject of devastating critiques but, nonetheless, remains a useful analytical tool. See Morton Horwitz, *The History of the Decline of the Public/Private Distinction*, 130 U. PENN. L. REV. 1423 (1982).

153. 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 variables is an independent variable whereas the other 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.

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.

To get a feeling about the working of this presentation model, consider how certain 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.¹⁵⁴ 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.

Second, consider the subject of disclosure duties imposed on the company (as opposed 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. However, its exact location there may vary. In most cases, the laws of the home country

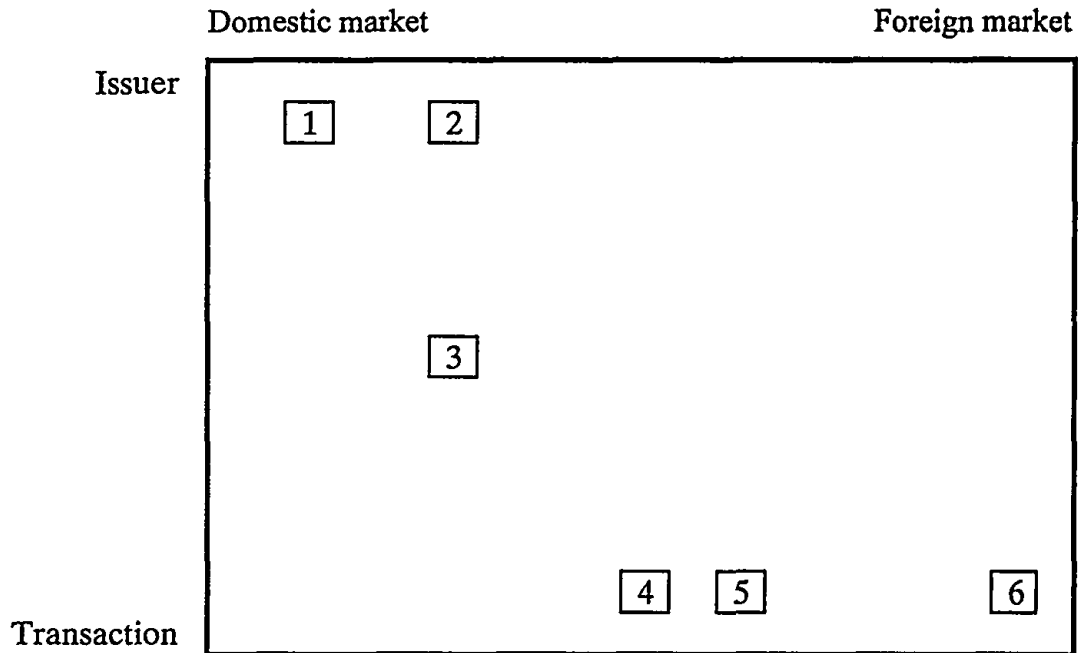
154. Defining a company's national law is not always straightforward, as discussed in the main text. The country-of-incorporation is the prevailing rule of corporate nationality in the common law countries, including the United States. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW OF THE UNITED STATES § 213 (1987) ("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 *siège social* (or *siège réel*) of the corporation. The *siège social* concept emphasizes the principal place of management, and requires that one look behind the formal designation of a principal office. In practical effect, it is an additional requirement, since jurisdictions using that standard, such as France, require that a firm be incorporated in the state where it has its *siège*. *Id.* § 213 cmt. 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. *See id.* § 213 cmt. f; Yitzhak Hadari, *The Structure of the Private Multinational Enterprise: A New Challenge for Transnational Law*, 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 DEL. J. CORP. L. 283 (1990).

Here lies the nexus between conflict of laws rules and the present argument. 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. In other words, it is up to the parties to determine the governing law. As a (default) rule, the governing law 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).

FIGURE I
SOURCES OF LEGAL INFORMATION
AFFECTING MULTIPLE LISTED STOCKS



Legend-Legal Issue Areas

- 1 Company Law
- 2 Disclosure
- 3 Takeover Regulation
- 4 Insider Trading
- 5 Transparency-Multiple Listed Stocks
- 6 Transparency-Foreign Listed Stocks

would apply in full, so the variance in locations would stem from the foreign country.¹⁵⁵ For example, under the law of the United States, disclosure duties owed by foreign firms vary considerably as a function of the circumstances in which their securities come into the hands of U.S. investors and trade in the United States. 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.¹⁵⁶ The corresponding location of the issue in Figure 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 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 such as 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.

D. *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 part of the Article that each regime may be subject to several pricing processes. As the above discussion makes clear, 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,

155. In certain cases, the home country's disclosure rules do not apply, as exemplified, again, by Israeli issuers that are only listed overseas. *See supra* note 125.

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

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.¹⁵⁷ In this world, 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 above. Second, each country's market operates as a "pricing center," receiving and digesting all publicly available information and impounding it into stock prices.¹⁵⁸ 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.

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 Fischel's phrasing).¹⁵⁹ Country D may put a certain "price tag" on its corporate governance regime as well as on country F's, a separate price tag for each country's disclosure regimes, and so on for take-

157. There are alternative ways for making foreign stock available to domestic investors and vice versa, so a stock does not necessarily have to be officially multiple listed for that purpose. See *supra* note 5. However, the case of multiple listing is the most interesting as it brings about interaction between the two systems on the largest scale.

158. In a multi-market world, the picture of pricing centers may be slightly different but it retains 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. When companies only list their stocks abroad, however, the home market and the home stock exchange do not overlap (recall the numerous Israeli stocks that are listed only on U.S. markets, *supra* Part III.B). 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.

159. EASTERBROOK & FISCHEL, *supra* note 125.

over regulation, insider trading regulation, etc.¹⁶⁰ 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. For the purposes of the present analysis, however, 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? What are the elements that inform the pricing process? I tackle these questions in this order.

FIGURE II
PRICING OF DOMESTIC AND FOREIGN LEGAL RULES

		Source of Law	
		D	F
Pricing Center	D	$P_D(L_D)$	$P_D(L_F)$
	F	$P_F(L_D)$	$P_F(L_F)$

1. Pricing of Foreign Rules

At first blush, one could infer from the ECMH that markets should do very well in evaluating and pricing 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. They are followed and ana-

160. 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.

lyzed by a very large 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 United States.

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, 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. 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. In this category, I include unwritten but nevertheless very effective policies: "administrative guidance" à la the Japanese Ministry of Finance; a de facto regulatory policy of "nods and winks;"¹⁶¹ and 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."¹⁶² In all these cases, local lawyers and businesspersons enjoy a superiority over foreign ones in terms of access to information and in the expertise required to transform it to prices.¹⁶³

The classification of stock markets to "dominant" and "satellites"¹⁶⁴ thus gains a new dimension. The existing finance literature—both domestic and international—treats the markets

161. One scholar has argued that Luxembourg had a reputation of giving merely a "nods and winks" review of offers of securities to be listed on the Luxembourg Stock Exchange. Manning Gilbert Warren III, *Regulatory Harmony in the European Communities: The Common Market Prospectus*, 16 BROOK. J. INT'L L. 19 (1990). In this regard, note the exceptional proportion of foreign securities listed on the Luxembourg Stock Exchange. See London Stock Exchange, Quality of Markets Division, *supra* note 1.

162. *Insider Trading Sanctions and SEC Enforcement Legislation: Hearing on H.R. 559 Before the Subcomm. on Telecommunications, Consumer Protection, and Finance of the House Comm. on Energy and Commerce*, 98th Cong., 1st Sess., 2 (1983).

163. 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 the ability of a seasoned Wall Street attorney 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. This difference applies *a fortiori* to foreign laws.

164. See *supra* Part III.B.

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.¹⁶⁵ As it happens, dominance in the provision of information would generally coincide with dominance in the pricing thereof.

The fact that foreign markets may be satellites of the domestic market does not indicate that they are unimportant. Recall that satellite markets do contribute to the amount of information and to price discovery, even if to a lesser degree than the dominant market. Thus, there is a reason to assume that satellite markets make a similar contribution to the evaluation process of information, including legal information. In some ways, 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 a contribution could be made, if a firm listed its stock in a foreign market where other firms which share a common 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.¹⁶⁶

2. *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,

165. 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. This distinction should not affect conclusions of the discussion. See Gilson & Kraakman, *supra* note 144, at 594 (providing a taxonomy of information costs: acquisition costs, processing costs, and verification costs).

166. The argument here is closely related to the argument I made in Part II.A with regard to “inverse information asymmetries,” a situation where foreign investors know more about (and better understand) 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 applies to the dynamic aspect of ongoing trading.

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.¹⁶⁷

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.¹⁶⁸ 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.

It follows directly from this observation that markets in different countries may differ considerably with respect to 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

167. 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.

168. 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 head of the Magellan mutual fund, decided to invest in Dunkin' Donuts stock because he liked their coffee. JOHN TRAIN, *THE MONEY MASTERS* 68-69 (1980); Carolyn Friday, *A Superstar Bids Farewell*, *NEWSWEEK*, April 9, 1990, at 38. Even this apparently informal decision, however, was anchored in some business logic about the importance of the firm's product quality rather than a conclusion reached after reading the coffee residues.

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.

E. *Interaction of Legal Regimes*

I have thus far established how certain legal issues can be subject to concurrent legal regimes, developed in the two countries D and F. I have also shown 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. How these different valuations of different rules interact emerges as the next issue.

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.¹⁶⁹

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

169. One can think of this outcome as a logical “or” operation, in which case 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.

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.¹⁷⁰ 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 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.¹⁷¹ Scholars who take more extreme positions question the necessity of a mandatory disclosure regime altogether.¹⁷²

Third, mandatory disclosure might be unnecessary in light of differences in corporate governance structures.¹⁷³ Certain non-

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

171. EASTERBROOK & FISCHER, *supra* note 125, 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. CHI. L. REV. 1047 (1995).

172. See, e.g., George J. Benston, *The Costs and Benefits of Government-Required Disclosure: SEC and FTC Requirements*, in CORPORATIONS AT THE CROSSROADS: GOVERNANCE AND REFORM 37 (D. DeMott ed., 1980); George J. Benston, *Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934*, 63 AM. ECON. REV. 132 (1973).

173. The literature on comparative corporate governance is exploding and need not be recapped here. For a recent overview, see Mark J. Roe, *Comparative Corporate Governance* (Columbia University School of Law Working Paper No. 125, 1997) (forthcoming in THE NEW PALGRAVE DICTIONARY OF LAW AND ECONOMICS). For general discussions of the subject, see COMPARATIVE CORPORATE GOVERNANCE: ESSAYS AND MATERIALS (Klaus J. Hopt and Eddy Wymeersch eds., 1997); MASAHIKO AOKI & HUNG-KI KIM, CORPORATE GOVERNANCE IN TRANSITIONAL ECONOMIES: INSIDER CONTROL AND THE ROLE OF BANKS (1995).

American corporate governance structures—specifically, those that are common in Germany¹⁷⁴ and Japan¹⁷⁵—feature relatively large block holders and active monitoring of the management by shareholders and other stakeholders (mainly banks). In such situations, there may be a greater need for public disclosure (which few individual investors use anyhow), as stakeholders can have alternative sources for information about company affairs and stock analysis services may be in lower demand.

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 regimes—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 distance.¹⁷⁶ Since countries could 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. Some

174. See Klaus J. Hopt, *The German Two-Tier Board (Aufsichtsrat): A German View on Corporate Governance*, in *COMPARATIVE CORPORATE GOVERNANCE*, *supra* note 173, at 3; Hwa-Jin Kim, *Markets, Financial Institutions and Corporate Governance: Perspectives from Germany*, 26 *L. & POL. INT'L BUS.* 371 (1995).

175. See Hideki Kanda, *Trends in Japanese Corporate Governance*, in *COMPARATIVE CORPORATE GOVERNANCE*, *supra* note 173, at 185; Ronald J. Gilson & Mark J. Roe, *Understanding the Japanese Keiretsu: Overlaps between Corporate Governance and Industrial Organization* 102 *YALE L. J.* 871 (1993). For empirical critiques see Jun-Koo Kang & Anil Shivdasani, *Does the Japanese Governance System Enhance Shareholder Wealth? Evidence from the Stock-Price Effects of Top Management Turnover*, 9 *REV. FIN. STUD.* 1061-95 (1996); Curtis J. Milhaupt, *A Relational Theory of Japanese Corporate Governance: Contract, Culture, and the Rule of Law*, 37 *HARV. INT'L L. J.* 3 (1996); Jun-Koo Kang & René M. Stulz, *Is Bank-Centered Corporate Governance Worth It? A Cross-Sectional Analysis of the Performance of Japanese Firms During the Asset Price Deflation* (National Bureau of Economic Research Working Paper No. 6238, 1997).

176. 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 Stephen B. Salter, *Cultural Influence on the Development of Accounting Systems Internationally: A Test of Gray's (1988) Theory*, 26 *J. INT'L BUS. STUD.* 379 (1995).

scholars have argued that disclosure requirements may actually be destructive to issuers, e.g., in the contexts of reporting of results with a line-of-business breakdown and exposure to market risk through derivatives.¹⁷⁷

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 imposed by regime F are universally agreed to benefit investors. In this case, the price tag of the composite 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, one 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. In this scenario, regime F again would be the decisive factor in determining the value of the composite regime, but its effect here would be negative with respect to the baseline of regime D.

A different way to think about the interaction between the two legal regimes is to analyze it as a cause of 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—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 with regard to disclosure regulation.¹⁷⁸

177. On line-of-business reporting, see Edmund W. Kitch, *The Theory and Practice of Securities Disclosure*, 61 BROOK. L. REV. 763, 792-98 (1995). On exposure-to-risk disclosure, see Merton H. Miller & Christopher L. Culp, *The SEC's Costly Disclosure Rules*, WALL ST. J., Apr. 25, 1996, at A14.

178. Some of the reasons can be inferred from the discussion in Part III.D, which details the various policy concerns at the market microstructure level. Additional considerations may also arise. See generally ROBERT C. CLARK, CORPORATE LAW ch. 8 (1986).

Takeover regulation, trading transparency rules, etc., are also subject to differing views and normative theories.

F. *Arbitrage Transactions and Legal Rules*

This part of the Article 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 Part III 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 more narrow context of legal rules, the law of one price is the actual manifestation of the thought exercise conducted in the previous part of this Article. Although both legal regimes apply to the stock, each with its own price tag, only one actual price can exist at 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.

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 a 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.¹⁷⁹ 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 on the "sucker" side of a transaction. Transnational arbi-

179. This view could be limited to genuine insider trading or it could apply more generally to other forms of informed trading.

trage, 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. One may 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.¹⁸⁰ Now, if country F thought that D's rule is really bad its market would erode 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 significant mainly in the context of 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.¹⁸¹

In this context, I would like cautiously to suggest an even more far reaching possibility. Recall Eun and Janakiramanan'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, and, thus, are subjected to the externality effect of international pricing.¹⁸² The argument has a strong intuitive appeal. Applied to the issue of legal rules, it implies that any change in the securities regulation regime in one country might af-

180. 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 particular interests that are being promoted by regulatory regimes. See Jonathan R. Macey, *INSIDER TRADING: ECONOMICS, POLITICS, AND POLICY* (1991); Colombatto & Macey, *supra* note 6, at 925; Jonathan R. Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 *CARDOZO L. REV.* 909 (1994).

181. This 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 & Schwartz, *supra* note 13, at 606.

182. Eun & Janakiramanan (1990), *supra* note 17.

fect the value of stocks in another country even if they have no relation with the first country. The notion is intriguing, but requires discussion which exceeds the scope of this Article.

To summarize, the same forces which bring about economic integration also engender an outcome of legal integration, so to speak. This outcome has important repercussions. National regimes of securities law reflect each country's tradition, culture, economic structure and interests—in short, its policy. The discussion above makes it apparent that policies of different countries need not be identical. Often, they may even be antithetical. To the extent that such policies are reflected in securities' prices, as we expect, they inevitably come to a clash. Thus, foreign listing becomes a medium through which undesired effects can be exported from one country to another.

G. Empirical Testability

The last step of my 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 Part III, 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 yield equivocal results even in the relatively “clean” case of reincorporations, which the case of foreign listings resembles. Studies of foreign listings may prove to be more inconclusive in every aspect that makes event studies of reincorporation 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 United States. 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 interna-

tional listings, the informational event was defined as the listing date, which is 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 brought about by reincorporations, which is limited to corporate law provisions. The testing of isolated rules' effect seems to verge on impossibility.¹⁸³

Notwithstanding the above, a certain amount of support may be found in the results of expected returns tests of foreign listings incoming to the United States versus those outgoing from the United States. 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. This is consistent with the view that the American regulatory regime is generally better than that in many other countries.¹⁸⁴ Particularly interesting is the case of foreign listed American stocks. Disclosure and other issuer-related rules did not become more lax following the foreign listing because 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 so far is provided by Miller.¹⁸⁵ He reports that foreign firms that had already cross listed their stock in the United States 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 firms to that regime. The empirical results can 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 list-

183. In addition, Alford, *supra* note 8, 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.

184. Note, that in many non-U.S. 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.

185. Miller, *supra* note 45.

ings (and reincorporations, for that matter), there is little noise in the form of other factors which might be driving the results.¹⁸⁶

H. *A Regulatory Agenda*

Virtually all the existing literature on international securities regulation is preoccupied with two basic issues: the question of regulatory competition among national regulatory regimes,¹⁸⁷ and the related problem of extraterritorial application of such regimes (extraterritorial jurisdiction).¹⁸⁸ 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 about the need for regulatory intervention.

The literature which focuses 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 undermine certain segments of other regulatory regimes.

186. *But see* Amihud & Mendelson, *supra* note 52. Another possible benefit is improved liquidity. Miller's study is also praiseworthy because of its careful definition of the informational event as the announcement rather than the listing.

187. *See, e.g.*, Joseph A. Grundfest, *Internationalization of the World's Securities Markets: Causes and Regulatory Consequences*, in INTERNATIONAL COMPETITIVENESS IN FINANCIAL SERVICES 349 (Marvin H. Kosters and Allan H. Meltzer eds., 1991); James D. Cox, *Regulatory Competition in Securities Markets: An Approach for Reconciling Japanese and United States Disclosure Philosophies*, 16 HASTINGS INT'L & COMP. LAW REV. 149 (1993); James D. Cox, *Rethinking U.S. Securities Laws in the Shadow of International Regulatory Competition* 55:4 LAW & CONTEMP. PROBS. 157 (Autumn 1992); Bevis Longstreth, *A Look at the SEC's Adaptation to Global Market Pressures*, 33 COLUM. J. TRANSNAT'L L. 319 (1995).

188. *See, e.g.*, Stephen J. Choi & Andrew T. Guzman, *The Dangerous Extraterritoriality of American Securities Law*, 17 NW. J. INT'L L. & BUS. 207 (1996); Merritt B. Fox, *Insider Trading in a Globalizing Market: Who Should Regulate What?*, 55:4 LAW & CONTEMP. PROBS. 263 (Autumn 1992), *reprinted in* 1994 SEC. L. REV. 355; Donald C. Langevoort, *Schoenbaum Revisited: Limiting the Scope of Antifraud Protection in an Internationalized Securities Marketplace*, 55:4 LAW & CONTEMP. PROBS. 241 (Autumn 1992); Gunnar Schuster, *Extraterritoriality of Securities Laws: An Economic Analysis of Jurisdictional Conflicts*, L. & POL. INT'L BUS. 165 (1994); Kelley Y. Testy, *Comity and Cooperation: Securities Regulation in a Global Marketplace*, 45 ALA. L. REV. 927 (1994).

The term “regulatory arbitrage” is commonly used to indicate a migration trend toward the more lenient regulatory regimes and is often associated with the notion of “a race to the bottom.” In that context, scholars are concerned with the downward pressure on regulators. The dynamics presented in this work are 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 first meets the eye. Unlike the abstract notion of regulatory arbitrage which implies a trend toward less (and implicitly, worse) regulated jurisdictions, the regulatory arbitrage concept I describe here has a basis in the reality of international stock markets.

In the composite legal regime created by foreign or multiple listing, regulatory objectives of its component regimes might be undermined 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 hinder 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 promulgating country views 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 also the broader circumstances that have led to the present situation, including path-dependence and interest groups activity.

Second, provided that certain discrepancies between national securities regulation regimes may be viewed as detrimental, a the-

ory about regulatory cooperation in this field should be developed. It is now widely observed that economic interdependence brings a need for regulatory cooperation.¹⁸⁹ In the area of securities regulation, attention has so far centered on the regulation of financial institutions active in the field, from securities houses to banks to stock exchanges.¹⁹⁰

What is missing is a theory about regulatory cooperation in the fundamental issue areas—the first principles—of securities regulation: mandatory disclosure, fraud, and others. States should be primarily interested in each other's regulatory policy in these matters and may be interested in higher levels of cooperation. Depending on the type of potential conflict among states, cooperation may take the form of regulatory harmonization, agreed-upon (even if tacitly) regulatory competition, or something else. Respectively, states would need to establish the necessary institutions for maintaining such cooperation.¹⁹¹

V. CONCLUSION

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

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

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

190. See, e.g., TONY PORTER, *STATES, MARKETS AND REGIMES IN GLOBAL FINANCE* (1993). But see Joel P. Trachtman, *Unilateralism, Bilateralism, Regionalism, Multilateralism, and Functionalism: A Comparison with Reference to Securities Regulation*, 4 *TRANSNAT'L L. & CONTEMP. PROBS.* 69 (1994).

191. I deal with this question separately. See Amir N. Licht, *Games Commissions Play: 2x2 Games of International Securities Regulation* (John M. Olin Center on Law, Economics, and Business, Harvard Law School Working Paper No. 223, 1997).

Part III starts this endeavor by looking at the impact that foreign listing might have on securities markets' microstructure. In this context, two main features of market microstructure stand out. One is the existence of dominant and satellite markets and their 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 finance 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. Part III thus discusses the relevant regulatory concerns, 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.

Part IV 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 part of the Article, I show how legal regimes interact with respect to multiple listed stocks in ways that might be seen as undermining 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 markets. That trend seems irreversible and, indeed, bears beneficial payoffs. Observers and scholars need to develop a better understanding of the causes of regulatory diversity among nations. With such a foundation, a theory of cooperation in securities regulation should be a useful tool for any organized effort to institutionalize such cooperation.