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Games Commissions Play: 2x2 Games of International Securities Regulation

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Introduction

In recent years, the internationalization of securities markets has accelerated its pace and broadened in scope, due in part to advances in telecommunications and computer technology. A growing number of stocks are listed on several national markets, and yet a larger set of securities listed on a single market are nonetheless accessible to foreign traders. Other aspects of securities trading have acquired international dimensions too: securities firms now operate in foreign countries as traders and investment advisers, and computerized stock exchanges are interconnected with data links. An example would convey the complexity of this trend: Royal-Dutch/Shell is the world's largest non-financial multinational corporation by foreign assets.¹ It has grown out of a 1907 alliance between Royal Dutch and Shell, by which the two companies merged their interests, while remaining distinct entities, incorporated in the Netherlands and United Kingdom.² Royal Dutch and Shell are listed on nine exchanges in Europe and in the United States, and can be traded locally in each market. Firms like Royal-Dutch/Shell pose formidable difficulties to domestic securities regulation systems. Intuitively, one could expect cooperation among all the relevant regulation authorities to emerge. This Article looks behind this intuition and systematically assesses the prospects for such cooperation.

¹ United Nations, *World Investment Report 1996: Investment, Trade and International Policy Arrangements* Table I.10 (1996).

² Royal Dutch Petroleum Company, 20-F filing for 1994, 1-4 (Read-Elsevier, Lexis-Nexis, FEDSEC library, 20-F file).

A number of commentators voice concerns with possible adverse effects of the internationalization trend. Some hold that states in general and regulators in particular should enhance cooperation and assist their fellow-regulators.³ Others acknowledge that such cooperation is not readily attainable, and assume that unilateral regulation measures will be the paradigmatic form of regulation in the foreseeable future. They call for coordination in the sense that each national securities regulator would oversee only the issues and activities most relevant to it.⁴

In this vein, the US Securities and Exchange Commission (SEC) has exempted certain transactions involving foreign elements from certain regulatory requirements. It further announced that it would prefer cooperative measures over unilateral ones.⁵ Senior SEC staff members have voiced opinions in the same spirit.⁶

³ David Charny, *Competition among Jurisdictions in Formulating Corporate Law Rules: An American Perspective on the "Race to the Bottom" in the European Communities*, 32 *Harvard Intl L J* 423 (1991); Steven R. Salbu, *Regulation of Insider Trading in a Global Marketplace: A Uniform Statutory Approach*, 66 *Tulane L Rev* 837 (1992); Manning Gilbert Warren, III, *Global Harmonization of Securities Laws: The Achievements of the European Communities* 31 *Harv Intl L J* 185 (1990).

⁴ James D Cox, *Rethinking US Securities Laws in the Shadow of International Regulatory Competition*, 55:4 *L & Contemp Probs* 157 (Autumn 1992); Merritt B. Fox, *Insider Trading in a Globalizing Market: Who Should Regulate What?* 55 *L & Contem Prob* 263 (1992); Donald C. Langevoort, *Fraud and Insider Trading in American Securities Regulation: Its Scope and Philosophy in a Global Marketplace*, 16 *Hastings Intl & Comp L Rev* 175 (1993); Roberta S. Karmel, *The Second Circuit Role in Expanding the SEC's Jurisdiction Abroad* 65 *St John's L Rev* 743 (1991).

⁵ Securities and Exchange Commission, *Regulation of International Securities Markets -- Policy Statement of the U.S. Securities and Exchange Commission*, Release No. 33-6807 (Nov. 14, 1988).

⁶ Michael D. Mann, Joseph G. Mari, and George Lavdas, *International Agreements and Understandings for the Production of Information and Other Mutual Assistance*, 29 *Intl Law* 780, 823 (1995) (Director and staff members of the SEC's Office of International Affairs); Michael D. Mann, Paul E. Leder, and Elizabeth Jacobs, *The Establishment of International Mechanisms for Enforcing Provisional Orders and Final Judgments Arising from Securities Law Violations* 55:4 *L & Contemp Prob* 303 (Autumn 1992); James R. Doty, *The Role of the SEC in an Internationalized Marketplace*, 60 *Fordham L Rev* S77 (1992) (General Counsel to the SEC).

At the bilateral level, the SEC has established connections with foreign regulators, mainly through memoranda of understanding (MOUs), which typically provide for mutual assistance in investigations and confidentiality of records.⁷ Another initiative was undertaken by the SEC and regulators from three Canadian provinces with the establishment of the Multi-Jurisdictional Disclosure System (MJDS). Under MJDS, disclosure statements of corporations from each jurisdiction are recognized by the others.

A number of multilateral initiatives are also under way. The boldest among them is the on-going process of integration of the European Union (EU) which boasts impressive achievements in harmonizing disclosure rules, certain transaction rules, etc.⁸ Another effort is embodied in the International Organization of Securities Commissions (IOSCO), which provides an international forum for mutual consultation and collaboration in regulatory issues.⁹

Cooperation in this area, however, is still the exception to the rule, while the general situation is characterized by fierce competition. Both developed and developing countries compete for inflows of investment capital. In the past, such inflows came as foreign direct investment and similar ventures, but it is now commonplace to find exchanges prospering in many countries that establish market economies. Moreover, the

⁷ Mann, Mari, and Lavdas, *International Agreements* (cited in note 6). See also James A. Kehoe, Note, *Exporting Insider Trading Laws: The Enforcement of U.S. Insider Trading Laws Internationally*, 9 *Emory Intl L Rev* 345 (1995)..

⁸ See Bernard O'Connor, ed., *A Business Guide to European Community Legislation* ch 7 (1995).

⁹ Mann, Mari, and Lavdas, *International Agreements* (cited in note 6); Tony Porter, *States, Markets and Regimes in Global Finance* (1993).

business of securities trading is in itself profitable, causing countries and stock exchanges to vie for listings and order flow. Should a country discover that its securities regulation laws are relatively more burdensome to foreign or domestic issuers (thereby driving them to raise capital abroad), it may be tempted to lower its standards. That such a reaction might initiate a regulatory “race to the bottom” is a well known argument.¹⁰

Securities regulators thus face two problems in the international context. The first is the fundamental incentive not to cooperate with their colleagues to the extent that such cooperation might undermine their country’s competitive position. The second problem, inseparable from the former, is that adhering to the competitive dynamics may operate to the detriment of their country’s interests. The sharp reader who hears the echo of the Prisoners’ Dilemma is not entirely mistaken. However, although the Prisoners’ Dilemma proves to be a powerful heuristic for numerous real life situations, it is by no means the sole one. In this Article I suggest a broader perspective for looking at international securities regulation. I argue that in some areas, 2x2 game models other than Prisoners’ Dilemma better depict the conflictual situation and help assess the prospects for international cooperation.

The rest of the Article is organized as follows. The next part elaborates the analytical framework and its underlying assumptions. The following three parts put

¹⁰ See Joseph A. Grundfest, *Internationalization of the World’s Securities Markets: Causes and Regulatory Consequences*, 1991 J Fin Serv Res 349; Joel P. Trachtman, *International Regulatory Competition, Externalization and Jurisdiction*, 34 Harv Intl L J 47 (1993). Cf. Stephen J Choi and Andrew T. Guzman, *The Dangerous Extraterritoriality of American Securities Law*, 17 Nw J Intl L & Bus 207 (1996).

forward 2x2 game models of three fundamental issue areas in securities regulation: disclosure, antifraud, and insider trading. With respect to each issue, I discuss the possible sources of international diversity, the economic problem underlying such diversity, and then the prospects for international cooperation and its institutional form, based on modern regime theory. An agenda for further research concludes.

Methodology and Assumptions

This Article offers a unique integration of insights coming from three different sources: corporate law and securities regulation theories, standard game theory modeling, and international relations and regime theory analysis. It implements in a novel way some well-known game models to the field of international securities regulation. Game theoretic models of varying complexity are commonplace in analyses of international economic problems. Yet, international securities regulation has so far been dealt with either under traditional conventions of international law¹¹ or by Law and Economics scholars who generally have turned to modern finance theory.¹² There is virtually no scholarship attempting to pass the issues discussed here through the prism of game theory. This work does so while having regard to the corporate governance and capital market aspects of securities regulation problems.

¹¹ Note, *Predictability and Comity: Toward Common Principles of Extraterritorial Jurisdiction*, 98 Harv L Rev 1310 (1985).

¹² Cox (cited in note 4); Fox (cited in note 4); Langevoort (cited in note 4).

As this Article focuses on cooperation among national securities regulators it draws on a particular strand of the game theoretic literature as it had developed in international relations theory and regime theory. These analyses are rarely (if at all) looked at by Law and Economics scholars who often deal with interactions between individuals or firms. While there are clear similarities between such interactions and interactions between sovereign actors, the latter have their peculiarities which have been studied by international relations scholars. Some of the assumptions underlying the analysis here thus require some discussion.

The Article concentrates in games which in the normal (strategic) form are represented by a 2x2 matrix. These games differ only in the players' payoff structure. They are perhaps the purest representations of conflictual situations which makes them a natural choice here. Notwithstanding their relative simplicity,¹³ there exists a considerable variety of such games¹⁴ in which payoff structures reflect the players' preferences. In the present context, payoff structures reflect national regulatory policies. Focusing on the payoff structure that securities regulators face in the international arena will illuminate the implications of various regulatory policies. The models' simplicity enables us to capture

¹³ Robert Jervis, *Realism, Game Theory, and Cooperation*, 40 *World Pol* 317 (1988), at 317 (citing Barry O'Neil).

¹⁴ The exact number of unique 2 x 2 games is seventy eight. Anatol Rapoport and Melvin J Guyer, *A Taxonomy of 2 x 2 games*, 11 *General Systems* 203 (1966). Yet, Snyder and Diesing studied the structure of crisis dynamics and found that nine games can represent all the historical events they have studied. Glenn H. Snyder and Paul Diesing, *Conflict Among Nations: Bargaining, Decision Making and System Structure in International Crises* (1977); Stein, *Why Nations Cooperate: Circumstances and Choice in International Relations*, at 76 *et seq* (Cornell University Press 1990).

the conflictual setting with clarity, while preserving their explanatory power. These models later can serve as a basis for extensions and further sophistication.¹⁵

The analysis takes the following direction. The first step is to look for a plausible “story” characterizing states’ typical policies. For this purpose, I trace the sources of international diversity in securities regulation policies on various issues. Then, for each story of a possible national policy, I derive the corresponding payoff structure. Finally, I show how certain policies interact with similar or different ones in a 2x2 game. In light of the results suggested by the specific game, I discuss the prospects for international cooperation and optimal mechanisms for obtaining sustainable cooperation. I also bring anecdotal evidence from existing regimes and institutions.

The Players

The common assumption in many models of international relations is that the players are sovereign states who are rational, self-interested, and act strategically.¹⁶ In the securities regulation context this assumption calls for some elaboration. First, regulatory power is usually vested in administrative agencies, which may be seen as agents for the state. Whether deliberately or not, many countries now follow the US structure of an independent commission entrusted with overseeing the securities markets. In other countries this task is undertaken by the Ministry of Finance. The title of this Article

¹⁵ Duncan Snidal, *The Game Theory of International Politics*, in Kenneth A. Oye, ed., *Cooperation Under Anarchy* 25, 28 (Princeton University Press 1986), at 37. See Kenneth A. Oye, *Explaining Cooperation Under Anarchy: Hypotheses and Strategies*, in Kenneth A. Oye, ed, *Cooperation Under Anarchy* 1, 18 *et seq.* (cited in note 15); Lisa Martin, *Interests, Power, and Multilateralism*, 46 *Intl Org* 785, 768 (1992).

reflects this very phenomenon: commissions, rather than states, play the game. This is a facet of a general trend in liberal democracies in which the “State” is disaggregated into its component political institutions who become responsible for international legal relations -- what some see as “disaggregated sovereignty”.¹⁷

Second, the interests of such agencies are not necessarily aligned with those of the state itself or its citizenry. For example, scholars argue that the SEC had initially acted to make insider trading illegal and subsequently pursued violators in order to enhance its public stature and power or to serve the interests of intermediaries.¹⁸ In the same public choice spirit, some maintain that governments may have interests of their own that are potentially inimical to those of the general population. Consequently, a degree of intergovernmental competition, rather than cooperation, may better serve the interest of social welfare.¹⁹

Third, even when regulatory authority is held by independent commissions the players nonetheless cannot be regarded as unitary actors. In democratic regimes of checks and balances, control over policy making is divided among several branches. In such cases,

¹⁶ Snidal, *The Game Theory*, at 27, 37 (cited in note 15).

¹⁷ See Anne-Marie Slaughter, *International Law in a World of Liberal States*, 6 Eur J Intl L 503 (1995).

¹⁸ Enrico Colombatto and Jonathan R. Macey, *A Public Choice Model of International Economic Cooperation and the Decline of the Nation State*, 18 Cardozo L Rev 925 (1996); David D. Haddock and Jonathan R. Macey, *Regulation on Demand: A Private Interest Model with an Application to Insider Trading Regulation*, 30 J L & Econ 311 (1987); Jonathan R. Macey, *Insider Trading: Economics, Politics and Policy* (1991).

¹⁹ Ralph C. Bryant and Edith Hodgkinson, *Problems of International Cooperation*, in Richard N. Cooper et al., *Can Nations Agree? Issues in International Economic Cooperation* 1 (1989) p. 7; Kenneth Rogoff, *Can International Monetary Policy Be Counterproductive?* 18 J Intl Econ 199 (1985).

domestic controversies rather than a single national policy maker determine much of the state's behavior. A telling example are controversies within the American Legislature itself -- specifically, between the House Committee on Government Operations and the Senate Securities Subcommittee of the Senate Committee on Banking, Housing, and Urban Affairs -- whether the SEC should increase its unilateral extraterritorial enforcement efforts or rather seek further multinational cooperation.²⁰ In such cases, however, the securities commission may be regarded as a "focal actor".²¹

Forth, matters are further complicated by the fact that oftentimes stock exchanges are self regulated organizations. As such, they enjoy partially independent rule making authority, which may overlap with that of the supervising commission, and in general hold considerable power. Insofar that they do not violate national statutes and their commission's rules, they may impose different rules for listing and trading within one country.²²

Notwithstanding these problems, I will assume that commissions play the game as faithful agents for the state, i.e., that actual operation of the securities laws is undertaken by a professional administrative agency. Such phenomena, however, may impede attempts

²⁰ Peter E. Millspaugh and Bradley D. Belt, *Policing Foreign Trader Abuses in U.S. Markets: Enforcement Strategy Perspectives*, 19 Securities Reg L J 366 (1992). Cf. Robert D. Putnam and C. Randall Henning, *The Bonn Summit of 1978: A Case Study in Coordination*, in Richard N. Cooper et al., *Can Nations Agree? Issues in International Economic Cooperation* 12 (1989).

²¹ Andrew Kydd and Duncan Snidal, *Progress in Game-Theoretical Analysis of International Regimes*, in Volker Rittberger, ed., *Regime Theory and International Relations* 112, 128-30 (Oxford: Clarendon Press 1993).

²² See Paul G. Mahoney, *The Exchange as Regulator*, 83 Va L Rev __ (1997) (forthcoming); Marcel Kahan, *Some Problems with Stock Exchange-Based Securities Regulation: A Comment on*

to derive a state's payoff structure from reliable sources. From the other player-regulator's viewpoint they may create uncertainty with regard to the game actually being played, as it cannot ascertain "who is in charge" and "what are they up to".

Maximands

I will assume, as is commonly done, that states seek to maximize national social welfare (their maximand) thus excluding any altruistic motive to maximize aggregate international welfare per se. In the context of international securities markets, states may seek various goals: (1) to increase foreign investments in domestic firms' equity; (2) to increase local trading volume as a source for commissions and derivative businesses; (3) to increase liquidity and depth in order to stabilize the national economy and to draw further investments; (4) to enable its residents to take advantage of international diversification of their portfolios.

In addition to absolute welfare gains, states often see relative gains, or rank, as a maximand. The international securities market was not saved from this fate. Since the late 1980s, American policy makers, the business community, and scholars have become more concerned with the global competitiveness of American securities markets. The SEC in particular, when it announced its pro-cooperation policy, was careful to emphasize that the US would strive to preserve its leadership position.²³ Similar considerations have

Mahoney, The Exchange as Regulator (forthcoming).

²³ SEC, at 89,579 (cited in note 5).

constantly hampered the efforts of EU Member States from agreeing on Directives pertaining to the securities market.²⁴

Ordinal Payoff Structure

The game models used here are further stylized by employing ordinal preference orders to denote payoff structures. Admittedly, cardinal payoff structures would have conveyed more information about states' preferences by expressing the intensity of interest they have in each outcome. Alternatively, they could be interpreted as reflecting differences in the players' size. A large state finding itself in an unsatisfactory equilibrium outcome could thus use threats or side-payments to change its rival's payoff structure and with it change the equilibrium outcome. Ordinal payoff structures are insensitive to such aspects.

Notwithstanding these drawbacks, ordinal payoffs are superior in the present context. Ordinal utility functions symbolize states' revealed preferences. They represent actual behavior -- a reflection of choice. Cardinal utility functions, on the other hand, are imposed on the actual behavior through the modeler's subjective judgment. In most cases cardinal payoff structures would necessitate arbitrary assumptions, which may render the entire analysis more questionable. Particularly in the regulatory realm, policy making is often done according to prior beliefs but without clear "prices" or other numerical values.

²⁴ Benn Steil, ed., *The European Equity Markets* (The Royal Institution for International Affairs, 1996).

Thus, determining cardinal payoff structures is a much more dubious task when nations are involved rather than profit-maximizing firms or even individuals.

Standard Assumptions

The rest of the assumptions are standard, namely, that there are only two players who have only two dichotomous strategies and play a one-period game. While each of these assumptions is a crude simplification of the world of international securities regulation, they are necessary for presenting the basic conflictual situation in the clearest way. The concluding part of this Article briefly discusses the benefits of relaxing these assumptions.

Disclosure Regulation

Sources of International Diversity

For a conflict to arise there must exist some non-mutuality in the players' interests. With regard to disclosure regulation the question is Why do certain differences in disclosure requirements exist in various countries' securities laws? Why don't we observe universal consensus on more disclosure or universal agreement on the information that needs to be disclosed?

International diversity in disclosure regimes stems from the complex nature of the information that is usually required to be disclosed. Disclosure rules may diverse with regard to a host of parameters: the required issue items; specificity of information, e.g., line of business reporting versus company level results; treatment of soft (future facing)

information; different treatments of initial public offerings and on-going disclosure; and the timing of disclosure. Strictness or laxness are equally determined by the accompanying public and private enforcement mechanisms. Public enforcement is affected by the powers, budget, and staff conferred to regulatory authorities. Private enforcement is affected by the powers that potential plaintiffs enjoy when they wish to enforce their right for information. These include legal formulas for liability, the potential liable parties, measures of damages, etc. Some of the relevant provisions are found in the legal sources pertaining to securities; but others are frequently determined by general rules of procedure and the laws of obligations in each country.

Further diversity stems from differing interests of market participants. First, consider investors. Indexing investors and those having no control position in the companies they invest in would usually prefer more disclosure by the company. Investors may be closer to a control or inside position, e.g., by crossing a holding threshold of a 5% or 10% or by initiating a tender offer. We would generally expect such investors to prefer less stringent disclosure duties since they oftentimes have direct information sources in the company, and as to themselves they often prefer as minimal disclosure as possible. As the shareholder base of many companies is becoming more internationalized, several legal systems may have an interest in regulating their disclosure.

Consider now the issuers. On the one hand, issuers prefer to withhold information to the extent its disclosure may adversely affect their business situation. This could happen when competitors can extract sensitive information from the reports. On the other hand,

companies tend to disclose information in order to attract investors. These aspects are discussed further below. The point here is that different regulatory systems could readily strike different balances between these considerations.

The third element are the markets (stock exchanges) which have rule making powers. In order to attract issuers and investors to list and trade, they can require disclosure beyond what is prescribed by the securities commission (requiring less disclosure will not be effective, of course).

Even if disclosure rules could readily diverse the question remains why *should* they do so. Investor protection and market integrity are invoked as the justification for a mandatory corporate disclosure system,²⁵ but this still calls for guidance as to the problems investors face and the optimal level of disclosure. As a general rule, a benevolent regulator should promulgate disclosure duties to counter information asymmetries that cannot be cured by market forces. The literature on this issue is voluminous and not free of debate,²⁶ but in general, market failure is claimed to warrant a mandatory disclosure regime. One convincing argument points out that information is a public good by nature, so an efficient regime should subsidize its production.²⁷ Another market failure occurs because of positive externalities that corporate disclosure confers upon competing firms.²⁸

²⁵ Joel Seligman, *The Historical Need for a Mandatory Corporate Disclosure System*, 9 J Corp L 1 (1983).

²⁶ For an overview, see Roberta Romano, *The Genius of American Corporate Law* ch. 6 (1993).

²⁷ John C. Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 Va L Rev 717 (1984).

²⁸ Frank H. Easterbrook and Daniel R. Fischel, *The Economic Structure of Corporate Law* ch. 11

Finally, the agency problem inherent to the relationship between shareholders and company insiders²⁹ also warrants mandatory disclosure by the latter, some argue.³⁰

Empirical evidence suggests that financial disclosure levels in various countries play an important role in the decision to make an international listing.³¹ From a regulatory perspective, these considerations are translated into terms of regulatory burden on issuers and traders. A securities regulator maximizing national welfare can strike a balance suitable for the domestic conditions, having regard to the prevailing domestic corporate governance structures. But as markets internationalize external constraints are set by competing markets. Too high a burden will eventually lead to regulatory arbitrage and migration of businesses to other jurisdictions.³²

Note, that by requiring disclosure the regulator in effect supplies a public good -- this time in the form of disclosure *rules*. Consider a dual listed company, whose shares trade in two markets with different disclosure standards. Clearly, once the company satisfied the disclosure requirement set by the more stringent market the rules prescribed by the laxer one are also satisfied. The outcome demonstrates the classic features of a public good: consumption of the rules' benefits (the disclosed information) is non-

(1991).

²⁹ Michael C. Jensen and William H. Meckling, *Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J Fin Econ 305 (1976).

³⁰ Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U Chic L Rev 1047 (1995).

³¹ Gary Biddle & Shahrokh M. Saudaran, *The Effects of International Disclosure Levels on Firms' Choices among Alternative Foreign Stock Exchange Listings*, 1 J Intl Fin Manag & Acc 55 (1989).

excludable and there is no rivalry in consumption so free riding by the laxer market is expected. Consequently, disclosure may end up being under-induced and information -- under-supplied.

Moreover, even when a company is listed on a single market, a negative externality may occur with regard to foreign shareholders. A national-welfare-maximizing regulator might under-induce disclosure as long as the benefits accruing to the economy from foreign investment and financial business exceed the potential harms of under-disclosure to its constituency.

The Correlated Games and International Cooperation

Prisoners' Dilemma Games

Either as an externality or as a public good situation, the corresponding 2x2 game is the Prisoners' Dilemma. Consider first a company choosing one out of two markets for listing its stock. Recall that by inducing suboptimal disclosure level -- through lax rules or weak enforcement -- a state can externalize adverse effects to its rival. The payoff structure for both states is that of the Prisoners' Dilemma: each player most prefers to defect, i.e., to under-induce disclosure, when the other state cooperates, i.e., induces an optimal (higher) disclosure level (denoted DC).³³ The second-best outcome is one of mutual cooperation (CC). The third-best is mutual defection (DD). The least preferred

³² Grundfest (cited in note 10).

³³ Hereinafter I will use the double capital letter notation to denote the players' payoff structure. C denotes cooperation, and D denotes defection. The first letter in each pair denotes the player's own strategy, and the second - the rival player's strategy. The Prisoners' Dilemma's payoff structure is thus denoted by $DC > CC > DD > CD$, which is equivalent to the other common notation: t (temptation to

outcome materializes when one state cooperates while the other defects (CD). The players' preference order is thus $DC > CC > DD > CD$, and Figure 1 shows the strategic form of the game.

[Figure 1. Prisoners' Dilemma]

The same outcome obtains for a multiple listing situation, where a stringent disclosure regime is a public good. The regulators' preference orders reflect a payoff structure compatible with a Prisoners' Dilemma as shown in Figure 1. Each regulator would rather free-ride her colleague's disclosure regime rather than induce it herself. This should come as little surprise. Students of international relations have identified numerous international problems -- from national security to international trade -- as situations involving a public good, and have treated the supply of public goods as a Prisoners' Dilemma.³⁴ Disclosure duties are thus no exception.

Put succinctly, the prospects for cooperation in a Prisoners' Dilemma situation are theoretically nil. Both players have a dominant strategy to defect; that is, irrespective to what its rival does, each player prefers to defect, either in order to exploit its rival's cooperation or to protect itself from being exploited. The outcome is a Nash equilibrium

defect) > c (cooperation) > p (punishment for mutual defection) > s (sucker, i.e., unilateral cooperation).

³⁴ Robert Jervis, *Cooperation Under the Security Dilemma*, 30 *World Politics* 167 (1978); Charles P. Kindleberger, *Dominance and Leadership in the International Economy: Exploitation, Public Goods, and Free Rides*, 25 *Intl Stud Q* 242 (1981). But see John A.C. Conybeare, *Public Goods, Prisoners' Dilemma, and the International Political Economy*, 28 *Intl Stud Q* 5 (1984).

in DD: once there, neither player has an incentive to change its strategy. This is clearly unsatisfactory since CC is Pareto superior to DD but cannot sustain an equilibrium.

Under the assumption employed heretofore, this point would mark the end of the discussion. Any effort to induce cooperation requires means that are external to the simple 2x2 game. The basic form of cooperation -- a bilateral agreement between the players is excluded by the 2x2 game model. The players cannot make credible commitments to cooperate because the game has only one period so no retaliation can take place. Multilateral agreements (also beyond the 2x2 game model) might even exacerbate the problem due to monitoring and verification difficulties, leading to free riding.³⁵ An important mechanism for facilitating cooperation is, however, international institutions. These may be tailored to fit the specific problem the parties face. A problem with a Prisoners' Dilemma payoff structure would require a strong, centralist organization, upon which the member states confer significant powers of rule prescription and dispute resolution, and to which they provide sufficient resources for monitoring and enforcement.³⁶

In addition to exercising their central authority to enforce cooperation, international institutions can help member states change the Prisoners'-Dilemma-payoff-structure altogether through issue linkage. Suppose that state A has an interest that state B

³⁵ Conybeare, "Public Goods"; James D. Morrow, *Modeling the Forms of International Cooperation: Distribution Versus Information*, 48 Intl Org 387 (1994); Miles Kahler, *Multilateralism with Small and Large Numbers*, 46 Intl Org 681 (1992). But see Robert Pahre, *Multilateral Cooperation in an Iterated Prisoner's Dilemma*, 38 J Conf Res 326 (1994).

³⁶ Martin, at 770-71 (cited in note 15).

raise its disclosure requirements, while state B would like state A to change its broker-dealer regulation policy or, for the sake of the argument, its banking regulation policy. An international organization in which both states are members and to which these issues are relevant can facilitate cooperation since linking the issues during the negotiations allows both states to see the aggregate payoff favorably.

In the field of international trade, the need for a strong, central international organization to overcome a Prisoners'-Dilemma-like conflict is empirically supported by the EU and the World Trade Organization (WTO). In the securities regulation context, presenting the problem as a Prisoners' Dilemma game also helps to explain the stark differences in the achievements of the two major institutions, namely, the EU and IOSCO.

The EU boasts a impressive array of Directives covering most aspects of securities regulation, including disclosure.³⁷ Starting in 1979, the then EC Commission promulgated a series of Directives intended to simplify and set minimum standards to the relationship of public companies and stockholders. The first three Directives, adopted in June 1983, harmonized certain requirements concerning admission to stock exchange listing, listing particulars, and half yearly reporting. Pursuant to the Single European Market program, later Directives were based on the principle of mutual recognition. An important 1989 Directive on public offer prospectus and a number of amendments to the early Directives have implemented that principle in the disclosure area.

³⁷ Other thorny issues covered by EU Directives, such as stock exchange regulation and capital adequacy, also resemble a Prisoners' Dilemma problem.

It is true that by American standards, some of the Directives' requirements are rudimentary. Such is the case of half yearly reporting since in the US reporting is done on a quarterly basis and is far more detailed. On the other hand, no other group of states has come anywhere close to the overall achievements of the EU in creating an quasi-uniform disclosure regime.³⁸ IOSCO, indeed, has made considerable efforts to establish such a system, but with little success so far. Its major achievement is a 1995 announcement with the International Accounting Standards Committee (ISAC) that by the turn of the century, they intend to establish a set of international accounting standards and disclosure for international securities offerings and other foreign listings.³⁹ Meanwhile, the SEC refuses to allow foreign issuers to use international standards in making public offerings in the US. IOSCO clearly lacks the authority and capabilities employed by the EU for implementing the European arrangement. There should be little surprise, that if any agreement was reached by 1999, it would be even more rudimentary and watered down than the European system.

This brings us back to the Prisoners' Dilemma. States are usually very reluctant to cede parts of their sovereignty. Establishing an international organization in order to overcome the Prisoners' Dilemma problem in itself requires overcoming such a problem, so countries are not quick to do that. Establishing a truly strong central institution thus requires time. Both the EU and the WTO are examples of this phenomenon: the EU

³⁸ But see the discussion of MJDS below.

³⁹ "ISAC, IOSCO Seek International Accounting Standards by 1999", International Securities Regulation Review, August 3, 1995.

gained power gradually over a long period; and the WTO was established almost forty years after the GATT signatories failed to establish the International Trade Organization.

More importantly, in the case of the EU, the major (and most hard to reach) achievements were part of a broader program for creating a single European market. This program in itself is a sub-part of a wider process transforming Europe from a group of nation states into a union with confederate qualities, the ultimate end of which is to ensure peaceful coexistence of nation states in Western Europe.⁴⁰ Nothing of this is shared by IOSCO. These differences explain why, despite its efforts, IOSCO has been “primarily a talk shop for regulators”,⁴¹ representing very divergent countries. If IOSCO is to succeed in overcoming a Prisoners' Dilemma-type conflict it will probably be according to a GATT-like scenario of gradual progress over time, possibly in several rounds.

Relative Gains Games

Occasionally, states are concerned with their rank as much as with their absolute payoffs. Such is the case with respect to the United States' position in the global securities market with which many Americans are increasingly preoccupied. Consequently, a game like Prisoners' Dilemma which originally had a Pareto superior cooperative outcome becomes a zero-sum game. In the extreme, the 2x2 game model transforms as shown in Figure 2.⁴² Since one state is by definition better off when its rival is worse off, the CC

⁴⁰ William Wallace, *Regional Integration: The West European Experience* (Brookings Institution, 1994).

⁴¹ Joan E. Spero, *Guiding Global Finance*, *Foreign Policy* 73, 114 (1988-89), p. 124.

⁴² Stein, *Why Nations Cooperate*, at 127 (cited in note 14).

outcome is Pareto superior for one state while it is inferior for the other, and vice versa for DD. The Nash equilibrium that emerges in DD is worse than the DD one in the original Prisoners' Dilemma. While the latter might cause the players to look for a payoff-increasing cooperative arrangement, the former suppresses any common interest in achieving a mutually more desirable outcome as such outcome does not exist.

[Figure 2. Competitive Transformation of Prisoners' Dilemma]

Whether such games leave room for cooperation is not fully resolved.⁴³ Real life situations are not characterized by pure forms of competitive games of this sort so the severity of the model's outcome is not frequently encountered. But, once a state does adopt a competitive attitude it should bear in mind the more conflictual nature its international relations will acquire and the lesser cooperation it will be able to achieve. Nevertheless, relativistic vantage points and rank seeking are oftentimes deeply embedded in nations' tradition and culture or they may stem from market power seeking. It follows that to the extent that the United States keeps putting an emphasis on a leadership role in the securities market it may impede reaching cooperation in Prisoners' Dilemma-like issues.

Asymmetric States -- Hegemonic Stability Games

⁴³ See Duncan Snidal, *Relative Gains and the Pattern of International Cooperation*, 85 Am Pol Sc Rev 701 (1991); Joseph M. Grieco, *The Relative-Gains Problem for International Cooperation: Comment*, 87 Am Pol Sc Rev 729 (1993), and the following comments by Robert Powell and Duncan Snidal.

Consider a case with a large asymmetry between the two player-states. One player, Row, is a world economic power with a deep and liquid market and a reputation of having a stringent securities regulation system. The other player, Column, has a small economy with a relatively illiquid market and no tradition of securities regulation. Large offerings by companies from Column that cannot be accomplished entirely in its market are also carried out in Row's larger market. While Row prefers Column to establish a disclosure regime at least as demanding as its own it will maintain its stringent regime even in the face of Column's defection, that is, if Column fails to do so. Row's preference order is $CC > CD > DC > DD$. Column's preferences are different: while it sees the potential value of disclosure, it is less enthusiastic to establish a stringent regime immediately. Instead, it prefers to rely on Row's regime and impose laxer requirements at home. Its preference order is thus $DC > CC > CD > DD$, and the corresponding game is shown in Figure 3.

[Figure 3. Hegemonic Stability]

In the international relations terminology the game involves a regime of hegemonic stability.⁴⁴ Both players have a dominant strategy and the equilibrium outcome is CD. The hegemon (Row) is dissatisfied with this outcome in which Column free rides its legal regime but still prefers it over playing D, i.e., lowering its disclosure standards.

The MJDS case demonstrates the SEC's hegemonic behavior. The system purports to implement mutual recognition of financial reporting in the US and three Canadian

⁴⁴ See Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (1984).

provinces. Canada is the larger supplier of foreign listings to the US, has close economic relations with it, and in general shares the same business tradition. Nevertheless, negotiations on MJDS were protracted and the United Kingdom that originally participated in the project eventually dropped off. The final outcome is far from implementing mutual recognition. Due to the SEC's insistence, Canadian companies reporting under the MJDS have to reconcile their statements to meet a series of American reporting requirements. In the MJDS case the SEC thus behaved as a hegemon by using its power position as the regulator of the coveted US market. Such behavior is not always feasible for political or other reasons which would force a state to resort to alternatives avenues.

A perception that the game being played involves hegemony would probably entail a sense of a relative gains game as well. Thus, if a state's regulators perceive their country as a de facto hegemon they might adopt the corollary perception and strive to preserve it. The United States again provides a good example.⁴⁵ As already mentioned, one can find intermingled expressions of both perceptions in the context of US international securities regulation policy. The common theme is, broadly, that the US has the largest, most efficient, and most demanding market in the world, and *therefore* it has to find a way to

⁴⁵ See Edward G. Greene, David A. Braverman, and Sebastian R. Sperber, *Hegemony or Deference: U.S. Disclosure Requirements in the International Capital Markets*, 50 Bus Law 413 (1995). Query, however, whether a genuine hegemon exists in the global securities market.

preserve its position while leading the way in standard setting and ensuring a “level playing field” for its issuers.⁴⁶

Hegemony and cooperation may come hand in hand when the hegemon opts to change its rivals’ payoff structure through issue linkage or side payments (or threats). Such non-public-good transactions help both sides to ensure the provision of the public good.⁴⁷ Institutions like IOSCO may facilitate cooperation by offering opportunities for issue linkage and by helping the smaller player to save face domestically. It may be considered more respectful, one could argue, to yield to IOSCO than to the SEC. Although the SEC has not yet used IOSCO strategically in this manner in the field of disclosure, such strategic behavior may have happened in other fields, as discussed below.

A Note on Accounting Standards

“Disclosure rules” and “accounting standards” are often used interchangeably, perhaps because in determining the actual content of disclosure regulators usually defer to standards set by professional accounting bodies. The SEC indeed has the authority to supervise accounting standards setting for disclosure by public companies but prefers to have them set by a professional body. In any event, it should be noted that accounting standards play a double role in financial reporting. One role is to determine *what* should be reported. For example, hidden reserves, which enable managements to shift profits from

⁴⁶See SEC, *Policy Statement* (cited in note 5). Doty (cited in note 6) also rings loudly with this mix of hegemony and relative position concerns. Cf. Arthur S. Stein, *The Hegemon’s Dilemma: Great Britain, the United States, and the International Economic Order*, 38 Intl Org 355 (1984).

⁴⁷ Keohane, at 51, 91-92 (cited in note 44).

good years to bad ones are allowed by German generally accepted accounting principles (GAAP) but are strictly forbidden by US GAAP. The second role is to determine *how* to disclose, or present, such information. Methods of reporting inventory, sums denominated in foreign currency, and adjustment for inflationary effects are but a few examples.

The presentation role of accounting standards may be as important as their substantive one. Consistency in presentation, namely, a rule which requires companies to utilize the same accounting method consistently over time, would prevent managements from shifting between alternative methods to the one most favorable to them. In this, they are equivalent to substantive rules and may invoke the same Prisoners' Dilemma problem. In addition, presentation rules are essential for comparability, namely, for allowing investors to compare alternative securities. Finally, uniform presentation standards, like other standards, create positive network externalities by creating a common business language. Thus, they lower transaction costs and the unsubstantiated variance (noise) in securities prices.⁴⁸

Pure presentation rules are divorced from substantive purposes by definition. Yet countries may still have an interest in them. Once a country's accounting profession adopts certain presentation conventions, human and other forms of capital start to accumulate in acquired skills, education systems, etc. Conflicts among states about standards are expected and are commonly modeled by the Battle of the Sexes game (or

⁴⁸ See, generally, Anne Rich, *Understanding Global Standards*, 76(10) *Mgmt Acctg (USA)* 51 (1995); Joel Seligman, *The Transformation of Wall Street*, (Revised ed., Northern University Press 1995).

“coordination games”).⁴⁹ In this game, each player tries to ensure that both players use the same strategy -- CC or DD -- and that they play his or her preferred strategy, over which they differ.⁵⁰ A possible preference order for a coordination game is $CC > DD > DC > CD$ for Row and $DD > CC > CD > DC$ for Column, as shown in Figure 4. The game has two Nash equilibria, in CC and DD, but neither player has a dominant strategy. Specifically, once the accounting industries in two countries agree on certain presentation standards, they have good reasons to adhere to them and no reason to change them unilaterally. Therefore, there is no compelling need for a strong enforcement mechanism, because once an agreement is reached, it is self-enforcing.

[Figure 4. Battle of the Sexes]

However, the problem of reaching *any* agreement remains. In the game form presented in Figure 4, there is no way to know in advance which of the two possible equilibria would obtain because of the ordinal payoff structures. A specific outcome may be induced by making one of the two equilibrium a focal point, for instance, by converging to the largest state’s accounting standards. In certain countries, however, taking such course of action might be interpreted by interested parties as succumbing to foreign dictates. Nations who take pride in their tradition would thus be discouraged from

⁴⁹ Stephen D. Krasner, *Global Communication and National Power: Life on the Pareto Frontier*, 43 *World Pol* 336 (1991) (discussing the evolution of telecommunication standards as a coordination game).

⁵⁰ In fact, both CC and DD are equally cooperative, so D should not be read as “defection”.

replacing their accounting standards with another state's ones, unless they are clearly superior (which would not be the case, generally).

An alternative way to reach an agreement in a coordination problems is to turn to international organizations -- say, ISAC or IOSCO -- that will serve for face saving as well as for dissemination of information among the member states. Once such an institution is in place, it is useful in facilitating changes in a multilateral form by reducing transactions costs.⁵¹ Respectively, we would expect international institutions to be relatively weak, lacking rule-making authority and dispute resolution fora. IOSCO, indeed, confirms this expectation, as it mainly operates as a discussion facilitating forum and has no enforcement powers. The modest goals of its recent agreement with ISAC on future accounting standards attest to this weakness.⁵² The SEC's objection to the standards at their present form demonstrates the flip side -- that when substantive accounting standards are at issue, cooperation is much harder to achieve.

Antifraud Regulation

Transnational securities fraud happens when significant elements of a fraudulent conduct are located in different countries. The transnational quality may relate to different kinds of elements, e.g., when shareholders are located in one country and the misrepresentation is carried out in another; or it may relate to the same element, e.g.,

⁵¹ See John G. Ruggie, *Multilateralism: The Anatomy of an Institution*, 46 *Intl Org* 561, 576-78 (1992) (describing international telecommunication institutions in nineteenth century Europe).

when defrauded shareholders are dispersed in several countries, or securities are traded in several markets. The commonly discussed problem is when should one country *unilaterally* assert its jurisdiction extraterritorially. This Article does not deal with this issue, although it shares the observation that not all countries pursue wrongdoers with the same vigor. The question asked here When would two countries *cooperate* in pursuing wrongdoers?

Sources of International Diversity

International cooperation is defined as conscious policy coordination among states.⁵³ When antifraud regulation is at issue policy coordination is presumably easy because by impression, fraud is in consensus as undesirable -- most modern societies condemn fraud. While some cultures may tolerate lying more than others I believe we would find less variance when the additional legal elements that constitute fraud (reliance, damage, and causal connection) are present. Given this, what could be the possible sources of international diversity with regard to antifraud regulation?

Differences among countries may emerge as we depart from the “core” common-law-like fraud. First, diversity can stem from benign differences in legal concepts pertaining to securities fraud, e.g., the definition of “prospectus”. Different legal systems may have various methods of defining a prospectus while referring to the same generic document. Although most lawyers would opine that a prospectus is a major offer

⁵² ISAC is an alternative institution, which I shall not discuss here.

⁵³ Oye, at 5 (cited in note 15).

document in a public offering, a striking demonstration of a different interpretation was provided by US law. Due to the statutory structure of the Securities Act of 1933 and subsequent case law it was possible to argue that “prospectus” includes documents in a purely private securities transaction. After a long period of uncertainty,⁵⁴ a Supreme Court decision was required, not without a strong dissent, to clarify that this is not the case.⁵⁵ Another example is liability formulas, i.e., the legal elements which require proof in order to establish liability. These include the mental status, the definition of “fraudulent” or “misleading”, etc. Clearly, the implications for regulators on what is subject to monitoring, enforcement, etc., are vast.

Second, different market structures may entail differences in the regulatory attitude toward fraud. Modern securities markets pose a challenge to the classical fraud formula because transactions are effected in a faceless market, without knowing the other party. Thus, reliance on the alleged misrepresentation is absent in practically all cases. The US solved the problem with the “fraud on the market” doctrine which allows the plaintiff to satisfy the reliance requirement in a fraud suit by showing that he bought or sold his shares in a semi-strong efficient market.⁵⁶ Such showing is relatively easy in the US with respect to widely dispersed securities that are closely followed by financial analysts. In many other countries such showing is virtually impossible as these conditions are absent.

⁵⁴ *Welcome to the Post-Gustafson Era*, Euromoney, July 1995, at 113.

⁵⁵ *Gustafson v. Alloyd, Inc.* 115 S Ct 1061 (1995).

⁵⁶ *Basic, Inc. v. Levinson*, 485 U.S. 224 (1988). See Jonathan R. Macey and Geoffrey P. Miller, *Good Finance, Bad Economics: An Analysis of the Fraud on the Market Theory*, 42 Stan L Rev 1059 (1990).

Consequently, public representations that would substantiate liability in the US might not suffice and alternative solutions must be sought.

Third, differences in regulatory competence also entail *de facto* gaps in antifraud regulation. Different levels of economic and human resources would lead to different monitoring and enforcement capabilities. Consequently, fraud may be more prevalent in one country than in another notwithstanding similar legal attitudes.

The argument that states would normally gain little from tolerating securities fraud indeed revolves around the assumption that fraud is accepted as a *mala per se* and is thus less likely to serve as a subsidy mechanism. In economic terms, the convention that “fraud is bad” means that for most societies allowing transnational fraud will internalize the effects of lenient regulation. Cooperation in fraud prevention would enhance the gains for both states and improve their position. Put differently, there are no inter-state externalities (from not punishing transnational swindlers) that would motivate one state to tolerate fraud toward its sister states. Consequently, we should not expect competition or a “race to the bottom” in international antifraud regulation to develop.

One could argue that states attribute different levels of severity to domestic, or inbound, fraud (fraud among or against their citizens) and to outbound fraud that has no direct effect on local markets. Thus, a state could enrich itself by allowing its citizens to defraud the rest of the world. The argument is not so far fetched. In the US, some federal courts condemn the idea of leniency toward outbound securities fraud (for purposes of

extraterritorial jurisdiction).⁵⁷ Other federal courts, however, find this proposition too expansive, and prefer more restraint in such cases.⁵⁸ Although comity and reasonable expectation of foreign states are invoked, such rulings in effect consider outbound fraudulent conduct more lightly than inbound one.⁵⁹

The Correlated Games and International Cooperation

A Harmony Game

The case of international antifraud regulation demonstrates that in certain cases states' independent interests do not necessarily clash but may rather converge. Respectively, the correlated 2x2 game is Harmony, i.e., one in which "actors' policies (pursued in their own self-interest without regard for others) *automatically* facilitate the attainment of others' goals".⁶⁰ Such a policy can be summarized in the preference order $CC > CD > DC > DD$, and Figure 5 presents the game in the strategic form. The payoff structure reflects a policy of "the more - the better" -- an interest in having as much

⁵⁷ "We do not think Congress intended to allow the United States to be used as a base for manufacturing fraudulent securities devices for export, even when these are peddled only to foreigners."

IIT v. Vencamp, 519 F.2d 1001, 1017 (2d Cir. 1975); *SEC v. Kasser*, 548 F.2d 109 (3d Cir.), *cert. denied*, 431 U.S. 938 (1977).

⁵⁸ For an overview of cases *see* James D. Cox, Robert W. Hillman, and Donald C Langevoort, *Securities Regulation: Cases and Materials*, (4th ed., Little Brown 1991) pp. 1356-63.

⁵⁹ The argument is further corroborated by the case of transnational bribery. The Foreign Corrupt Practices Act (FCPA), which is part of the Securities and Exchange Act of 1934, prohibits certain public companies from bribing foreign officials or political parties in order to obtain or retain business. Two decades after enacting FCPA, the United States remains the sole country that proscribes outward-facing transnational bribery. Other countries were reluctant to follow suit, while strictly prohibiting domestic bribery. Attempts to achieve a multilateral agreement to ban that conduct, including by the United Nations and the OECD, have all failed. *See* Stephen Muffler, *Proposing a Treaty on the Prevention of International Corrupt Payments: Cloning the Foreign Corrupt Practices Act Is Not the Answer*, 1 ILSA J Intl & Comp L 3 (1995).

⁶⁰ Keohane, at 51 (cited in note 44); Oye, at 7 (cited in note 15).

antifraud activity as possible. In Harmony, both players have a dominant strategy to play C and the equilibrium outcome CC is also the Pareto efficient one. In its pure form Harmony does not call for any cooperation in the sense of conscious policy coordination as the players independently converge to the desired CC outcome.

[Figure 5. Harmony Game]

The argument that the game being played in antifraud regulation is Harmony receives support from the growing network of MOUs between securities regulators around the world.⁶¹ The SEC has been the leading agency in terms of number of MOUs and the impetus to sign them. MOUs reached by the SEC essentially facilitate the extraterritorial application of US securities laws. By signing an MOU a fellow commission of the SEC indicates that it shares the same values with it and would not consider the assertion of extraterritorial jurisdiction as encroaching on its authority. MOUs were thus described as “arrangements between like-minded regulators”.⁶²

A significant feature of the mutual assistance MOUs is the fact that they are bilateral. Looking at existing MOUs, we hardly find multilateral agreements among them. Moreover, we do not observe an international institution that oversees these agreements or enforces them. This is an indication that there is no demand for a centralized regime of cooperation in antifraud regulation -- that there are few, if any, hurdles to overcome which would warrant the investment in a multilateral arrangement.

⁶¹ An updated list of MOUs can be found in IOSCO’s website: <http://www.iosco.org>.

Further evidence as to nature of the game is provided by the issues typically covered by MOUs. MOUs are non-binding, declaratory statements of intent, exhibiting similar conceptual ideas concerning what constitutes securities violations and what areas should be regulated by securities laws. They call for information exchanges and mutual cooperation in securities violations investigations. Since the parties' interests are harmonious, there is no need for any binding covenants that would derogate from the states' sovereignty. Had the problem been one which requires states to forgo certain options that might have otherwise been in their interest a full fledged international treaty between them would have been necessary.⁶³

Finally, consider the signatories to the MOUs which are the securities commissions rather than the states in themselves. By the same logic, this indicates that a non-binding arrangement is sufficient, i.e., that the parties' interests are generally harmonious.

In the aggregate, the evidence is consistent with modeling international antifraud regulation is a Harmony game. It follows that analyses of international securities regulation that are based solely on a regulatory competition reasoning may be inappropriate in specific contexts. At the same time, one should be careful not to hastily generalize from the proliferation of bilateral MOUs. While encouraging, they do not necessarily mean that agreement on other, more conflictual, issues can readily be achieved.

⁶² Mann, Mari, and Lavdas, *International Agreements*, at 796 (cited in note 6).

⁶³ MOUs are sometimes supplemented by mutual legal assistance treaties. Assistance under such treaties is usually conditioned on "double criminality" of the relevant conduct under both states' laws, i.e., when harmonious interests are ensured.

A Stag Hunt Game

The very existence of the MOUs is still disturbing. If the game being played in antifraud regulation is purely Harmony then the Pareto efficient outcome should obtain spontaneously as the product of each state's egoistic choice. The transaction costs borne by the parties in reaching these agreements thus call for explanation. Moreover, if this were the case, states would not be so sensitive to extraterritorial application of foreign laws to their residents. States would also be less reluctant to assert their jurisdiction extraterritorially.

One possible answer may be that some states play for a positional good as depicted in Figure 2. In such a case, the utility from doing the right thing may be offset by the disutility from losing rank in the international securities market. In fact, the SEC has been applying a policy of lower disclosure standards for foreign issuers exactly under this reasoning. Translating such a policy to the field of antifraud would mean a more tolerant attitude toward fraud in general which is evidently not the case in the US.

An alternative explanation may be that with regard to antifraud regulation states do employ a double standard for inbound and outbound fraud. As mentioned above, some federal courts in effect implement such a standard by restricting the extraterritorial application of American securities laws. By signing an MOU securities regulators can ensure that inbound transnational fraud is curbed by their colleagues to the same degree that they curb outbound fraud.

A third alternative may be that the universal view of fraud assumed heretofore,

namely, that “fraud is bad”, does not always hold in reality. Such would be the case if one state strove to ban a certain conduct which it deems fraudulent while others were still hesitant, not fully convinced that that is the case. “*They* call it ‘fraud’, but it’s really not *that* bad,” a commissioner might contemplate and allocate her limited budget and staff to other purposes. In a situation like this both players will demand assurances that their rival sees eye to eye with them, e.g., by signing an MOU.

The scenarios portrayed in the last two alternatives are better modeled by the game Stag Hunt. In Stag Hunt, each player most prefers mutual cooperation but might defect in order to achieve a somewhat smaller payoff. Her worst case occurs when she keeps cooperating while her rival defects. Consequently, she would rather see both players defect than end up being the sucker (i.e., cooperating while the rival defects). In terms of its payoff structure Stag Hunt is surprisingly close to Harmony.⁶⁴ Both games are symmetric and have mutual cooperation as the most preferred outcome. The preference order in Stag Hunt is $CC > DC > DD > CD$ and the corresponding strategic form is depicted in Figure 6.

[Figure 6. Stag Hunt Game]

⁶⁴ To see this point, consider first a slight transformation of the Harmony game, in which the two middle terms in the preference order are swapped: $CC > DC > CD > DD$ (instead of $CC > CD > DC > DD$). The outcome is still a Harmony game. Both players have a dominant strategy to play C, and a Pareto efficient outcome obtains. Now consider another transformation in which the two right-hand-side terms are swapped. The preference order is now $CC > DC > DD > CD$ (instead of $CC > DC > CD > DD$) which yields the Stag Hunt game.

Stag Hunt has two Nash equilibria: in CC and in DD. On its face, the game should end in mutual cooperation which is Pareto superior to mutual defection and can thus be expected to be the focal point. However, if a country suspected that its rival might defect it would respond with preemptive defection, and the game will end in DD. Such outcome may occur if a player fears that its rival plays with a “trembling hand”, i.e., that it might make an irrational move for reasons beyond its control. In the international context these could be domestic political pressures or changes of government.⁶⁵ Ensuring the optimal outcome would be easier if the players could provide assurances that they will cooperate.⁶⁶

The Stag Hunt scenario is hard to reconcile with the way we portrayed fraud and states’ attitude toward it. After all, why should a state consider as disastrous a situation in which it fights fraud? The answer is that “core”, classic fraud is not the central reason for MOUs but rather other forms of conduct not yet perceived by all nations as equivalently fraudulent. As the following section elaborates, this is the case with insider trading and maybe also of outbound transnational fraud.

Insider Trading Regulation

Before leaving Japan after World War II, the Allied Powers imposed on it a complete set of securities laws. The Japanese Securities Exchange Law of 1948 (“the Law”) was copied verbatim from the American Securities Act of 1933, the Securities

⁶⁵ Martin, at 781 (cited in note 15).

⁶⁶ For that reason the game is also dubbed the “Assurance Game”.

Exchange Act of 1934, and Rules thereunder. Specifically, the Law included a version of Rule 10b-5 under the 1934 Act but it was not applied to insider trading.⁶⁷ Amendments to the Law, passed in 1988, prohibit insider trading in general and in connection with tender offers in particular, purporting to imitate the effect of Rules 10b-5 and 14e-3.

Nevertheless, the insider trading regime in Japan remained in a state of desuetude.

Japanese stock markets have traditionally been replete with insider trading and price manipulation both before and after the 1988 amendments. Recently, the newly established Securities and Exchange Surveillance Commission started to bring charges for insider trading,⁶⁸ but some consider it a camouflage for a non-enforcement policy.⁶⁹

Japan's case is interesting in light of the virtual similarity of the statutory text but it is not unique. Insider trading was only recently outlawed in many European countries, sometimes reluctantly, in compliance with an EU Directive.⁷⁰ This section offers a new outlook on insider trading, connected to the previous discussion of fraud, and models possible international interactions with regard to transnational insider trading.

Sources of International Diversity

⁶⁷ George F. Parker, *The Regulation of Insider Trading in Japan: Introducing a Private Right of Action*, 73 Wash U L Q 1399 (1995); Atsuko Hirose, *Changes in Japanese Securities Law*, 32 Harvard Intl L J 508; (1992); Shen-Shin Lu, *Are the 1988 Amendments to Japanese Securities Regulation Effective Deterrents to Insider Trading?* 1991 Columbia Bus L Rev 179.

⁶⁸ *Tokyo Insider Dealing Probe Urged*, Financial Times, February 11, 1995, p.3; Steven Brull, *Japanese Panel Brings Insider Charges*, International Herald Tribune, Finance, October 15, 1994.

⁶⁹ Rupert Bruce, *U.S. and Britain Spur Asia Toward Reform*, International Herald Tribune, Money Reports, October 1, 1994.

⁷⁰ Barry A.K. Rider, *Global Trends in Securities Regulation: The Changing Legal Climate*, 13 Dickinson J Intl L 513 (1995).

Several factors may cause insider trading not to be treated like other facets of fraud, i.e., in relative international harmony. Although intuitively clear the nature of the conduct in insider trading defies exact definition. For example, defining the scope of liable persons requires determining first-tier insiders (like officers and directors of the company), second-tier insiders (tippees), and so on. States can diverge over imposing liability on the second- and third-tier insiders, the degree of liability, sanctions, etc. These differences, however, are secondary and become relevant only after two states come to share the view that insider trading -- in essence -- should be condemned. As the preceding paragraphs demonstrate, this is not yet the case in the international arena. Even when states do outlaw insider trading, they do not necessarily pursue violators with comparable vigor. The consequence is *de facto* differences among states.

To be sure, powerful forces that determine states' attitude toward insider trading include cultural, traditional, and political factors. In many countries, including Japan and some prominent European countries, insider trading has for long been tolerated as "part of the game" of securities trading. In other words, it did not even carry a stigma of immorality, let alone illegality. Particularly in Japan, insider trading was, and perhaps still is, an integral part of interrelations between politicians and the business community.⁷¹ Even in the United Kingdom which shares with the US the same principles of corporate governance and securities regulation insider trading was treated with relative leniency. British enforcement authorities still do not consider it a serious, anti-social crime. Rider

⁷¹ Cox, *Regulatory Competition*, at 152 (cited in note 4); Lu, at 237-38 (cited in note 67).

reports that the British Serious Fraud Office (SFO) holds that “insider trading on its own is essentially a regulatory offence, and as such is unlikely to qualify” for SFO investigations.⁷²

Against this backdrop, the United States had stood in relative solitude in holding a very hostile view toward insider trading.⁷³ Langevoort plausibly traces the roots of this stance to American “egalitarianism and obsession with the appearance of fair play”.⁷⁴ Not all nations share these values with the same intensity and Americans too are not single minded on this issue. Notwithstanding public hostility toward insider trading, the American academia still debates on what are the adverse effects of insider trading and whether it should be prohibited at all.⁷⁵

In fact, even American securities laws did not outrightly condemn insider trading for almost three decades after the enactment of the Securities Acts in the early 1930s.⁷⁶

⁷² Rider, at 529, 542 (cited in note 70).

⁷³“American jurisprudence abhors insider trading with a fervor reserved for those who scoff at motherhood, apple pie, and baseball.” James D. Cox, *Insider Trading and Contracting: A Critical Response to the “Chicago School”*, 1986 Duke L J 628.

⁷⁴ Donald C. Langevoort, *Fraud and Insider Trading*, at 182 (cited in note 4) (“Under this view, insiders should be content with their paychecks and not overreach for profits. That this smacks a bit of populism, of envy and resentment directed at the privileges of class and wealth, is hard to deny. But appeal to populism is a recurrent theme in American economic theory.”) (citations omitted). Cf. Mark J. Roe, *Strong Managers, Weak Owners -- The Political Roots of American Corporate Finance* (1994).

⁷⁵ The economic arguments and the corresponding legal ones are covered *infra*. For ethical arguments, see Kim L. Scheppele, *It's Just Not Right: The Ethics of Insider Trading* 56 L & Contemp Prob 123 (Summer 1993); James Boyle, *A Theory of Law and Information: Copyright, Spleens, Blackmail, and Insider Trading*, 80 Cal L Rev 1413 (1992).

⁷⁶ Indirectly, insider trading has been severely restricted by Section 16 under the Securities Exchange Act of 1934, that requires a limited category of “core” insiders to report, monthly, changes in their holdings, and denies such insiders “short swing” profits, i.e., profits made through sale-and-purchase or purchase-and-sale transactions within six months. For a review and assessment see Robert C. Clark,

Originally, insider trading was only indirectly restricted by Section 16 under the Securities Exchange Act of 1934. Rule 10b-5 -- today the primary enforcement vehicle -- generally outlaws fraud “in connection with the purchase or sale of securities”. Only in 1961 did the SEC apply Rule 10b-5 to insider trading.⁷⁷ The rule was adopted by the Second Circuit in 1968,⁷⁸ and by the Supreme Court -- only in 1980.⁷⁹ Put plainly, insider trading in the United States was held to be “bad” by framing, or stigmatizing it as “fraud” through the application of Rule 10b-5 to it. While equating insider trading with fraud is defensible it is by no means a necessary logical move. Recall that in 1961 the SEC was facing a *lacuna* in the Securities Acts with regard to insider trading. Using the powerful yet open-ended Rule 10b-5 was a natural step.⁸⁰ But it was natural only in the specific American setting of certain public views, a resourceful and powerful Commission, and great hurdles to passing Congressional legislation. Had any or all of these factors been different the proscription of insider trading might have taken a different form, not necessarily by declaring it to be “fraud”.

Economic analysis of insider trading further supports the likelihood of regulatory diversity over the regulation of insider trading. In a nutshell, the case against insider trading regulation holds that allowing managers to engage in insider trading may be an

Corporate Law 293-300 (1986); Steve Thel, *The Genius of Section 16: Regulating the Management of Publicly Held Companies*, 42 Hastings L J 393 (1991). See also [Jesse Fried (1997)].

⁷⁷ *Re Cady, Roberts & Co.*, 40 S.E.C. 907 (1961).

⁷⁸ *SEC v. Texas Gulf Sulfur*, 401 F.2d 833 (2d Cir. 1968), *cert. denied*, 394 U.S. 907 (1969).

⁷⁹ *Chiarella v. United States*, 445 U.S. 222 (1980).

⁸⁰ Cf. Donald C. Langevoort, *Rule 10b-5 as an Adaptive Organism*, 61 Fordham L Rev S-7 (1993).

efficient compensation mechanism. Since everybody is aware of the possibility of insider trading taking place, so the argument runs, appropriate discounts are made in advance, such that nobody is harmed.⁸¹ The case for regulation suggests two kinds of harm: to the company and to the market. The claimed harm to the company stems from the agency problem between owners and managers in the corporation.⁸² Adverse effects on the market are said to stem from precautions taken by non-insider traders to ward off the possibility of being the “suckers” in a transaction. Such steps decrease market efficiency as a price discovery mechanism.⁸³

Economic arguments alone thus offer regulators a variety of positions they can choose and still legitimize publicly. A hypothetical commission need not approve insider trading outrightly; rather, it may support a narrow definition of the prohibited conduct, understaff its insider trading enforcement teams, etc. In doing so, the hypothetical commission should determine what it sees as the dominant adverse effect of insider trading; specifically, whether it sees it an offense against the corporation or against the market. Considered as an offense against the market, the commission is more likely to hold a hostile stance toward insider trading since it adversely affects a national asset. Thus, the victims of insider trading under this argumentation are all the citizens of that country,

⁸¹ See, e.g., Dennis Carlton and Daniel R. Fischel, *The Regulation of Insider Trading*, 35 Stan L Rev 857 (1983); Henry Manne, *Insider Trading and the Stock Market* (1966).

⁸² See, e.g., Michael Manove, *The Harm from Insider Trading and Informed Speculation*, 104 Q J Econ 823 (1989); Lucian A. Bebchuk and Chaim Fershtman, *Insider Trading and the Managerial Choice among Risky Investment Projects*, 29 J Fin & Quan Anal 1 (1994).

⁸³ Walter Bagehot, *The Only Game in Town*, 2 Fin Analyst J 2 (1971); Nicholas L. Georgakopoulos, *Insider Trading as a Transactional Cost: A Market Microstructure Justification and Optimization of Insider Trading Regulation*, 26 Conn L Rev 1 (1993).

irrespective of their being shareholders of the companies whose securities are traded by insiders. Conversely, if insider trading is treated as an offense against the corporation the adverse effects are limited to the its shareholders. Where multiple listed corporations are involved, each state has only a partial interest in shareholders welfare determined by the relative holdings of its citizens in the corporation.

To recap, the general social attitude toward insider trading has not yet reached a settled consensus. This stands in contrast to the well settled attitude against fraud. Against this backdrop, it is not surprising that not all nations see eye to eye with the American policy; reasonable regulatory minds can and do readily differ; and conflicts among regulatory regimes are inevitable.⁸⁴ Perceiving insider trading as an offense against the corporation is likely to yield greater diversity than perceiving it as an offense against the market. Accordingly, we would expect more cooperation in fighting insider trading -- through harmonizing laws and mutual assistance in enforcement -- in the former case than in the latter.

The Correlated Games and International Cooperation

A Harmony Game

A straightforward case involves two countries with harmonious interests, i.e., a game of Harmony. Each player state derives its highest utility form mutual cooperation, securing mutual assistance in monitoring and detection of insider trading and in pursuing violators and their ill-gotten assets. The second best option is unilateral enforcement of

⁸⁴ Langevoort, *Fraud and Insider Trading*, at 181 (cited in note 4).

anti insider trading rules, including, for that purpose, asserting extraterritorial jurisdiction. The third best strategy is one in which the player state itself does not actively fight insider trading activities, say, for lack of resources, but nonetheless benefits from enforcement actions taken by its fellow player. Finally, the least preferred outcome is when neither party regulates insider trading. Formally, the preference order is $CC > CD > DC > DD$, and the game's strategic form is presented *supra* in Figure 5. The implications for cooperation of such an interrelation between the players were discussed at length above and need not be repeated here.

Stag Hunt Game

Consider now an alternative scenario in which regulators are not wholeheartedly determined to prohibit insider trading for whatever reason -- political, ethical, or any other. Thus, it makes a real difference whether their state's rival also prohibits insider trading and effectively enforces the prohibition. Each state would be willing to fight insider trading only on condition that its rival also did so; otherwise it would lose business to it. Such fear is further exacerbated if the state is concerned with its rank in the international arena.

A state's first best outcome, therefore, is mutual cooperation in enforcing the prohibition. Next, it may prefer to renege, e.g., by enacting anti insider trading laws but declining to enforce them vigorously. The third best outcome would occur when neither player regulates insider trading. The most disastrous outcome obtains when a state finds itself in the sucker's position, i.e., when it fights insider trading alone. What makes this

scenario more plausible than in the antifraud context is the lack of consensus with regard to insider trading, and the political forces that work to keep it available to people in positions of power. The players' preference order in this game is $CC > DC > DD > CD$. This is the Stag Hunt game, and its strategic form is presented *supra* in Figure 6.

What states look for in a Stag Hunt situation is information and assurances regarding their rival's true preferences and expected behavior. Such assurances are willingly provided when both states share the same interest in reaching the CC outcome. Although the fear from being the sucker likens the situation to a Prisoners' Dilemma, the parties here do not have to overcome a dominant strategy to defect. Respectively, there is little need for central institutions with elaborate and resource-consuming enforcement systems.⁸⁵

If states could be assured that their progressive (hostile) stance against insider trading will not be exploited by their competing rivals they would be more willing to enact and enforce anti-insider trading laws. Seen in this light, the MOUs between the SEC and its fellow commissions may be best explained as assurance mechanisms in a Stag Hunt game. The same logic applies to the Insider Trading and Securities Fraud Act of 1988 (ITSFEA) and the International Securities Enforcement Cooperation Act of 1990 (ISECA). ITSFEA authorizes the SEC to conduct investigations in the United States for foreign securities authorities. Significantly, it does not require that the conduct subject to such investigation be a violation of American laws. ISECA authorizes the SEC to provide

⁸⁵ Martin, at 782 (cited in note 15).

information held in its possession to foreign securities authorities for securities investigations. Both acts back up and complement the MOU system in that they give the SEC more authority in cooperating with and providing information to fellow authorities. Thus, they can be interpreted as a signaling mechanism -- an assurance on behalf of the United States that it is willing to pursue cooperative paths.⁸⁶

Ideological Hegemony Games

The two models presented above assume symmetric preference orders for both players. In light of the significant diversity in states' attitudes toward insider trading it is worthwhile also to analyze the asymmetric situation. I will call these games Ideological Hegemony Games, for reasons set forth below.

Ideological Hegemony 1 -- Consider a game in which Row is indifferent to insider trading and is unwilling to invest in enforcing anti insider trading rules. It has a dominant strategy D. While being indifferent to insider trading per se, Row is fully aware of the economic benefits that might accrue to it due to its attitude so it prefers that Column would play C rather than D. Its preference order is thus $DC > DD > CC > CD$. In contrast, Column sees great value in banning insider trading and has a dominant strategy to play C, i.e., to effectively prohibit insider trading. Column's preference order is similar to that in the Harmony game: $CC > CD > DC > DD$. Given the two dominant strategies, a Nash equilibrium exists in DC as depicted in Figure 7.⁸⁷

⁸⁶ ISECA further facilitates cooperation by excluding information provided by foreign regulators from the Freedom of Information Act.

⁸⁷ Similar to the outcome in the pure Harmony game, swapping the two middle terms in

[Figure 7. Ideological Hegemony 1]

Ideological Hegemony 2 -- Consider now a game in which Column keeps playing the Harmony game as in the preceding game, but Row's attitude is more cynical. While it sees the importance of banning insider trading, it is willing to sacrifice these values, provided that Column adheres to its anti insider trading policy, in order to prevail in the competitive international securities market. Should Column change its policy and defect Row will prefer to defect too. In short, Row's preference order is that of the Prisoners' Dilemma -- one that characterizes a race to the bottom. Row has a dominant strategy to play D, now for stronger reasons, and the equilibrium is again in DC. Figure 8 sums the game in the strategic form.

[Figure 8. Ideological Hegemony 2]

For Column, both asymmetric games exemplify the Hegemon's Dilemma in that it is led by its interests to a second best outcome. Here, however, Column need not be a world power in order to a hegemon. It ends up in the DC equilibrium due to its ethical values which it deems superior and worth paying a price for.⁸⁸ This is why the situation may be called "ideological hegemony". The concept of hegemony is disaggregated here into two components: structural hegemony -- the concentration of economic resources in

Column's preference order (which becomes $CC > CD > DC > DD$) does not change its dominant strategy and the equilibrium outcome. *See supra* note 64.

⁸⁸ *Cf.* Keohane, at 74-75 (cited in note 15).

a single state; and ideological hegemony -- the ability of the dominant state to persuade other actors to accept its frame of reference as their own.⁸⁹

The implications for the form of international cooperation depend, therefore, on Column's structural and ideological power in the international arena. If Column is a powerful state it may use side payments and threats to change Row's payoff structure. Less dominant states or hegemons in decline cannot exert equivalent leverage. They would probably prefer multilateral fora which lend themselves to multilateral issue linkage or as face-saving mechanisms. In the context of international securities regulation, the SEC had indeed openly admitted that unilateral action on its part met with considerable resistance and was largely ineffective -- a fact which has led it to adopt a cooperative policy.

Now consider Row. For it, multilateral fora are more effective in Ideological Hegemony 2, where they need the multilateral framework to overcome their dominant strategy to defect. Row states in Ideological Hegemony 1, however, will show little interest in joining a multilateral organization which in their view does not serve any valuable goal. They would rather tolerate insider trading and garner the ensuing benefits such that only coercion or enticement might change their behavior. Indeed, many cases in which developed countries changed their laws to proscribe insider trading were in response to heavy American pressures initiated by the SEC.⁹⁰ In those cases a profound change in public perception of insider trading was also required which in turn necessitated

⁸⁹ Kenneth A. Rodman, *Sanctions at Bay? Hegemonic Decline, Multinational Corporations, and U.S. Economic Sanctions since the Pipeline Case*, 49 Intl Org 105 (1995).

passing primary legislation. In any event, these pressures have severely strained US foreign relations and were another reason for adopting the cooperative policy.⁹¹ Had the issue been one of solely providing assurances MOUs would have been sufficient.

We are now able to look again at IOSCO and its role in the MOU movement. Porter reports that IOSCO claims its 1989 Rio Declaration to be “nothing short of the ancestor to almost all the Memoranda of Understanding in place today”, but rightly observes that several MOUs were signed before the Rio Declaration, and that the US unilaterally initiated an overwhelming number of them.⁹² Within the analytical framework suggested here, we can say that the US has realized that it cannot exert hegemonic power, in the traditional sense, to induce countries to curb insider trading (and outbound fraud). Nevertheless, seeing itself as an ideological hegemon, it utilized IOSCO to achieve the same result. For all its members, IOSCO served the classical role a weak organization like itself could: First, by giving its imprimatur, it was useful for face saving. Second, by providing the text of a Model MOU, it helped to strengthen the cooperational focal point.

Conclusion

As the globalization of securities markets accelerates, international cooperation in securities regulation becomes of growing importance for regulators, lawyers, and practitioners. Various forms of connection, particularly arbitrage trading in multiple listed

⁹⁰ Kehoe, at 348 *et seq.* (cited in note 70); Rider (cited in note 70).

⁹¹ Mann, Mari, and Lavdas, *International Agreements* (cited in note 6).

securities, carry the effects of one regulatory regime to its neighbors. The outcome is a composite legal system in which the national regimes constituting it may either enhance or frustrate the regulatory objectives of the component regimes.⁹³ Such external effects are reminiscent of those encountered in environmental contexts, e.g., transborder emission of hazardous substances. In contrast, securities markets do not require geographical proximity in order to externalize adverse effects to one another. Cooperation among securities regulators is thus warranted for reasons that are deeper than what has so far been acknowledged.

This Article provides a new outlook at problems of international cooperation in securities regulation. The gist of the analysis is the application of an interdisciplinary approach to these problems by integrating insights gained by international relations theory into economic analysis of securities regulation. The Article looks at three fundamental subjects of securities regulation -- disclosure, antifraud, and insider trading -- and transforms states' policies into preference orders in 2x2 games. It turns out, that each of these issue areas may be modeled by different types of games each denoting a different conflictual structure among states' securities regulation policies. Hence, different predictions can be made about the level of expected international cooperation in that subject. The Article then analyzes some facets of current cooperation regimes in light of

⁹² Porter, at 113 (cited in note 9).

⁹³ Amir N. Licht, *Regulatory Arbitrage for Real: International Securities Regulation in a World of Interacting Securities Markets*, 38 Va J Intl L __ (forthcoming 1998).

these structural conclusions. Anecdotal evidence, especially from the SEC's efforts to establish international cooperation, tends to support the theoretical predictions.

Notwithstanding its relative simplicity, the 2x2 game framework as employed here proves to have sufficient richness which nicely captures the many differences between possible regulatory policies when they come to interact with one another. The critical step in the modeling process is the transformation of a regulatory policy to a preference order. Although it is unlikely that any actual relationship among regulators could be neatly pigeonholed into the boxes of a 2x2 matrix, it is equally unlikely that if required, a typical securities regulator would be able to specify her international cooperation policy considerably in more detail than the format used here. The fact that a certain subject may be modeled by more than one 2x2 game does not diminish the model's explanatory power but rather indicates the complexity of the issue.

In addition to offering some new insights with regard to the specific fields discussed herein, the Article implies an agenda for further research. First, the methodology employed here can, and should be similarly applied in the analysis of other topics in international securities regulation. Such topics may include broker-dealer regulation, regulation of manipulative practices, clearing and settlement mechanisms, and stock exchange regulation.

Second, better understanding of the dynamics of international securities regulation may still be achieved by relaxing some of the simplifying assumptions of 2x2 games. One could expect to gain some progress if repeated game models were used. By allowing a

shadow of the future to emerge such models may yield more cooperational equilibria than the one-period model.⁹⁴ Caution, however, is warranted in this respect. The regulatory process is very slow in general and with regard to international aspects it may be even more so. In addition, once private players have adjusted to a new policy it is almost impossible to unwind it. Unlike the area of international trade, or perhaps taxation, any assumption of multiple periods and possible swift retaliation may be even more unrealistic than the one-period assumption.

Another feature of securities regulation is its gradual nature. Certain aspects are manifestly gradual, e.g., the frequency and timing of disclosure; others, like the prohibition of insider trading, may seem more dichotomous, but in fact have some gradual character, e.g., in the definition of insiders. Allowing for gradual degrees of cooperation should yield more subtle conclusions.⁹⁵ Similar progress may be achieved by employing N-person game models, and by analyzing the effects of incomplete information and perceptions.

Finally, more progress can clearly be made by empirical research of the forms of international cooperation in securities regulation. In addition to the conventional comparative analysis of national laws, there is evidently room for studying the mechanisms of international cooperation. International cooperation must be accompanied by common understanding of its problems. This is not to say that national diversity in securities

⁹⁴ Oye (cited in note 15); Snidal, *The Game Theory* (cited in note 15); Robert Axelrod and Robert O. Keohane, *Achieving Cooperation Under Anarchy: Strategies and Institutions*, in Kenneth A. Oye, ed., *Cooperation Under Anarchy* 226 (Princeton University Press 1986).

⁹⁵ Duncan Snidal, *Coordination Versus Prisoners' Dilemma: Implication for International Cooperation and Regimes*, 79 *Am Pol Sc Rev* 923 (1985).

regulation regimes must be eliminated, but rather that its effects must be more fully understood.