

A COMPARATIVE EMPIRICAL INVESTIGATION
OF AGENCY AND MARKET THEORIES
OF INSIDER TRADING

Laura N. Beny*

Discussion Paper No. 264
9/99

Harvard Law School
Cambridge, MA 02138

The Center for Law, Economics, and Business is supported by
a grant from the John M. Olin Foundation.

www.law.harvard.edu/Programs/olin_center/

*John M. Olin Fellow in Law and Economics, Harvard Law School; J.D., Harvard Law School, 1999; and Ph.D. candidate, Harvard Department of Economics.

A Comparative Empirical Investigation of Agency and Market Theories of Insider Trading

Laura N. Beny*

Abstract

This paper explores the empirical relationship among insider trading law, other legal rules and institutions, and equity markets in an international context. In particular, using legal and economic data from a cross-section of countries, I investigate two empirical relationships: the relationship between insider trading law and ownership concentration and the relationship between insider trading law and equity market liquidity. Consistent with agency theories which predict that the ability of insiders to engage in uninhibited trading encourages concentrated share ownership, I find that tougher insider trading laws are negatively and significantly related to the degree of ownership concentration in publicly traded companies. That is, in economic regimes where insider trading is more stringently regulated, large shareholders hold a significantly lower fraction of outstanding shares. In addition, consistent with market microstructure theories of the relationship between asymmetric information and trading costs, I find that weaker insider trading regimes have, on average, less liquid equity markets. It is hoped that the findings of this paper will inform the ongoing law and economics debate over the desirability of regulating trading by corporate insiders.

*John M. Olin Fellow in Law and Economics, Harvard Law School; J.D., Harvard Law School, 1999; and Ph.D. candidate, Department of Economics, Harvard University.
< lbenygar@kuznets.harvard.edu >

A Comparative Empirical Investigation of Agency and Market Theories of Insider Trading

Laura N. Beny*

@1999 Laura N. Beny. All rights reserved.

I. Introduction

Insider trading has been discussed extensively in the law and economics literature. The essence of the debate is whether insider trading is inefficient and thus harmful to equity markets and ought to be subject to government regulation. Some commentators argue that insider trading is indeed harmful and therefore that (some forms of it) ought to be prohibited through regulation. Others, however, argue that insider trading is not inefficient but rather, on the contrary, is efficient and therefore prohibiting it does not make sense.

Theories on insider trading fall into two main categories: agency theories and market theories of insider trading. Agency theories of insider trading analyze the effect of insider trading on the classic agency problem (i.e., manager-shareholder or insider-outsider conflict of interest).¹ In this context, insider trading is evaluated according to whether it ameliorates or worsens agency costs. The analysis is largely confined to the

*Harvard Law School, J.D. 1999 and Department of Economics, Harvard University, Ph.D. candidate. I gratefully acknowledge research funding from the John M. Olin Center for Law, Economics, and Business at Harvard Law School. For helpful comments on the paper, I thank Professors Lucian A. Bebchuk, John Coates, Howell Jackson, Hal Scott, and Phil Wellons, of Harvard Law School; Professor Joseph Grundfest of Stanford Law School; Professor Andrei Shleifer of the Department of Economics, Harvard University; and participants in the Topics in Organizations and Financial Economics Workshops, Department of Economics, Harvard University.

¹ See generally Michael C. Jensen and William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J. FIN. ECON. 305 (1976) (landmark article discussing

firm level. In contrast, market theories of insider trading consider the larger implications of insider trading to equity markets as a whole. These theories analyze the effect of insider trading on overall market performance in light of its effect on measures like liquidity and informational efficiency, for example.

The existing law and economics literature on insider trading suffers from two main shortcomings. First, although theoretical work abounds, there is very little empirical work shedding light on the effects of insider trading, or its regulation. This is the case in both the U.S. context and internationally.² Moreover, it is unfortunate, as the “desirability of insider trading is ultimately an empirical question.”³ Second, the existing theoretical law and economics work generally takes for granted an Anglo-American legal, institutional, and economic environment, which includes relatively strong legal institutions and investor protections, and highly competitive capital and product markets. These market, legal and institutional features constrain the actions of insiders considerably more than is the case in non-Anglo-American systems. Yet, little of the law and economics writing on insider trading has taken these background institutions into account in assessing the harm (or benefit) of insider trading. For example, Carlton and Fischel argue against government regulation of insider trading on the ground that firms will voluntarily write the optimal level of prohibition into their corporate charters.⁴ However, an unspoken assumption underlying their argument is that managerial labor markets and capital markets are well-functioning and efficient.

corporate structure and agency costs).

² See, e.g., Frank Easterbrook, *Insider Trading as an Agency Problem*, in *PRINCIPLES AND AGENTS: THE STRUCTURE OF BUSINESS* 81, 95-96 (J. Pratt and R. Zeckhauser, eds. 1991) (noting the paucity of empirical evidence).

³ Dennis W. Carlton and Daniel Fischel, *The Regulation of Insider Trading*, 35 *STANFORD LAW REVIEW*

Yet, the quality of these markets in different economies is widely divergent.⁵

Therefore, mainstream theories of insider trading are vulnerable to the often-heard Anglo-American bias critique. Approaches to insider trading that are appropriate in the U.S. context might very well be inappropriate abroad, particularly for emerging capital markets that lack the strong markets and legal institutions of the United States. For example, assuming one could carry out such an exercise, if one found that tougher laws on insider trading in the United States do not improve market and firm efficiency, this would not necessarily imply that insider trading law should not be implemented in an emerging market.⁶ Other aspects of the economic and regulatory environment must first be taken into account.

Therefore, in the spirit of the growing literature⁷ on comparative corporate governance and securities regulation, this paper explores the empirical relationship among insider trading law, other legal rules and institutions, and equity markets in an international context. In particular, using legal and economic data from a cross-section of countries, I investigate two empirical relationships: the relationship between insider trading law and ownership concentration and the relationship between insider trading law and equity market liquidity. I find that insider trading law is significantly negatively

857, 866 (1983). [hereinafter Carlton and Fischel].

⁴ *Id.*

⁵ See generally Andrei Shleifer and Robert Vishny, *A Survey of Corporate Governance*, 52 JOURNAL OF FINANCE 737 (1997) (surveying corporate governance mechanisms across countries). [hereinafter Shleifer and Vishny, *Survey*].

⁶ Indeed, such a finding would not necessarily imply that insider trading in the United States itself ought not to be regulated. At most, one could conclude that U.S. insider trading is over-regulated.

⁷ See generally Lucian A. Bebchuk and Mark J. Roe, *A Theory of Path Dependence in Corporate Governance and Ownership*, STAN. L. REV. (forthcoming 1999); John C. Coffee, *The Future as History: The Prospects for Global Convergence in Corporate Governance and Its Implications* (Dec. 12, 1998) (working paper, Columbia University Law School); Amir M. Licht, *International Diversity in Securities Regulation: Roadblocks on the Way to Convergence*, 20 CARDOZO L. REV. 227 (1998); Shleifer and Vishny, *A Survey*, *supra* note 5.

related to ownership concentration, consistent with agency theories (both for and against insider trading) which predict that the ability to engage in uninhibited insider trading encourages concentrated share ownership. However, consistent with market microstructure theories of the relationship between asymmetric information and trading costs, I find that weaker insider trading regimes have, on average, less liquid equity markets.

The paper is organized as follows. Part II reviews the law and economics literature on insider trading. Arguments both against and for the prohibition of insider trading are presented. I divide these arguments into two categories: arguments based on agency theory and arguments based on overall market efficiency. In Part III, I present several testable hypotheses concerning the relationship between the stringency of the insider trading legal regime and financial market outcomes, based on existing theoretical literature. Part IV presents the data. In that section, I describe the variables used in the empirical analysis and, in particular, explain how I constructed a variable measuring the stringency of insider trading law. Part IV also addresses the contextual (legal and economic) background of insider trading law across countries, by examining correlations between various legal and economic variables. Part V presents the results from multivariate regression analysis. Part VI discusses limitations of the study and charts the direction of future work. Finally, Part VII concludes the paper.

II. Law and Economics Theories of Insider Trading

A. Agency Theories of Insider Trading

Agency theories of insider trading analyze the effects of insider trading on firm efficiency. Proponents of unregulated insider trading argue that insider trading is efficient because it reduces the manager-shareholder conflict of interest. In contrast, opponents of uninhibited insider trading maintain that insider trading is inefficient because it increases the divergence of interests between shareholders and managers (or, more generally, between insiders and outsiders). Essentially, the disagreement is over whether insider trading is beneficial to outside shareholders, or instead, represents an inefficient private benefit of control that accrues to insiders at outsiders' expense.

1. Insider Trading as an Efficient Compensation Device

Henry Manne was one of the earliest legal scholars to bring economic analysis to bear on the debate over insider trading.⁸ Contrary to the mainstream legal consensus of the time, Manne argued that trading by insiders on material nonpublic information is economically efficient.⁹ His argument is basically that insider trading is an efficient form of managerial compensation because it reduces the conflict of interest between managers and shareholders.

⁸ HENRY G. MANNE, INSIDER TRADING AND THE STOCK MARKET (1966).

⁹ *Id.* at 101, 102.

The separation of ownership and control in the modern corporation gives rise to agency costs, which reduce the value of the firm.¹⁰ Shareholders can only imperfectly monitor managers. As a result, managers have an incentive and are able to act in ways that serve their interests, but not necessarily the firm's. Such activities might include, for example, taking excessive perquisites or pursuing sub-optimal investment projects. These activities reduce firm value at the expense of shareholders who cannot perfectly monitor.

However, depending on the background environment, markets might constrain the conflict between managers and shareholders. For example, competitive capital and labor markets might limit managers' capacity to engage in value-reducing opportunistic behavior.¹¹ Nevertheless, these markets work imperfectly. The market for corporate control, for example, may be stifled by weak anti-director legal rules, making it relatively difficult to remove poorly performing managers.¹² In turn, this results in lower managerial compensation, since shareholders discount share prices accordingly. As a result, "both managers and shareholders will have incentives to reach agreements *ex ante* that limit divergent behavior by managers."¹³

One common way in which managers and shareholders address this problem is by writing contracts that give managers incentives to behave efficiently. The problem with these contracts, however, is that many of them require "periodic renegotiations *ex*

¹⁰ See generally Jensen and Meckling, *supra* note 1.

¹¹ Carlton and Fischel, *supra* note 3, at 869.

¹² See generally Rafael La Porta, Florencio Lopes-de-Silanes, Andrei Shleifer, and Robert Vishny, *Legal Determinants of External Finance*, 52 J. FIN. 1131 (1997). [hereinafter La Porta et al., *Legal Determinants*].

¹³ Carlton and Fischel, *supra* note 3, at 869.

post based on (imperfectly) observed effort and output.”¹⁴ These renegotiations are costly due to the costs of bargaining as well as the difficulty of assessing effort and output ex post. Thus, firms try to minimize the incidence of renegotiation. However, this is also problematic, because if renegotiation occurs too infrequently, agency costs rise as managers’ incentives are lessened by infrequent renegotiation.

Proponents of insider trading claim that it may offer a solution to this renegotiation problem: “[t]he unique advantage of insider trading is that it allows a manager to alter his compensation package in light of new knowledge, thereby avoiding continual renegotiation.”¹⁵ In turn, this increases the manager’s incentives to engage in value-maximizing activities.¹⁶ Another alleged advantage of insider trading is that it attracts to the firm managers who are hard working and not excessively risk averse:

Basing compensation in part on insider trading is one method for sorting superior from inferior managers. Because insider trading rewards those managers who create valuable information and are willing to take risks, managers who most prefer such compensation schemes may be those who are the least risk averse and the most capable.¹⁷

Because the ability to engage in insider trading induces the most able managers to self-select into firms that allow it, the argument goes, insider trading reduces both screening and monitoring costs.

Proponents of insider trading as an efficient compensation device also have a response to the criticism that it gives managers a put option on the firm and therefore increases their incentives to reduce firm value. Short-selling is not a problem, in their

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.* See also Harold Demsetz and Kenneth Lehn, *The Structure of Corporate Ownership: Causes and Consequences*, 93 J. POL. ECON. 1155 (1985).

¹⁷ Carlton and Fischel, *supra* note 3, at 871-872.

view, because it enhances managers' risk-taking in favor of high expected return

projects:

By permitting managers to sell short and thereby profit from investment projects that are optimal ex ante, even if they do not turn out well ex post, insider trading may induce managers to take on projects with a high expected return even if they are riskier. The ability to profit by selling, therefore, as well as the ability to profit by buying, may reduce divergence of interests between managers and shareholders by causing managers to behave in a less risk-averse.¹⁸

Law and economics supporters of the view that insider trading reduces agency costs argue that the evidence supports their theory. If insider trading is bad, they ask, why do we not observe firms making significant attempts to ban it? According to the Coase theorem, if insider trading harms shareholders more than it benefits insiders, "both the firm's investors and the firm's insiders could profit by banning insider trading, thereby allocating the property right in information to the firm's investors."¹⁹

Moreover, it is not sufficient to argue that enforcement costs would be high to defeat the argument for private prohibition of insider trading, since "the gains from incomplete enforcement . . . would outweigh the negligible costs of contracting."²⁰ According to this view, the only instance in which government prohibition of insider trading would be desirable is "if it were clear that the parties themselves had attempted to limit insider trading by contract" and failed.²¹

¹⁸ *Id.* at 872.

¹⁹ *Id.* at 863.

²⁰ *Id.* at 864.

²¹ *Id.* at 865.

2. Insider Trading as an Inefficient Compensation Device

Several commentators dispute the notion that insider trading is an efficient way to compensate firm insiders on several grounds.²² For one, they question the proposition that insiders and shareholders can easily contract over the optimal level of insider trading. Transaction costs and uncertainty render the Coase theorem inapplicable.²³ So, too, does the fact that not all affected parties (e.g., future shareholders) would be present during ex ante negotiation.²⁴

Another reason for doubting the utility of insider trading as a compensation device is the way in which managerial wages are actually determined. According to Kraakman, the “evidence is overwhelming that top managers retain enormous discretion over compensation and job tenure in American corporations.”²⁵ Ross also questions the assumption that managerial labor markets are competitive and therefore managers would be constrained not to violate the insider trading/compensation contracts they write with shareholders.²⁶ In the absence of external market constraints, the argument runs, it is unlikely that managers would use their discretion to trade in the interest of the

²² See generally, Norman S. Douglas, *Insider Trading: The Case Against the Victimless Crime Hypothesis*, 23 FIN. REV. 127, 128, 139-141 (1988) (disproving Manne’s propositions); Lucian A. Bebchuk & Chaim Fershtman, *The Effect of Insider Trading on Insiders’ Reaction to Opportunities to “Waste” Corporate Value* (Sept. 1990) (unpublished Discussion Paper No. 76, Program in Law and Economics, Harvard Law School) (uninhibited insider trading causes managers to waste corporate value); Victor Brudney, *Insiders, Outsiders, and Informational Advantages under the Federal Securities Laws*, 93 HARV. L. REV. 322 (1979) (opposing unfair information advantage of insiders).

²³ See Mark Klock, *Mainstream Economics and the Case for Prohibiting Insider Trading*, 10 GA. ST. U. L. REV. 297, 315 (1994).

²⁴ *Id.* at 317.

²⁵ *Id.*

²⁶ Stephen Ross, *Disclosure Regulation in Financial Markets: Implications of Modern Finance Theory and Signalling Theory*, in ISSUES IN FINANCIAL REGULATION 177, 184, 193 (F. Edwards, ed. 1979).

firm. Rather, allowing insider trading would enable insiders to profit at expense of the corporation and outsiders.

In particular, insider trading opponents argue that the ability to engage in insider trading would create a moral hazard problem. Because the returns from insider trading have option-like features, the argument goes, insider trading would award “the selection of projects with volatile payouts, regardless of whether they have a positive or negative return on net.”²⁷ Allowing managers to trade on inside information would give them incentives to take on too much risk or to pursue corporate value-reducing projects.²⁸ Managers would therefore be able to unbundle any deal worked out ex ante. As a result, “firms would have to closely monitor the amount of trading by managers ex post.”²⁹ On the other hand, “[b]anning insider trading would prevent insiders from undoing compensation agreements in this manner.”³⁰

B. Market Theories of Insider Trading

Market theories of insider trading consider its wider implications for the functioning of equity markets as a whole. Interestingly, proponents of uninhibited insider trading do not have very much to say in this regard. Most of their arguments revolve around the alleged agency benefits of allowing insider trading. However, recent microstructure research contributes significantly to an understanding of the potential liquidity impact of insider trading.

²⁷ Reinier Kraakman, *The Legal Theory of Insider Trading Regulation in the United States*, in EUROPEAN INSIDER DEALING, 47, 52 (K. Hopt and E. Wymeersch, eds. 1991).

²⁸ Klock, *supra* note 23, at 313-314. See also Michael Manove, *The Harm in Insider Trading and Informed Speculation*, 104 Q. J. ECON. 823 (1989) (presenting a theoretical model demonstrating that insider trading may discourage investment and encourage inefficient corporate activities).

1. Insider Trading Contributes to Market Efficiency

Although Carlton and Fischel mainly emphasize the agency benefits of allowing insiders to trade, they also argue that insider trading enhances the overall efficiency of capital markets.³¹ This is because, they argue, insider trading enables prices to reflect information more accurately without firms having to rely on more costly traditional forms of disclosure.³² Shareholders value insider trading, the argument goes, because it provides firms with a substitute mechanism for communicating and channeling information.³³ Moreover, the “greater the ability of market participants to identify insider trading, the more information such trading will convey.”³⁴ Ultimately, more accurate prices will increase the allocative efficiency of the economy.

Proponents of unregulated insider trading also dismiss its potential impact on market liquidity. For example, Carney suggests that insider trading does not harm investors trading on impersonal markets.³⁵ This is because investors in public markets decide whether or not to trade independently of the existence (or non-existence) of insider trading. In particular, they trade when their liquidity needs dictate. Furthermore, their liquidity needs are “independent of insider trading.”³⁶ However, this argument begs the question whether insider trading might affect market liquidity. Indeed, the next

²⁹ Reinier Kraakman, *supra* note 27, at 52.

³⁰ Carlton and Fischel, *supra* note 3, at 873.

³¹ *Id.* at 866.

³² “Complete disclosure . . . would not be optimal. Disclosure is costly, and at some point the costs will outweigh the benefits [and] in some cases, disclosure might destroy the information’s value.” *Id.* at 866.

³³ *Id.*

³⁴ *Id.*

³⁵ William J. Carney, *Signalling and Causation in Insider Trading*, 36 CATH. U. L. REV. 833, 867-873 (1987).

³⁶ *Id.* at 886.

subsection presents theoretical and empirical work that suggests that insider trading might reduce equity market liquidity. Moreover, the empirical results in Part V of this paper support such a claim.

2. Insider Trading Diminishes Market Efficiency

Some opponents of unregulated insider trading argue that not only does it increase firms' agency costs, but it also reduces the overall level of market efficiency. First, they argue, it reduces the overall level of participation in equity markets. Because it redistributes wealth from outsiders to insiders, insider trading reduces the willingness of outside investors to participate in equity ownership.³⁷ Along these lines, Ausubel formally models investor confidence.³⁸ In his model, investor confidence is "the rational belief by outsiders that their return on investment is not being diluted by insiders' trading." The model shows that a disclose or abstain rule increases investor confidence in the market and leads to more outside investment.³⁹ Ausubel also addresses the traditional law and economics argument that, since they continue to invest in the market, outsiders are not bothered by insider trading. The point, he argues, "is not whether outsiders continue to invest when insider trading is freely permitted, but whether they continue to invest at the same level when insider trading is freely permitted, *ceteris paribus*."⁴⁰

³⁷ See Victor Brudney, *supra* note 22; Kraakman, *supra* note 27, at 62.

³⁸ Lawrence M. Ausubel, *Insider Trading in a Rational Expectations Economy*, 80 AM. ECON. REV. 1022, 1023 (1990).

³⁹ *Id.* at 1036.

⁴⁰ Klock, *supra* note 28, at 311 (discussing Ausubel's results).

Another market efficiency argument against unregulated insider trading is that it might distort managers' incentives to engage in timely disclosure of information. That is, rather than functioning as an alternative, less costly and more rapid means of corporate disclosure, insider trading might actually lead to less efficient disclosure. Insider trading might delay the disclosure of information since insiders will prefer to trade incrementally in order "to preserve their informational monopolies."⁴¹

[B]ecause trading profits depend on control over information, there is no guarantee that the originators of successful projects will reap the rewards. Indeed, insider trading might be expected to induce a variety of perverse behaviors by managers who would compete to acquire and hoard information within the firm.⁴²

If background 'noise' is sufficient, insider trading might even fail completely to move prices.⁴³

Finally, a growing body of economic literature on market microstructure suggests that insider trading on nonpublic information might reduce market liquidity. This work builds on the original insight of Akerlof, who shows that markets malfunction when there is asymmetric information and, in extreme cases of information asymmetry, may break down entirely.⁴⁴ The microstructure literature has applied this logic to equity markets, showing that in these markets information asymmetry can compromise liquidity.⁴⁵ In particular, this literature has shown that asymmetric information increases the cost of trading. In turn, higher trading costs imply lower liquidity.

⁴¹ Kraakman, *supra* note 27, at 50.

⁴² *Id.* at 52-53.

⁴³ *See Id.*

⁴⁴ George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q. J. ECON. 488 (1970).

⁴⁵ *See, e.g.*, Lawrence R. Glosten and Lawrence E. Harris, *Estimating the Components of the Bid/Ask Spread*, 21 J. FIN. ECON. 123 (1988).

Copeland and Galai, for example, present a model yielding this result.⁴⁶ In their model, dealers interact with two types of traders, informed traders and liquidity-motivated traders. Informed traders have information superior to that of both liquidity traders and dealers. On average, dealers lose from trading against informed traders. However, they subsidize their losses vis-a-vis informed traders by charging liquidity traders an immediacy fee.⁴⁷ This fee is the bid-ask spread. The greater the degree of asymmetric information, the greater the bid-ask spread (i.e., cost of trading).⁴⁸ This logic suggests that, because insider trading is a type of informed trading, the greater its incidence, the higher are the costs of trading for uninformed investors and hence the lower is market liquidity.⁴⁹

III. Testable Hypotheses

In this section, I formulate a number of empirically testable hypotheses motivated both by existing theoretical literature and by data availability.

1. Insider Trading Regime and Ownership Concentration

Although the law and economics literature covering agency theories of insider trading does not directly lend itself to empirical testing, related literature suggests some

⁴⁶ Thomas E. Copeland and Dan Galai, *Information Effects on the Bid-Ask Spread*, 38 J. FIN. 1457 (1983).

⁴⁷ *Id.* at 1468.

⁴⁸ This result is consistent with empirical evidence. See, e.g., Hans R. Stoll, *Inferring the Components of the Bid-Ask Spread: Theory and Empirical Evidence*, 44 J. FIN. 115 (1989) (decomposing bid-ask spreads of NASDAQ/NMS stocks into the following components: 43% due to adverse information costs, 10% due to inventory holding costs, and 47% due to order processing costs).

⁴⁹ See generally Nicholas L. Georgakopoulos, *Insider Trading as a Transactional Cost: A Market*

testable hypotheses. In particular, this literature allows one to say something about the expected relationship between ownership concentration and the stringency of insider trading law, namely that they should be negatively related.

Demsetz argues that a controlling shareholder structure is desirable for efficient corporate monitoring.⁵⁰ However, because controlling shareholders bear more risk than minority shareholders, they must be compensated adequately to provide them with an incentive to engage in value-enhancing corporate monitoring. According to Demsetz, there are two main ways in which controlling shareholders can be compensated. The primary source of their compensation is the increase in firm value that is due to their active monitoring. Profits from insider trading represent a secondary form of compensation. Because greater share ownership increases large shareholders' access to inside information, they are able to make greater trading profits than outside shareholders.

Bhide develops a similar argument, emphasizing the connection between internal monitoring and ownership structure.⁵¹ However, he directly addresses the role of securities regulation, arguing that restrictions on insider trading and disclosure requirements protect small shareholders and reduce the risk of dispersed shareholding. The same rules, by the same token, raise the costs and liabilities of an active

Microstructure Justification and Optimization of Insider Trading Regulation, 26 CONN. L. REV. 1 (1993).

⁵⁰ Harold Demsetz, *Corporate Control, Insider Trading, and Rates of Return*, 76 AMER. ECON. REV. 313 (1986). See also, Andrei Shleifer and Robert W. Vishny, *Large Shareholders and Corporate Control*, 94 J. POL. ECON. 461 (1986) (presenting a theoretical model showing that large shareholders may sometimes monitor managers and thereby increase firm value).

⁵¹ Amar Bhide, *The Hidden Costs of Stock Market Liquidity*, 34 J. FIN. ECON. 31 (1993).

shareholding role. In the end, according to Bhidé, stringent investor protections “impair governance by encouraging diffuse stockholding and discouraging active investing.”⁵²

While the analyses of both Demsetz and Bhidé support a negative relationship between insider trading law and ownership concentration, the same relationship might obtain from an agency cost view of insider trading. That is, even if insider trading is inefficient from an agency perspective, we might still observe less concentrated ownership coincident upon tougher insider trading laws. To see this, consider recent theoretical work on ownership structure by Bebchuk.⁵³ In his model, when the private benefits of control are large (i.e., when the corporate law regime is relatively lax), controlling shareholders have weak incentives to relinquish their control:⁵⁴

In such countries, the private benefits coming with a lock on control are large enough for controllers to be reluctant to forego their lock on control. Even if they need to raise much more capital, they will do so by using pyramids, cross-holdings, and dual-class – even when such schemes will be costly in terms of extra payments and agency costs.⁵⁵

If the relative ease with which corporate insiders are able to trade on material, non-public information is regarded as a private benefit of control, the implication of Bebchuk’s analysis is that, *other things equal*, controlling shareholders should be less willing to give up control to outsiders under more lax insider trading regimes.

Thus, we have the following testable hypothesis. *Other things equal*, tougher insider trading laws are associated with more dispersed share ownership. Therefore, countries with tougher insider trading sanctions have less concentrated share ownership.

⁵² *Id.* at 43.

⁵³ Lucian A. Bebchuk, A Theory of the Evolution of Ownership Structures in Publicly Traded Companies (Feb. 1999) (working paper, Harvard Law School).

⁵⁴ *Id.* at 9.

⁵⁵ *Id.* at 12. This is consistent with the empirical findings of La Porta et al. Rafael La Porta, Florencio Lopes-de-Silanes, and Andrei Shleifer, Corporate Ownership Around the World (1998) (working paper, Harvard University).

Conversely, countries with more lax insider trading regimes have more concentrated corporate ownership structures.

2. Insider Trading Regime and Equity Market Liquidity

As discussed in Part I above, the superior information of insiders generates informational asymmetry in the secondary trading markets. In turn, asymmetric information increases the costs of trading as market makers raise bid-ask spreads to take into account the probability that they are trading against more informed corporate insiders.

Therefore, the following testable hypothesis naturally emerges. Tougher insider trading laws are associated with greater stock market liquidity, *other things equal*. Thus, countries with tougher sanctions against insider trading have more liquid equity markets.

3. Insider Trading Law and Disclosure

As argued in Part I, it is important to consider the contemporaneous legal and institutional environment in which a law operates. Some legal rules complement or perhaps even substitute for one another. Arguably, this is the case with disclosure and insider trading laws. For example, in arguing for mandatory disclosure rules, Fox contends that periodic disclosure enhances the utility of several agency cost reduction devices:⁵⁶

⁵⁶ Merritt B. Fox, Retaining Mandatory Securities Disclosure: Why Issuer Choice is not Investor Empowerment 17, 23-27 (Feb. 9, 1999) (working paper, University of Michigan Law School).

[One] benefit of issuer disclosure is a reduction in the extent to which managers of public corporations place their own interests above those of their shareholders [after the time of an IPO]. Greater ongoing periodic disclosure increases the effectiveness of a number of devices that work to limit such behavior. Disclosure assists in the effect exercise of the shareholder franchise and in shareholder enforcement of management's fiduciary duties.⁵⁷

Therefore, to the extent that insider trading is an agency cost, better disclosure should reduce its incidence, for any given level of insider trading regulation. Indeed, Shin presents a model that generates this result.⁵⁸ His model shows that an intermediate level (rather than total prohibition) of restriction on insider trading combined with minimum disclosure requirements is the most efficient approach to regulating insider trading. Similarly, Baiman and Verrecchia present a model showing that greater voluntary disclosure reduces the extent of insider trading in a firm's shares, reduces its agency costs and therefore its cost of capital.⁵⁹ This is due to the fact that greater disclosure reduces the profitability of insider trading, since it makes price "a better estimator of cash flow and reduces [insider's] informational advantage."⁶⁰

This analysis yields a final testable hypothesis. Insider trading regulation and disclosure requirements are complementary means by which to discourage trading by insiders. Thus, countries with relatively more stringent disclosure requirements will have more liquid stock markets and more dispersed ownership for any given level of insider trading legislation.

The next two sections present the data and empirical results from tests of these hypotheses.

⁵⁷ *Id.* at 23-24.

⁵⁸ Jhinyoung Shin, *The Optimal Regulation of Insider Trading*, 5 J. FIN. INTERMED. 49 (1996).

⁵⁹ Stanley Baiman and Robert Verrecchia, *The Relation Among Capital Markets, Financial Disclosure, Production Efficiency, and Insider Trading*, 343 J. ACC. RES. 1 (1996).

IV. Data Description, Summary Statistics and Legal Context

1. Data Sources

Most of the economic and legal data that I use comes from La Porta et al.⁶¹ This data includes gross national product (GNP), gross domestic product growth (GDP), the market capitalization held by outside shareholders relative to GNP, and ownership concentration of the largest shareholders. The last two variables are alternative measures of ownership concentration. The legal variables taken from La Porta et al. include a measure of the rule of law in the country, legal family (English common law, French civil law, German civil law, or Scandinavian civil law), accounting standards (a measure of the quality of disclosure), and various investor protections against overreaching by corporate insiders, including voting rights and anti-director rights.⁶²

The data on stock market turnover come from the International Finance Corporation's Emerging Markets Factbook.⁶³ I also consider a variable measuring market participants' subjective assessment of the severity of insider trading in the equity market.⁶⁴ In addition, I use an index of bureaucratic efficiency, a measure of the efficiency and respectability of the legal environment in which business transactions occur.⁶⁵ Finally, to supplement these data, I have assembled a quantitative index of the stringency of insider trading law in the sample of countries. Construction of this index is described in the next subsection.

⁶⁰ *Id.* at 14.

⁶¹ Rafael La Porta, Florencio Lopez-De-Silanes, Andre Shleifer, and Robert W. Vishny, *Legal Determinants of External Finance*, 52 J. FIN. 1131 (1997).

⁶² *Id.*

⁶³ International Finance Corporation, EMERGING STOCK MARKETS FACTBOOK (1996).

2. Construction of the Insider Trading Law Variable

Since there are no systematic objective data on countries' insider trading regulations, I constructed an index of the toughness of insider trading laws based on the written law in each country of my sample.⁶⁶ This sample spans thirty-five emerging and developed markets. Even some of the relatively new stock markets have had written laws on insider trading since the late 1980s or early 1990s. Fortunately, most of the countries considered by La Porta et al. have laws on insider trading. Therefore, I am able to integrate the results of this study with theirs.

Using the individual countries' insider trading laws, I have assembled a quantitative variable which permits an ordering of countries according to the relative strength of their laws on insider trading. The methodology is identical to that of La Porta et al., where they measure aggregate anti-director rights as the sum of several underlying binary variables, each of which consists of a specific right vis-a-vis corporate directors.⁶⁷ The insider trading law variable used in this study consists of five separate binary variables.

The first component of the insider trading law variable answers the question whether tippees are legally considered to be secondary insiders and are therefore subject to the same restrictions on insider trading as are primary insiders. If the answer is yes, then the binary variable *tippee* equals one; if not, then *tippee* equals zero. The logic of

⁶⁴ World Competitiveness Report (1996).

⁶⁵ Paolo Mauro, *Corruption and Growth*, 110 Q. J. ECON. 681 (1995).

⁶⁶ INTERNATIONAL INSIDER DEALING (Mark Stamp and Carson Welsh, eds. 1996); INSIDER TRADING: THE LAWS OF EUROPE, THE UNITED STATES, AND JAPAN (Emmanuel Gaillard, ed. 1992).

⁶⁷ See La Porta et al., *Legal Determinants*, *supra* note 12. A binary variable is a variable that equals

this variable is the following. A *tippee* is a third person (outsider to the corporation) who has been tipped off about material, non-public information by a traditional firm insider (e.g., director, manager, employee). The law of many countries holds tippees liable for trading on such information if they have sufficient knowledge, or reason to know, that the information they are receiving is sensitive and private, and that the person who has tipped them is a corporate insider whom the law prohibits from divulging or using such information for non-corporate purposes.⁶⁸ On the other hand, some countries do not extend the insider trading prohibition to corporate outsiders.⁶⁹ I consider an insider trading law to be tougher if it is more inclusive in the sense that it extends liability to corporate outsiders. This seems non-controversial.

The second component of the insider trading law variable considers whether an insider can be held liable not only for trading but also for tipping third parties (i.e., giving material non-public information to a non-insider) and/or encouraging them to trade on such information. If so, the variable *tipping* equals one; if not, it equals zero. At first glance, this variable and the *tippee* variable appear redundant. However, they are distinct considerations. *Tippee* considers the liability of third parties (corporate outsiders), while *tipping* considers the liability of insiders who tip such parties. In some countries, insiders are liable for *tipping* outsiders while, at the same time, *tipped* outsiders are not liable for their consequent trading on such information.⁷⁰ Therefore, the two variables are distinct components of an insider trading law. Arguably, a

either one of two values, usually zero or one. In economics, such a variable is frequently referred to as a “dummy variable”.

⁶⁸ See Table 1, *infra*, at 23.

⁶⁹ *Id.*

⁷⁰ See Table 1, *infra*, at 23.

prohibition on trading by insiders is attenuated if insiders can tip outsiders with impunity. As expected, most countries that prohibit insider trading by insiders also prohibit tipping by them.⁷¹

Fines or damages are the third component of the insider trading law variable. In particular, the variable *damages* equals one if monetary penalties are proportional to insiders' trading profits, and zero otherwise. The rationale underlying this variable is that insiders will weigh the expected monetary penalty (if they are caught) against the expected profits from engaging in insider trading. If monetary penalties are less than proportionate to profits, then their deterrent role is weak, holding constant the probability of detection. Of course, the probability of detection is not constant and it is likely that some regimes have superior detection and enforcement mechanisms than others. For example, the United States is undoubtedly superior to India in this regard. Nevertheless, it makes sense to include this variable in any overall measure of the strength of insider trading law.

The fourth component of the insider trading law variable asks whether the law grants "injured" investors a private right of action. The variable *private right* equals one if such a right is granted, and zero otherwise. A private right of action gives individual investors access to the courts to sue insiders for monetary compensation for trading losses they incur as a result of trading at the opposite side of insiders transactions.⁷² The logic of including this variable is straightforward. Basically, a private right of action gives private parties the right to enforce insider trading laws independently of any

⁷¹ *Id.*

⁷² There is considerable debate in the U.S. context as to whether individual investors are harmed by insider trading on impersonal equity markets. *See, e.g.,* Carney, *supra* note 35 (arguing that individual

remedial action taken by the relevant regulatory authority(ies). Therefore, controlling for factors like the reliability and efficiency of the court system, it seems correct to assume that granting private rights of action makes the law more effective by giving private parties an incentive to enforce it.⁷³

The criminality of insider trading is the fifth and final component of the insider trading law variable. The variable *criminal* takes the value one if violation of the insider trading law is a criminal offense, and zero otherwise. The rationale for including this variable is that by making it a criminal offense, the government presumably is signaling that insider trading is not to be taken lightly.

The insider trading variable *IT law* is simply the sum of these independent variables. In other words, *IT law* is the sum of the values of *tippee*, *tipping*, *damages*, *private right*, and *criminal*. *IT law*, therefore, can take a value from zero to five. Zero represents the most lax insider trading law and five represents the toughest, based on the foregoing criteria.⁷⁴

Table 1 summarizes the individual countries' insider trading laws, presenting each of the five components as well as the aggregate score. Table 1 also presents averages of these variables by legal family.

investors are not harmed when they trade on anonymous public markets).

⁷³ Of course, there is potential for abuse and inefficient use of private rights of action, but this does not change the analysis. It merely goes to the issue of the optimal level of regulation, which is beyond the scope of this paper.

⁷⁴ Unfortunately, I do not yet have information on the level of enforcement, though there is reason to believe that enforcement might be more important than the laws on the books.

Table 1. Insider Trading Law by Country and Legal Tradition

Country	Tippee (0,1)	Tipping (0,1)	Criminal (0,1)	Private (0,1)	Damages (0,1)	IT Law (0,1)
Australia	1	1	1	1	0	4
Canada	1	1	1	1	1	5
Hong Kong	1	1	0	0	1	3
India	0	1	1	0	0	2
Ireland	1	1	1	1	1	5
Malaysia	0	1	1	1	0	3
Singapore	1	1	1	1	0	4
South Africa	1	0	1	1	0	3
Thailand	1	1	1	0	0	3
United King	1	1	1	0	0	3
United States	1	1	1	1	1	5
Ave. English	.82	.91	.91	.64	.27	3.54
Belgium	1	1	1	0	0	3
Brazil	1	1	0	1	0	3
Greece	1	1	0	0	0	2
Indonesia	0	1	1	0	0	2
Italy	1	1	1	0	0	3
Mexico	0	1	0	0	0	1
Netherlands	1	1	1	0	0	3
Philippines	1	0	1	0	0	2
Portugal	1	1	1	1	0	4
Ave. French	.82	.91	.64	.27	.18	2.82

(Table 1, continued)

Country	Tippee (0,1)	Tipping (0,1)	Criminal (0,1)	Private (0,1)	Damages (0,1)	IT Law (0,1)
Austria	1	1	0	0	0	2
Germany	1	1	1	0	0	3
Japan	1	0	1	0	0	2
Luxembourg	1	1	1	0	0	3
South Korea	1	1	1	1	1	5
Switzerland	1	1	1	0	0	3
Taiwan	1	1	1	1	0	4
Ave. German	1	.86	.86	.28	.14	3.14
Denmark	1	1	1	0	0	3
Finland	1	1	1	0	0	3
Norway	1	0	0	0	0	1
Sweden	1	1	1	0	0	3
Ave. Scandinav'n	1	.75	.75	0	0	2.5
China	1	1	0	0	0	2
Russia	1	0	0	0	0	1
Ave. Other	.88	.86	.74	.34	.17	1.06

Table 1 shows that English common law countries have the toughest insider trading laws, according to the criteria considered, while Scandinavian countries seem to have the most lax insider trading laws. French and German civil law countries lie in between. However, German civil law countries are closer to English common law countries, while French civil law countries are closer to Scandinavian countries, in terms of the toughness of their respective insider trading rules.

Table 2 highlights two of the more striking patterns among the countries. In particular, it focuses on the criteria along which countries and legal families exhibit the

greatest diversity, namely the existence of a private right of action and multiple damages.

Table 2. Private Right of Action and Damages

Legal Family	Private Right of Action	Multiple Damages Possible	Number of Countries
English Common Law	64%	27%	11
French Civil Law	27%	18%	11
German Civil Law	28%	14%	7
Scandinavian Civil Law	0%	0%	4
Total	30%	17%	33

Table 2 shows that in 64% of the sample of common law countries, the law grants individual investors a right to bring suit against insiders who are alleged to have violated the insider trading laws. In sharp contrast, civil law countries hardly grant investors this right. Of the four Scandinavian countries for which I found insider trading laws, *none* grants a private right of action to aggrieved investors. On the other hand, French and German civil law countries fare considerably better than the Scandinavian countries in this respect. Still, they give investors the right to initiate suit barely half as much as do common law countries, at 27% and 28%, respectively. These observations are consistent with the general finding of La Porta et al. that common law countries tend to grant investors more legal rights vis-a-vis corporate insiders.⁷⁵

⁷⁵ La Porta et al., *Legal Determinants*, *supra* note 12.

A similar comparative pattern applies to the availability of multiple damages (for the state or private parties) against inside traders. Table 2 shows that common law countries are more likely to subject inside traders to damage penalties at a multiple of their trading profits.

3. Summary Statistics of Economic Variables

Following La Porta et al., Table 3 (Appendix) categorizes the data by legal tradition. Averages of various economic and legal variables for each tradition are presented in Panel A.⁷⁶ Significance tests (t-tests) of differences in means of the variables between common law and civil law families are presented in Panel B.

As La Porta et al. document, Panel B shows that the ratio of outside ownership to GNP is significantly greater in common law countries, particularly in countries under the French civil law system (column 1). In fact, common law countries have much broader and deeper capital markets along a number of dimensions.⁷⁷ The greater breadth and depth of financial markets in common law countries is not surprising, however, since they give shareholders the strongest legal protections according to several criteria.⁷⁸

⁷⁶ *Id.* My results in Table 3 differ somewhat from theirs due to the fact that I am using a slightly smaller sample of countries, i.e., those for whom insider trading legislation was available. However, the results are largely qualitatively similar to theirs.

⁷⁷ For example, La Porta et al. find that common law countries have more listed firms and more initial public offerings per one million people than civil law countries, especially French civil law countries. They also find that common law countries have relatively larger public debt markets. La Porta et al., *Legal Determinants*, *supra* note 12. These results are replicated in Table 3, columns 2 and 3, respectively (see Appendix).

⁷⁸ For instance, common law countries “most frequently (39%) allow shareholders to vote by mail, they never block shares for shareholder meetings, they have the highest (94%) incidence of laws protecting oppressed minorities, and they generally require relatively little share capital (9%) to call an extraordinary shareholder meeting.” Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, *Law and Finance*, 106 J. POL. ECON. 1113, 1129 (1998). [hereinafter La Porta et al., *Law and Finance*].

An alternative means of considering ownership structure is to analyze the other ownership variable used by La Porta et al.⁷⁹ This variable consists of the average ownership fraction of the three largest shareholders in the ten biggest domestic, non-financial publicly traded companies (column 5).⁸⁰ Panel A of Table 3 shows that French civil law countries have the greatest degree of ownership concentration in their largest firms, followed by common law countries. Scandinavian and German civil law countries have the lowest concentration of ownership among their largest firms. Furthermore, the difference between civil law countries and common law countries is not statistically significant (Panel B, Table 3, column 5). However, there is significant heterogeneity among civil law countries.

The market turnover ratio (a measure of equity market liquidity) is greatest in German civil law countries and lowest in French civil law and English common law countries (column 6). Scandinavian civil law countries have an intermediate average turnover ratio. Though German civil law countries, as a group, have a significantly higher average turnover ratio than all of the other groups individually, the difference between civil and common law countries as a whole is not highly significant (Panel B, Table 3, column 6).

As a measure the quality of disclosure, I utilize an index of the quality of countries' accounting standards (column 8).⁸¹ As shown in Table 3, Scandinavian countries have the best accounting standards by this measure. Accounting standards among the remaining countries rank, from best to worst, as follows: English common

⁷⁹ *See Id.*

⁸⁰ *See Id.*

⁸¹ *See Id.*

law countries, German civil law countries, and French civil law countries. Thus, the French civil law family finishes last on yet another dimension of investor protection. Finally, the difference between common law and civil law countries is statistically significant, due largely to the influence of the French civil law countries (Panel B, Table 3, column 8).

It is interesting to note briefly that Scandinavian civil law countries have both the best accounting standards and the lowest assessment by market participants of insider trading as a problem in their equity markets (column 9).⁸² Arguably, this perception is influenced by the relatively greater transparency of Scandinavian markets, as reflected in their superior accounting standards. In fact, for the entire sample, better accounting standards are positively and significantly correlated with market participants' assessment of insider trading. The correlation coefficient between these two variables is .49 and is significant at the 1% level. In contrast, the correlation between insider trading law and the public's perception of insider trading is .38, with a significance level of 5%. This might suggest that superior disclosure standards give the investing public a greater sense of protection from insider trading than laws aimed directly at insider trading.

4. Insider Trading Law in Context

Table 4 presents correlations of the two measures of insider trading (insider trading law and the public's perception of insider trading) with various legal, financial and economic variables.

⁸² A lower value of this variable means a worse reputation for insider trading.

Table 4. Correlation of Insider Trading Variables with Various Economic and Legal Variables

Variable	<i>ITI</i> ¹ ("objective" measure)	Public's Perception of Severity of Insider Trading ² ("subjective" measure)
External Market Capitalization	.19	.30 ^b
Ownership Concentration	-.41 ^b	-.25 ^d
Turnover Ratio	.24 ^d	.02
Rule of Law	.29 ^c	.73 ^a
Accounting Standards	.14	.49 ^a
Anti-director Rights	.34 ^b	.29 ^c
One-Share-One-Vote	.02	.08
Creditor Rights	-.05	.08
<i>ITI</i>	1.00	.38 ^b
Public Perception of Insider Trading Severity	.38 ^b	1.0

a. Significant at the 1% level.

b. Significant at the 5% level.

c. Significant at the 10% level.

d. Significant at the 20% level.

1. A greater value of this variable signifies tougher insider trading law.

2. A greater value of this variable signifies that the investing public perceives insider trading to be a less significant problem.

Table 4 suggests that legal systems that give investors relatively greater anti-director rights also tend to have stronger insider trading laws (the correlation coefficient is .34 and is significant at the 5% level). On the other hand, there is no significant

correlation between minority voting rights and insider trading law. Nor is the correlation between insider trading law and accounting standards significant.

As expected, ownership concentration is significantly negatively correlated with both the subjective measure of the severity of insider trading and the toughness of insider trading law. Also as expected, the correlation between insider trading law and market turnover is positive and significant. Furthermore, market capitalization held by outside shareholders relative to GNP is positively correlated with both the objective index of insider trading law and the public's subjective assessment of insider trading. However, the correlation is significant only for the subjective measure of insider trading, but not for the objective measure of insider trading law.

V. Cross-Sectional Multivariate Regression Results

1. Ownership Concentration

Recalling the discussion in Part II above, tougher insider trading laws should be associated with less concentrated share ownership. For the same reasons, one would expect a worse public perception of insider trading to be associated with higher ownership concentration, to the extent that it discourages outside investors from holding shares. Accordingly, Table 5 presents the results of several regressions of the first measure of ownership concentration – the fraction of shares held by the three largest shareholders in the ten largest firms in the economy – on the two insider trading variables.

Table 5. Ownership Concentration Regressions

Dependent Variable: Ownership Concentration			
	(1)	(2)	(3)
Log GNP	-.0576001 ^a (.0194988)	-.0572123 ^a (.0184622)	-.0619865 ^a (.0190873)
Rule of Law	-.0093528 ^d (.017287)	.0077386 (.0119783)	.0028467 (.0117825)
Accounting Standards	-.0040154 ^d (.002837)	-.0036573 ^d (.0026924)	-.004025 ^d (.002791)
French Legal Family	-.0565522 (.0723046)	-.0709763 (.0670531)	-.0703979 (.0693261)
German Legal Family	-.1446526 ^b (.0705762)	-.1514488 ^b (.0673314)	-.148978 ^b (.0695801)
Scandinavian Legal Family	-.1514346 ^b (.0758166)	-.1978736 ^b (.0757649)	-.182494 ^b (.0773523)
Anti-director Rights	-.0498723 ^b (.0205095)	-.0382943 ^c (.0201192)	-.038414 ^c (.021518)
One-Share-One-Vote	-.0082586 (.0499477)	.0016528 (.0466091)	.0093876 (.0488338)
Severity of Insider Trading ("subjective" index)	.0398277 (.0477051)		
Insider Trading Index ("objective" measure of severity of law)		-.0366393 ^c (.0220197)	
Private Right of Action			-.0542065 (.0475429)
Constant	1.482381 (.288512)	1.571496 (.2558007)	1.597321 (.2654818)
Number of Observations	30	30	30
Adjusted R-Squared	.46	.51	.47

Standard errors in parentheses.

- a. Significant at the 1% level.
- b. Significant at the 5% level.
- c. Significant at the 10% level.
- d. Significant at the 20% level.

The basic regression (not shown) of ownership concentration on log GNP and legal origin dummies yields results which are similar to those of La Porta et al.⁸³ In particular, it has an adjusted R-squared of 40 percent which, though 9 percentage points less than theirs,⁸⁴ is still quite high for a cross-country regression. Consistent with their results, the basic regression suggests that ownership concentration is lower in larger economies. Also, French civil law countries have a significantly higher concentration of ownership.

The first regression shown in Table 5 includes some of the investor protection variables considered by La Porta et al.,⁸⁵ as well as the public perception measure of insider trading. Adjusted R-squared increases to 46 percent. As in La Porta et al., the coefficient on French legal origin becomes negative but insignificant.⁸⁶ The first regression in Table 5 also suggests that countries with superior rule of law and accounting standards have a statistically significantly smaller ownership concentration. In addition, countries with superior aggregate anti-director rights also have a statistically significantly lower concentration of ownership. The coefficient on one-share-one-vote is insignificant, however. Counterintuitively, the coefficient on the public perception insider trading measure is positive. However, it is insignificant.

The second regression of Table 5 adds the objective index of the toughness of insider trading laws to the legal protection variables of La Porta et al.⁸⁷ As predicted, countries with tougher insider trading laws have lower ownership concentration. The

⁸³ See La Porta et al., *Legal Determinants*, *supra* note 12.

⁸⁴ My adjusted R-Squared is lower than theirs because I have included fewer independent variables and I have fewer observations.

⁸⁵ See La Porta et al., *Legal Determinants*, *supra* note 12.

⁸⁶ See *Id.*

coefficient on the insider trading index is negative and significant at the 10 percent level. Finally, the third regression in Table 5 replaces the insider trading measures with the private right of action dummy, in order to determine whether such a right is important by itself. Though the coefficient is negative, as expected, it is insignificant.

In sum, Table 5 demonstrates that some dimensions of investor legal protections (like the quality of accounting standards and aggregate anti-director rights, and the toughness of insider trading laws) are importantly related to ownership concentration in large firms, while others (like shareholder voting rights and the right of investors to bring suit against insiders who allegedly have transgressed the insider trading laws) are not. The fact that tougher laws are positively associated with lower ownership concentration among the largest shareholders is consistent with Demsetz' argument that large shareholders desire compensation partly in the form of insider trading profits.⁸⁸ However, it is also consistent with agency cost arguments against unrestricted insider trading. Both these strands of argument predict that tougher insider trading laws, to the extent that they reduce the potential profitability of insider trading, should lessen the incentive for concentrated shareholding. The results in Table 5 suggest that this is indeed the case.

Table 6 shows the results of regressions using the second measure of ownership structure: equity market capitalization held by minority shareholders relative to GNP.⁸⁹ This measure of ownership structure is informative about the degree of ownership dispersion relative to the overall size of the economy.

⁸⁷ See *Id.*

⁸⁸ See Demsetz, *supra* note 50.

⁸⁹ See La Porta et al., *Legal Determinants*, *supra* note 12.

Table 6. Share of Market Capitalization Held by Minority Shareholders

Independent Variable:	(1)	(2)	(3)	(4)
GDP Growth	.0829133 ^a (.0231884)	.048445 ^d (.0313683)	.0689907 ^b (.0312942)	.0461516 ^d (.0278034)
Log GNP	.0024959 (.0472597)	.0108621 (.052411)	-.0400911 (.0621225)	-.0086297 (.054147)
Rule of Law	-.0277041 (.0350426)	-.0217143 (.0471882)	.0204237 (.0407284)	.0064616 (.0393389)
Insider Trading (subjective measure)	-.3007118 ^a (.1061234)	.0305782 (.1694309)		
Insider Trading Law			.0417343 (.0777866)	-.0598177 (.0676335)
French		-.5560407 ^b (.2159911)		-.6472676 ^a (.1535389)
German		-.3833727 ^b (.1734338)		-.4548282 ^b (.1752142)
Scandinavian		-.3719234 ^c (.2106673)		-.5441692 ^b (.2194371)
Constant	-.9171147 (.6448701)	.5009694 (.9437272)	.4001294 (.7424029)	.9164603 (.6503461)
Adj. R-squared	0.3549	.5355	.2171	.4513
Observations	40	32	31	31

Standard errors in parentheses.

a. significant at 1% level.

b. significant at 5% level.

c. significant at 10% level.

d. significant at 20% level.

The first regression in Table 6 includes two economic control variables (GDP growth and log GNP) rule of law, and the subjective insider trading variable. The coefficient on GDP growth is positive and significant, while the coefficient on log GNP

is insignificant. Rule of law has a negative but insignificant coefficient. Contrary to expectations, the coefficient on the subjective measure of insider trading is highly negative and significant (at the 1% level), suggesting that markets with a worse reputation for insider trading have greater ownership dispersion. However, this effect disappears in the second regression.

The second regression controls for legal origin dummies. Civil law countries all have negative and significant coefficients, consistent with La Porta et al.⁹⁰ The coefficient on the subjective insider trading measure becomes positive (as expected) but insignificant. This result suggests that legal origin encompasses whatever is driving the public's perception of the insider trading problem. In other words, the public's perception of insider trading does not have an independent influence on ownership dispersion relative to the size of the economy. In contrast, La Porta et al. find that aggregate anti-director rights and voting rights are still significant after controlling for legal origin, possibly suggesting that broad anti-director protections and voting rights are a more important consideration for minority shareholders than their perceived likelihood of expropriation via illicit trading by corporate insiders.⁹¹

The third regression in Table 6 includes the objective measure of insider trading law, but omits the legal origin dummies. As expected, the coefficient on the index of insider trading law is positive. That is, tougher laws are associated with greater ownership dispersion relative to the size of the economy. However, the coefficient is insignificant. Furthermore, adding the legal origin dummies in the last column of Table 6 causes the coefficient on the insider trading law variable to become negative, though it

⁹⁰ *See Id.*

remains insignificant.

In sum, therefore, tables 5 and 6 yield seemingly contradictory results. The results in Table 5 suggest that insider trading law is significantly negatively related to the average ownership concentration among the few (3) largest shareholders of the (10) largest private firms in the economy (column 2 of Table 5). On the other hand, the results in Table 6 imply that insider trading law (as well as the degree to which the public perceives insider trading to be a problem) has an insignificant bearing on outside ownership of market capitalization relative to the economy's size. Once legal origin is taken into consideration, the significance (if any) of insider trading disappears (see columns 2 and 4 of Table 6).

However, the results in Table 6 ought to be regarded with some caution due to the manner in which La Porta et al. have constructed the external ownership variable used here. In particular, they define outside ownership "as the product of the aggregate stock market capitalization and the average percentage of common shares *not* owned by the top three shareholders in the ten largest non-financial, privately-owned domestic firms."⁹² The underlying assumption is that all "shares not owned by the top three shareholders" represent widely held shares. If this assumption is wrong, then La Porta et al.'s external ownership variable provides a misleading measure of *actual* ownership dispersion. In contrast, the ownership variable in Table 5 *is* an actual figure.

Overall, therefore, the results suggest that tougher insider trading laws coincide with lower ownership concentration. That is, the largest shareholders hold a smaller

⁹¹ *See Id.*

⁹² La Porta et al., *Legal Determinants*, *supra* note 12, at Table 1: Description of the Variables (emphasis added).

fraction of total capitalization in economies where insider trading laws are more stringent.

2. Stock Market Liquidity

In Part III, I hypothesized that tougher sanctions against insider trading violations should be associated with more liquid equity markets, other things equal. Furthermore, to the extent that insider trading laws and corporate disclosure are complementary means to discourage trading by insiders, countries with more strict disclosure requirements (imperfectly measured here by the quality of accounting standards) should have less of an insider trading problem and more liquid markets for any given level of insider trading law.⁹³ As a measure of market liquidity in the regressions that follow, I use the turnover ratio, which is the total value traded relative to average market capitalization.

Table 7 presents the results of various regression specifications.

⁹³ See generally Shin, *supra* note 58 (relating insider trading and disclosure law); Baimain and Verrecchia, *supra* note 59 (discussing inverse relationship between disclosure and insider trading).

Table 7. Turnover Regressions

Dependent Variable: Stock Market Turnover					
	(1)	(2)	(3)	(4)	(5)
Log GNP	11.45 ^b (5.69)	11.02 ^b (6.00)	8.94 ^d (6.00)	9.20 ^d (6.55)	9.15 ^d (6.63)
GDP Growth	1.77 (3.43)	2.56 (3.53)	.855 (2.99)	1.99 (3.27)	.63 (3.87)
French Legal Family	4.02 (20.49)	24.18 (24.34)	10.72 (16.80)	29.05 (22.01)	22.11 (24.48)
German Legal Family	56.60 ^a (19.98)	69.90 ^a (22.20)	64.43 ^a (19.86)	75.02 ^a (22.14)	77.27 ^a (22.66)
Scandinavian Legal Family	16.70 (22.65)	17.64 (23.38)	26.94 (23.3)	26.33 (24.43)	28.73 (24.98)
Public Perception of Insider Trading	1.74 (12.32)	-.56 (12.48)			-9.49 (13.89)
Insider Trading Law (<i>ITI</i>)			11.95 ^c (7.15)	9.74 ^d (7.63)	11.94 ^d (8.38)
Accounting Standards		1.30 ^d (1.01)		1.18 (.99)	1.22 (1.01)
Constant	-111.72 (93.88)	-195.50 (110.02)	-112.06 (-1.46)	-198.89 (101.29)	-162.78 (115.36)
Number of Observations	33	31	32	30	30
Adjusted R-Squared	.4353	.3297	.3614	.3634	.0230

Standard errors in parentheses.

- a. Significant at 1% level.
- b. Significant at 5% level.
- c. Significant at 10% level.
- d. Significant at 20% level.

I first ran a basic regression specification (not shown) in which turnover was regressed on log GNP, GDP growth, and each of the insider trading measures and accounting standards separately. In the basic regression, neither of the two insider

trading measures nor the accounting standards variable is significant. All of the specifications show that larger economies have greater turnover. However, turnover is not influenced by the growth rate of GDP. Membership in the German civil law family has a positive and significant effect on market turnover. Columns 3 through 5 demonstrate that when the legal origin dummies are included along with the insider trading and accounting variables, insider trading law becomes significant.

The first two columns of Table 7 suggest that the public's perception of insider trading does not affect market turnover, while the third through fifth columns suggest, in contrast, that tougher laws *do* matter. The second column includes both the subjective measure of insider trading and accounting standards. The coefficient on accounting standards is positive and significant in this regression. However, when accounting standards and the index of insider trading legislation are combined in the same regression (columns 3 through 5), accounting standards become unimportant. Controlling for insider trading law eliminates the influence of accounting standards. It therefore appears that better accounting standards do not have an independent influence on equity market turnover, once insider trading law is controlled for.

In sum, Table 7 suggests that tougher insider trading laws have a positive impact on market liquidity, as hypothesized. However, the relationship is not significant beyond a 10% level. On the other hand, even this level of significance seems large, in light of the small sample size and the high degree of noise inherent in cross-country regressions. In contrast, the public's perception of the prevalence of insider trading is insignificant in all of the turnover regressions. This is somewhat puzzling, since insider trading law should increase market liquidity to the extent that it reduces market

participants' perception that they are trading against better informed insiders. A possible explanation of this puzzle is that other, unmeasured factors (like enforcement/probability of detection) have a greater influence on public investors' perception of trading by corporate insiders than do the laws on the books. That is, the written laws may not be the most crucial consideration in investors' assessment of the insider trading climate.

Another potential explanation of the apparent insignificance of the public's assessment of the severity of insider trading is that the people surveyed may have been sophisticated market participants (including, perhaps, corporate insiders). In that case, arguably they had an incentive to understate insider trading. The effect of such understatement would be to make the public perception variable uninformative. A final explanation might be that, in fact, insider trading is wholly irrelevant to market liquidity. But this is inconsistent with the finding of a statistically significant positive relationship between tougher insider trading laws and market turnover.⁹⁴ It is also inconsistent with the market microstructure literature (theoretical and empirical) which suggests that greater information asymmetry increases trading costs (and therefore market liquidity).

3. Summary of Results

This research has yielded the following results. First, tougher insider trading laws are negatively and significantly associated with ownership concentration among

⁹⁴ However, the positive coefficient might be due to endogeneity between market liquidity and insider trading law. *See generally*, Nicholas L. Georgakopoulos, *supra* note 49 (arguing this very point). Unfortunately, the data do not allow me to substantiate this claim.

large shareholders. This result holds even after controlling for legal origin and two important investor protection measures, anti-director rights and voting rights. The fact that tougher insider trading laws coincide with lower ownership concentration among the largest shareholders is consistent with the argument that tougher securities laws discourage large shareholders.⁹⁵ It is also consistent with agency cost arguments against allowing unrestricted trading by corporate insiders. However, I find no relationship between insider trading and outside ownership relative to the size of the economy.

Second, I find that tougher insider trading laws are positively associated with the market turnover ratio (one measure of market liquidity). This finding is consistent with theoretical and empirical research in market microstructure. It also lends support to law and economics arguments against unrestrained insider trading on market efficiency grounds.

Finally, I find that greater transparency as approximated by the quality of accounting standards is (weakly) positively associated with lower ownership concentration among the largest shareholders. This result holds even after controlling for insider trading legislation. Such a finding is consistent with the argument that more stringent disclosure laws reduce the costs of breaking up concentrated stockholdings and diversifying portfolios.⁹⁶ It is also consistent with the hypothesis that insider trading legislation and disclosure rules have complementary effects on equity markets.⁹⁷ On the other hand, better accounting standards affect neither the degree of ownership dispersion relative to market size nor market turnover.

⁹⁵ See, e.g., Bhide, *supra* note 51.

⁹⁶ See *Id.*

⁹⁷ See Shin, *supra* note 58; Fox, *supra* note 56.

VI. Limitations and Direction of Future Work

A major contribution of this paper is the insider trading law variable. Hopefully, other researchers will find it useful in analyzing related questions in law and finance.⁹⁸ This variable, however, is not without shortcomings. Aside from the general difficulty inherent in quantifying legal variables, I have some concern about whether it accurately ranks countries according to how stringent their insider trading laws are. I tried to choose the criteria that I thought would make a law tougher, but it is impossible to capture everything in discrete variables. In addition, the laws on the books do not tell a complete story in the absence of information on enforcement. To remedy this, I have written a survey inquiring about enforcement measures. The results of this effort are still outstanding. On the other hand, the correlations between the insider trading law measure and other corporate law variables seem consistent with existing knowledge about how various countries rank in terms of general investor protections, as was demonstrated in Part IV of the paper.

Two other shortcomings of the data concern the variables on liquidity (stock market turnover ratio) and accounting standards. Aggregate equity market turnover is a very rough proxy for trading costs, which are probably considerably more directly influenced by the presence of asymmetric information than is aggregate turnover. Fortunately, I have just received data on transactions costs in different countries,

⁹⁸ In fact, I am aware of several scholars who have already made use of it.

including the countries in this study.⁹⁹ I will incorporate it into subsequent empirical work. Regarding the accounting standards variable, it is poor measure of disclosure law. Again, fortunately, I have recently received new quantitative data on stock exchanges' disclosure rules.¹⁰⁰ I will substitute this data for the accounting standards variable in subsequent empirical work as well.

VII. Conclusion

This research represents one of the first systematic attempts to explore the empirical link between insider trading law and various other legal and economic variables from a comparative perspective. It does not claim to be able to resolve the debate among legal scholars over the optimal level of insider trading regulation. Rather, I see it as part of the growing body of work on comparative corporate governance and securities regulation.

That said, however, some of the findings are certain to inform the ongoing law and economic debate. In particular, I find that insider trading law *is* associated with a lower ownership concentration at the firm level. Subject to data and methodological limitations, this finding might be illuminating to the competing agency theory claims about insider trading and its effect on corporate governance.¹⁰¹ In addition, the finding that insider trading law is positively related to market liquidity might help address

⁹⁹ This data is from the private firm of Elkins/McSherry Co.

¹⁰⁰ This data is from the International Federation of Stock Exchanges (FIBV, Paris).

¹⁰¹ However, as I noted earlier, this finding supports agency theories both for and against unrestrained insider trading.

competing claims about the effect of insider trading on overall market efficiency and in particular on market liquidity.

Appendix

Table 3. Summary Statistics – Economic and Legal Variables

Panel A: Means by Legal Family and Total Sample

Country	Extern. Capital/ GNP	IPOs/ Pop	Debt/ GNP	GDP Growth	Owner- ship Concen	Turn- Over	Rule of Law	Acct.'g Stand's	Public View of Insider Trad'g	Insider Trading Law (10)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
English Origin Average	.80	2.46	.75	4.41	.40	43.17	7.9	71.09	4.31	3.54
French Origin Average	.18	.25	.54	3.03	.47	46.22	7.12	59.00	3.50	2.82
German Origin Average	.46	.13	.97	5.29	.32	96.91	8.68	62.67	4.41	3.14
Scandi- navian Origin Average	.30	2.14	.57	2.43	.31	52.47	10	74.00	5.47	2.50
Sample Average	.42	1.09	.61	3.79	.40	52.27	7.31	61.68	3.87	3.00

Panel B: Tests of Difference between Means by Legal Family

Legal Families	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
C.L. vs. Civ. L.	4.34	3.38	1.06	.93	.10	-1.26	-.27	2.46	1.16	1.90
Eng. vs. French	4.34	3.58	1.81	1.67	-1.25	-.24	.82	3.52	2.81	1.78
Eng. vs. Germ.	1.63	2.51	-1.49	-.57	1.36	-2.35	-.78	2.83	-.29	.84
Eng. vs. Scand.	2.11	.28	1.35	1.6	1.21	-.76	-15.6	-.71	-.63	1.88

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
French vs. Germ.	-2.63	1.25	-2.56	-1.64	2.11	-1.93	-1.39	-.89	-2.79	-.66
French vs. Scand.	-1.56	-3.96	-.17	.78	1.89	-.33	-20.8	-2.77	-3.10	.55
Germ. vs. Scand.	.94	-2.75	2.69	1.31	-.08	1.16	-11.3	-2.66	-.35	.98
