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Abstract

While the importance of equity markets as a vehicle for capital formation is well recognized, their role in providing economically valuable governance services, particularly to small and medium enterprises (SME), has not received much attention. The paper examines the role of public policy in promoting the governance role of secondary equity markets for the benefit of SMEs. The paper first outlines the mechanisms through which equity markets could promote good governance in small firms, showing that equity markets serve as a monitoring and control conduit for outsiders to enforce good governance at the firm. It then establishes that the ability of equity markets to deliver good governance is closely related to those markets' liquidity, presenting further international evidence that firms supported by liquid equity markets realize improved economic performance. Thus, the governance services of secondary equity markets have real economic value to the firms. The paper then argues that public policy can have a positive impact on the effectiveness of equity markets in delivering governance services through enhancing market liquidity. It examines the impact on market liquidity of two significant U.S. Securities and Exchange Commission (SEC) regulatory reforms applied to The Nasdaq Stock Market: SEC's 'trade reporting' rules of 1992, and SEC's "order handling" reforms of 1997. The paper concludes that public policies that increase market transparency and efficiency—such as "trade reporting" requirements and better "order handling" rules—promote the effectiveness of the secondary equity markets in delivering corporate governance through increased market liquidity.

JEL Codes: G1, G3, G14, G18

Key Words : Governance, Stock Markets and Liquidity

I. Introduction

At different stages of their growth, firms face various options in financing their investment and credit needs. These include, but are not limited to, venture capital, bank loans, public-debt issues, private placement, and public offerings of equity. As small and emerging firms mature and grow, the need for larger investment outlays naturally leads to a search for capital. The primary motive for “going public” has been to search for more capital than otherwise could be obtained by the entrepreneur. This paper takes a different focus. There are other equally-important considerations to take into account when electing to raise capital in equity markets—namely, trading in secondary equity markets¹ allows these companies to benefit from more effective corporate governance.

While access to capital is an essential service provided by equity markets, an equally important, but often neglected, role of secondary equity markets is their service as a conduit for effective monitoring and control. We start with the premise that capital markets play two critical roles in an economy—allocation of capital through risk-pooling and risk-sharing, and promotion of responsible corporate governance through a variety of monitoring and control mechanisms aimed at internal decisionmaking. The latter is primarily performed through secondary equity markets.

In its capital-mobilization function, the secondary equity market helps transfer resources from individual savers to “agents” with management and entrepreneurial talents, and helps provide firms and investors with risk-pooling and risk-sharing facilities. In their governance function, secondary equity markets provide monitoring and information-production services that help mitigate various “agency” problems, thus

¹ Secondary equity markets are equity trading venues, in which already existing securities are traded among investors, while primary equity markets are where new issues of securities are offered to the public.

resulting in better corporate decisionmaking even in the absence of the need for new capital.

Previous research indicates that the governance services provided through secondary equity markets have significant economic value, in that such services induce real economic efficiency at a firm level (see, e.g., Levine and Zervos (1998)). This paper illustrates the importance of secondary equity market-driven governance services for small and emerging firms. Based on a large sample of Nasdaq firms, this paper looks at the possible link between the governance services of the supporting secondary equity market and the firm's real economic performance. By arguing that the core feature of secondary equity markets from a governance perspective lies in the market's liquidity, the paper attempts to identify the structural characteristics of the secondary equity market's effectiveness in delivering governance services.

Specifically, it examines the impact on market liquidity of two significant U.S. Securities and Exchange Commission (SEC) regulatory reforms applied to Nasdaq. The first is the SEC's requirement of June 15, 1992, which subjects Nasdaq's "regular" or "small cap" firms to "trade reporting" rules. The second involves the implementation of the SEC's "order handling" reforms, effective January 20, 1997, which requires Nasdaq to display "public limit orders," thus imposing a traditional "auction market feature" to a purely "dealer trading venue."

The paper provides evidence that public policies that increase market transparency and efficiency—such as new "trade reporting" requirements and "order handling" rules—promote the effectiveness of the secondary equity market in delivering governance through increased market liquidity.

Section II discusses the importance of good governance. Section III establishes the link between market liquidity and market-based governance. Section IV provides empirical evidence of the economic value of market-based governance, and identifies some structural characteristics of secondary equity markets that contribute to their effectiveness in providing corporate governance. Section V provides the paper’s conclusions.

II. Governance Services and the Role of the Secondary Equity Market

When company management has different objectives than its outside investors, “agency” and “information” problems may result. For example, management may exert less than optimal effort, may pursue goals that simply enhance its own power and control, or may squander or divert company resources.

In addition, to the extent that management is better informed than outside investors about the company’s financial situation, this creates an informational asymmetry. This, in turn, may result in management being unable to convince its outside investors of the true value of the company as well as of management’s intentions. As a consequence, management also may find that it is not able to raise as much capital as it wants or needs to finance new projects, or that management may have to surrender too much of the value of the firm to raise the capital it wants or needs.

“Governance” refers to the various mechanisms that exist to mitigate these agency and information problems. These mechanisms are numerous, some involving capital markets (e.g., facilitation of corporate control via takeover) while others do not, at least not directly (e.g., the role of the board of directors as a monitoring device).

These major mechanisms will be discussed in detail below.

We use the term “market-based governance” to refer to the role of capital markets in alleviating the agency and information problems, by functioning as an effective conduit for monitoring and controlling management’s sub-optimal behavior.

Market-based governance may take different forms. However, generally speaking, such governance takes the form of facilitating the monitoring of management by outsiders, and aggregating information—in the form of equilibrium prices (or price discovery)—to help guide management decisions within the firm.

Monitoring and Control.

As noted, secondary equity markets serve as a conduit for monitoring and controlling management by outsiders. First, markets generate information that help outside investors evaluate the quality of past management decisions. Second, the threat of a takeover may mitigate management inefficiencies. Third, information on stock-market prices provides for effective incentives for management. And fourth, the rich menu of contracts provided in the market allow private work-outs of financial distress, easing the transfer of control.

For purposes of our analysis below, we have divided monitoring into two categories—market-based and non market-based.

Information Production.

Markets serve to aggregate the diverse opinions held by investors regarding the financial prospects of a company, thereby providing management with an important guide when it comes to its investment decisions. This price-discovery role of secondary equity markets is well recognized. Prices aggregate the diverse opinions and convey that collective wisdom to management. This flow of information from the market to the firm might be especially relevant in today’s economy, since consensus on the optimal

management actions is so difficult to achieve due to rapid technological change and constantly-changing market conditions.

Market-based Monitoring

- **Active shareholders.** The secondary equity market can facilitate effective monitoring by providing the ability to build positions so as to influence management decisions in situations where a change in corporate policies could increase a firm's value.
- **The market for corporate control.** The threat of a corporate takeover by outside investors could serve as a deterrent to mismanagement. Secondary equity markets provide the means for launching a credible takeover threat, which could influence actions by management.
- **Facilitation of incentive-based compensation.** Management could be aligned with its outside shareholders through a proper structuring of incentive-based compensation. Management's equity ownership and stock options provide management with additional incentives to act in the interest of outside shareholders.
- **Certification by investment banks.** When issuing securities to the public, management is monitored by the underwriting investment bankers. When certifying a firm that hires them to sell its securities, these investment bankers place their own reputations and capital at stake.
- **Non market-based monitoring**
 - **Board of directors.** A board of directors is the primary method of non market-based monitoring. Management reports directly to the board, and the board has a fiduciary obligation to stay informed of management's major

activities. The board has the power to terminate management that does not act in the best interests of the company's shareholders. The key to a board's being an effective monitoring mechanism is its independence. In this regard, the composition of the board, especially the presence of outside board members, is critical to its effectiveness as a monitor.

- **Financial intermediaries as delegated monitors.** Banks closely monitor their business borrowers, and collect information and scrutinize major investment and financing decisions. In doing so, they can threaten to withhold financing should management act in a manner contrary to the banks' interests.
- **Monitoring via business groups.** In some countries, such as Japan and Korea, corporate actions are coordinated within a family of interrelated firms, with a main bank at the center. Firms in the group are interconnected through intricate vertical and horizontal business relationships and cross-ownership. Members of the business group, with the lead participation of the main bank, closely monitor the actions of a member firm's management.
- **The legal system.** The legal system governs both the rights of management and the rights of investors. The legal system also specifies the recourse available to investors. Recent research indicates that countries vary in the level of protection afforded to minority shareholders (La Porta et al (1996)). Generally, countries with common-law traditions afford the highest protection, while civil-law countries, particularly the French civil-law systems, provide the least amount of protection.

For purposes of this paper, the main focus and emphasis are on market-based governance services.

III. Market Liquidity and Market-Based Governance

This section examines how market-based governance impacts a company's value, and what determines the market's effectiveness in delivering governance services. Such an assessment is difficult due to problems with direct measurement. However, one can establish a link between market-based governance and a measurable aspect of the secondary equity market—market liquidity—using the latter as an indirect proxy for or measurement of market-based governance.

Market liquidity impacts market-based governance in several ways. First, greater market liquidity implies more and better information—prices reflect information about the firm and its investment prospects more accurately. Also, increased market activity promotes more information-gathering, which, in turn, increases the information content of stock prices (Holmstrom and Tirole (1993)). The more shares of stock actively being traded and the more liquid the market, the easier it becomes for an informed party to make a good return on investment. The resultant increased information flow into the market improves the information content of stock prices.

Second, greater liquidity makes it easier for active shareholders to build positions so as to effect changes in corporate policies. Bhidé (1993) argues that more liquidity implies less monitoring, since shareholders can dispose easily of positions if they disagree with management's policies. On the other hand, Maug (1997) argues that the benefits to shareholders from building positions and effecting good governance is so significant, that the impact of greater market liquidity on effective monitoring is unambiguously positive.

Third, the effective use of the secondary equity market for corporate-control activities requires that the market be liquid. Takeovers require a liquid capital market—a

market where bidders can access a vast amount of capital on *short* notice. Therefore, with liquid markets, investors who want to acquire a firm can do so.

Finally, better-informed stock prices in liquid markets facilitate the monitoring of management, as well as the implementation of incentive-based compensation designed to align management's interests with those of outside shareholders.

While market liquidity could be influenced by a host of factors not related to governance, one would expect, however, a positive relationship between the extent of governance-related services and market liquidity. For example, a public-policy change that requires fuller and higher standard of corporate disclosure would be expected to increase market governance, since that greater disclosure makes it less costly to monitor and reduces information asymmetry. With the increased public confidence this would engender, one would expect a rise in market liquidity. Therefore, market liquidity could be used as a proxy for or measurement of market-based governance.

IV. Evidence of the Economic Value of Market-Based Governance measured by Liquidity

There is much empirical evidence of the likely impacts of various governance mechanisms on a company's value. Shleifer and Vishney (1997) provide an extensive survey while recent studies in the finance-growth literature investigate governance-provision as one of the channels through which capital markets may positively affect company's real economic performance.

One such study that focused on the relations between the development of stock markets as a whole and economic performance is Levine and Zervos (1998). In the study, the authors measure stock market development by the degree of its liquidity and

examined to see if differences in stock market turnover explain cross-country differences in economic performance such as growth rates in real per capita GDP, per capita capital stock and national productivity. The results, shown in Table 1, are striking. Controlling for other common determinants of cross-country growth such as human capital, initial level of development etc., stock market turnover has a robust positive impact on economic performance.

Insert Table 1 here

To extend this evidence to the micro level, we examine, in this paper, the relation between market liquidity as a proxy for market-delivered governance and various measures of real economic performance at industry level. The data consists of performance measures of ten manufacturing industries in 38 countries over the period of 1980 to 1995, obtained from the United Nations' Industrial Development Organization (UNIDO) Industrial Database. The paper uses the secondary equity market's turnover ratio—defined as the total annual dollar value of trading volume divided by total market capitalization by the end of the year from 1980 through 1995—as a proxy for market-based governance. The dependent variables are the annual growth rates in real output, real value-added, and total factor productivity. Because industry-level performance can also be affected by a multitude of country related, industry-specific and period- related factors, we also use a random-effects specification to control for country, industry, and time-related variations in economic performance.

Insert Table 2 here

The results are consistent with Levine and Zervos (1998). There is a strong statistically-significant positive relation between market liquidity and real economic performance², after controlling for country, industry, and time-related sources of variation in market liquidity. The results also indicate that the relationship between market liquidity and performance is economically meaningful. For example, an industry, operating in a country with a stock market one standard deviation above the average of our measure of market liquidity, would have a growth rate of 1.05% per annum in real output more than that of the average industry. Over the sample period of 15 years, real output for such an industry would have been about 17% higher in 1995, the end of the study period. To the extent that market liquidity reflects the governance services rendered possible via the secondary equity markets, these results can be interpreted as evidence of the economic value of market-based governance.

Using similar data from the UNIDO data base for the same industries, Tadesse (2004) reports a strong relationship between stock market liquidity (measured by turnover ratio) and industry-level measures of economic efficiency. In particular, those industries that access capital in countries with more liquid secondary equity markets appear to realize improved production and economic efficiency which the author interprets as the result of improved corporate governance in these countries as reflected in higher liquidity.

4.1 Market Liquidity and SEC Regulatory Reforms vis-à-vis NASDAQ

To the extent that market liquidity is partly a function of the regulatory regime that governs the conduct of market participants, the link between market liquidity and a firm's economic performance provides a means for looking at the role of public policy in promoting good governance via secondary equity markets.

This paper addresses the questions of what characterizes effective market-based governance, and how public policy impacts this effectiveness. For the most part, the effectiveness of market-based governance has to do with the quantity and quality of information, and the speed and accuracy with which that information is reflected in stock prices (informational efficiency).

This, in part, could be determined by the characteristics of the secondary equity market, much of which reflects its current regulatory environment. The information environment of the market could be a function of market regulations that are meant to promote transparency of market transactions, fairness, and market efficiency. Such regulations include insider-trading rules, trade-reporting requirements, and the accounting-disclosure rules governing financial reporting. It also may be a function of the microstructure of the market (e.g., level of transaction costs, margin requirements, and the degree of human involvement in the execution of a trade)³.

For the purposes of this paper, we examined two major regulatory changes that occurred during the period of 1990 to 1998.

In June of 1992, the SEC introduced a "trade reporting" rule that required dealers in Nasdaq "regular" or "small cap" stocks to report sales within 90 seconds of execution,

² The correlation between liquidity and performance is positive and strong when we use exogenous determinants of liquidity as instruments, implying that the relationship could be causal.

thereby elevating the level of reporting to that of “large cap” firms. In January of 1997, Nasdaq began implementing the SEC’s new “order handling” rules which, among other things, requires dealers to display customer “public limit orders” in “large cap” securities.

We collected data on the market and financial performance of firms that traded in The Nasdaq Stock Market over the period of 1990 to 1998. Monthly market data, such as prices, returns, and trading volume, were obtained from the database maintained by the Center for Research in Security Prices (CRSP). Data on financial performance, such as annual sales and earnings, was collected from COMPUSTAT.

We started with all Nasdaq-traded securities trading in the “large caps” as well as Nasdaq “regular” or “small cap” securities. We excluded all securities issued by financial institutions. Of the remaining, we retained all securities with market data and financial performance data available for all the years between January 1, 1990, and December 31, 1998. The final sample contained a total of 938 firms, of which 206 were classified as “small cap” as of June 1992, and the balance belonging to “large caps.”

4.1.1 Market Liquidity and the SEC “Trade Reporting” Requirement

Effective June 15, 1992, the SEC began to subject Nasdaq “regular” or “small cap” firms to the same “trade reporting” rules that existed for “large cap” securities. According to the new rule, Nasdaq members were required to report both broker-to-broker and internalized transactions in “small cap” securities within 90 seconds of execution. According to the SEC, among other things, transaction reporting was intended “to increase transparency of information for investors and issuers, permit immediate collection and scrutiny of trading information for regulatory purposes and facilitate best

³ For example, it has been suggested that price discovery could be better enhanced in markets with a higher degree of human involvement (see Handa, Puneet, Schwartz and Tiwari (1998)).

execution....” At the same time, the rule placed Nasdaq “small cap” securities on equal footing with the Nasdaq “large cap” securities and other exchange-traded securities with respect to information availability for customers and brokers/dealers. Because the rule affects only one segment of the market (“small caps”), this regulatory reform provides a unique opportunity to examine the likely impact of disclosure and market transparency on our proxy (market liquidity) for market-based governance.

Table 3 shows a comparison meant only to *suggest* the likely impact of the “trade reporting” rules on market liquidity. Table 3 provides a statistical comparison of market liquidity—our proxy for market-based governance services—before and after the introduction of the SEC’s “trade reporting” requirements. The table shows a comparison of average turnover ratios—defined as total dollar value of shares traded during a month, divided by total market capitalization at the end of the month—before and after the rule change for all the firms in the sample, which included “large caps” and “small caps.”

Naturally, the “large caps” have higher market liquidity than the “small caps” in both periods. However, of statistical significance, the average market liquidity for all firms after the rule was promulgated was much larger than before the rule was promulgated. More importantly, the average market liquidity of “small caps” increased dramatically after the implementation of the “trade reporting” requirement.

To isolate further the impact of the SEC rule change on market liquidity of small firms, while controlling for other possible contributors to increased market liquidity, we computed the excess of “small cap” turnover ratios over the monthly averages of “large cap” turnover ratios, and compared the average of this excess turnover before and after the introduction of the rule change. Evaluation of the excess liquidity of ‘small cap’ over

‘large cap’ also measures the effect of the rule more accurately because the length of period before and after the introduction of the rule varies. The focus on the excess eliminates the influences of other factors on liquidity related to the periods because such factors would most likely affect both ‘small cap’ and ‘large cap’ alike. Table 3 shows that the gap between the market liquidity of “small caps” and “large caps” narrowed after the introduction of the SEC regulation. Figure 1 and Figure 2 (see, Appendix) show that, while turnover for both “large caps” and “small caps” increased over time, the gap between the average turnover ratios for large “caps” compared to “small caps” declined markedly after mid-1992.

Insert Table 3 here

The differences between “small cap” and “large cap” turnover ratios were -5.5% before 1992, and this difference declined to -2.4% after 1992. The differences in excess turnover are statistically significant at a 1% level of confidence. Therefore, controlling for other contributors to market liquidity, the 1992 SEC “trade reporting” rule has been accompanied by a net increase in the market liquidity of the targeted firms—i.e, the Nasdaq “regular” or “small cap” firms. To the extent that the increase in market liquidity is a reflection of the increased level of disclosure and market transparency, one could argue that market liquidity enhances the secondary equity market’s ability to deliver the type of governance services we have discussed above.

These results are also confirmed when we make the comparison over an equal period of time before and after the promulgation of the rule to control for other factors that may explain the changes in turnover. In comparing the average turnover over the

two and half years from January, 1990 through June, 1992 against the average turnover over the two and half years after the enactment of the rule from July, 1992 through December, 1994, we find that market liquidity has dramatically increased in the latter period, more markedly for small ‘cap’ firms. While turnover increased from 8 percent to 11 percent for all firms, it jumped from 5 percent to 10 percent for small firms, the target group of the rule, during this period (not shown on the Table). These differences are statistically significant at 1 percent level. The gap between the market liquidity of “small cap” firms and “large cap” firms narrowed significantly over this period. The differences between “small cap” and “large cap” turnover ratios were –5 percent before June, 1992, and this difference declined to -1.8 percent over the two and half years after June, 1992.

4.1.2 Market Liquidity and the SEC “Order Handling” Rules

Historically, The Nasdaq Stock Market operated as a purely “dealer market,” in which competition among dealers was presumed to assure low-trading costs to the public, thus making it unnecessary to entertain “public limit orders.” The core of the 1997 SEC reforms required Nasdaq to display customer limit orders, and to disseminate the prices in private-trading venues (Electronic Communication Networks (ECNs)) throughout The Nasdaq Stock Market.

Insert Table 4 here

As pointed out by Barclay et al. (1999), to the extent that “public limit orders” are a feature of auction markets, such as The New York Stock Exchange, the effect of the new SEC rule can be viewed as imposing “auction market” characteristics to a traditionally “pure dealers market.” This imposition of “auction market” features on a traditionally “pure dealer market” allows us to examine the alternative trading venue’s impact on market liquidity and, thereby, on the degree of information aggregation and monitoring provided via the secondary equity market.

Evidence of the likely impact of the “order handling” reform is suggested in Table 4. The evidence is only suggestive in that it is based on a means comparison, without controlling for the host of factors (not related to the reform) that could have an effect on market liquidity. Nonetheless, Table 4 shows a comparison of average market liquidity before and after the 1997 SEC reform for all firms, “large cap” firms only, and “small cap” firms only. For all firms, liquidity significantly increased after the introduction of the new rule in 1997 as compared to before its introduction. The same holds true for both “large cap” firms only, and “small cap” firms only. A comparison of average turnover over equal length of periods also reveals the same patterns. Average turnover for all firms increased from 14 percent over the two-year period from January, 1995 through December, 1996 to 16 percent over the two-year period after the enactment of the rule, January, 1997 through December, 1998. Moreover the rise in market liquidity for small firms was more pronounced, increasing from 12 percent to 15 percent. The rise in market liquidity could be for reasons other than the market reform, as we did not control for many known determinants of liquidity. More obviously, this was a period of stock market boom that could explain the increase in turnover. However, these results

are consistent with the findings of Barclay et al. (1999) who found a significant drop in quoted and effective bid-ask spread and quoted depth (alternative measures of market liquidity) after the implementation of the “order handling” reforms.

V. Conclusions

A. Capital markets provide corporate-governance services—not just capital formation.

The importance of “going public” as a source for capital for small and emerging firms has been well recognized. As firms grow and their large-scale investment needs require more capital and risk-sharing, the natural course is to opt for equity markets. While recognizing the important role of secondary equity markets for capital formation, this paper argues that there also are other equally-important considerations.

Specifically, trading in secondary equity markets allows firms to benefit from better governance in the form of effective monitoring and control. These services include, among others, corporate monitoring and control activities, incentive-based contracts for management, and aggregation of information useful in guiding management decisions.

B. Market-delivered governance can be measured in terms of the extent of market liquidity.

The core feature of secondary equity markets from a governance perspective lies in the market’s liquidity. A liquid secondary equity market promotes effective control and monitoring by enabling active shareholders to build positions where they can influence corporate policies, by facilitating value-enhancing corporate takeovers, and by enabling implementation of incentive-based compensation that aligns the interests of

management and its outside shareholders. A liquid market also provides greater information efficiency, which leads to market prices that reflect information about the firm and its investment prospects more accurately.

The paper offers evidence that these market-based governance services have real economic value. Market-based governance, as measured by market liquidity, was found to have a positive relationship to growth in output and productivity improvements.

C. Public policies that impact market liquidity have had the unintended consequence of promoting market-based governance that, in turn, has had a positive impact on a company's real economic performance.

The paper also examines the questions of what characterizes effective market-based governance, and how public policy impacts this effectiveness. Specifically, the paper examines the impact on market liquidity of two significant SEC regulatory reforms as applied to Nasdaq. The first is the SEC's 1992 requirement that subjects Nasdaq "regular" or "small cap" firms to last-sale "trade reporting" rules. The second involves the implementation of the SEC's 1997 "order handling" reform, which requires the display of "public limit orders" on The Nasdaq Stock Market, thus imposing an "auction market" feature on a purely "dealer trading" venue.

The paper concludes by suggesting that regulatory policies that increase market transparency and efficiency—through new "trade reporting" and "order handling" rules—promote the effectiveness of the secondary equity market in providing market-based governance through increases in market liquidity.

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Table 1: Market Liquidity of Secondary Equity Markets and Real Economic Performance: Country Level International Evidence

Stock Market Turnover ratio is defined as annual dollar trading volume divided by total market capitalization at the end of the year. The dependent variables are the annual growth rates in real per capita GDP, per capita capital stock, and national productivity for 47 countries over the period of 1976-1993.

Independent Variable	Dependent Variables		
	Growth in Real Per Capita GDP	Growth in Real Capital Stock	Growth in National Productivity
Stock Market Turnover Ratio	0.0269***	0.0222***	0.0201***

Source: Levine and Zervos (1998)

Table 2: Market Liquidity of Secondary Equity Markets and Real Economic Performance: Industry-Level International Evidence

Stock Market Turnover ratio is defined as annual dollar trading volume divided by total market capitalization at the end of the year. The dependent variables are the annual compound growth rate in the real value-added, the annual compound growth rate in the real gross output, and the annual productivity growth for each of the ten industries in 38 countries for the period of 1980-1995. Value-added is gross output less value of intermediate inputs. Other variables, not reported in the respective regressions, are average GDP per capita, as well as country, industry, and time random effects.

Independent Variable	Dependent Variables		
	Growth in Real Output	Growth in Real Value-Added	Growth in Industrial Productivity
Stock Market Turnover Ratio	0.0358***	0.057***	0.0389***

*** Indicates that the corresponding values are statistically significant at 1%.

Table 3: Market Liquidity After Introduction of SEC’s “Trade Reporting” Rule for NASDAQ “Regular” or “Small Cap” Securities

Turnover ratio is defined as monthly dollar trading volume divided by market capitalization at the end of the month. Numbers in the Table represent monthly average turnover ratios for the category of stocks specified. The second column shows monthly averages of turnover ratios over the sample period prior to the introduction in June of 1992 of the SEC’s last-sale “trade reporting” requirement for the Nasdaq “small cap” stocks. The third column reports monthly averages of turnover ratios for the sample period after the implementation of the requirement. Small Cap LESS Large Cap represents cross-sectional averages of excess turnover of “small cap” stocks over the monthly average of “large cap” stocks.

Variables	01/90 to 06/92	07/92 to 12/98	T-test of Difference in Means
Turnover Ratio			
All Stocks	0.083	0.136	-27.0***
Stocks in The Nasdaq Stock Market (Large Cap Stocks)	0.106	0.144	-11.7***
Nasdaq “Regular” Stocks (Small Cap Stocks)	0.050	0.120	-37.8***
Small Cap LESS Large Cap	-0.055	-0.024	-17.5***

*** Indicates that the values in the corresponding row are statistically different from each other at the 1% level.

Table 4: Market Liquidity After Introduction of SEC’s “Order Handling” Rules

Turnover ratio is defined as monthly dollar trading volume divided by market capitalization at the end of the month. Numbers in the Table represent monthly average turnover ratios for the category of stocks specified. The second column shows monthly averages of turnover ratios over the sample period prior to the introduction in January of 1997 of the SEC’s new “order handling” requirement for Nasdaq-traded securities. The third column reports monthly averages of turnover ratios for the sample period after the implementation of the requirement. Small Cap LESS Large Cap represents cross-sectional averages of excess turnover of “small cap” stocks over the monthly average of “large cap” stocks.

Variables	01/90 to 12/96	01/97 to 12/98	T-test of Difference in Means
Turnover Ratio			
All Stocks	0.112	0.159	-27.9***
Stocks in The Nasdaq Stock Market (Large Cap Stocks)	0.126	0.166	-22.4***
Nasdaq “Regular” Stocks (Small Cap Stocks)	0.087	0.137	-12.4***
Small Cap LESS Large Cap	-0.020	-0.027	1.58

*** Indicates that the values in the corresponding row are statistically different from each other at the 1% level.

FIGURE 1: Monthly Average Turnover Ratios over the period January 1990 to December 1998

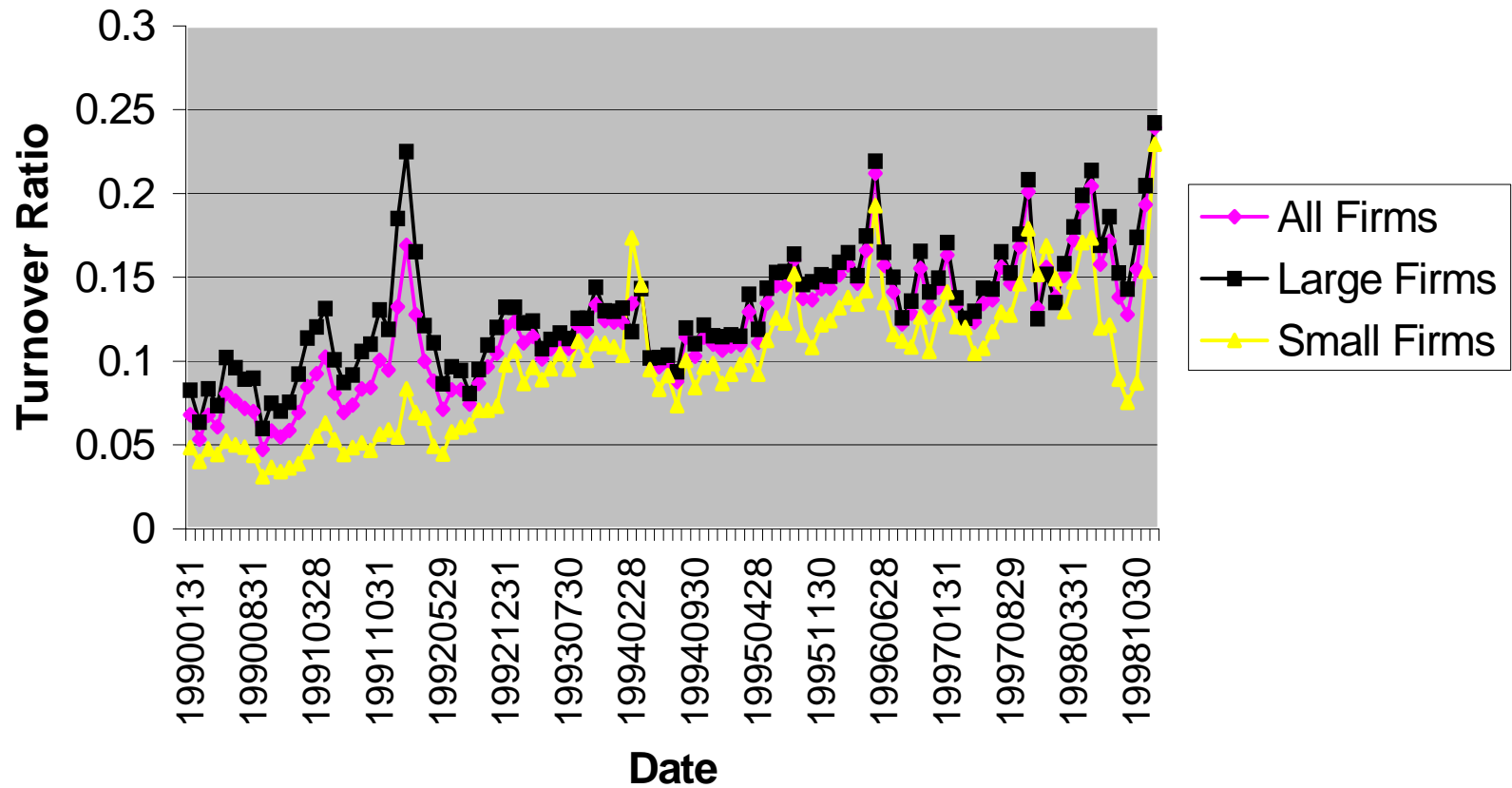


FIGURE 2: Monthly Average Turnover Ratios over the period January 1990 to December 1994

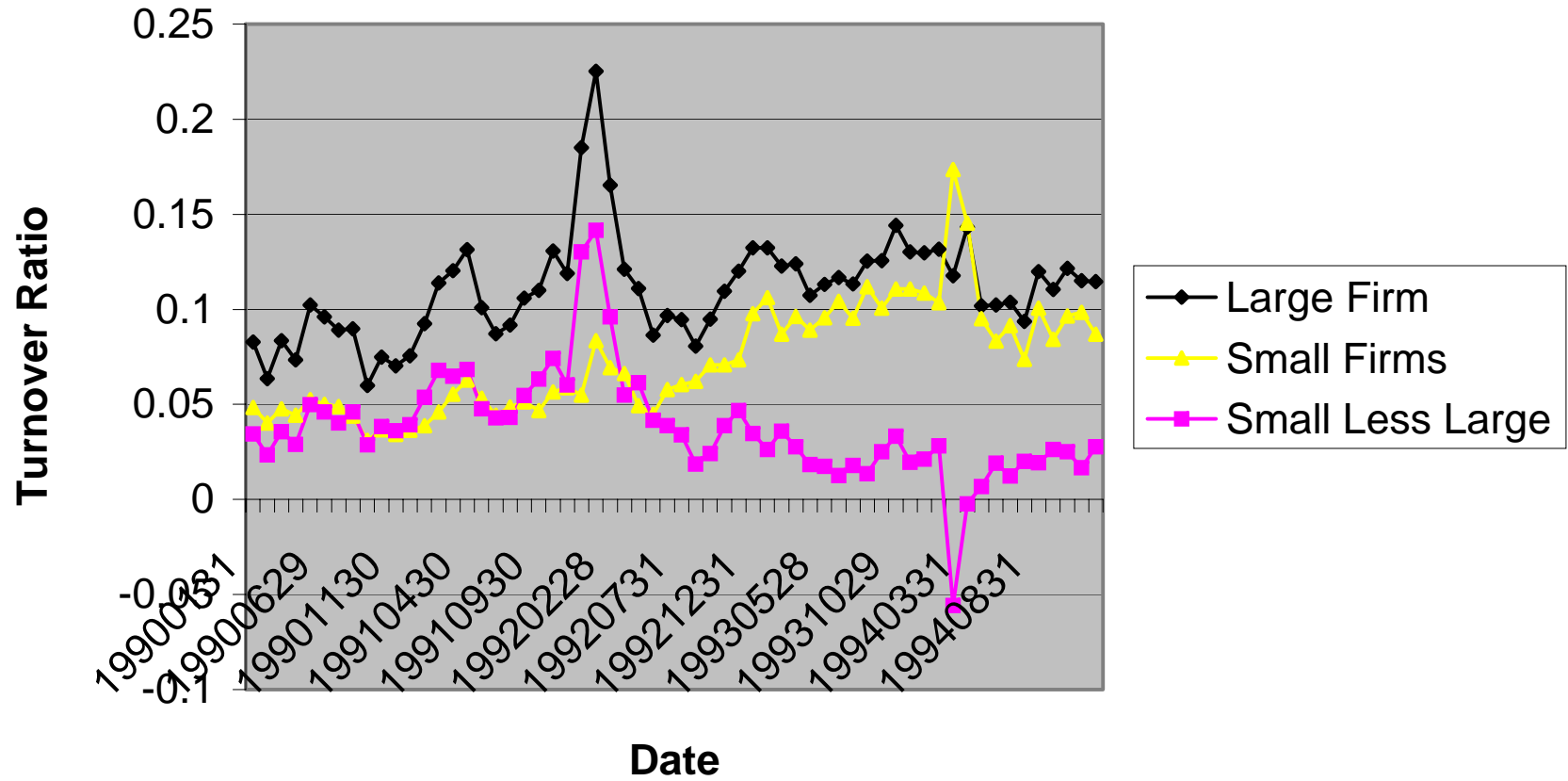
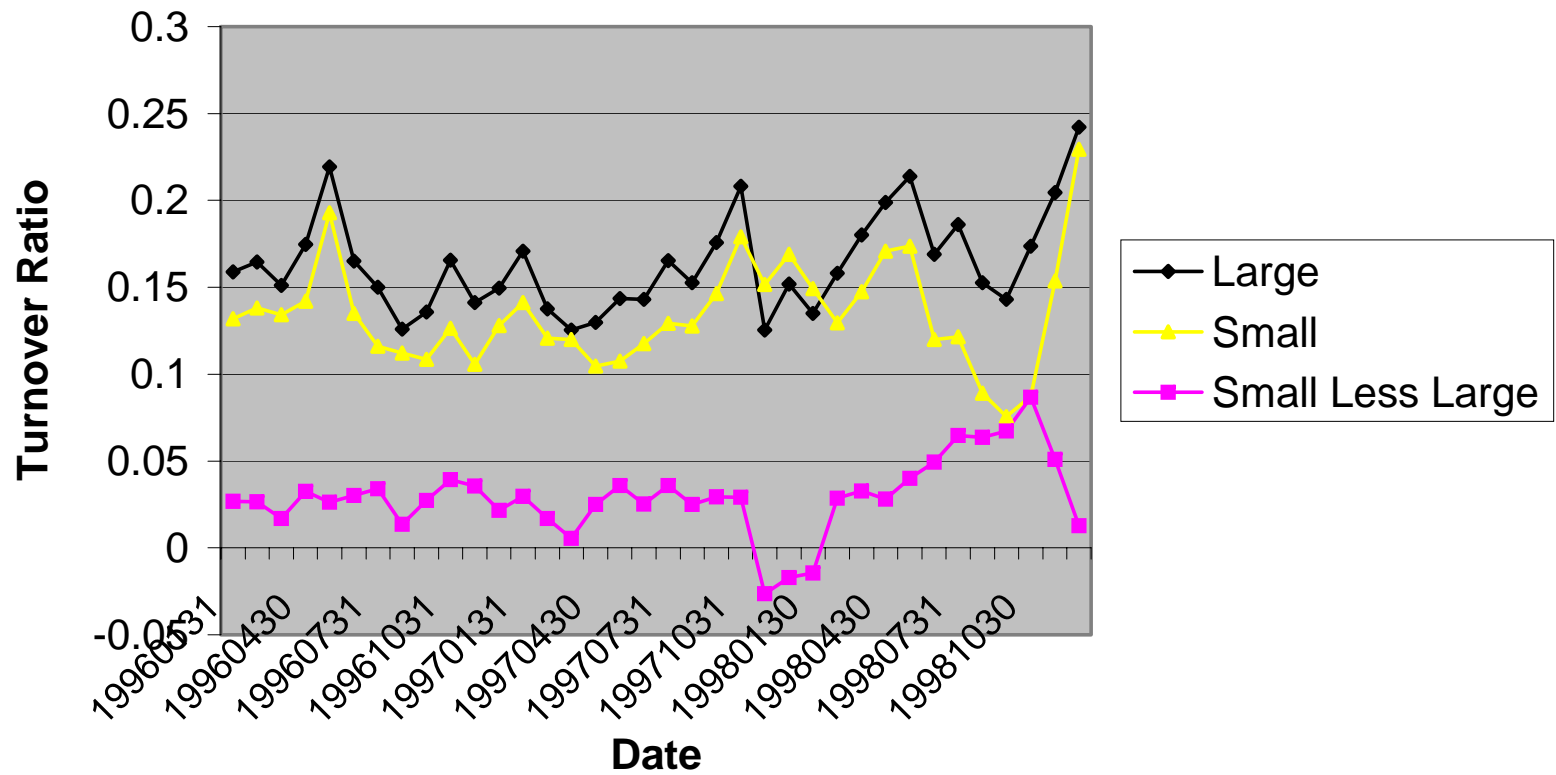


FIGURE 3: Monthly Average Turnover Ratios over the period January 1996 to December 1998



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