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The Effect of Capital Structure and Consolidated Control on Firm Performance, Firm Value, Insider Trading, and Market Microstructure: The Case of Dual Versus Single-Class Initial Public Offerings.

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Varshney, Sanjay B., Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1994

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**THE EFFECT OF CAPITAL STRUCTURE AND CONSOLIDATED
CONTROL ON FIRM PERFORMANCE, FIRM VALUE, INSIDER
TRADING, AND MARKET MICROSTRUCTURE:
THE CASE OF DUAL VERSUS SINGLE-CLASS
INITIAL PUBLIC OFFERINGS**

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Interdepartmental Program in Business Administration

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Abstract

This dissertation examines the importance of equity structure choice by management in the context of IPOs. Specifically, it identifies and presents some managerial motives for a dual-class equity structure at the time of IPO that derive from governance and market microstructure considerations, and analyzes the effects of dual-class common stock structures (versus single voting class common stock) and the distribution of voting power on initial underpricing, subsequent after-market pricing, long-run firm performance, insider trading, firm liquidity and related market microstructure issues.

To assess underpricing and performance differences that are due to the firm's ownership structure, a control sample of single-class IPOs that is matched to the dual-class by exchange, firm size, industry, and time of offering is created. For the sample of all dual-class IPOs in the 1980s, the study finds no statistically significant abnormal long-run performance over a three year horizon. This stands in sharp contrast to Ritter's [1991] finding of significant IPO underperformance in the three years after going public. Upon comparing dual-class and control group performance across different exchanges, the study finds that for both NYSE/AMEX and NASDAQ, single-class IPOs significantly underperform dual-class IPOs in stock-price performance during the three years following the offering. The underperformance is not sensitive to the choice of benchmark used to adjust for market movements, or to the exchange on which the shares trade. Additionally, using various accounting measures of operating performance, the study finds that

over three years of trading on the market dual-class IPOs on average are twice as profitable as single-class IPOs.

Furthermore, a dual-class structure is found to reduce the adverse selection problem facing uninformed traders. Not only do the dual-class IPOs (relative to single-class) experience significantly lesser underpricing at the time of IPO, but also appear to enjoy improved liquidity during the 250 trading days following the IPO. The dual-class firms have significantly smaller bid-ask spreads, trade-to-trade price volatility, average trade size, and larger average volume turnover ratio.

Chapter 1

Introduction

This study presents new evidence pertaining to dual-class and single-class initial public offerings (IPOs), and extends the literature on corporate governance and market microstructure. Issues addressed herein relate to the choice of a dual-class equity structure by some IPOs in contrast to a single-class structure by most other IPOs and the effect of such choice on firm value, on post-IPO performance, on extent of insider trading, and on related market microstructure issues. The dual-class firms are unique in that the two classes of common stock have almost identical cash-flow claims but differential voting rights. Moreover, only the inferior voting stock is issued in the IPO and publicly traded while the superior voting stock (and along with it firm control) is retained almost entirely by the owners/founders at the time of going public thereby concentrating control in their hands. The study addresses the question of whether the issuing firms benefit, *ceteris paribus*, from concentrating control in such a way.

The study analyzes these firms' characteristics in order to provide new insights, and empirically examines existing theories that try to explain a dual-class capital structure choice by management. It differs from earlier studies on dual-class firms in several respects. While earlier studies dealt with recapitalizations, this study analyzes dual-class IPOs. In a dual-class IPO, the firm's owners can design a governance structure for the firm prior to taking it public. Hence, all potential transfer of wealth effects resulting from a change to the new control structure occur prior to the IPO. Accordingly, the inferior voting stock receives its fair market value at the time of going

public. In contrast to analyses of recapitalizations, the results in this study are not sensitive to potential wealth expropriations from holders of inferior voting shares to holders of superior voting shares. Furthermore, the adverse selection problem is higher for IPOs than for seasoned equity due to lack of public trading history.

The study identifies and explains managerial motives for a dual-class equity structure in the case of IPOs. In particular, it analyzes the effects of dual-class common stock structures (versus ordinary or single voting class common stock) and the distribution of voting power on initial underpricing and post-IPO firm performance (both stock price and operating). Furthermore, it examines the effects of dual versus single classes of common stock upon various measures of liquidity, extent of insider trading, and upon the adverse information component of the bid-ask spread. To get first-hand information on some reasons that motivated the founders of the dual-class IPOs to adopt a dual-class equity structure at the time of going public, the CEOs/CFOs were contacted for an opinion (Some excerpts are contained in Appendix D). Various studies have examined the underpricing and long-run performance of IPOs. However, no study has examined the underpricing, long-run performance, or market microstructure characteristics of dual-class IPOs where control is concentrated in the hands of management.

The study covers a relatively recent time period over which much controversy has arisen with respect to dual-class recapitalization. The dual-class IPO sample comprises firms that went public in and after 1984 when the NYSE imposed a moratorium on the delisting of companies with a dual-class equity structure. The issue

of whether or not to allow firms to adopt a dual-class equity structure is still being decided by the Securities and Exchange Commission (SEC). The SEC has proposed Rule 19c-4 which permits firms to recapitalize with a dual-class equity structure as long as it does not diminish the voting power of existing shareholders. In effect, a firm can issue a new class of stock through a public offering, but with lower voting rights. In anticipation, this could lead some owner-managers desiring to take their firms public to adopt a dual-class equity structure upfront at the time of IPO, rather than have to deal with the legal intricacies of the aforementioned SEC rule upon recapitalization later. Furthermore, by doing this they suffer from smaller dilution of firm control.

The study documents net benefits to a dual-class equity structure in the case of IPOs. In particular, the shares of dual-class firms experience significantly lower first-day underpricing relative to those of single-class firms. Within the framework of models elaborated by Rock [1986] and Beatty and Ritter [1986], lower underpricing is consistent with a reduced adverse selection problem at the time of IPO. The dual-class shares also significantly outperform shares of single-class firms in the three years following the IPO. Dual-class shares do not significantly underperform the market, which stands in sharp contrast to Ritter's [1991] finding of significant IPO long-run underperformance. This basic conclusion is not sensitive to the exchange where the shares trade or to the method used to adjust for market movements. Additionally, various accounting measures of operating performance show the dual-class IPOs to be on average twice as profitable as their single-class counterparts at the end of three years on the market. The founders of dual-class firms retain at least 49% of the cash-flow

claim while diluting the firm on average by 27.21% and retaining more than 68% of the voting control, and are thereby subject to the ex-post wealth consequences of their own decisions.

The study further examines net benefits to a dual-class equity structure for IPOs that derive from market microstructure considerations. Previous research on dual-class common stock has focused primarily upon issues related to managerial control (See Moyer, Rao and Sisneros [1992] for a recent review). Here, the study attempts to test the hypothesis that a dual-class voting structure for the firm's ownership may help to mitigate the adverse selection problem facing uninformed traders at the time of going public. This would, *ceteris paribus*, improve the liquidity and increase the value of the firm's stock.

The study finds significant differences in the microstructure characteristics of the two samples. It further finds that for both samples, several microstructure variables (e.g. quoted spread, trading volume, trade-to-trade price volatility, adverse information component of the spread) change significantly during the seasoning period. In support of the aforementioned hypothesis, the study finds that a dual-class equity structure for IPOs results in significant mitigation of the adverse selection problem facing uninformed traders at the time of going public. Over the entire 250 day aftermarket trading period examined, the dual-class IPOs experience significantly smaller quoted relative and effective spreads, lower trade-to-trade price volatility, smaller average trade size (number of shares) and higher average turnover ratio (volume/shares outstanding and publicly traded) relative to the single-class IPOs. These measures strongly suggest

improved liquidity and consequently increased firm value. The differences in liquidity measures persist and remain significant from the first to the last trading day within the sample study period, irrespective of the frequency used for aggregating the data (daily, weekly, quarterly, or overall).

The overall evidence together with comments obtained from CEOs suggest that a dual-class capital structure in the case of IPOs is motivated by financing and diversification constraints of owner-managers with long-term vested interests in their firms rather than concentration of control as an anti-takeover device in the event of poor firm-performance. Additionally, a dual-class equity structure serves to mitigate the adverse selection problem facing uninformed traders and results, *ceteris paribus*, in reduced underpricing, improved operating performance, improved liquidity, and increased value of the firm's stock. A dual-class equity structure enables the owners/founders to successfully pursue at least five motives simultaneously: 1) raise additional capital for new projects, 2) effectively diversify personal wealth, 3) retain majority control and an active role in the very firms they have founded, even after subsequent offerings¹, 4) pursue long-term interests rather than short-term profits, and 5) ward off any unsolicited external interference to enable the firm to stabilize itself in a new operating and legal environment after going public. In particular, a dual-class framework provides increased incentives for managers to invest in organization-specific

¹If a firm makes subsequent offerings, both the cash-flow claim and the voting control of the owner-managers gets diluted. However, due to a dual-class equity structure, it is possible for the owner-managers to dilute their cash-flow claim significantly, and yet dilute their voting control only by a small amount so that they still effectively retain control.

human capital since the likelihood that returns to such investment will be expropriated is considerably reduced.

The tests in the study are carried out using three samples of firms trading on the NASDAQ, AMEX, and NYSE markets over the period 1984-1990: 1) 98 dual-class IPOs, 2) 1270 single-class (ordinary) IPOs, and 3) a control group of 98 single-class IPOs matched to the dual-class sample by exchange, offer date, industry, and firm size. The remainder of this study is organized as follows. Chapter 2 presents related research on underpricing and the long-run performance of IPOs, dual-class recapitalizations and the resultant shareholder wealth effects, and the market microstructure characteristics of IPOs. The major hypotheses tested in the study are discussed in Chapter 3. The data collection process, methodology and design for carrying out the tests, description of the sample firms, and summary statistics are outlined in Chapter 4. Chapter 5 presents empirical results on firm underpricing, long-run performance, and market microstructure characteristics of dual and single-class IPOs. Concluding remarks and a brief summary appear in Chapter 6.

Chapter 2

Initial Public Offerings and Dual-Class Equity Structures - Related Research

2.1. Introduction

Through the years and especially during the 1980s, many firms created a second class of common stock with limited voting rights. The effects of such managerial choice on firm underpricing, long-run firm performance, firm value, insider trading, and related market microstructure issues are potentially interesting. Past research on IPOs has discussed and documented the underpricing and long-run underperformance phenomena, but has not provided any insight on corporate governance or market microstructure issues related to IPOs with dual-class equity structures. Furthermore, previous research on recapitalizations by Jarrell and Poulsen [1988], Partch [1987], Sisneros [1989], Cornett and Vetsuypens [1989], Moyer and Sisneros [1991], and Mikkelsen and Partch [1992] has found mixed evidence on the wealth effects of the adoption of dual-class capital structures. Most firms in their samples (with the exception of Sisneros, and Moyer and Sisneros), however, recapitalized and adopted a dual-class capital structure after the IPO. In contrast, this study is interested in privately held firms that have adopted a dual-class capital structure and then issued the diminished voting shares in an IPO. The sample of IPOs used in this study is not sensitive to a potential wealth expropriation from holders of inferior-voting shares. In contrast, some shareholders may gain at the expense of others in later conversion to a dual-class structure.² Furthermore, the adverse selection problem facing investors, the

²Ruback [1988] shows that common-stock shareholders may be coerced into converting their holdings into inferior-voting shares to their own detriment.

trading and legal environments, and motivations for a dual-class equity structure may be potentially different for IPOs compared to those for seasoned firms.

2.2. The IPO Market

2.2.1 Introduction

Previous IPO research has primarily focussed on three anomalies: (1) short-run underpricing of IPOs, (2) the "hot issue" market phenomenon, and (3) the long-run underperformance of IPOs. Following Ibbotson's [1975] pioneering paper, extensive work has been done to document these anomalies and to offer hypotheses to explain them. The IPO aftermarket is potentially interesting since a firm enters a new operating and legal environment very different from that when it is private.

2.2.2 Initial Underpricing

Ibbotson [1975], Ibbotson and Jaffe [1975], and Ritter [1984] document that IPOs experience an average underpricing of 15%, and that the amount of underpricing varies substantially over time and across industries. Numerous theories of underpricing have been offered. Some theories have focussed on informational asymmetries at the time of the IPO, while others rely on the reputational capital of underwriters as a disciplinary mechanism. However, they generally differ with respect to the assumed information structure.

The IPO market is characterized typically by problems of adverse selection and moral hazard as first described by Akerlof [1970] in his "lemons" problem. In the absence of any mechanisms that help distinguish between bad versus good projects, there exists a pooling equilibrium (instead of a separating equilibrium) for all projects

in terms of prices. Eventually, due to informational asymmetries the bad drive out the good and markets collapse. In the context of the IPO market and within the framework of the securities issuance literature, some researchers have proposed models using signaling arguments and reputational capital as disciplinary mechanisms that would help reduce the adverse selection problem and certify the quality of firm projects (see Leland and Pyle [1977], Ross [1977], Myers and Majluf [1984], Miller and Rock [1985], and Titman and Trueman [1986]).

Specifically, Baron and Holstrom's [1980] and Baron's [1982] models of underpricing assume investment bankers have an informational advantage over issuers, such that the latter transfer the pricing decision to the former who offer the securities at a discount as compensation for the use of their superior information. In the process, the investment bankers are able to enhance client relationships without spending too much marketing effort. Ritter [1984] and Chalk and Peavy [1987] attribute underpricing to the use of monopsony power by investment bankers.

On the other hand, Rock [1986] attributes underpricing to informational asymmetries between informed and uninformed investors. He argues that IPOs are underpriced by underwriters to compensate uninformed investors for the "winners' curse" problem they face, thus ensuring uninformed participation in the IPO market. Informed investors subscribe only to those issues about which they have favorable information. Beatty and Ritter [1986] extend Rock's model and show that expected underpricing increases with the ex-ante uncertainty surrounding the IPO. Moreover, Beatty and Ritter [1986], Booth and Smith [1986], and Carter and Manaster [1990]

develop models where underwriter reputation is used as a signal to certify firm quality, thereby reducing the adverse selection problem and consequently the need for underpricing.

Tinic [1988] presents evidence to support the view that underpricing serves as an efficient insurance mechanism against potential legal liabilities of issuers. Allen and Faulhaber [1989], Welch [1989], and Grinblatt and Hwang [1989] view underpricing as a signal of firm quality. The issuing firms have superior information about their value, and good firms are willing to underprice because they are able to recoup the underpricing loss in subsequent offerings. Slovin and Young [1990], James and Weir [1990], and Megginson and Weiss [1991] document how the reputational capital of commercial banks and venture capitalists helps certify firm quality and thereby reduces the need for underpricing.

Benveniste and Spindt [1989] develop a model where firms use underpricing to acquire information from their regular clients who are assumed to possess superior information relative to all others. The underwriters, who control both price and allocation of the IPO, conduct a road-show during which they induce regular investors through greater underpricing to truthfully reveal their private information. Consequently hot issues are subject to greater underpricing relative to cold issues since the underpricing constitutes a reward to the informed investors for revealing their information. Hanley [1993] finds evidence for this hypothesis whereby the issues for which the underwriters revise the offer price and offer quantity (number of shares)

upward from the midpoints of the filing ranges respectively, are deemed to be hot and are consequently more underpriced.

Finally, Muscarella and Vetsuypens [1989] find that investment banks that went public were underpriced as well. This evidence serves to contradict the various aforementioned explanations for underpricing that employ the reputational capital of underwriters as a disciplinary mechanism to reduce the adverse selection problem and underpricing.

2.2.3 Long-Run Performance

In contrast to the overwhelming volume of underpricing literature, relatively few studies have examined the long-run aftermarket performance of IPOs. With the exception of Buser and Chan [1987], all studies which examine the long-run performance of IPOs (Stoll and Curley [1970], Ibbotson [1975], Ritter [1984], Aggarwal and Rivoli [1990], and Ritter [1991]) find evidence of significantly negative aftermarket performance (excluding the initial day return). Ritter [1984] examines the aftermarket behavior of natural resource stocks from September 1981 to August 1982 and finds a "hot market" for these issues. He posits an initial speculative bubble in trading as a result of which the aftermarket returns for the sample of IPOs underperformed an index of seasoned natural resource stocks by 15%. Aggarwal and Rivoli [1990] find that for their sample of 1598 IPOs over the period 1977-1987, investors who purchased at the closing price on day 1 in the aftermarket and held until day 250 earned significantly negative returns of -13.73%. Finally, Ritter [1991] documents long-run underperformance of 1526 IPOs, issued between 1975 and 1984,

during their first three years on the market. He finds that they underperformed the market as well as a sample of matching firms after three years of trading. He concludes that his findings and methodology leave several issues unresolved, indicating a need for alternative explanations for the underperformance.

Aggarwal and Rivoli [1990] as well as Ritter [1991] posit that the IPO market may be subject to mean reverting fads. Here, a fad is defined as a temporary overvaluation caused by over-optimism on the part of investors. Aggarwal and Rivoli [1990] consider the IPO market a good candidate for the presence of fads for several reasons: (1) the intrinsic value of IPOs is difficult to estimate and is shrouded in great uncertainty; (2) IPOs may be associated with higher risk and higher levels of noise trading, some forms of which result from expectations that do not conform to standard rationality assumptions such as overoptimism; and (3) IPO investors may be more speculative than other investors, and more speculation may lead to higher levels of price volatility.

2.2.4 Market Microstructure

The only microstructure study on IPOs is that by Hegde and Miller [1989], who upon studying IPOs during 1983-84, report that quoted percentage spreads are on average three-fourths as large as those for seasoned stocks. They employ a cross-sectional and time-series analysis whereby they show that differences in spreads between IPOs and seasoned stocks remain significant up to eight weeks into the aftermarket. Lower spreads for IPOs stem from both the levels as well as the differential elasticities of the determinants of the spread. However, they neither use

intraday price data, nor account for corporate governance issues related to dual-class equity structures for IPOs. This study utilizes a more recent sample, intraday price data, and performs tests that add to the literature on market microstructure and IPOs by analyzing some very unique firms that have differential voting rights and common share structures.

2.3. Theory and Evidence on Dual-Class Recapitalizations

Dual-class firms may be viewed as a hybrid organizational form that is in between private, closely held firms and public corporations that have a widely dispersed ownership. The two (or sometimes more) classes of common stock usually have identical cash-flow claims but differential voting rights. Moreover, in most dual-class firms, only the inferior voting stock is publicly traded while the superior voting stock is closely held by managers and insiders. Various motivations for this arrangement of equity structure have been discussed by earlier researchers (see DeAngelo and DeAngelo [1985] for a discussion).

Managers of public corporations may hold common stock for its residual cash-flow rights, or for the voting rights it carries, or for some combination of both. A dual-class equity structure with different per-share voting rights enables managers to hold greater or fewer votes for a given cash-flow interest by holding different quantities of the two classes of stock. Consequently, it provides a framework within which the true motivation (cash-flow versus voting control) for managerial common stock holdings can be assessed, and the potential costs and benefits to a dual-class equity structure can be analyzed.

Alchian and Demsetz [1972] argue that there is substantial cost involved in communicating information about managerial performance or investment opportunities to outside shareholders. Therefore, insider-managers hold greater voting rights to prevent relatively uninformed outside stockholders from mistakenly replacing the incumbent management team with a less productive group. Vote ownership also provides managers with greater influence over the composition of the board of directors and reduces the probability that difficult-to-evaluate proposals will be resisted or vetoed by relatively uninformed outside directors.

Alternatively, vote ownership may be used by managers to more firmly define their property rights to returns on their investments in organization-specific human capital. A dual-class equity arrangement serves as an effective anti-takeover mechanism and encourages managers to invest in organization-specific capital whose returns are potentially expropriable if outside stockholders replace the incumbent management with another group.

Evidence from DeAngelo and DeAngelo [1985] suggests that a dual-class equity arrangement is employed when there are net benefits to substantial managerial vote ownership, and when constraints at the personal and corporate levels make it expensive to have a single-class structure in which managers can afford equal percentage investments in cash-flows and votes. Personal wealth constraints on individuals or family members and/or the desire for diversification without losing voting control may induce them to issue low-voting shares. In contrast, a single-class structure would require managers to have majority ownership of stock to maintain similar voting

control, which may be impossible or unattractive due to their limited personal wealth when compared with the level of investment opportunities available to the firm.

There exist potential costs to a dual-class contractual arrangement. Managers may become inefficient and opportunistic and use such an arrangement to shield themselves from hostile takeovers. However, as DeAngelo and DeAngelo [1985] point out, the presence of vote ownership, anti-takeover provisions, golden parachutes, or other mechanisms that reduce the threat of a hostile takeover does not necessarily imply that managerial decisions go undisciplined. Furthermore, it would be inaccurate to presume that any benefits from contracts that reduce the probability of a hostile takeover are necessarily small compared to the agency costs they engender. A resolution to this empirical question is attempted in the present study. Several implicit or explicit contracts could serve to align managerial incentives with the welfare of outside stockholders. For example, Holderness and Sheehan [1991] show how closely-held Turner Broadcasting uses specially designed preferred stock to shield other stakeholders from poor managerial performance. Jensen and Meckling's [1976] arguments suggest that in the event of greater managerial vote ownership with its attendant reduction in monitoring through external competition, managers with the right incentives would be induced to hold a larger share of cash-flow interest than they would optimally hold if they owned fewer votes. A substantial cash-flow interest would force managers to bear the ex-post wealth consequences of their own decisions.

Gilson [1993] points out that under perfect market conditions, a financial restructuring through a dual-class recapitalization should be identical to that through a

leveraged buyout (LBO). Following a dual-class recapitalization, as compensation for giving up control, inferior vote stockholders sometimes receive an increased dividend and preferential treatment during liquidation compared to the superior vote stockholders. Similarly in an LBO, stockholders receive substantial premiums (30% to 40%) for giving up their claims to equity. Both transactions should be value-increasing resulting from concentrating control and *ceteris paribus*, investors should be indifferent between the two alternative mechanisms.

However, if markets are not perfect, valuation impacts may differ depending upon whether control is concentrated in the hands of inside shareholders through a dual-class recapitalization or an LBO. Moreover, two very different types of companies could be expected to resort to a dual-class recapitalization versus an LBO to reap benefits from concentrated control. An LBO would be the appropriate mechanism for stable, successful firms with large market share in relatively slow-growing, mature industries. These firms have large amounts of "free cash-flow" and following Jensen's [1986] arguments, an LBO would help provide the monitoring and incentive features of debt to eliminate agency problems that may typically result from wastage of the excess free cash-flows. Moreover, an LBO entails a competitive bidding process in the market for corporate control whereby all stockholders have the opportunity to participate and share in the gains of the transaction.

On the other hand, a dual-class recapitalization would be far from ideal for such firms. Providing managers with superior voting control relative to their equity stake would only serve to strengthen their position and provide them with the means to

exploit the excess cash-flows to their own advantage with little benefit accruing to the outside shareholders. Firms that would benefit from concentrated control through a dual-class recapitalization usually are small, young, high-growth companies suffering from a shortage of capital. (Partch [1987] examines 44 dual-class firms and finds the sample firms to be relatively young. Fifty percent of the sample was less than ten years old, and of these twelve were less than five years old prior to recapitalization. Of the 21 firms trading on NYSE/AMEX, 43% were less than ten years old compared to 29% of all listed firms.) The owner-managers face a problem whereby if they raise a lot of external equity, they end up diluting control and are subject to the risk of external interferences in the form of takeovers. If they raise too little through external equity, they retain majority control but suffer from personal wealth constraints and undiversified portfolios. A dual-class equity structure ideally provides such entrepreneurs with the necessary capital to undertake and sustain increased growth without fear of losing control or being unable to deal with external interferences.

Several studies consider the shareholder-wealth effects of dual-class recapitalization. Lease, McConnell and Mikkelson [1983] test for differences in the market prices of superior-voting and inferior-voting shares of 26 firms that have a public market for both share classes. They find that the superior voting shares trade at an average premium of 5.44% and conclude that a dual-class capital structure provides potential for incremental benefits for both managers and outside stockholders. Partch [1987], upon studying 44 recapitalization announcements between 1962 and 1984, finds non-negative average abnormal stock price returns, and concludes that dual-

class recapitalizations with disparate voting structures do not harm shareholders. In contrast, Jarrell and Poulsen [1988] find significantly negative abnormal announcement-day returns for their sample of 89 dual-class recapitalizations. Further, they find significantly negative abnormal returns for firms announcing recapitalization since the NYSE imposed a moratorium on the delisting of dual-class stocks, compared with insignificant returns before the moratorium. Mikkelson and Partch [1992] examine the long-run operating performance of dual-class seasoned equity to see if the managers exploit their protected position after recapitalization and allow firm performance to deteriorate. They find that the dual-class firms perform no worse than their single-class counterparts.

Chapter 3

Testable Hypotheses for Dual-Class IPOs

3.1. Introduction

The sample of dual-class IPOs provides rich ground for testing hypotheses related to capital structure, agency theory, securities issuance, corporate governance, and market microstructure. Three specific hypotheses are tested in this study: 1) The first issue addressed is whether or not the equity structure of a firm affects the adverse selection problem leading to differences in firm underpricing; 2) The second and more important concern investigated is whether or not there are additional agency costs generated by the issuance of diminished voting shares leading to differences in firm performance (both stock-price and operating/accounting). The agency relationship is further analyzed by determining whether or not managers of dual-class IPOs, if motivated solely by control arguments in the event of poor firm performance, hold a very small percentage of the total cash-flow claim in the post-IPO firm; 3) Finally, it is ascertained whether or not there are net benefits to a dual-class choice arising from market microstructure considerations. The study tests the hypothesis that a dual-class voting structure for the firm's ownership may help to mitigate the adverse selection problem facing uninformed traders. This would, *ceteris paribus*, improve the liquidity and increase the value of the firm's stock.

3.2. The Underpricing Anomaly

In the event that a dual-class equity structure is motivated truly by financing and diversification constraints of the owner-manager (suffering from an under-investment

problem) at the time of IPO, within the framework of Rock's [1986] model, one should expect to see lower underpricing for dual-class firms. The dual-class structure should serve to reduce the adverse selection problem and should act as a certification mechanism to convey the good intent of the owner-managers and the high quality of the firms' projects.

Moreover, the agency and underpricing literatures suggest that the greater is the cash-flow claim of the entrepreneur, the lesser is the ex-ante uncertainty and lower are the agency costs associated with external equity. Thus, a larger cash-flow claim should lead to lower underpricing of the issue since lesser money needs to be left on the table. The cash-flow claim retained by the entrepreneur is also important because as suggested by Tinic [1988], a higher percentage of the claim retained reduces the potential legal liability and therefore should result in lower underpricing.

On the other hand, a dual-class capital structure allows entrepreneurs to reduce their cash-flow claim without a proportional reduction in control. If motivated solely by the intention to protect management in the event of poor firm performance, one expects the cash-flow claim to be lower and the underpricing to be higher than for single-class firms. Thus, the alternative hypothesis tested is that underpricing differs for the sample of dual-class firms versus that for single-class firms.

Previous research also provides several models which explain underpricing using either asymmetric information arguments or disciplinary mechanisms relying on the reputational capital of underwriters and auditors. Upon fitting a cross-sectional regression model across both dual and control groups, if differences in underpricing

persist after controlling for both proxies for asymmetric information and disciplinary mechanisms, it may be safe to assert that they are arising due to the design of the equity structure. If a dual-class structure does indeed help reduce the adverse selection problem, *ceteris paribus*, one expects to see correspondingly lower underpricing for the dual-class firms.

3.3. The Long-Run Performance Anomaly

The appeal of dual-class stocks to managers stems from the ability to control a majority of votes (for example, it gives them veto power over potentially value-increasing takeover bids) without having substantial claims on cash-flows. Appendix D lists some actual CEO/CFO responses to the question of why they decided in favor of a dual-class IPO. As the managers' cash-flow claim falls, their interests become less closely aligned with those of outside shareholders. This may result in sacrificing firm performance for personal benefits. On the other hand, if the cash-flow claim of entrepreneurs remains high, it provides incentive to prevent firm performance from deteriorating, and acts as a substitute for the discipline provided by the threat of a hostile takeover. In addition, there may exist other disciplinary mechanisms such as presence of bank debt and stockholdings by financial institutions that serve as external monitors.

Moreover, in most cases the superior voting stock is closely held in its entirety by the owner-managers and cannot be publicly traded. The restrictions on its transferability and convertibility into inferior voting shares results in its complete illiquidity. However, the superior voting stockholders are at liberty to convert the

superior voting shares into the inferior voting shares at any time and trade those. Such trades are allowed only upon the expiry of the lock-up period following the IPO, which usually ranges around 180 days. If the managers or insiders are able to convert and trade only at the price prevailing after the expiry of the lock-up period, it may not be in their interest to allow stock-price performance to deteriorate. The superior vote stockholdings represent a cost to the insiders, which they shall be willing to bear only if they have favorable information about the firm's projects, give up liquidity initially and hope to make superior returns in the long-run. In such event, a dual-class equity structure should serve as a certification mechanism to signal the good intent of the owner-managers as well as the good quality of the firm's projects.

Jensen [1989], among others, argues that there may exist certain benefits to concentrated control. If true, one would expect dual-class firms to perform, *ceteris paribus*, at least as well as single-class IPOs in the long run. The alternative hypothesis to be tested is that dual-class firms perform worse than single-class firms since entrepreneurs exploit their protected position, reducing the market value of the firm. Performance is evaluated by analyzing cumulative abnormal returns using various market indices as benchmarks, price-earning ratios, Tobin's Q, cash-flow measures, and accounting profit ratios (operating performance) for a period of three years after the IPO date for samples of both dual-class and single-class firms.

3.4. The Liquidity Implications and Market Microstructure Effects

The sample of dual-class IPOs provides rich ground for testing hypotheses related to market microstructure. Although researchers have developed models and

proposed several arguments to explain the underpricing and long-run underperformance of IPOs, no study has examined the market microstructure of IPOs in depth, especially of those where control is concentrated in the hands of management. Previous research was rarely concerned with the per-share voting rights of the stock being offered or other corporate-governance provisions that might impact market microstructure variables. This study considers the implications of differential voting power and management share holdings on the market microstructure characteristics and firm value of dual-class versus single-class IPOs.

Hegde and Miller [1989] posit that IPOs are on average characterized by severe informational asymmetry, greater price volatility, and increased trading activity. Moreover, due to differential ownership and control structures and public trading history, the levels of informational asymmetry, price volatility and trading activity may be different for dual-class IPOs, single-class IPOs, and seasoned stock. Previous research on dual-class firms posits that corporate insiders who wish to maintain control of the firm, yet raise substantial external capital for growth may rationally choose a dual voting class common stock structure. However, the extent of insider trading and its impact upon market microstructure in dual-class companies, versus ordinary single-class firms is unknown.

This study further hypothesizes that there may be other benefits or costs to a dual-class choice that derive from market microstructure considerations. Previous research has well documented that ownership of the restricted voting stock is very broad compared to the highly concentrated ownership of the superior voting stock (see

DeAngelo and DeAngelo [1985] and Partch [1987]). One may expect the superior voting stock to be less liquid due to the concentrated nature of ownership or the inherent restrictions on transferability and convertibility. However, it retains a control premium relative to the restricted voting stock (see Lease, McConnell and Mikkelsen [1983]). In several cases the superior voting rights stock does not even trade publicly (as in the sample of IPOs due to the severe restrictions on transferability). However, in all cases the superior voting rights stock is convertible into the more liquid restricted voting stock, while the reverse is never allowed.

It is possible that managers and other insiders may be willing to give up liquidity if they are interested in the long-term prospects of the firm and hope to reap long-run superior returns from their investment in the firm. As Amihud and Mendelson [1986] suggest, rational investors will sort themselves into "trading clienteles" with those having a long horizon (such as managers and insiders) selecting the low liquidity assets relative to more frequent (liquidity/public) traders. DeAngelo and DeAngelo [1985] find that officers of firms creating dual class common stock increase their proportionate holdings of superior voting rights stock and decrease their proportionate holdings in restricted voting stock.

For all IPOs in this study, the superior voting stock is closely held and not allowed to publicly trade. The restrictions on transferability and convertibility of such stock ensures its illiquidity in totality. However, the insiders or managers are at liberty to trade the inferior voting stock. But given the aforementioned arguments, they may be willing to give up liquidity even in the case of the inferior voting stock if they are

primarily interested in long-horizon returns. In such event a dual-class equity structure may serve as a certification mechanism to reduce the adverse selection problem typically associated with the IPO market. If public or uninformed traders (and more importantly specialists or market makers) expect that insiders holding the superior voting stock will not trade the more liquid (inferior) class of stock based upon private information, then the bid-ask spread should be smaller than the otherwise identical case where insiders and outsiders hold and trade a single class of stock. This argument is similar in spirit to that of Barclay and Smith [1988] who suggest that valuation impacts due to asymmetric information may explain management's choice of cash dividends over share repurchases to distribute cash to shareholders.

On the other hand, it is possible that the choice of a dual-class share structure could adversely affect liquidity, thus negatively impacting firm value. The presence of large blockholders who do not actively trade the firm's shares implies that a dual-class firm would have less public float than an otherwise identical firm with a single class of stock outstanding. Less public float would imply a less active secondary market for the firm's stock. It is well known that thinner stocks have wider bid-ask spreads than more active issues. Additionally, it is likely that such issues would receive less attention from analysts and brokerage firms since potential commission revenues are small (See Brennan and Hughes [1991] and Bhidé [1993] for discussion and evidence on this issue). If less public information is produced for dual-class firms, the private information possessed by more knowledgeable investors (not necessarily corporate insiders) could create a larger adverse selection problem for these firms.

Using the samples described earlier the study proposes tests of the foregoing hypotheses through controlled comparisons of trading volume, price volatility and bid-ask spreads. Controls across samples include firm size, industry, and time of advent into the public securities markets. Also, for the firms in each sample the study decomposes the spread using the model developed by Stoll [1989] and Huang and Stoll [1993] in an attempt to measure systematic differences in the adverse selection component of the bid-ask spread. Finally, the Ownership Reporting System (ORS) insider trading data provide a final avenue of verifying any differences in insider trading behavior in dual-class versus single-class IPOs.

Chapter 4

Data and Methodology

4.1. Introduction

The study is restricted to those IPOs that are included in the 1991 CRSP daily files. Data on all 118 dual-class firms that went public between 1984 and 1990 has been obtained from Investment Dealers Digest Information Services Inc. (IDD) and from Securities Data Corporation (SDC). A control sample of single-class IPOs has been carefully constructed matched by exchange, time of issue, industry, and firm size using 1913 IPOs during 1984-90 from IDD (See Appendix B for matching criteria). To analyze firm performance for a period of three years following the IPO date, only 98 dual-class and correspondingly 98 control IPOs between 1984 and 1988 are used in the underpricing and long-run hypotheses tests. Furthermore, due to non-availability of intraday transactions data for NASDAQ firms, the market microstructure tests are restricted to 30 IPOs on NYSE and AMEX during 1985-88.

A description of the information available on each firm is provided in Appendix A. Data from IDD was supplemented when necessary from various sources including Disclosure, S&P Corporation Records, Moody's, Spectrum, SEC Q File, Million Dollar Directory, and COMPUSTAT. Any best efforts offerings, unit offerings, Regulation A offerings, closed-end funds, real estate investment trusts (REITS), limited partnerships, american depository receipts (ADR's), and certificates are excluded. Of the dual-class sample (and correspondingly the control sample), 66 were identified on NASDAQ and 32 were identified on AMEX or NYSE. Over the three years following

the IPO four dual-class firms originating on NASDAQ became listed on either AMEX or NYSE, while none delisted to NASDAQ. Amongst the control group firms, there were no firms that switched across trading locations.

Daily returns and trading volume data to be used in the underpricing and long-run stock-price performance hypotheses are obtained from the 1991 CRSP daily files for the 98 dual and 98 single-class control firms. Any changes in trading location across the exchanges are fully accounted for while computing the monthly returns. Accounting and operating data to be used in the long-run operating performance hypotheses are obtained from the 1990 and 1991 COMPUSTAT annual files. Intraday transactions data to be used in the market microstructure hypotheses is obtained from the Institute for the Study of Security Markets (ISSM) files for the 30 AMEX and NYSE firms. Finally, data on insider trades for verifying differences, if any, in the insider trading behavior of dual versus control samples is obtained from the Ownership Reporting System (ORS) tapes provided by the Securities and Exchange Commission.

4.2. Description of Dual-Class Firms

The dual-class sample firms represent a wide array of industries, products and services (e.g., McCaw Cellular, Aaron Spelling Productions, Fruit of the Loom, Spiegel, Freeport McMoran Copper). An industry profile is outlined in Appendix C. The classes differ with respect to voting rights relative to cash-flow rights. Neither class of common stock is callable, authorized but unissued, or preferred. All firms are incorporated in the United States.

In terms of voting control, the firms have one of the following arrangements³:

1) ten out of 98 firms have voting, non-voting, where Class A shareholders are not entitled to vote except in special matters of interest, while Class B are entitled to one vote per share; 2) 30 have pooled voting, where both Class A and Class B have fractional voting rights with Class B entitled to a much higher number of votes per share in all matters; 3) 16 have class voting, where both classes have one vote per share except that Class A shareholders are entitled to elect 25% of the directors, while Class B are entitled to elect the rest; and 4) 42 have both pooled and class voting, where Class A shareholders are entitled to elect 25% of the directors, Class B shareholders are entitled to elect the rest, and Classes A and B have fractional voting rights in all other matters (see DeAngelo and DeAngelo [1985] for a description of the various types of voting arrangements).

In the typical dual-class firm, the Class B shares are very closely held (in some cases entirely by the founder/CEO), they are not publicly traded, and more than three quarters of the total voting power is controlled by five or fewer individuals (in most cases managers and their families). In several cases, there is significant family involvement and the top management positions (including that of CEO) are held by family members.

Table 1 provides the distribution of the universe of dual and single-class IPOs by year and exchange. In contrast to 87% of single-class IPOs, only 67% of all dual-

³Three firms in the sample have three classes of common stock - A, B, and C. Class C is non-voting but takes precedence over Classes A and B in the event of liquidation. These three firms too belong to any one of the four groups aforementioned based on the distribution of voting control between Classes A and B.

Table 1**The Single and Dual-Class IPO Universe by Year and Exchange**

The number of IPOs is based upon Investment Dealers Digest. The samples here do not include best efforts offerings, but may include unit offerings, closed-end mutual funds, and real estate investment trusts which are however excluded from the long-run samples between 1984-88 (later in Table 2) for the purpose of this study.

Year	NASDAQ				Amex-NYSE			
	Single Class		Dual Class		Single Class		Dual Class	
	No. of IPOs	% of Total	No. of IPOs	% of Total	No. of IPOs	% of Total	No. of IPOs	% of Total
1984	246	19.73	9	12.00	15	3.57	2	5.56
1985	187	14.99	13	17.33	32	7.62	2	5.56
1986	247	19.81	19	25.33	64	15.23	12	33.33
1987	266	21.33	20	26.67	102	24.29	8	22.22
1988	108	8.66	5	6.67	84	20.00	8	22.22
1989	91	7.30	8	10.67	64	15.24	3	8.33
1990	102	8.18	1	1.33	59	14.05	1	2.78
Total	1247	100.0	75	100.0	420	100.00	36	100.00

class IPOs chose to list on NASDAQ. IPOs appearing on NASDAQ are somewhat more frequent during the early part of the sample period, while those appearing on the AMEX or NYSE are more frequent in the later part of the period. Table 2 gives the number of IPOs in various samples used in this study by exchange and by year of offer, after excluding best efforts offerings, units, closed-end funds, REITS, limited partnerships, ADR's, and certificates. Table 3 gives the number of dual-class IPOs by voting arrangement. Table 4 gives the number of dual-class IPOs based on the per-share voting rights. Table 5 gives the number of dual-class IPOs based on the percentage of majority control closely held by 5 or fewer individuals.

Tables 6, 7, and 8 describe the cash and stock dividend rights, liquidation rights, and convertibility rights respectively of dual-class firm stockholders. In 68.37% of the dual-class sample, the two classes of shares enjoy identical cash-dividend rights. In other cases, Class A enjoys a slightly higher dividend than Class B. Stock dividends are usually payable on the same basis and at the same time on the respective classes. In 77.55% of the sample, the two classes of stockholders share rateably in liquidation. In other cases, Class A shares receive preferential treatment for a specified amount and thereafter share rateably with Class B shares. A preferential treatment to Class A in matters of dividend and liquidation may provide incentives to investors to hold such shares despite their inferior voting rights.

Most Class B shares (92.86% of the sample) are convertible into Class A share-per-share, but the reverse is never allowed. While Class A shares are freely transferable at all times, the transferability of Class B shares is highly restricted. The

Table 2 Distribution of IPOs between 1984-88 by Exchange and by Year Best efforts offerings, unit offerings, closed-end funds, REITS, ADR's and certificates are excluded.						
	1984	1985	1986	1987	1988	TOTAL
NASDAQ						
Single (Total)	245	184	247	265	108	1049
Dual, Control	9	13	19	20	5	66
Amex-NYSE						
Single (Total)	15	24	45	72	65	221
Dual, Control	2	2	12	8	8	32

Table 3 Distribution of Dual-Class IPOs by Voting Group		
Voting Group	No. of Firms	% of Total
Voting, Non-Voting	10	10.20
Pooled Voting	30	30.61
Class Voting	16	16.33
Pooled and Class Voting	42	42.86
Total	98	100.00

Table 4
Distribution of Dual-Class IPOs by
Per-Share Voting Rights

The per-share votes of Class A (inferior voting) stock and Class B (superior voting) stock for firms in the Voting-Non Voting group are 0:1, for firms in the Class Voting group are 1:1, and for firms in the Pooled Voting group or the Pooled and Class Voting group are anywhere between 1:2 and 1:500.

Per-Share Votes for ClassA (inferior) : ClassB (superior)	No. of Firms	% of Total
0:1	10	10.20
1:1	16	16.33
1:2	1	1.02
1:3	6	6.12
1:4	5	5.10
1:5	5	5.10
1:10	50	51.02
1:20	3	3.06
1:30	1	1.02
1:500	1	1.02
Total	98	100.00

Table 5
Distribution of Dual-Class IPOs by Percentage of
Total Voting Control Closely Held

The numbers in this table do not reveal the actual percentage of total voting control closely held. They reflect the percentage of total voting control held by five or fewer individuals/family members.

% of Voting Control Closely Held	No. of Firms	% of Total	Avg. No. of vote-holders
13% - 20%	2	3.20	2.50
21% - 30%	4	6.50	2.00
31% - 40%	6	9.70	2.33
41% - 50%	5	8.00	2.00
51% - 60%	8	12.90	2.00
61% - 70%	6	9.70	2.83
71% - 80%	7	11.30	2.00
81% - 90%	7	11.30	1.42
91% - 95%	7	11.30	1.42
96% - 99%	9	14.50	2.14
100%	1	1.60	2.00
Total	62	100.00	

Table 6 Cash-Dividend Rights of Class A (Inferior Voting) and Class B (Superior Voting) Stockholders in Dual-Class IPOs		
Cash-Dividend Rights of Classes A and B	No. of Firms	% of Total
A and B have identical rights except that dividends may be declared and paid on B only if at such time an equal per share dividend is declared and paid on A. A dividend may be declared on A but not B.	67	68.37
No dividend may be paid on B unless simultaneously therewith there is paid a dividend on A of at least X% of the dividend on B, where X is 105 for 3 firms, 110 for 14 firms, 115 for 3 firms, 118 for 1 firm, 120 for 4 firms, 200 for 1 firm, and 1000 for 1 firm.	27	27.55
A has preference to the annual non-cumulative dividend of \$ Y per share, and thereafter A and B share rateably, where Y is 0.10 for 1 firm, 0.08 for 1 firm, and 1.00 for 1 firm.	3	3.06
A is entitled to cumulative dividends of \$0.41 per annum, and thereafter A & B share rateably.	1	1.02
Total	98	100.00

Note on Stock-Dividends, Stock-Splits, and Future Issuance of Class B:

Equal stock dividends are paid in Class A and in Class B on the respective classes. In some cases stock-dividends on Class A may be paid only in Class A shares while stock-dividends on Class B may be paid in either Class A or Class B. No stock-split, dividend or reclassification of Class B may be declared unless the company similarly splits or reclassifies Class A or pays a similar dividend in Class A on Class A. No company may issue any additional shares of Class B without the approval of a majority of the votes of the outstanding shares of Class A and Class B, each voting separately as a class. A company may however issue additional shares of Class B in the event of any stock-splits or stock-dividends.

Table 7 Liquidation Rights of Class A (Inferior Voting) and Class B (Superior Voting) Stockholders in Dual-Class IPOs		
Liquidation Rights of Classes A and B	No. of Firms	% of Total
A and B share rateably.	76	77.55
A is entitled to \$ X per share before any distribution to B, and thereafter A and B share rateably, where X is 0.10 for 1 firm, 2.50 for 2 firms, 5.70 for 1 firm, 8.00 for 1 firm, and 17.75 for 2 firms.	7	7.14
A is entitled to \$ Y per share before any distribution to B, then B gets \$ Z per share before any further distribution to A, and thereafter A and B share rateably, where Y=1.00 and Z=1.00 for 2 firms, Y=3.00 and Z=3.00 for 1 firm, Y=4.16 and Z=4.16 for 1 firm, Y=5.00 and Z=5.00 for 1 firm, Y=7.50 and Z=7.50 for 2 firms, Y=9.00 and Z=9.00 for 1 firm, Y=19.53 and Z=19.53 for 1 firm, and Y=10.00 and Z=0.20 for 1 firm.	10	10.21
A is entitled to X% of payment to B, where X is 110 for 1 firm, and 2000 for 1 firm.	2	2.04
Class C (non-voting) has majority rights in liquidation and takes precedence over both A and B.	3	3.06
Total	98	100.00

Note on Liquidation Rights:

In matters such as liquidation of company, a merger, consolidation, or other business combination of company, or a reclassification, recapitalization or exchange of the shares of company's capital stock, the shares of Class A common shall not be treated less favorably than the shares of Class B common without the approval of a majority of the issued and outstanding shares of Class A common voting separately as a class and a majority of the issued and outstanding shares of Class B voting separately as a class.

Table 8 Covertibility of Shares in Dual-Class IPOs Class B (superior voting) is always convertible into Class A (inferior voting), but the reverse is never allowed.		
Covertibility	No. of Firms	% of Total
B into A share per share at the option of the holder (except upon approval of liquidation or dissolution of firm by stockholders).	91	92.86
One B into 0.10 A at the option of the holder.	1	1.02
All B automatically into A share per share if the number of shares of B outstanding falls below a number X, where X is 100,000 for 1 firm, and 2,910,885 for 1 firm.	2	2.04
All B automatically into A share per share if the ratio of number of shares of B to the total of A and B outstanding falls below Y%, where Y is 12.5 for 1 firm.	1	1.02
B into A share per share at the option of the holder or upon a date prespecified at the time of IPO when all B automatically convert into A.	2	2.04
B into A share per share at the end of a preference period. A preference period may end upon the first to occur: 1) a prespecified anniversary of the closing date of the offering, 2) the end of any two consecutive years in which the company shall have had consolidated net income after taxes of not less than X% of the assumed capital for such years, where X is 6 for 1 firm.	1	1.02
Total	98	100.00

Note on Transferability and Covertibility:

Class A is freely transferable at all times. Class B may not be sold, gifted, or transferred except to and among principally such holders' spouse, certain of such holders' relatives (child, grandchild, sibling, parent), certain trusts established for their benefit, corporations and partnerships principally owned by such holders, their relatives and such trusts, and such holders' estate. When Class B is convertible into Class A share per share at the holder's option, the conversion is automatic on transfer by a holder of Class B share to any party other than members of his family (a lineal ascendant or descendant or a spouse of a Class B holder), and in some cases another holder of Class B.

provision in some firms for automatic conversion of B into A upon a prespecified date or at the end of a preference period suggests that in a new operating and legal environment upon going public, these firms need time to stabilize their earnings among other things without external interference. Moreover, these firms have greater faith in the founders' ability to look after the firms' best interests (long and short-term) than in the ability of the competitive market for corporate control, and especially in that of corporate raiders with short-term interests. In short, such provision apparently signals no managerial entrenchment. A dual-class equity structure for IPOs, *ceteris paribus*, may serve to instill confidence in the minds of investors and thereby help reduce the adverse selection problem.

Table 9 provides information on the raw performance and ownership structure of dual-class firms, grouped by the type of voting arrangement. Of the total shares outstanding, an average of 21% is held by institutions, 32% is held by 5% insiders, 20% is held by 10% insiders, and 33% is held by officers and directors. The numbers suggest that financial institutions may serve as external monitors since, on average, they own a fifth of all shares in dual-class firms. The implied cash-flow claim of owner-managers (computed as $\text{Class B shares outstanding} / (\text{Class A} + \text{Class B outstanding})$) is on average 49%⁴, which together with a low average dilution of 27.21 % suggest that managers do have incentives to act in the interests of outside shareholders. Furthermore, the claim appears large enough to enable managers to make subsequent offerings (resulting in its dilution) and yet maintain firm control. The number of

⁴The implied cash-flow claim of owner-managers is at least 49% since the computation does not include the inferior voting shares held by them. This data could not be obtained.

Table 9
Descriptive Statistics on Ownership Structure, Performance, and Voting Control for 98 Dual-Class IPOs between 1984-88

Variable of Interest	Type of Voting Arrangement				
	Vtg., Non-Vtg. [9 Firms] Mean (Median)	Pooled Vtg. [20 Firms] Mean (Median)	Class Vtg. [11 Firms] Mean (Median)	Pooled & Class [39 Firms] Mean (Median)	Tot. Sam- ple [98 Firms] Mean (Median)
Holding Period Return at End of Year 1	0.1107 (0.0592)	0.1255 (0.0234)	0.2446 (0.5085)	-0.0438 (-0.1005)	0.0341 (-0.0333)
Holding Period Return at End of Year 2	0.2280 (-0.0145)	0.1526 (0.1663)	0.6845 (0.7735)	0.1104 (-0.1282)	0.1690 (-0.1120)
Holding Period Return at End of Year 3	0.4854 (-0.0326)	0.2030 (0.0315)	0.7184 (0.0443)	0.2488 (0.0397)	0.2882 (0.1068)
No. of Institutional Stockholders	10.20 (10.00)	28.75 (25.50)	26.33 (31.00)	14.04 (10.00)	15.62 (10.00)
% of Total Stock Held by Institutions	13.71 (12.71)	31.72 (20.11)	25.30 (22.40)	22.43 (13.08)	20.88 (13.03)
No. of 5% Insider Stockholders	1.00 (1.00)	3.50 (3.50)	2.80 (3.00)	2.64 (2.00)	2.57 (3.00)
% of Total Stock Held by 5% Insiders	5.69 (5.69)	66.87 (66.87)	28.84 (30.57)	30.97 (14.30)	31.61 (20.80)
No. of 10% Insider Stockholders	8.75 (7.00)	8.50 (8.50)	5.83 (5.50)	5.80 (5.00)	6.19 (5.50)
% of Total Stock Held by 10% Insiders	26.10 (29.95)	21.74 (21.74)	6.21 (7.06)	23.18 (21.52)	19.55 (18.35)
% of Total Stock Held by Officers and Directors	N.A.	20.50 (20.50)	13.96 (18.18)	46.45 (56.19)	33.35 (20.52)
% of Implied Cash-Flow Claim of Owner-Managers	40.37 (24.15)	45.10 (43.68)	42.00 (37.94)	54.54 (56.98)	48.76 (48.75)
% of Total Voting Control Closely Held	71.04 (72.35)	67.72 (70.20)	44.22 (38.50)	77.37 (83.15)	68.00 (72.15)
No. of Owner-Managers Holding Previous %	2.28 (2.00)	1.87 (1.00)	2.44 (2.00)	2.08 (2.00)	2.07 (2.00)
No. of Superior Voting Stockholders as a Fraction of Total Stockholders	0.5297 (0.5297)	0.0809 (0.0295)	0.2194 (0.1506)	0.1643 (0.0952)	0.1811 (0.0900)

superior-voting stockholders as a percentage of total stockholders is on average only 18%, which suggests that voting control is greatly concentrated in relatively few hands. Finally, an average of 68% of the total voting control is held by only 3 shareholders.

4.3. Firm Profiles of Dual versus Single-Class IPOs

Tables 10 and 11 list descriptive statistics on the samples of 98 dual and single-class control IPOs. The profiles are similar in several respects due to the matching criteria. The post-offering market values are similar for the median dual and single-class firms (62.0 million and 52.8 million respectively). The total shares offered (both primary and secondary) as well as firm dilution are higher for the control firms, while the post-offering price to book ratio, gross spread charged by the underwriters, and firm age are higher for the dual-class IPOs. Interestingly, while both classes appear to be cold issues (an issue is said to be cold if the offer price is revised downward from the midpoint of the filing range), the average dual-class firm both revises the offering price downward from the filing midpoint and offers fewer shares than intended at the time of filing⁵.

To show the results of the matching procedure, some descriptive statistics (aftermarket price, market value of equity, number of shares outstanding, and trading volume as on the first trading day subsequent to going public) are listed for all single-class, dual-class, and control group firms by exchange in Tables 12 and 13. The profiles are similar with no statistically significant differences in the means of the dual versus control samples (using a t-test).

⁵ See Benveniste and Spindt [1989], and Hanley [1993] for a review of the partial adjustment phenomenon.

Table 10
Descriptive Statistics on 98 Dual-Class IPOs between 1984-88 at Time of IPO

Variable of Interest	N	Mean	Median	Std	Min	Max
\$ Offer Amount (mill)	98	36.537	19.700	55.444	2.700	325.50
Offer Price Per Share (\$)	98	11.792	11.910	5.082	1.250	25.000
Tot Shares Offered (mill)	98	2.769	1.800	3.805	0.300	27.000
Primary Shares Offered (mill)	98	2.274	1.000	3.845	0.000	27.000
Secondary Shares Offered (mill)	98	0.496	0.000	0.921	0.000	4.500
Shares O/S before IPO (mill)	98	10.421	4.200	19.413	0.310	111.174
Shares O/S after IPO (mill)	98	13.376	6.101	23.693	0.628	134.774
Dilution %	98	27.211	24.300	20.144	0.040	100.000
Age	98	23.358	9.000	30.222	1.000	122.000
Mkt Val after Offer (mill)	98	187.233	62.000	397.977	3.500	2393.600
Price/Book Ratio after Offer	98	3.879	2.425	4.576	0.400	30.530
Book/Price Ratio after Offer	98	0.449	0.405	0.333	0.033	2.500
Gross Spread (\$)	98	0.822	0.840	0.301	0.125	1.700
Mgmt. Fee (\$)	98	0.172	0.175	0.065	0.040	0.427
Under. Fee (\$)	98	0.184	0.180	0.076	0.040	0.428
Sell. Conc. (\$)	98	0.469	0.500	0.174	0.038	0.900
Stock Price Filing - Low (\$)	98	11.921	12.000	4.767	1.820	22.000
Stock Price Filing - High (\$)	98	13.872	14.000	5.493	1.820	24.000
% Chng Mid File Price to Offer	98	-0.071	-0.036	0.122	-40.000	20.000
Total Shares Filed (mill)	98	2.912	1.928	3.591	0.270	22.000
% Chng Shares Filed to Offer	98	-0.027	0.000	0.146	-85.000	0.300

Table 11
Descriptive Statistics on 98 Control Single-Class IPOs between 1984-88 at
Time of IPO

Variable of Interest	N	Mean	Median	Std	Min	Max
\$ Offer Amount (mill)	98	59.262	16.550	190.699	1.900	1,456.000
Offer Price Per Share (\$)	98	10.298	10.000	4.718	2.000	28.000
Tot Shares Offered (mill)	98	4.035	1.725	9.513	0.400	60.690
Primary Shares Offered (mill)	98	3.039	1.287	7.895	0.000	60.690
Secondary Shares Offered (mill)	98	0.996	0.000	5.812	0.000	52.000
Shares O/S before IPO (mill)	98	8.979	3.367	17.718	0.010	117.778
Shares O/S after IPO (mill)	98	11.998	5.443	22.192	0.930	150.710
Dilution %	98	32.284	26.400	21.997	4.800	100.000
Age	98	12.500	5.000	19.894	1.000	95.000
Mkt Val after Offer (mill)	98	167.513	52.800	415.373	4.400	2486.700
Price/Book Ratio after Offer	98	3.202	2.920	2.257	0.540	17.470
Book/Price Ratio after Offer	98	0.438	0.342	0.292	0.057	1.852
Gross Spread (\$)	98	0.721	0.700	0.255	0.200	1.600
Mgmt. Fee (\$)	98	0.155	0.145	0.049	0.050	0.320
Under. Fee (\$)	98	0.167	0.165	0.052	0.050	0.290
Sell. Conc. (\$)	98	0.411	0.400	0.161	0.100	1.000
Stock Price Filing - Low (\$)	98	10.073	10.000	4.218	2.000	22.000
Stock Price Filing - High (\$)	98	11.654	11.000	4.814	2.000	26.000
% Chng Mid File Price to Offer	98	-0.053	0.000	0.120	-0.333	0.333
Total Shares Filed (mill)	98	3.682	1.700	8.161	0.450	60.690
% Chng Shares Filed to Offer	98	0.099	0.000	0.958	-0.599	9.000

Table 12
The IPO Aftermarket:
Descriptive Statistics on the Amex-NYSE Single-Class,
Dual-Class, and Control Firms

PRC (\$), MVAL (000's \$), CURSHR (000's), and VOL are the closing price, market-value, shares outstanding on NYSE/AMEX, and the volume traded respectively on the 1st trading day after the offer date. For the Dual-Class IPOs, CURSHR represents only the inferior voting stock outstanding that is publicly traded, while the market-value represents both classes assuming that the closely held superior voting shares traded at the same price as the inferior voting stock.

IPO TYPE	N	Mean	Median	Std	Min	Max
PRC: Single	221	13.29	11.00	6.74	4.000	71.250
Dual	32	13.19	13.44	4.18	4.625	25.250
Control	32	12.20	9.94	5.64	5.000	30.750
MVAL: Single	221	276,662.22	103,105.90	432,883.08	104.00	2,953,512.00
Dual	32	218,184.38	116,850.00	362,940.81	15,200.00	2,048,700.00
Control	32	268,226.05	93,740.44	529,859.28	9,922.50	2,310,000.00
CURSHR: Single	221	17,924.85	9,500.00	22,909.67	11.00	140,000.00
Dual	32	11,936.31	4,482.50	20,461.93	288.00	107,846.00
Control	32	17,229.47	7,713.00	26,588.01	1,260.00	140,000.00
VOL: Single	218	1,246,144.52	456,150.00	2,429,883.98	0.00	18,880,000.00
Dual	32	756,653.13	394,350.00	1,354,383.45	0.00	7,107,000.00
Control	30	1,753,010.00	408,850.00	4,405,859.87	2,800.00	18,880,000.00

Table 13
The IPO Aftermarket:
Descriptive Statistics on the NASDAQ Single-Class, Dual-Class, and Control Firms

PRC (\$), MVAL (000's \$), CURSHR (000's), and VOL are the closing price, market-value, shares outstanding on NASDAQ, and the volume traded respectively on the 1st trading day after the offer date. For the Dual-Class IPOs, CURSHR represents only the inferior voting stock outstanding that is publicly traded, while the market-value represents both classes assuming that the closely held superior voting shares traded at the same price as the inferior voting stock.

IPO TYPE	N	Mean	Median	Std	Min	Max
PRC: Single	1049	9.66	9.06	4.81	0.125	38.875
Dual	66	12.07	11.47	6.46	1.500	30.125
Control	65	9.57	9.00	4.18	2.688	20.500
MVAL: Single	1040	51,092.38	27,658.06	72,310.52	3,670.50	965,250.00
Dual	66	176,406.34	48,000.00	421,889.55	3,500.00	2,393,600.00
Control	65	63,569.11	35,190.00	68,234.47	4,533.75	278,410.50
CURSHR: Single	1040	5,114.18	3,393.00	6,528.72	399.00	99,000.00
Dual	66	4,655.46	2,888.00	7,493.26	300.00	55,969.00
Control	65	6,160.35	4,000.00	5,234.39	930.00	22,534.00
VOL: Single	1049	521,236.61	293,775.00	766,046.15	0.00	10,303,900.00
Dual	66	745,298.53	310,995.00	1,208,579.20	0.00	5,998,423.00
Control	65	746,472.34	449,600.00	987,029.99	10,500.00	4,065,415.00

4.4. Methodology

The underpricing and long-run performance analysis is carried out for the total samples as well as for sub-samples based upon the exchange on which the firms trade to account for firm differences, if any, across exchanges. The results are compared to those for a control group IPOs. For general comparisons, robustness checks, and the reader's information, the study also documents results on the group (universe) of all single-class IPOs.

Due to non-availability of intraday transactions data for NASDAQ firms, the market microstructure and insider trading analysis is restricted to dual-class and single-class control IPOs on NYSE/AMEX during 1985 and 1988.

4.4.1 Underpricing

The first-day underpricing is measured by computing the return for the initial period defined as the offering date to the first closing price listed on the CRSP daily NASDAQ and Amex-NYSE tapes. It is further determined if differences in equity structure, *ceteris paribus*, result in differences in underpricing across the dual and control samples. The following cross-sectional regression model is fitted using various proxies for uncertainty from previous research⁶ and other potential explanatory variables including those from Hanley [1993] and the aforementioned proposition regarding the design of the governance structure:

$$\begin{aligned} IR_i = & \alpha_0 + \alpha_1 D_i + \alpha_2 OR_i + \alpha_3 Age_i + \alpha_4 RGP_i + \alpha_5 IB_i + \alpha_6 AUD_i + \alpha_7 EXCH_i \\ & + \alpha_8 CHPRC_i + \alpha_9 CHSHR_i + \alpha_{10} UCOMP_i + e_i \end{aligned}$$

⁶ See Affleck-Graves, Hegde, Miller, and Reilly [1993] for an extensive discussion.

where IR_i is the initial day return, D_i (dummy variable) equals 1 if dual-class and 0 if single-class, OR (ownership retention) is the percentage of shares retained by the owner/manager at the time of IPO, AGE_i is the number of years the firm was incorporated prior to the IPO, RGP_i is the reciprocal of the gross proceeds from the IPO defined as the number of shares offered times the offering price, IB_i (lead investment banker) equals 1 if the lead underwriter was among the top eight investment banking firms in the United States as defined by the Institutional Investor and 0 otherwise, AUD_i (auditor) equals 1 if the auditor was a big-6 firm and 0 otherwise, $EXCH_i$ (exchange) equals 1 if NASDAQ and 0 if AMEX or NYSE, $CHPRC_i$ is the percentage revision in the offer price from the midpoint of the filing range, $CHSHR_i$ is the percentage revision in the number of shares offered from the shares filed, $UCOMP_i$ (underwriter compensation) is the gross spread as a percentage of offer price that the underwriting syndicate receives for taking the firm public. Previous research and our expectations suggest that $\alpha_0 > 0$, $\alpha_1 < 0$, $\alpha_2 < 0$, $\alpha_3 < 0$, $\alpha_4 > 0$, $\alpha_5 < 0$, $\alpha_6 < 0$, $\alpha_7 > 0$, $\alpha_8 > 0$, $\alpha_9 > 0$, and $\alpha_{10} > 0$.

A priori, greater is the ownership retention by the owner-managers at the time of IPO, lesser should be the ex-ante uncertainty surrounding the firm (following Leland and Pyle [1977]), and consequently lower should be the underpricing. Similarly age may help reduce the adverse selection problem. For example, a firm with a long history of existence has a track record that may enable investors to enhance their information set. The degree of ex-ante uncertainty may be expected to be inversely related to firm size or the size of the issue. Extant literature argues that the

reputational capital of investment bankers and auditors helps certify firm quality. Only good firms could be expected to be underwritten and certified by top reputed investment bankers and auditors (see Beatty and Ritter [1986], Booth and Smith [1986], and Carter and Manaster [1990]), thus reducing the ex-ante uncertainty and the need for underpricing.

Usually smaller firms IPO on NASDAQ relative to the NYSE or AMEX. Smaller firms are also known to suffer from greater adverse selection problems. Hence, one may expect NASDAQ firms to be underpriced more than NYSE or AMEX firms. Hanley [1993] finds evidence in support of the model provided by Benveniste and Spindt [1989] whereby those IPOs that revise the offer price or number of shares offered upward from the midpoint of the filing ranges respectively are deemed as hot issues and are greater underpriced. Finally, underpricing may be expected to be directly proportional to the underwriter effort in taking the firm public depending on the degree of ex-ante uncertainty surrounding the IPO. Effort may be measured through the compensation the underwriter receives for his services (commission received as a percentage of the offer price).

4.4.2 Long-Run Performance

For evaluating long-run stock-price performance, the analysis uses Ritter's [1991] methodology using various market indices to compute market-adjusted (abnormal) returns over a three year period following the offer date. In the event that the aftermarket is efficient and the benchmarks are correct, zero abnormal average

returns should accrue to the IPOs. Significant non-zero average abnormal returns would indicate either mispricing by the market or benchmark error.

Monthly returns are computed for the aftermarket period (months 1-36) defined as three years after the IPO excluding the initial period. Months comprise successive 21 trading day periods relative to the IPO. The monthly returns are computed by compounding the daily returns for these 21 trading day periods.

The cumulative average monthly adjusted returns ($CAR_{i,t}$) for a period of three years are computed with monthly portfolio rebalancing and using the CRSP value-weighted NASDAQ index (as well as other indices) for the total samples to evaluate their long-run performance. While analyzing sub-samples based on the exchange on which the IPOs trade, the monthly raw returns are adjusted using the respective exchange's value-weighted (as well as equally weighted) index. The monthly benchmark return for the corresponding 21 trading day periods is subtracted from the monthly raw return on each stock to give a monthly market-adjusted return. The average abnormal return for each month is computed by averaging the monthly market-adjusted return across all sample firms. In addition to examining CARs, wealth relatives are computed to compare the performance of various samples⁷.

⁷The market-adjusted return for stock i in event month t is given by $ar_{it} = r_{it} - r_{mt}$. The average monthly market-adjusted return on the portfolio of n stocks for event month t is $AR_t = 1/n[\sum_i ar_{it}]$, while t -statistics for the average monthly market-adjusted return are computed as $T-STAT_t = AR_t/sd_t$, where n_t is the number of observations in month t and sd_t is the cross-sectional standard deviation of AR_t .

The cumulative market adjusted returns for event months 1 through 36 are given by $CAR_{i,t} = \sum_1^t AR_{it}$, with a t -statistic calculated as $CT-STAT_t = CAR_{i,t} * \sqrt{n_t/csd_t}$, where $csd_t = [t*var + 2*(t-1)covar]^{1/2}$ with var being the average cross-sectional variance over 36 months and $covar$ being the first order autocovariance of the AR_t series.

The wealth relatives for month t are given by $Wthrel = (1 + CAR_{i,t}\{\text{single or control firms}\}) / (1 + car_{i,t}\{\text{dual-class firms}\})$.

4.4.3 Market Microstructure and Insider Trading

The microstructure analysis is conducted using intraday transactions data for NYSE and AMEX IPOs from the Institute for the Study of Security Markets (ISSM) 1985-88 files. For both dual and control samples on NYSE/AMEX, several market microstructure characteristics (e.g. quoted spreads, average trading volume, trade-to-trade price volatility, average trade size, adverse information component of the spread) are studied for a period of 250 trading days following the IPO date.

Quoted dollar spreads are computed as the difference between the ask and bid quotes. Relative spreads are computed as $(\text{ask} - \text{bid}) / ((\text{ask} + \text{bid}) / 2)$. Trade-to-trade volatility at time t is computed as $[(\text{price}_t - \text{price}_{t-1}) / \text{price}_{t-1}]^2$.

Using intraday trade prices and quotes, and following the models of Stoll [1989], Huang and Stoll [1992], and Lin [1992], the following model is estimated for each firm:

$$\Delta Q_{t+1} = \lambda z_t + e_{t+1} \quad (1)$$

where:

$$\Delta Q_{t+1} = Q_{t+1} - Q_t$$

Q_t = log of the quote midpoint at time t

$$z_t = P_t - Q_t$$

P_t = log of the trade price at time t

e_{t+1} = random error term.

In this model z_t , which is the deviation of trade price from the prevailing quote midpoint is a measure of (one half of) the effective spread. The parameter λ measures

the effect of a trade at time t on the specialist's quote revision at time $t+1$. If trades contain information and the specialist responds to them, a buy order (positive z_t) should result in a subsequent upward revision of the quote midpoint. Similarly, a downward revision in the quote midpoint should follow a sell order (negative z_t). In theory (see Glosten and Milgrom [1985] and Easley and O'Hara [1987]) the larger the degree of adverse information facing the specialist or dealer, the larger should be the quoted spread and the larger should be the revisions in quotes in response to trades.

Finally, insider trading data is obtained from the ORS tapes provided by the SEC. Insider purchase activity is analyzed separately from insider sale activity. Purchases are restricted to open market purchases and the sales to open market sales. The nature of ownership must be direct. The term "insider" is used to include only the following relationships: chairman of the board, controlling person, director, director and beneficial owner of more than 10% of a class of the company equity security, officer, officer and director, officer of subsidiary, officer and treasurer, divisional officer, president, and vice president. Transactions that are either amended, reported late, or could not be reconciled with previous holdings are excluded. During their third year on the market following the IPO date, purchases and sales are aggregated across all the days for each firm, and then averaged across firms.

Chapter 5

Empirical Results

5.1. Results on Underpricing

Tables 14, 15, and 16 list results for the initial period (using the offer price and the first available closing price). For the total samples (all exchanges), the dual-class sample is underpriced by 3.69%, which is significantly different from that of 8.09% for the single-class at the 1% level. This evidence suggests that single-class firms, on average, are characterized by more severe informational asymmetry compared to dual-class firms. The first day underpricing of 5.86% for the control group is however closer to that for the dual-class and is not significantly different from it at the 5% level. This evidence suggests that the control group firms, being similar to the dual-class firms in terms of offer date, industry and firm size, are also characterized by similar informational asymmetry as the dual-class firms. The lower underpricing and higher ownership retention for dual-class firms relative to control firms are consistent with the hypothesis that a higher cash-flow claim should result in lower ex-ante uncertainty and therefore in lower underpricing. Furthermore, while the underpricing remains more or less the same across the exchanges for the dual-class firms, it is much higher for the single as well as control group firms trading on NASDAQ. This comes as no surprise since firms trading on NASDAQ are on average smaller and could be characterized by more severe problems of asymmetric information.

The cross-sectional regression estimates are reported in Table 16. The overall regression is significant at the 1% level. All eleven variables have the predicted signs.

Table 14**Initial Underpricing**

The average initial return is computed for the initial period (Month 0) defined as the offering date to the first closing price listed on the CRSP daily NASDAQ and Amex-NYSE tapes.

	Longrun Samples AVERAGE INITIAL RETURN (Standard Error)					
	N	Amex-NYSE	N	NASDAQ	N	Total
Dual	32	0.0418 (0.0162)	66	0.0345 (0.0151)	98	0.0369 (0.0155)
Control	32	0.0127 (0.0013)	66	0.0808 (0.0248)	98	0.0586 (0.0182)
Single	221	0.0279 (0.0104)	1049	0.0921 (0.0583)	1270	0.0809 (0.0506)

Table 15**Initial Overpricing, Underpricing, and Exactpricing**

IPO Type	No. of Firms Overpriced	% of Total	No. of Firms Underpriced	% of Total	No. of Firms Exactpriced	% of Total
Dual						
Amex-NYSE	7	21.88	19	59.37	6	18.75
NASDAQ	18	27.27	41	62.12	7	10.61
Total	25	25.51	60	61.22	13	13.27
Control						
Amex-NYSE	10	31.25	12	37.50	10	31.25
NASDAQ	14	21.21	44	66.67	8	12.12
Total	24	24.49	56	57.14	18	18.37
Single						
Amex-NYSE	46	20.81	89	40.27	86	38.92
NASDAQ	182	17.35	792	75.50	75	7.15
Total	228	17.95	881	69.37	161	12.68

Table 16**OLS Regression Results for Underpricing**

The cross-sectional regression model uses various proxies for ex-ante uncertainty, managerial disciplinary mechanisms, partial adjustment phenomenon, and a control variable for the equity structure.

Explanatory Variable	Coefficient	Estimate ^{sig. using t-stat.}
Intercept	α_0	0.0574
Dual-class (D=1, 0 otherwise)	α_1	-0.0062
Ownership Retention (OR)	α_2	-0.0699*
Age (AGE)	α_3	-0.0004
Reciprocal of Gross Proceeds (RGP)	α_4	0.4019***
Investment Banker (IB)	α_5	-0.0084
Auditor (AUD)	α_6	-0.0122
Exchange (EXCH)	α_7	0.0031
Revision from Filing Price (CHPRC)	α_8	0.0113**
Revision from Shares Filed (CHSHR)	α_9	0.0002
Underwriter Compensation (UCOMP)	α_{10}	0.2307**
	R ²	0.2122
	Adj. R ²	0.1563
	F-Value	3.7970***

Note: t-test applies for all. * significant at 10%, ** significant at 5%, and *** significant at 1%.

The variables for equity structure, auditor, investment banker, exchange, change in shares offered from those filed, and age, though economically significant, are not statistically significant at the 10% level. The variables for investment banker and exchange are however significant in univariate regressions (not reported here). Significant collinearity is observed between IB (dummy variable equals 1 if lead investment banker is among top ten as ranked by Institutional Investor) and UCOMP (underwriter compensation measured as a percent of the offer price), IB and RGP (reciprocal of the gross proceeds), OR (ownership retention) and AGE (measured from the date of incorporation to the offer date), EXCH (dummy variable for exchange equals 1 if firm trades on NASDAQ) and RGP, AUD (dummy variable equals 1 if auditor is among the big six) and CHPRC (percent revision in the offer price from the mid-point of the filing range), and CHSH (percent revision in the number of shares offered from that filed) and RGP. As a result of the matching criteria, 88% of the control and 90% of the dual firms have a big-6 auditor, while 38% of the control and 38% of the dual firms have a top-8 rank lead underwriter. The study finds evidence in support of the partial adjustment phenomenon from Hanley [1993]. Furthermore, the underpricing figures are lower than those documented in earlier research, which can be explained upon considering that the IPOs used in this study are cold issues. Within the framework of Benveniste and Spindt [1989] and Hanley [1993], an IPO is considered a cold issue if the firm revises the offer price and number of shares offered downward from the mid-point of the filing price range and number of shares filed respectively.

5.2. Results on Long-Run Stock-Price Performance

After three years of trading on the market all samples of IPOs underperform the market index. The underperformance is similar to that reported by Ritter [1991] except that it appears to be less severe for the dual-class sample. The cumulative monthly average abnormal performance for three years is graphed in Figures 1-3 for various sub-samples based on the exchange on which the IPOs trade with the raw returns adjusted using both market indices (equally-weighted [EWRETD] and value-weighted [VWRETD]) for that exchange. The results are qualitatively identical for each benchmark choice. First qualitative results are presented in figures, then statistical results in tables.

Figure 1 sketches the $CAR_{1,t}$ for the dual-class NASDAQ and Amex-NYSE firms. The NASDAQ firms seem to fare much better than those on the Amex-NYSE. Figure 2 sketches the cumulative monthly average abnormal performance for all single-class NASDAQ and Amex-NYSE firms. For this sample the NASDAQ firms seem to outperform the index during the initial few months. This evidence substantiates the underpricing result from Table 14 where the NASDAQ IPOs are underpriced by 9.21%. The initial underpricing may partly explain the overperformance during the initial months on the market. Figure 3 sketches the cumulative monthly average abnormal performance for the control group NASDAQ and Amex-NYSE firms. Once again, the NASDAQ firms fare slightly better than those on the Amex-NYSE. Moreover, the control group firms perform much worse than the dual-class.

The cumulative average matching-firm-adjusted returns for the subsamples based on the exchange on which the IPOs trade are graphed in Figure 4. A control firm is identified for each dual-class firm matched by exchange, offer date, industry and firm size. The monthly returns for the matching firm and the dual-class firm are adjusted using the value-weighted and equally-weighted indices of the respective exchange on which the firms trade, and the difference between the two gives the monthly matching firm-adjusted return, i.e. the matching-firm-adjusted return for stock i in event month t is computed as $ar_{it} = [r_{Dual,it} - r_{Dual,mt}] - [r_{Match,it} - r_{Match,mt}]$. Such computation helps take into account the difference between the offering date of a dual-class firm and that of its matching control firm. If any one of the two monthly returns is missing the corresponding observation is deleted. A positive cumulative average adjusted return indicates superior monthly market-adjusted returns for the dual-class IPOs. The dual-class firms outperform the single-class firms during three years of trading subsequent to going public. The difference in performance is more pronounced for the NASDAQ firms compared to that for the Amex-NYSE⁸.

Figures 5 and 6 sketch the wealth relatives over three years for the single versus dual and control versus dual respectively. The profiles are almost identical. The dual-class appears to do worse than the other two groups initially, but clearly outperforms them at the end of three years on the market. The initial underperformance, however, may be explained in part by the lower underpricing for the dual-class firms compared to the single class or the control group.

⁸ The discussion on reasons for differences in returns across the exchanges is left for another study.

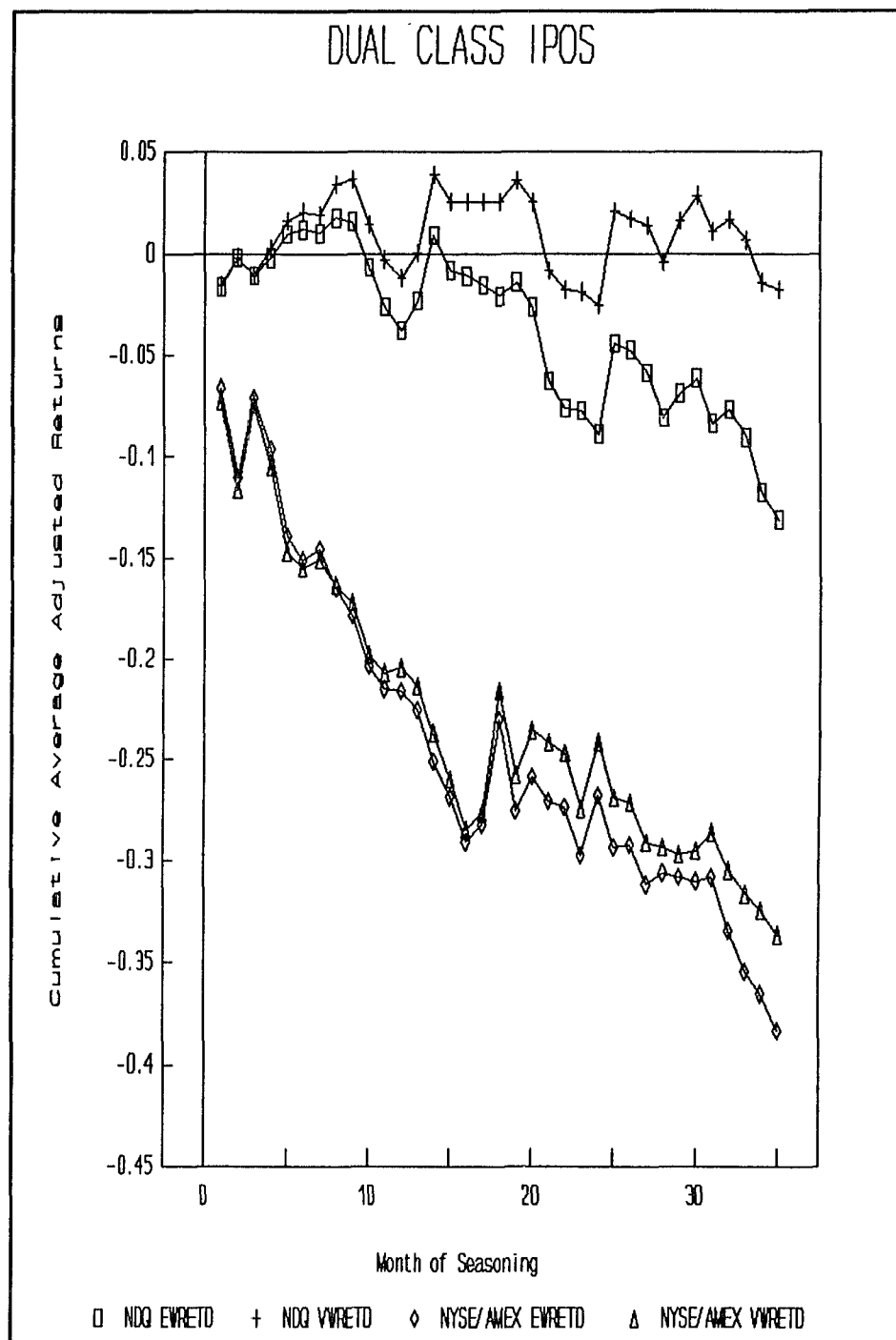


Figure 1. The Long-Run Performance of **Dual-Class** NASDAQ IPOs (adjusted using NDQ EWRETD/VWRETD) and Amex-NYSE IPOs (adjusted using Amex-NYSE EWRETD/VWRETD).

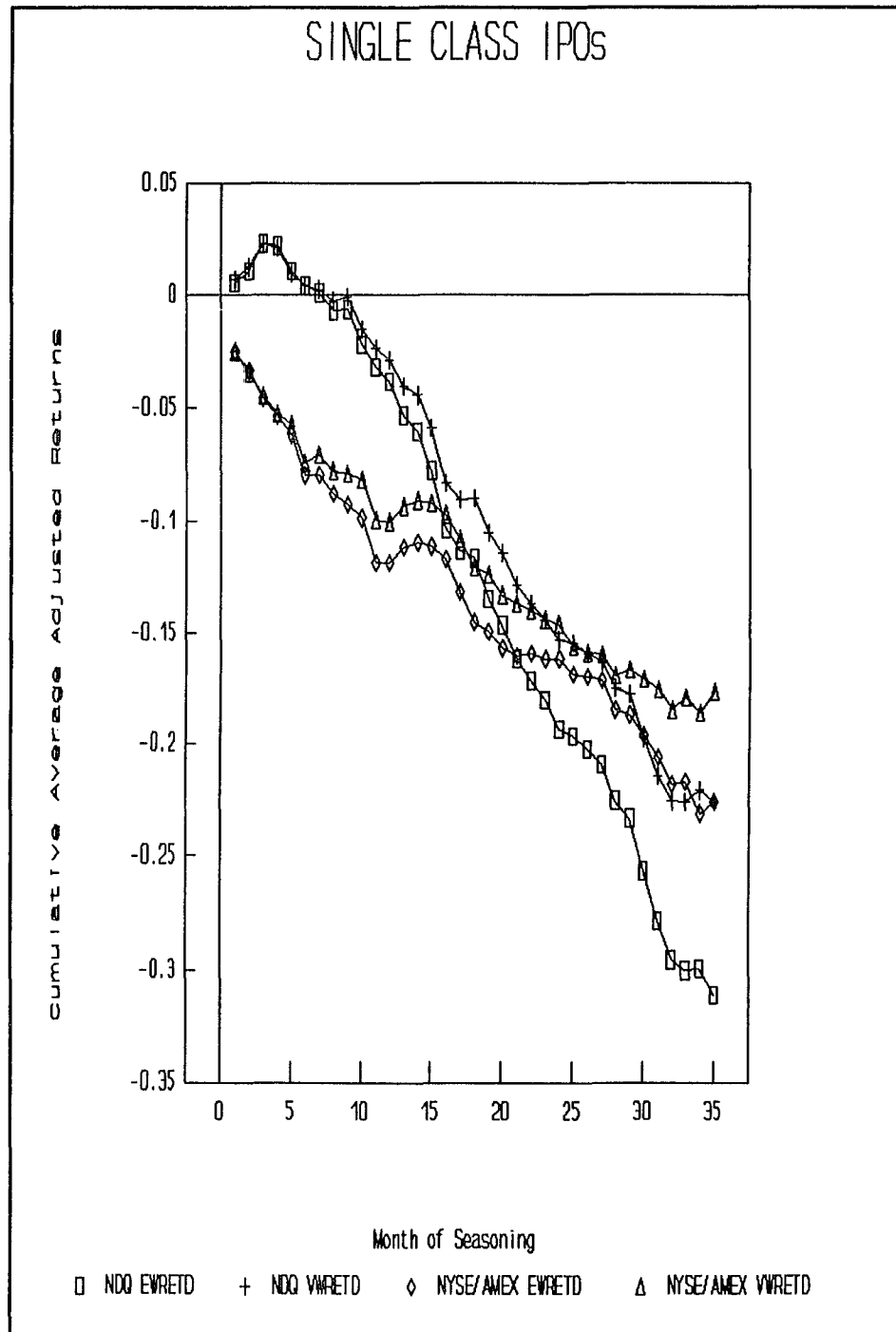


Figure 2. The Long-Run Performance of All Single Class NASDAQ IPOs (adjusted using NDQ EWRET/VWRET) and Amex-NYSE IPOs (adjusted using Amex-NYSE EWRET/VWRET).

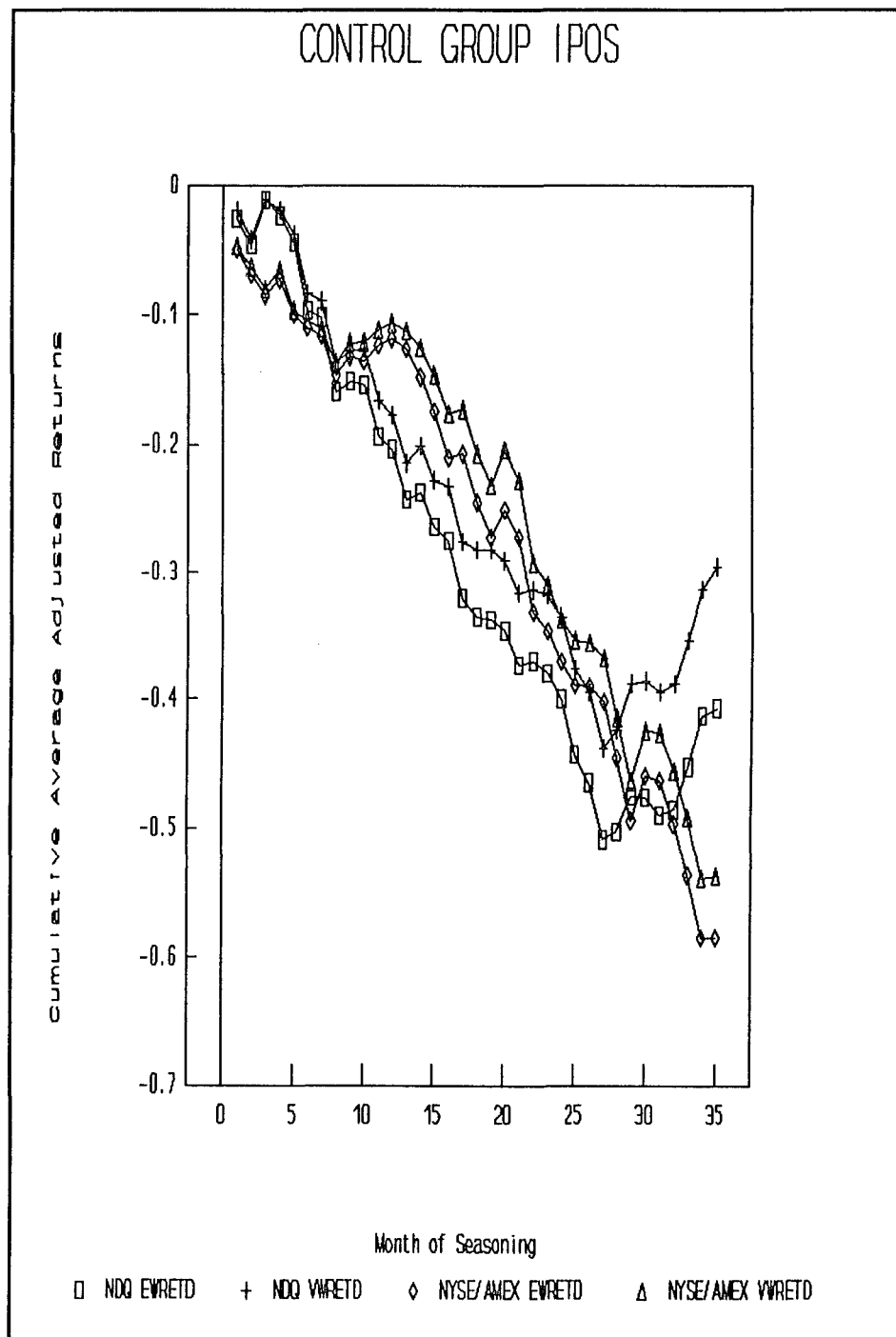


Figure 3. The Long-Run Performance of All Single-Class **Control** NASDAQ IPOs (adjusted using NDQ EWRETD/VWRETD) and Amex-NYSE IPOs (adjusted using Amex-NYSE EWRETD/VWRETD).

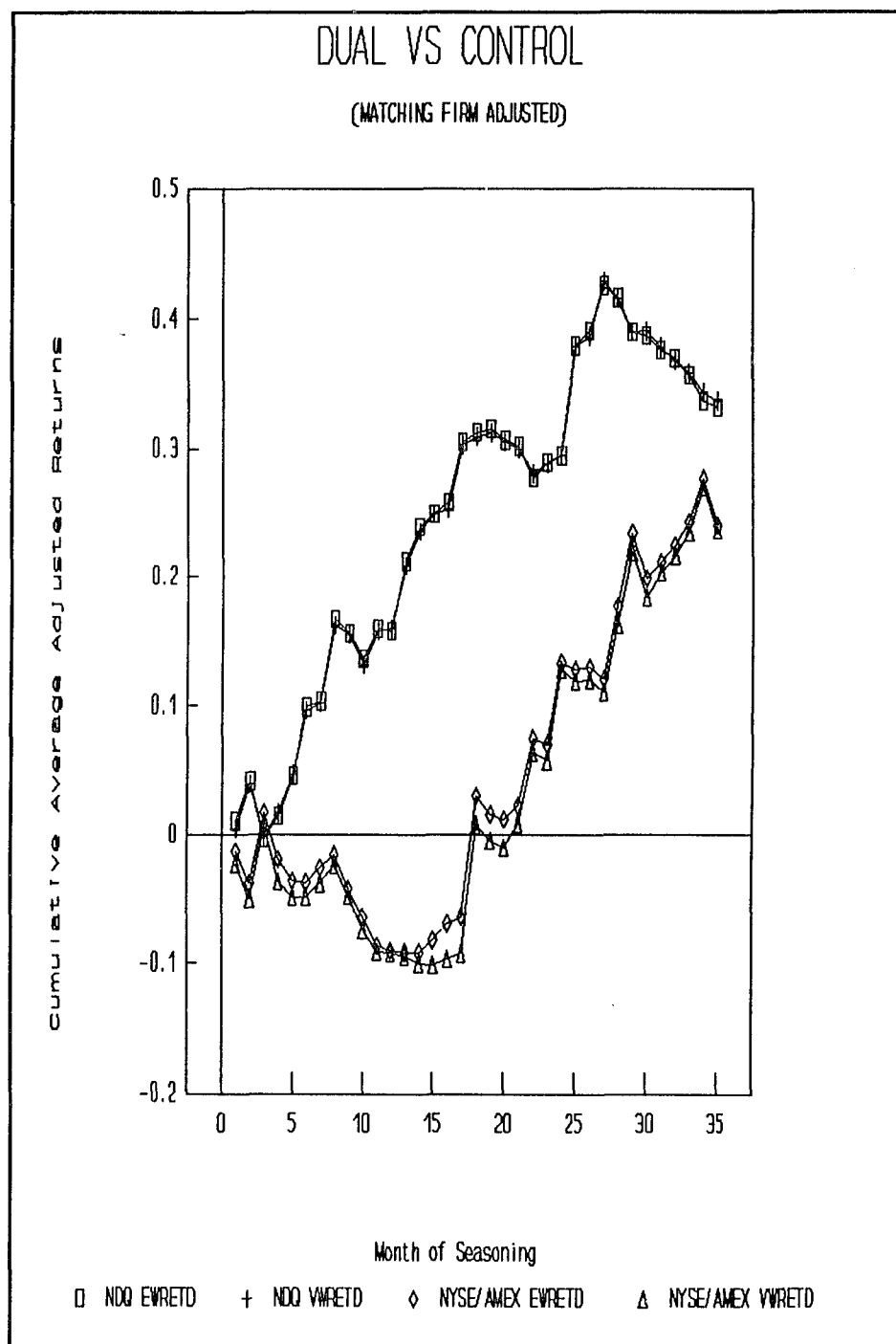


Figure 4. The Difference in the Long-Run Performance of Dual-Class and Control Group NASDAQ IPOs (adjusted using NDQ EWRET/VWRET) and Amex-NYSE IPOs (adjusted using Amex-NYSE EWRET/VWRET).

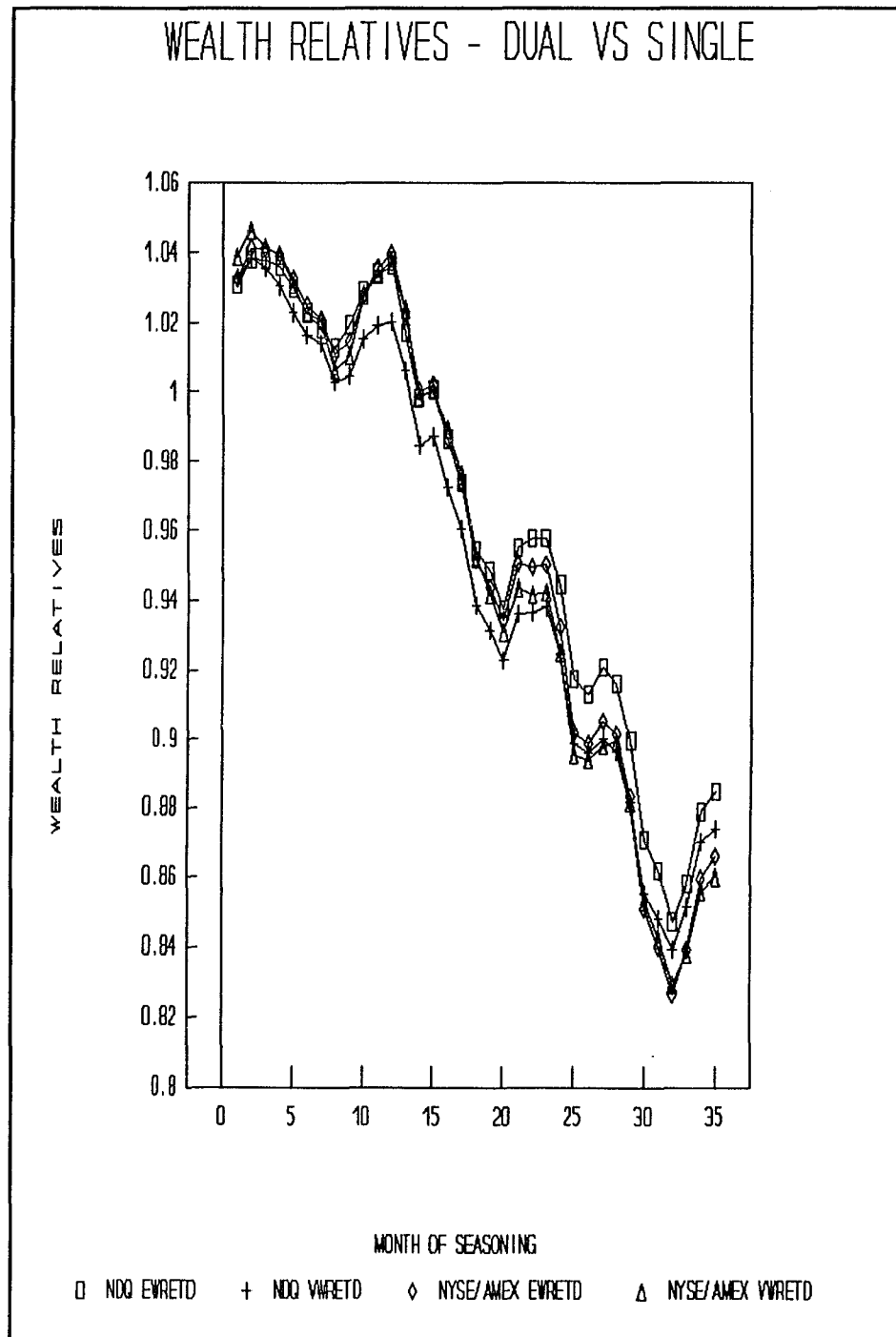


Figure 5. The Wealth Relatives for 1270 Single-Class IPOs and 98 Dual-Class IPOs Computed as $(1 + \text{CAR}_{1,t} \{\text{Single}\})$ Divided by $(1 + \text{CAR}_{1,t} \{\text{Dual-Class}\})$.

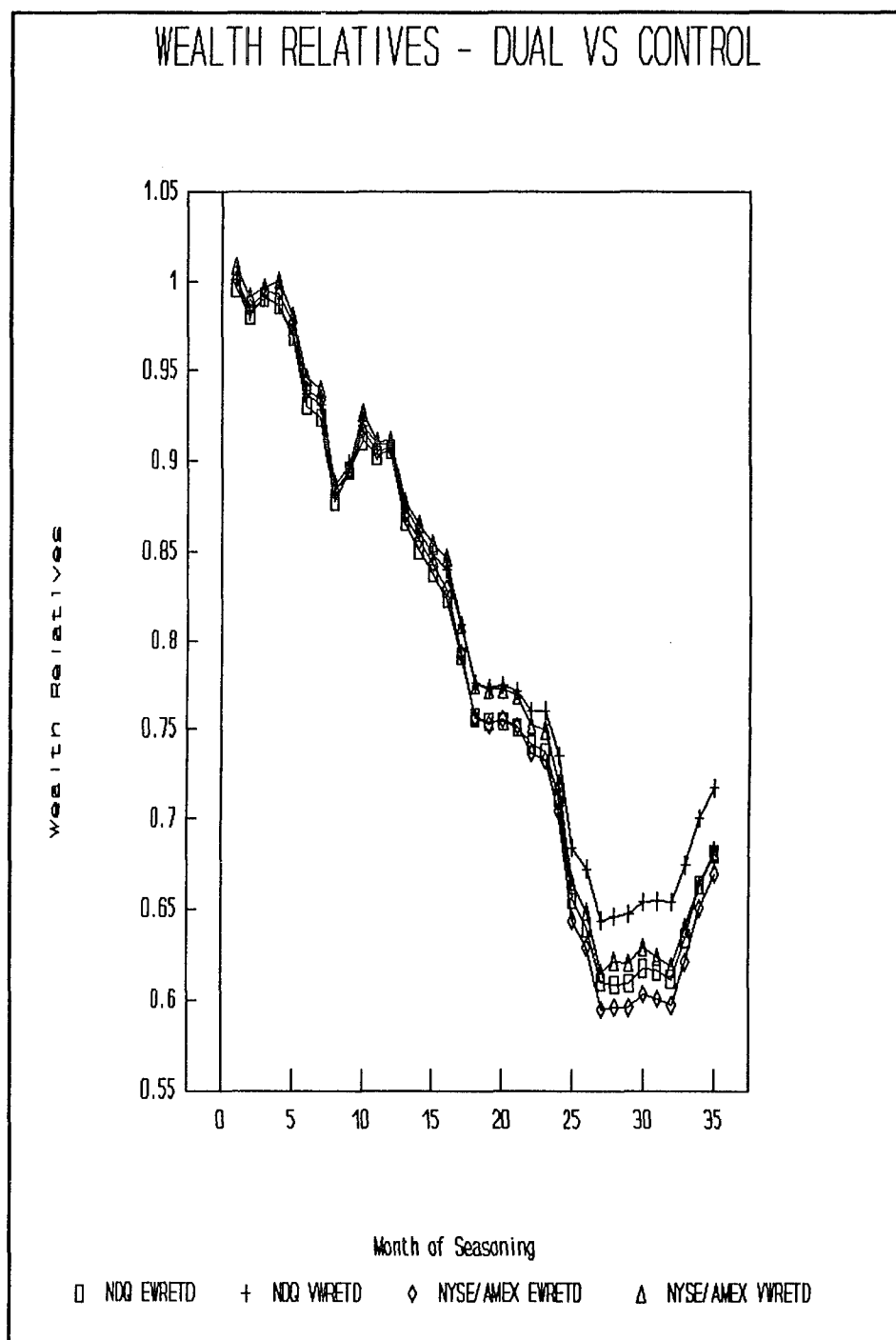


Figure 6. The Wealth Relatives for 98 Single-Class **Control** IPOs and 98 **Dual-Class** IPOs Computed as $(1 + \text{CAR}_{1,t} \{\text{Control}\})$ Divided by $(1 + \text{CAR}_{1,t} \{\text{Dual-Class}\})$.

Table 17 reports the cumulative average abnormal returns, the difference in the cumulative average abnormal returns of the dual-class firms versus the single-class and the control groups, and the wealth relatives of the single or control groups compared to the dual-class firms. After-market underperformance is -20.05% for the total single-class, -8.5% for the dual-class, and -34.38% for the control group. The dual-class firms outperform the total single-class by 11.55% and the control group by 25.88%. Moreover, the wealth relatives are 87% for the total single-class and 71% for the control group when compared with the dual-class. While 37.14% of the monthly average abnormal returns are positive for the dual-class, only 17.14% are positive for the total single-class, and 28.57% are positive for the control group. All differences are statistically significant using parametric and non-parametric tests. A similar analysis is carried out for the sub-samples based on the exchange on which the IPOs trade. In general, the NASDAQ firms seem to perform better than the Amex-NYSE. The dual-class NASDAQ firms have an insignificant -1.77% underperformance. For both exchanges, the dual-class firms outperform the control group firms.

Table 18 provides the matching-firm-adjusted cumulative average abnormal returns for the dual-class sample. The results in table 18 suggest that upon adjusting each dual-class firm's market-adjusted return with that of its matched single-class counterpart (both adjusted using the value-weighted NASDAQ market index), the dual-class firms outperformed the single-class control group by 31.55% at the end of three years of trading on the market. In 25 out of 36 months dual-class firms had larger

Table 17
Cumulative Average Abnormal Returns for IPOs in 1984-88
at the End of 3rd Year on the Market

Nobs is the number of good observations for firms, $CAR_{1,36}$ is the cumulative average abnormal return at the end of month 36, CT-STAT is the cross-sectional t-statistic for $CAR_{1,36}$, AR_t is the average abnormal return for month t, Cudiff is the difference in the $CAR_{1,t}$ and Diff is the difference in the AR_t for the different samples.

	Nobs	$CAR_{1,36}$	CT-STAT	$\%AR_t > 0$	Cudiff _{1,36} (%Diff > 0)	Wthrel
NYSE/AMEX						
Single	196	-0.1771**	-3.72	17.14		
Dual	30	-0.3367*	-2.24	25.71		
Control	30	-0.5372**	-3.83	25.71		
Single-Dual					0.1597** (62.86)	1.24**
Control-Dual					-0.2005** (54.28)	0.69**
NASDAQ						
Single	845	-0.2266**	-6.65	17.14		
Dual	53	-0.0177	-0.14	40.00		
Control	65	-0.2959*	-2.37	37.14		
Single-Dual					-0.2088** (37.14)	0.79**
Control-Dual					-0.2782** (37.14)	0.71**
TOTAL						
Single	1041	-0.2005**	-6.88	17.14		
Dual	83	-0.0850	-0.88	37.14		
Control	96	-0.3438**	-3.56	28.57		
Single-Dual					-0.1155** (40.00)	0.87**
Control-Dual					-0.2588** (42.85)	0.71**

Note: * significant at 5 %, ** significant at 1 %. For CAR's t-test applies. For Cudiff and Wthrel Wilcoxon Sign Rank test applies. All CAR's are also significant at 1% using Wilcoxon Sign Rank test. The NYSE/AMEX samples are adjusted using NYSE/AMEX VWRETD, the NASDAQ samples are adjusted using NASDAQ VWRETD, and the total samples are adjusted using NASDAQ VWRETD. When other indices are used, the sample profiles remain similar and the differences in sample results become more pronounced.

Table 18
Matching Firm Adjusted Cumulative Average Abnormal Returns
Dual Class (adjusted using NDQ VWRETD) - Control Group (adjusted using NDQ VWRETD).

Month	Nobs	AR _i	T-Stat	STD	CAR _{i,t}	CT-Stat	Variance
1	96	0.00040	0.02351	0.16869	0.00040	0.01903	0.02846
2	95	0.01677	1.22696	0.13325	0.01718	0.56750	0.04621
3	96	-0.00775	-0.26516	0.28626	0.00943	0.25565	0.12816
4	96	0.00100	0.04753	0.20576	0.01043	0.24479	0.17049
5	97	0.01586	0.86678	0.18026	0.02629	0.55481	0.20299
6	97	0.03074	1.58178	0.19141	0.05704	1.09852	0.23963
7	97	0.00661	0.30415	0.21404	0.06365	1.13484	0.28544
8	97	0.04398	1.98461	0.21826	0.10763	1.79503	0.33308
9	97	-0.01293	-0.80354	0.15848	0.09470	1.48902	0.35819
10	96	-0.02234	-1.24178	0.17629	0.07235	1.07372	0.38927
11	96	0.01097	0.65984	0.16296	0.08333	1.17902	0.41583
12	96	0.00061	0.03043	0.19748	0.08394	1.13711	0.45482
13	96	0.03264	1.91643	0.16689	0.11659	1.51732	0.48267
14	96	0.01810	0.71723	0.24725	0.13468	1.68909	0.54381
15	96	0.01122	0.64928	0.16936	0.14591	1.76778	0.57249
16	94	0.00683	0.33121	0.19996	0.15274	1.77300	0.61247
17	93	0.03403	1.83673	0.17867	0.18677	2.09206	0.64440
18	92	0.03641	1.75424	0.19908	0.22318	2.41635	0.68403
19	91	-0.00089	-0.04144	0.20396	0.22229	2.32979	0.72563
20	91	-0.00548	-0.32513	0.16079	0.21681	2.21480	0.75148
21	91	-0.00036	-0.02190	0.15878	0.21645	2.15778	0.77669
22	92	0.00310	0.17464	0.17006	0.21954	2.15004	0.80561
23	91	0.00316	0.13790	0.21825	0.22270	2.12136	0.85324
24	90	0.02536	1.41885	0.16960	0.24806	2.30048	0.88201
25	90	0.05483	1.44599	0.35971	0.30289	2.75217	1.01140
26	90	0.00478	0.20022	0.22635	0.30767	2.74128	1.06263
27	88	0.02496	1.10670	0.21157	0.33263	2.87576	1.10739
28	86	0.00990	0.34306	0.26749	0.34252	2.87471	1.17894
29	86	0.00215	0.08341	0.23914	0.34467	2.84244	1.23613
30	85	-0.00959	-0.40164	0.22008	0.33509	2.70108	1.28456
31	84	-0.00320	-0.18435	0.15924	0.33188	2.61623	1.30992
32	83	-0.00506	-0.25276	0.18222	0.32683	2.52065	1.34312
33	82	-0.00027	-0.01144	0.21578	0.32655	2.46511	1.38968
34	81	0.00281	0.15973	0.15846	0.32937	2.43451	1.41479
35	80	-0.01382	-0.57513	0.21492	0.31555	2.28457	1.46098

The NASDAQ VWRETD has been used because most IPOs trade on the NASDAQ. The use of other benchmarks does not qualitatively change the results.

returns. The cross-sectional standard deviations for the monthly firm-adjusted returns vary from a low of 13.33% in month 2 to a high of 35.97% in month 25.

The frequency distribution of holding period returns for the control group versus the dual-class at the end of each of the first three years of trading is shown in Table 19. The holding period return is computed as $[\pi(1 + \text{Ret}_t) - 1.0]$. The wealth relatives (Wthrel) are computed as $[(1 + \text{holding period return}_{\text{control}})/(1 + \text{holding period return}_{\text{dual}})]$. Given the percentiles, the dual-class appears to have superior performance compared to the control group.

5.3. Results on Operating Performance

To corroborate the stock-price performance results, the study also analyzes several measures of operating performance using accounting data from 1990 and 1991 COMPUSTAT files for dual-class and control firms at the end of three years on the market. Several profitability, liquidity, and asset utilization ratios are computed for both samples. The accounting measures are derived for each firm and then averaged across the firms. Furthermore, to check if there exist differences in performance across trading locations, the accounting variables of information are derived for the dual and control samples by exchange.

The results based on accounting figures, reported in Table 20 are consistent with the results on stock-price performance. It is found that dual-class firms substantially outperform single-class control firms. The dual-class firms outperform the control firms not only at the end of three years on the market, but during each of the three years of trading. For brevity, the study only presents results at the end of the third

Table 19
Holding Period Returns

%	YEAR1			YEAR2			YEAR3		
	Control	Dual	Wthrel	Control	Dual	Wthrel	Control	Dual	Wthrel
NYSE/AMEX									
100	1.1197	1.1479	0.9868	1.0167	2.7712	0.5347	0.8403	6.2020	0.2555
99	1.1197	1.1479	0.9868	1.0167	2.7712	0.5347	0.8403	6.2020	0.2555
95	1.1084	1.0361	1.0354	0.6026	2.2568	0.4920	0.6882	4.7499	0.2936
90	0.5948	0.4395	1.1078	0.2033	1.9898	0.4024	0.5820	1.9781	0.5311
75	0.1621	0.0821	1.0739	0.1759	0.4575	0.8067	0.2068	0.5636	0.7717
50	-0.0738	-0.1963	1.1524	-0.1920	-0.2558	1.0857	-0.1518	-0.3211	1.2494
25	-0.3300	-0.4126	1.1406	-0.4481	-0.6029	1.3902	-0.6667	-0.6774	1.0334
10	-0.4760	-0.4915	1.0305	-0.6888	-0.7030	1.0492	-0.7566	-0.7857	1.1359
5	-0.6406	-0.5247	0.7562	-0.7891	-0.7539	0.8573	-0.9282	-0.9166	0.8617
1	-0.9591	-0.5793	0.0970	-0.9592	-0.7623	0.1717	-0.9592	-0.9572	0.9546
0	-0.9591	-0.5793	0.0970	-0.9592	-0.7623	0.1717	-0.9592	-0.9572	0.9546
Mean	-0.0123	-0.0848	1.0792	-0.1566	0.0884	0.7767	-0.1686	0.2991	0.6399
Q3-Q1	0.4921	0.4947	0.9982	0.5274	1.0605	0.7412	0.8735	1.2411	0.8359
NASDAQ									
100	2.0242	1.4660	1.2263	1.1949	3.1220	0.5324	2.8336	3.9606	0.7728
99	2.0242	1.4660	1.2263	1.1949	3.1220	0.5324	2.8336	3.9606	0.7728
95	1.0326	1.0588	0.9873	1.1217	1.5923	0.8184	0.8761	1.9895	0.6275
90	0.8657	0.9165	0.9734	0.7353	1.1963	0.7900	0.8139	1.6614	0.6815
75	0.2075	0.4990	0.8054	0.0243	0.6399	0.6246	0.1970	0.8993	0.6302
50	-0.2141	0.0518	0.7470	-0.2628	-0.0067	0.7420	-0.2715	-0.0100	0.7358
25	-0.4898	-0.2131	0.6483	-0.6302	-0.3580	0.5759	-0.7110	-0.3086	0.4179
10	-0.5773	-0.5831	1.0138	-0.7814	-0.7439	0.8533	-0.8588	-0.8481	0.9291
5	-0.6976	-0.7023	1.0157	-0.8837	-0.8386	0.7204	-0.8662	0.9407	2.2570
1	-0.8023	-0.8974	1.9273	-0.9556	-0.9878	3.6390	-0.9709	-0.9878	2.3847
0	-0.8023	-0.8974	1.9273	-0.9556	-0.9878	3.6390	-0.9709	-0.9878	2.3847
Mean	-0.0756	0.0917	0.8467	-0.1876	0.2081	0.6724	-0.1434	0.2829	0.6676
Q3-Q1	0.6973	0.7122	0.9912	0.6545	0.9979	0.8281	0.9080	1.2080	0.8641
TOTAL									
100	2.0242	1.4660	1.2263	1.1949	3.1220	0.5324	2.8336	6.2020	0.5323
99	2.0242	1.4660	1.2263	1.1949	3.1220	0.5324	2.8336	6.2020	0.5323
95	1.1084	1.0588	1.0241	1.0167	2.1132	0.6478	0.8592	2.2152	0.5782
90	0.6055	0.7108	0.9384	0.5080	1.2684	0.6647	0.6460	1.7064	0.6081
75	0.1705	0.3437	0.8711	0.1527	0.6083	0.7166	0.1970	0.7041	0.7024
50	-0.1282	-0.0333	0.9018	-0.2485	-0.1120	0.8462	-0.2704	-0.1068	0.8168
25	-0.4719	-0.3393	0.7993	-0.5361	-0.4201	0.8000	-0.6826	-0.4189	0.5462
10	-0.5625	-0.5247	0.9206	-0.7815	-0.7439	0.8533	-0.8589	-0.8360	0.8609
5	-0.6976	-0.6586	0.8857	-0.8837	-0.7976	0.5745	-0.9282	-0.9407	1.2121
1	-0.9591	-0.8974	0.3980	-0.9592	-0.9878	3.3486	-0.9709	-0.9878	2.3847
0	-0.9591	-0.8974	0.3980	-0.9592	-0.9878	3.3486	-0.9709	-0.9878	2.3847
Mean	-0.0550	0.0340	0.9065	-0.1775	0.1690	0.7041	-0.1518	0.2882	0.6515
Q3-Q1	0.6425	0.6831	0.9758	0.6888	1.0285	0.8325	0.8796	1.1231	0.8853

Table 20
Performance Measures and Summary Statistics using Accounting Data for
Dual and Matching Control Firms at the End of Year 3 on the Market
 72 dual-class firms (32 on Amex-NYSE and 40 on NASDAQ), and 78 matching
 control firms are identified on COMPUSTAT 1991 tapes.

Performance Measures	N	Mean (Yr3)	% Growth from Yr 1	25% (Yr3)	50% (Yr3)	75 % (Yr3)
Operating Income/Total assets: Dual	67	0.135	-25.00	0.072	0.130	0.185
Control	71	0.076	-40.63	0.030	0.071	0.129
Operating Income/Stockholders Equity: Dual	64	0.734	-4.92	0.172	0.344	0.630
Control	70	0.255	-49.30	0.113	0.224	0.376
Operating Income/Net Sales: Dual	65	0.188	1.08	0.073	0.134	0.235
Control	71	0.124	100.28	0.035	0.083	0.175
EPS (primary, excl extraord items): Dual	68	0.184	-73.94	-0.120	0.460	1.170
Control	70	0.094	-75.65	-0.270	0.170	0.810
Market Value/Total Assets: Dual	67	2.039	83.69	0.364	0.771	1.206
Control	71	0.782	-37.54	0.236	0.510	0.985
Tobin's Q: Dual	67	2.765	59.46	1.054	1.429	1.974
Control	71	1.398	-21.86	0.972	1.136	1.464
Market Value/Common Equity: Dual	67	3.817	-3.61	0.909	1.721	2.923
Control	71	2.398	-29.64	0.837	1.307	1.930
Total Debt/Total Assets: Dual	68	0.328	11.19	0.079	0.257	0.502
Control	71	0.218	27.98	0.023	0.169	0.316
Total Liab./Total Assets: Dual	68	0.712	10.90	0.434	0.641	0.863
Control	71	0.603	10.24	0.446	0.638	0.802
Current Assets/Current Liab.: Dual	60	3.481	55.54	1.325	1.899	3.244
Control	60	2.390	-14.55	1.059	1.703	3.199
Net Sales/Total Assets: Dual	68	2.293	85.22	0.492	1.011	1.703
Control	70	1.267	12.72	0.565	1.064	1.528
Market Value of Equity (mill \$): Dual	67	420.034	70.84	35.356	96.219	326.006
Control	71	148.033	10.91	11.134	31.175	100.391
Total Assets (mill \$): Dual	68	495.078	57.67	66.653	142.719	566.342
Control	71	623.111	34.01	25.883	76.264	205.442

year on the market. Once again, consistent with the stock-price performance results, the accounting performance results are not sensitive to the exchange on which the IPOs trade. For both NASDAQ and Amex-NYSE, the dual-class firms outperform the control firms during each of the three years of trading on the market. Tables 21 and 22 report the accounting figures aggregated by exchange for the dual and control samples trading on NYSE/AMEX and NASDAQ respectively. The dual-class firms on either exchange outperform the single-class firms at the end of three years on the market. Moreover, similar to the stock-price results, the IPOs on NASDAQ appear to fare better than those on NYSE or AMEX.

From Table 20, on average, the dual-class firms are considerably more leveraged (Total Debt/Total Assets=32.8%) than the control firms (the same ratio being 21.8%). This suggests that long-term debt may serve as a disciplinary mechanism to align managerial incentives of dual-class managers to those of outside stockholders. Furthermore, these firms may have exhausted their debt capacity before turning to the common equity market for additional financing. All profitability, liquidity, asset utilization, and other accounting ratios suggest that on average, dual-class firms are twice as profitable as the single-class control firms. An approximate proxy for Tobin's Q has been computed using the definition from Mikkelsen and Partch [1992]. On average, for the dual and control samples respectively, the return on assets (ROA) is 0.135 and 0.076, the return on equity (ROE) is 0.734 and 0.255, the return on sales (ROS) is 0.188 and 0.124, the primary earnings per share (EPS) is 0.184 and 0.094, and Tobin's Q is 2.765 and 1.398.

Table 21
Performance Measures and Summary Statistics using
Accounting Data for NYSE/AMEX Dual and Matching
Control Firms at the End of Year 3 on the Market

Performance Measures	Mean (Yr3)	25 % (Yr3)	50 % (Yr3)	75 % (Yr3)
Operating Income/Total assets: Dual	0.136	0.063	0.115	0.173
Control	0.107	0.023	0.112	0.156
Operating Income/Stockholders Equity: Dual	0.660	0.159	0.343	0.722
Control	0.358	0.177	0.283	0.381
Operating Income/Net Sales: Dual	0.199	0.093	0.128	0.252
Control	0.146	0.023	0.099	0.166
EPS (primary, excl extraord items): Dual	0.043	-0.160	0.425	1.000
Control	0.097	-0.250	0.300	1.030
Market Value/Total Assets: Dual	0.625	0.170	0.447	1.011
Control	0.486	0.232	0.426	0.579
Tobin's Q: Dual	1.288	0.984	1.225	1.446
Control	1.164	0.954	1.090	1.235
Market Value/Common Equity: Dual	2.426	0.747	1.493	2.306
Control	1.556	0.712	1.199	1.814
Total Debt/Total Assets: Dual	0.308	0.109	0.248	0.526
Control	0.269	0.111	0.232	0.393
Total Liab./Total Assets: Dual	0.660	0.513	0.649	0.866
Control	0.675	0.514	0.664	0.825
Current Assets/Current Liab.: Dual	1.900	1.293	1.475	2.317
Control	1.891	1.123	1.319	2.898
Net Sales/Total Assets: Dual	1.083	0.517	0.949	1.561
Control	1.351	0.697	1.253	1.845
Market Value of Equity (mill \$): Dual	285.372	32.896	57.231	254.130
Control	336.570	19.166	37.122	138.359
Total Assets (mill \$): Dual	590.532	80.201	192.320	683.653
Control	1240.03	63.479	102.110	338.358

Table 22
Performance Measures and Summary Statistics using
Accounting Data for NASDAQ Dual and Matching Control
Firms at the End of Year 3 on the Market

Performance Measures	Mean (Yr3)	25% (Yr3)	50% (Yr3)	75% (Yr3)
Operating Income/Total assets: Dual	0.134	0.078	0.153	0.220
Control	0.063	0.032	0.069	0.106
Operating Income/Stockholders Equity: Dual	0.788	0.249	0.359	0.534
Control	0.209	0.109	0.196	0.376
Operating Income/Net Sales: Dual	0.179	0.073	0.162	0.215
Control	0.114	0.036	0.075	0.183
EPS (primary, excl extraord items): Dual	0.306	-0.120	0.630	1.510
Control	0.189	-0.050	0.200	0.790
Market Value/Total Assets: Dual	3.186	0.549	0.955	2.027
Control	0.903	0.256	0.728	1.037
Tobin's Q: Dual	3.963	1.170	1.615	2.236
Control	1.494	0.975	1.185	1.491
Market Value/Common Equity: Dual	5.045	1.264	2.234	3.692
Control	2.776	0.882	1.446	1.949
Total Debt/Total Assets: Dual	0.345	0.060	0.257	0.502
Control	0.195	0.009	0.094	0.282
Total Liab./Total Assets: Dual	0.753	0.388	0.596	0.826
Control	0.571	0.372	0.604	0.774
Current Assets/Current Liab.: Dual	4.716	1.380	2.275	3.801
Control	2.612	1.059	1.778	3.613
Net Sales/Total Assets: Dual	3.248	0.423	0.998	1.771
Control	1.231	0.554	0.946	1.473
Market Value of Equity (mill \$): Dual	538.853	39.659	149.473	361.004
Control	63.384	10.510	24.415	61.974
Total Assets (mill \$): Dual	413.260	21.966	113.271	371.001
Control	346.128	17.596	48.229	147.144

5.4. Results from Liquidity Analysis

Table 23 provides summary statistical data at the time of IPO for the samples of dual-class and single-class control firms used in this part of the study. While average offer prices per share are similar for the single and dual samples (\$12.24 and \$12.65 respectively), the offer amount (as well as primary and secondary share offerings) of \$137.88 million is significantly higher for the single compared to \$49.66 million for the dual. The single-class sample has, in comparison with the dual-class, significantly higher dilution (40% versus 26%), lower price to book ratio on the first trading day (3.01 versus 4.15), similar gross spread (management fee, underwriting fee and selling concession) paid to the underwriting syndicate (\$.80 versus \$0.85), and similar age as measured from the date of incorporation to the offer date (21.68 versus 23.06 years). While both samples appear to be cold issues, the dual-class seems colder than the single as measured by the percent change from the mid-filing-price to the offer price (-8.56% versus -6.72%), and the percent change in the number of shares filed to that offered⁹ (-7.96% versus 21.87%). Average firm size for the single-class is \$365 million, while it is \$318 million for the dual-class (assuming that the superior voting stock trades at the same price as the inferior voting stock). By construction the matched control firms have average firm sizes that are very close to those of dual-class firms.

Table 24 provides summary statistical data on the microstructure characteristics of the two samples for the first 250 days of trading in the aftermarket period. Values

⁹ See Hanley [1993] for a recent review of the partial adjustment phenomenon.

Table 23
Descriptive Statistics on 30 Single (Control) and Dual-Class IPOs between
1985-88 at Time of IPO

Variable of Interest	Single			Dual		
	Mean	Median	Std	Mean	Median	Std
\$ Offer Amount (mill)	137.88	32.40	305.30	49.66	29.70	66.26
Offer Price Per Share (\$)	12.24	10.00	5.54	12.65	13.38	3.56
Tot Shares Offered (mill)	8.46	3.00	14.98	3.96	2.45	5.52
Primary Shares Offered (mill)	6.14	2.70	12.67	3.39	2.03	5.67
Secondary Shares Offered (mill)	2.32	0.00	9.64	0.57	0.07	1.01
Shares O/S before IPO (mill)	16.71	4.61	27.67	12.76	6.97	20.40
Shares O/S after IPO (mill)	23.05	9.48	34.13	17.66	9.20	27.36
Dilution %	40.03	29.60	28.55	25.99	23.55	18.79
Age	21.58	6.00	27.88	23.06	9.00	26.63
Mkt Val after Offer (mill)	365.25	101.90	646.27	318.14	116.85	369.41
Price/Book Ratio after Offer	3.01	2.98	2.00	4.15	2.92	4.60
Book/Price Ratio after Offer	0.53	0.34	0.41	0.39	0.34	0.24
Gross Spread (\$)	0.80	0.70	0.27	0.85	0.91	0.22
Mgmt. Fee (\$)	0.16	0.14	0.06	0.18	0.19	0.05
Under. Fee (\$)	0.17	0.17	0.06	0.19	0.18	0.06
Sell. Conc. (\$)	0.46	0.42	0.17	0.49	0.50	0.12
Stock Price Filing - Low (\$)	11.91	10.00	4.35	12.82	13.00	3.25
Stock Price Filing - High (\$)	13.77	12.00	4.95	14.85	15.00	3.79
% Chng Mid File Price to Offer	-6.72	0.00	13.05	-8.56	-7.95	13.08
Total Shares Filed (mill)	7.44	3.70	12.77	4.25	2.95	4.96
% Chng Shares Filed to Offer	21.87	0.00	158.66	-7.96	0.00	18.21

Table 24 Averages of Daily Estimates (using Intraday Data) over 250 Trading Days Subsequent to the IPO for 30 Single and Dual-Class IPOs between 1985-88				
	Single		Dual	
Variable of Interest	Mean	Std. Error	Mean	Std. Error
Trade Size (00's shares)	14.36	0.2483	13.44**	0.3342
Daily Number of Trades	31.32	1.0160	17.57***	0.4434
Daily Share Volume (00's shares)	667.71	45.96	279.65***	14.23
Turnover Ratio	0.0029	0.000089	0.0045***	0.00041
Dollar Spread (\$)	0.2007	0.0008	0.2095***	0.0008
Relative Spread (%)	2.23	0.0002	1.98***	0.0001
Effective Relative Spread (%)	1.90	0.000194	1.56***	0.00012
Adverse Information Component (%)	31.53	3.63	39.67	2.81
Trade-to-trade Price Volatility	0.00021	0.000007	0.00014***	0.000005

Note: Estimates are based on all but opening trades.

*, **, *** indicates significantly different from the single-class IPO sample at the 10%, 5%, and 1% level respectively.

in the table are computed by averaging daily values for each firm over the 250 trading days and then averaging across firms. Average daily share volume and daily number of trades range from 66,771 shares per day and 31 trades respectively for the single-class firms to 27,965 shares per day and 18 trades for the dual-class firms. This appears to be largely a function of the size of the public float (number of shares of the total outstanding that actually publicly trade) for the two different samples.

Dollar spreads are lower for the single-class firms, averaging \$0.20, compared to \$0.21 for the dual. Average relative spreads, average effective spreads (measured as the deviation of trade price from the prevailing quote midpoint), average trade size and average trade-to-trade price volatility, however, are significantly higher for the single-class sample (2.23%, 1.9%, 1,436 shares and 0.00021 respectively) relative to those for the dual-class (1.98%, 1.56%, 1,344 shares and 0.00014 respectively). Moreover, the turnover ratio (share volume/number of shares outstanding and publicly traded) is significantly lower for the single-class firms (0.0029) compared to the dual-class (0.0045). The average estimate of the adverse information component of the effective spread¹⁰ is 31.53% (average t-statistic = 31.81) for the single vote shares, which is not significantly different from 39.67% (average t-statistic = 32.14) for the dual vote shares at the 10% level. By these measures, the dual-class firms appear to

¹⁰ Using intraday trade prices and quotes, and following the models of Stoll [1989], Huang and Stoll [1992], and Lin [1992]), the following model is estimated for each firm:

$$\Delta Q_{t+1} = \lambda z_t + e_{t+1}$$

where:

$$\Delta Q_{t+1} = Q_{t+1} - Q_t$$

$$Q_t = \log \text{ of the quote midpoint at time } t$$

$$z_t = P_t - Q_t$$

$$P_t = \log \text{ of the trade price at time } t$$

$$e_{t+1} = \text{random error term.}$$

enjoy better liquidity in the IPO aftermarket than single-class firms. However, there are factors known to affect the magnitude of bid-ask spreads that are not controlled for by these univariate tests. Therefore, the study next considers tests that control for other factors.

In the spirit of past work which shows that relative bid-ask spreads are negatively related to share price and trading activity, and positively related to risk or volatility (e.g. Benston and Hagerman [1974], Demsetz [1968], Hamilton [1976], Tinic [1972] and McInish and Wood [1992]), the study regresses average relative bid-ask spreads on average daily share price, average daily trading volume and average daily variance of return for a pooled sample of dual-class and control firms. The values of all variables are 5-day weekly averages during the 250 day aftermarket period for each firm. A dummy variable in the regression takes on the value of one for the dual-class firms. This variable should capture any differences in bid-ask spreads between dual-class and single-class firms after controlling for known determinants of the spread.

The results of the regression analysis are reported in Table 25. Three specifications of the independent variables (linear, log-linear and square root) are tried to examine robustness of the results. All of the regressions are highly significant, explaining an average of 50 to 72 percent of the cross sectional variation in relative spreads using various functional forms. The explanatory variables all have the hypothesized signs and are significant at the 1 percent level in each regression. The intercept dummy variable is negative and highly significant, thus implying that after controlling for share price, trading volume and variance of return there are statistically

Table 25 Regression Analysis of Bid-Ask Spreads, Share Price, Trading Volume, and Daily Return Variance for Single and Dual-Class IPOs between 1985- 88 using Intraday Data Averaged over 5-Day Weeks			
Regression Parameters	Model 1	Model 2	Model 3
Intercept	0.04 (87.22)	0.08 (85.13)	0.05 (73.64)
Intercept Dummy (1 if Dual)	-0.004 (-10.37)	-0.002 (-6.99)	-0.003 (-9.05)
Share Price	-0.001 (-42.54)	-0.018 (-57.61)	-0.009 (-47.34)
Trading Volume	-0.0000002 (-1.95)	-0.0007 (-7.00)	-0.00006 (-4.68)
Return Variance	0.66 (12.99)	0.001 (13.94)	0.11 (16.71)
R ²	0.50	0.72	0.63
F-Statistic	612	1518	1014

Note: t-statistics are in parentheses.

Model 1 takes the linear functional form.

Model 2 uses the natural logarithms of the independent variables.

Model 3 uses the square roots of the independent variables.

The results do not change qualitatively for other variants of the functional form or when daily number of trades is used instead of trading volume.

significant differences in the bid-ask spreads of dual-class versus single-class IPOs (the spreads, *ceteris paribus*, being smaller by as much as ten percent for dual-class shares).

To ensure that the results are not sensitive to the time frame used for aggregating data, the study performs similar analyses on a quarterly and monthly basis and finds that irrespective of the time frame used, the differences between the samples remain significant, persistent, and in the same direction. Table 26 reports quarterly averages of estimates during the four quarters of aftermarket trading. During each of the quarters, the average relative spread and intratrade price volatility remain significantly higher while the turnover ratio remains significantly lower for the single-class firms in comparison to the dual. The average trade size is significantly higher for the single-class firms only in the first two quarters, but is not significantly different from that for the dual-class firms in the third and fourth quarters. Consistent with the study of Hegde and Miller [1989], quoted spreads increase over time following the IPO date.

Table 26 Quarterly Averages of Daily Estimates (using Intraday Data) over 250 Trading Days Subsequent to the IPO for 30 Single and Dual-Class IPOs between 1985-88				
Variable of Interest	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Panel A: Single-class IPOs				
Relative Spread (%)	1.82	2.18	2.45	2.59
Trade-to-trade Price Volatility	0.00012	0.00021	0.00025	0.00030
Trade Size (00's shares)	16.91	13.91	12.86	13.24
Turnover Ratio	0.0044	0.0024	0.0025	0.0020
Adverse Information Component (%)	32.02	40.15	42.21	35.41
Panel B: Dual-class IPOs				
Relative Spread (%)	1.72***	2.01***	2.06***	2.20***
Trade-to-trade Price Volatility	0.00011*	0.00014***	0.00017***	0.00016***
Trade Size (00's shares)	14.65***	12.55*	13.26	13.28
Turnover Ratio	0.0093***	0.0031***	0.0030***	0.0029***
Adverse Information Component (%)	39.83	44.86	45.55	42.32

Note: Estimates are based on all but opening trades.

*, **, *** indicates significantly different from the single-class IPO sample at the 10%, 5%, and 1% level respectively.

The results do not change qualitatively upon doing a similar analysis on a monthly basis.

The first ten days of the IPO aftermarket trading history are potentially interesting because they comprise the underwriter support period during which price stabilization activity by the underwriters may occur. This is also a period marked on average by severe informational asymmetry, greater price volatility, and increased trading activity (Hegde and Miller [1989]). From the view-point of the investor, this is the most important period for which the results of this research would have practical relevance and provide him/her with valuable insight. To capture initial differences in the microstructure characteristics between the samples, if any, the study reports the averages of daily estimates for the underwriter support period in Table 27, and for the first trading day alone in Table 28. The differences in liquidity variables described in Tables 24 and 26 are found to be present from the first day of public trading. Moreover, the first trading day witnesses unusually high levels of trading volume and volatility, and lower levels for the adverse information component of the spread for both samples of firms.

To provide a visual summary of how the various microstructure variables season following the IPO date, Figures 7 through 15 show the 5-day weekly averages of intraday trade price, average trade size, average dollar spreads, trade-to-trade volatility, average relative spreads, average number of trades per day, average daily volume, average turnover ratio, and the adverse information component of the spread respectively over the 250 days of trading subsequent to the IPO. In support of the differences outlined previously in various tables, the study finds that for the entire aftermarket period, average relative spread, average trade-to-trade volatility, and

Table 27
Averages of Daily Estimates (using Intraday Data) over the First 10 Trading
Days Subsequent to the IPO for 30 Single and Dual-Class IPOs between
1985-88

Variable of Interest	Single		Dual	
	Mean	Std. Error	Mean	Std. Error
Share Price (\$)	11.64	0.3673	13.31**	0.2598
Dollar Spread (\$)	0.1547	0.0022	0.1614***	0.0028
Relative Spread (%)	1.55	0.0004	1.33***	0.0003
Trade-to-trade Price Volatility	0.00008	0.000007	0.00005***	0.000005
Trade Size (00's shares)	20.95	1.1947	20.13	1.0899
Turnover Ratio	0.0139	0.0018	0.0340**	0.0098
Adverse Information Component (%)	20.24	0.03	22.43	0.03

Note: Estimates are based on all but opening trades.

*, **, *** indicates significantly different from the single-class IPO sample at the 10%, 5%, and 1% level respectively.

Table 28 Averages (using Intraday Data) over the First Trading Day Subsequent to the IPO for 30 Single and Dual-Class IPOs between 1985-88				
	Single		Dual	
Variable of Interest	Mean	Std. Error	Mean	Std. Error
Share Price (\$)	11.66	1.1599	13.18	0.7191
Dollar Spread (\$)	0.1452	0.0050	0.1494	0.0076
Relative Spread (%)	1.48	0.0011	1.22*	0.0008
Trade-to-trade Price Volatility	0.000138	0.000057	0.00004*	0.000009
Trade Size (00's shares)	41.64	6.48	37.35	4.80
Turnover Ratio	0.06	0.01	0.21	0.09
Adverse Information Component (%)	13.54	0.02	11.74***	0.03

Note: Estimates are based on all but opening trades.

*, **, *** indicates significantly different from the single-class IPO sample at the 10%, 5%, and 1% level respectively.

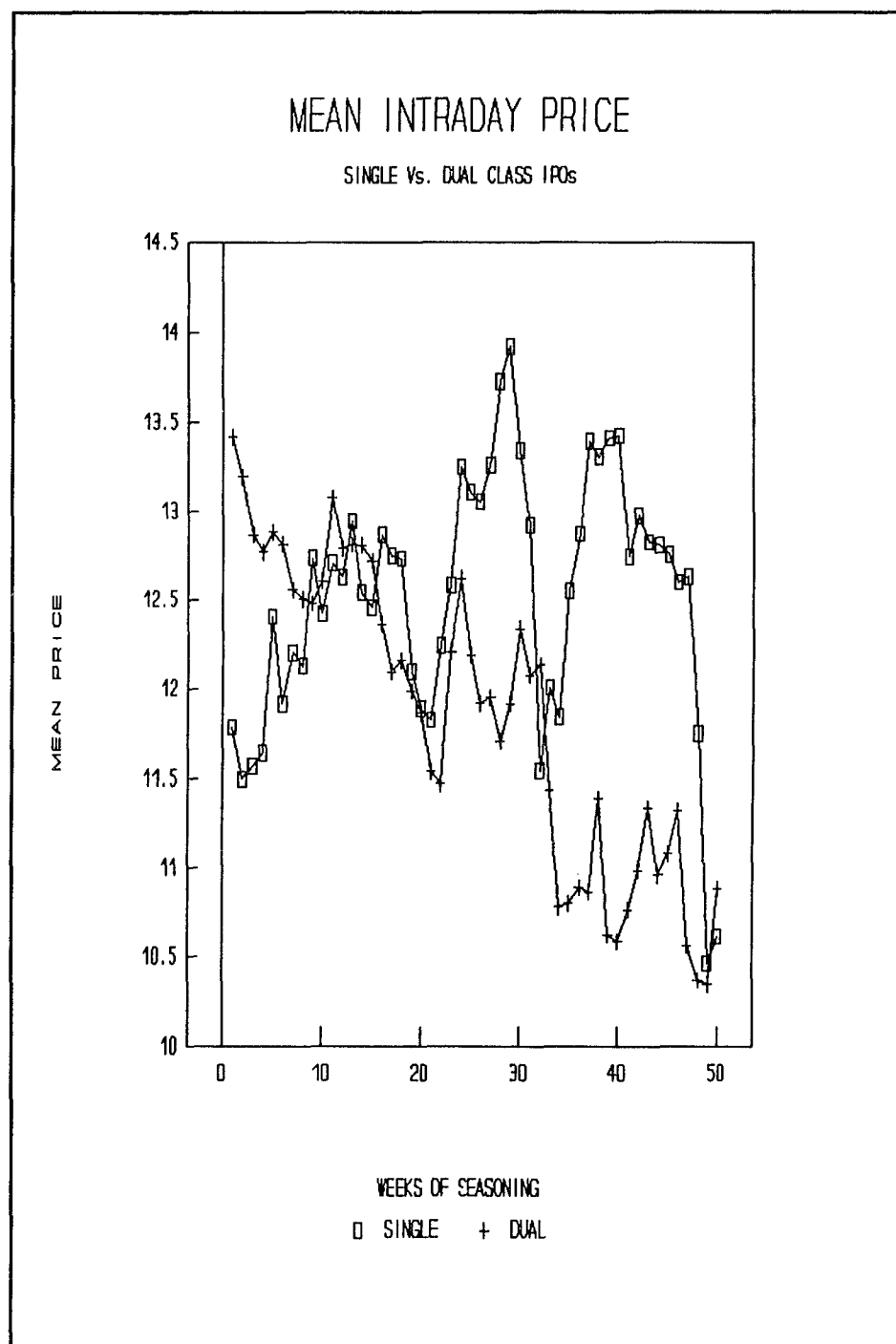


Figure 7. Weekly Averages of Daily Estimates of Intraday Price for 30 Single and Dual-Class IPOs.

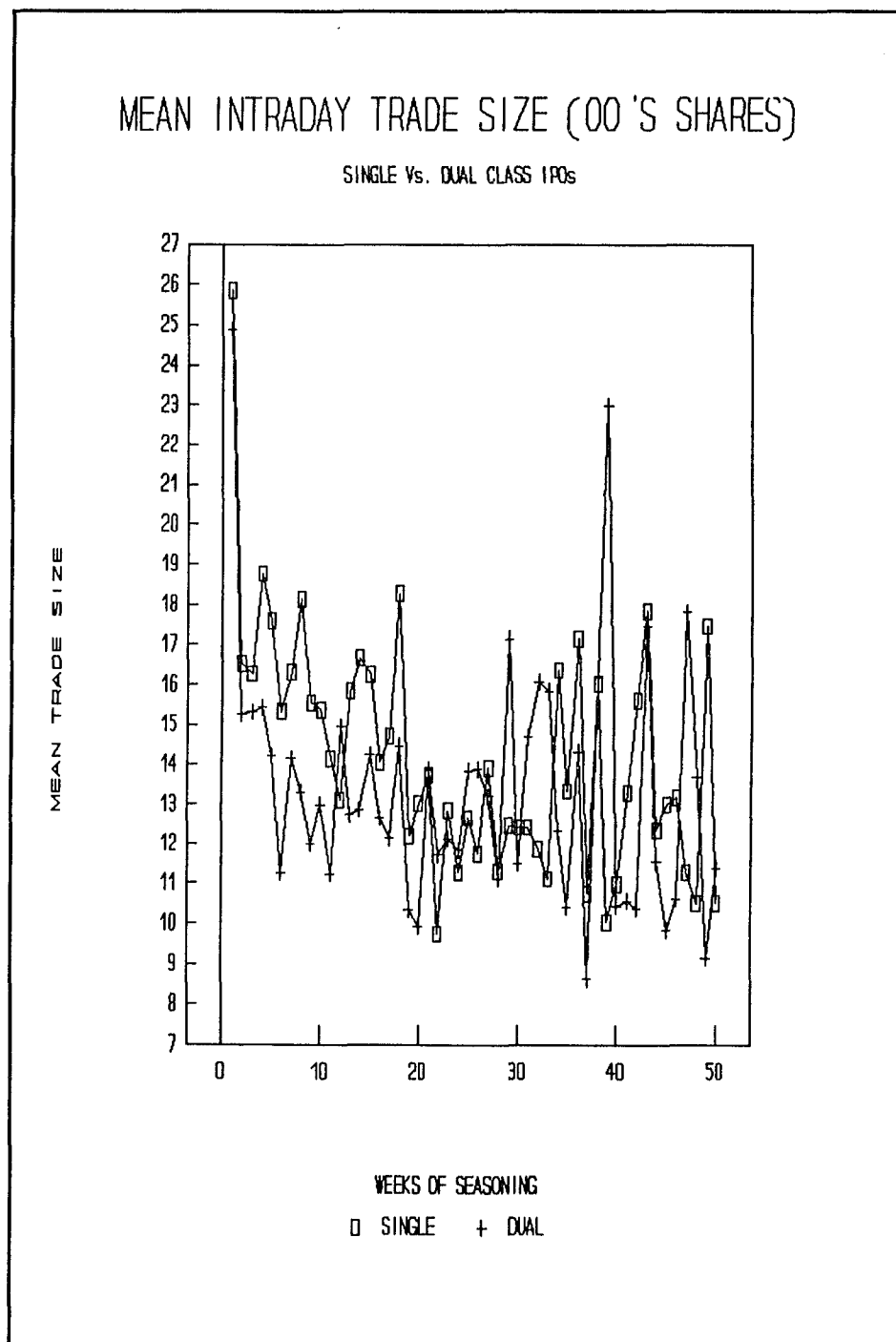


Figure 8. Weekly Averages of Daily Estimates of Intraday Trade Size (00's Shares) for 30 Single and Dual-Class IPOs.

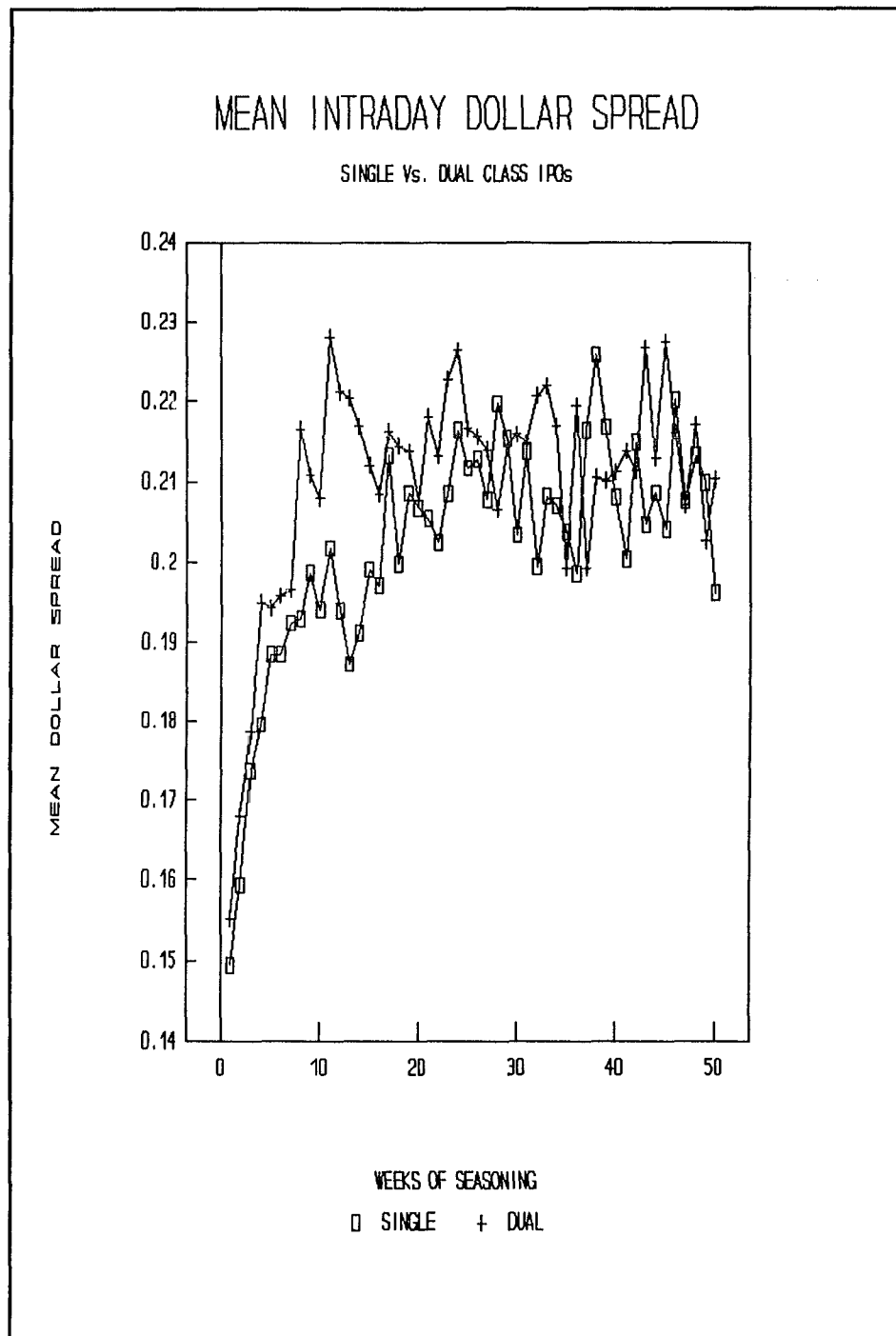


Figure 9. Weekly Averages of Daily Estimates of Intraday Dollar Spreads for 30 Single and Dual-Class IPOs.

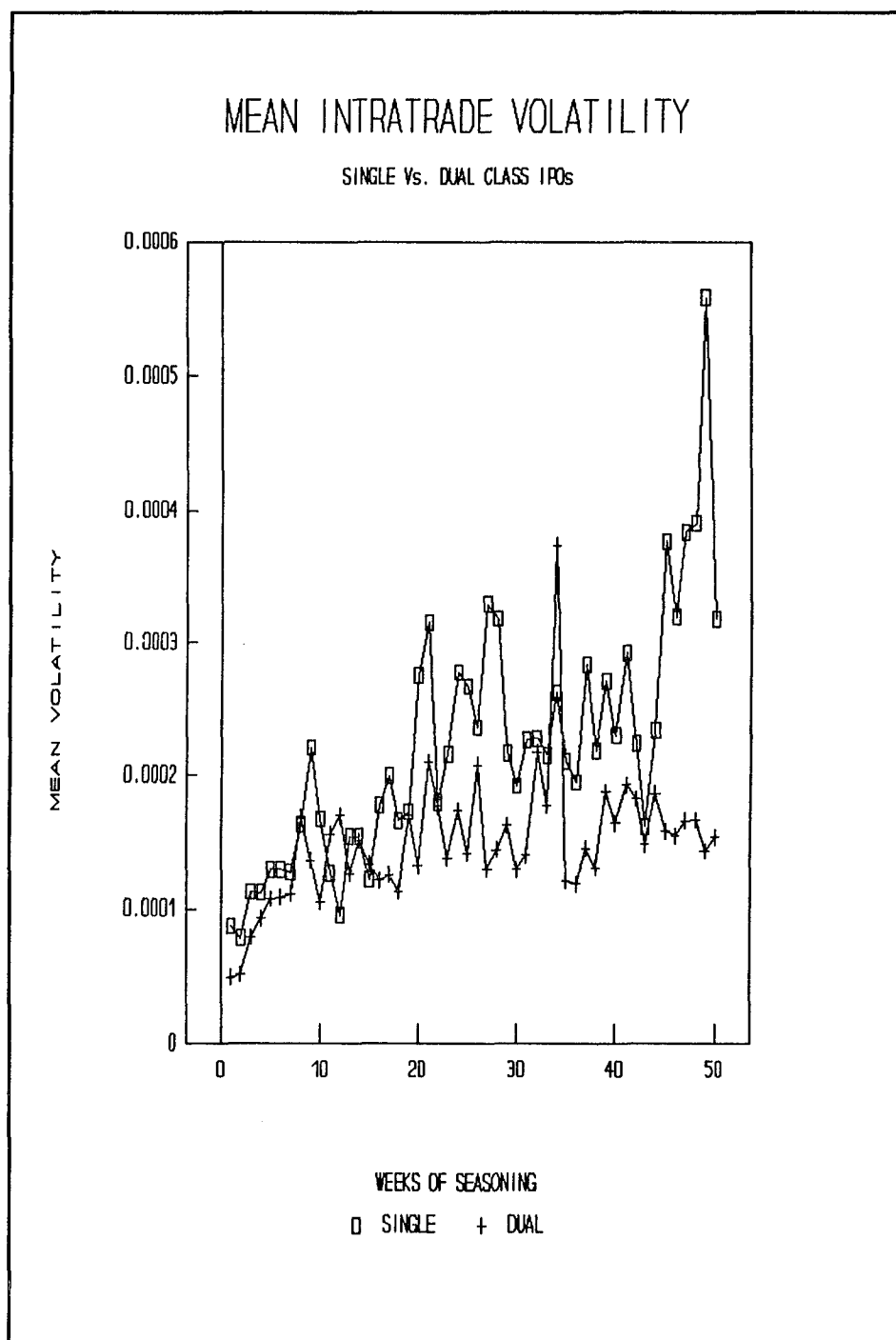


Figure 10. Weekly Averages of Daily Estimates of Intraday Trade-to-Trade Volatility for 30 Single and Dual-Class IPOs.

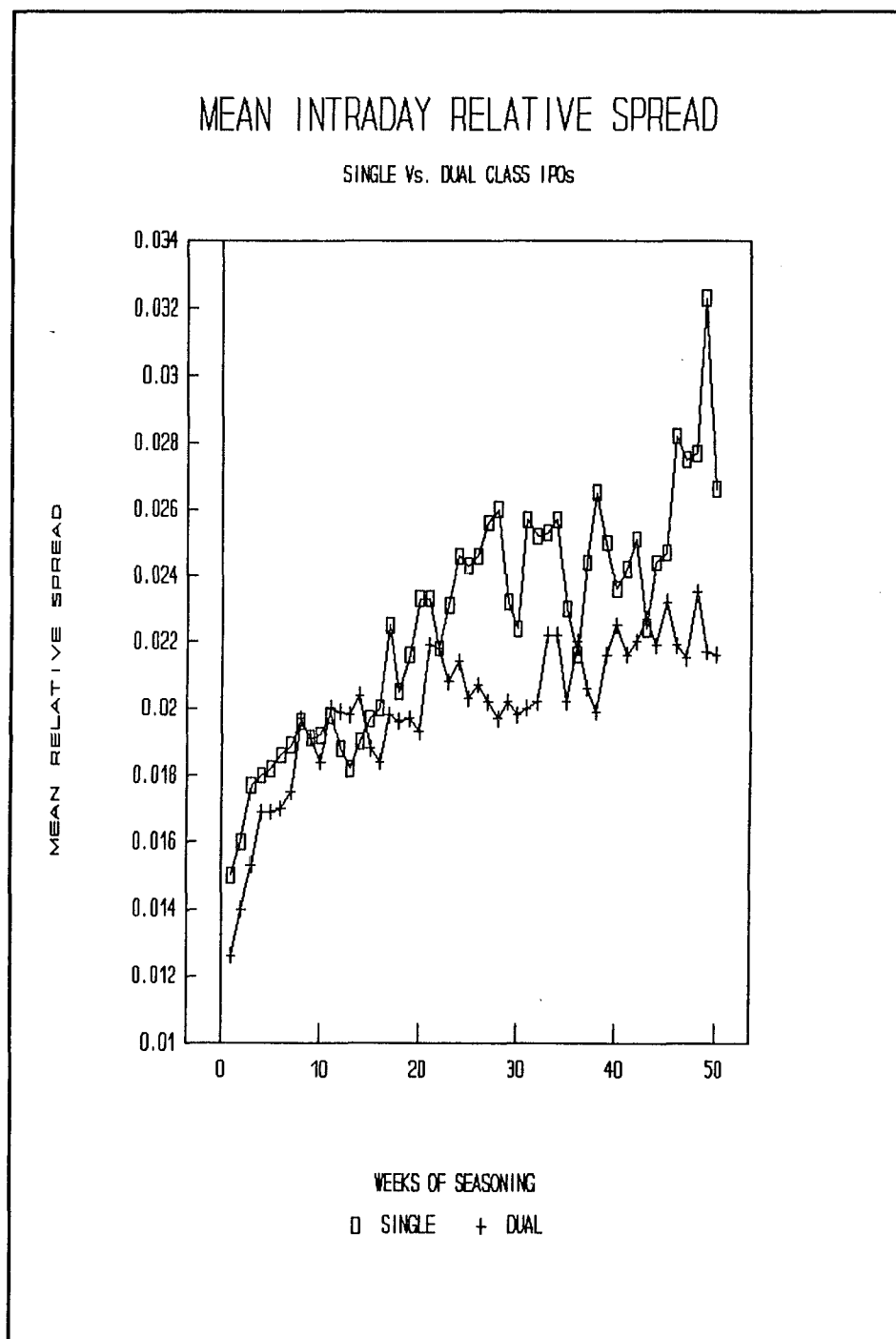


Figure 11. Weekly Averages of Daily Estimates of Intraday Relative Spreads for 30 Single and Dual-Class IPOs.

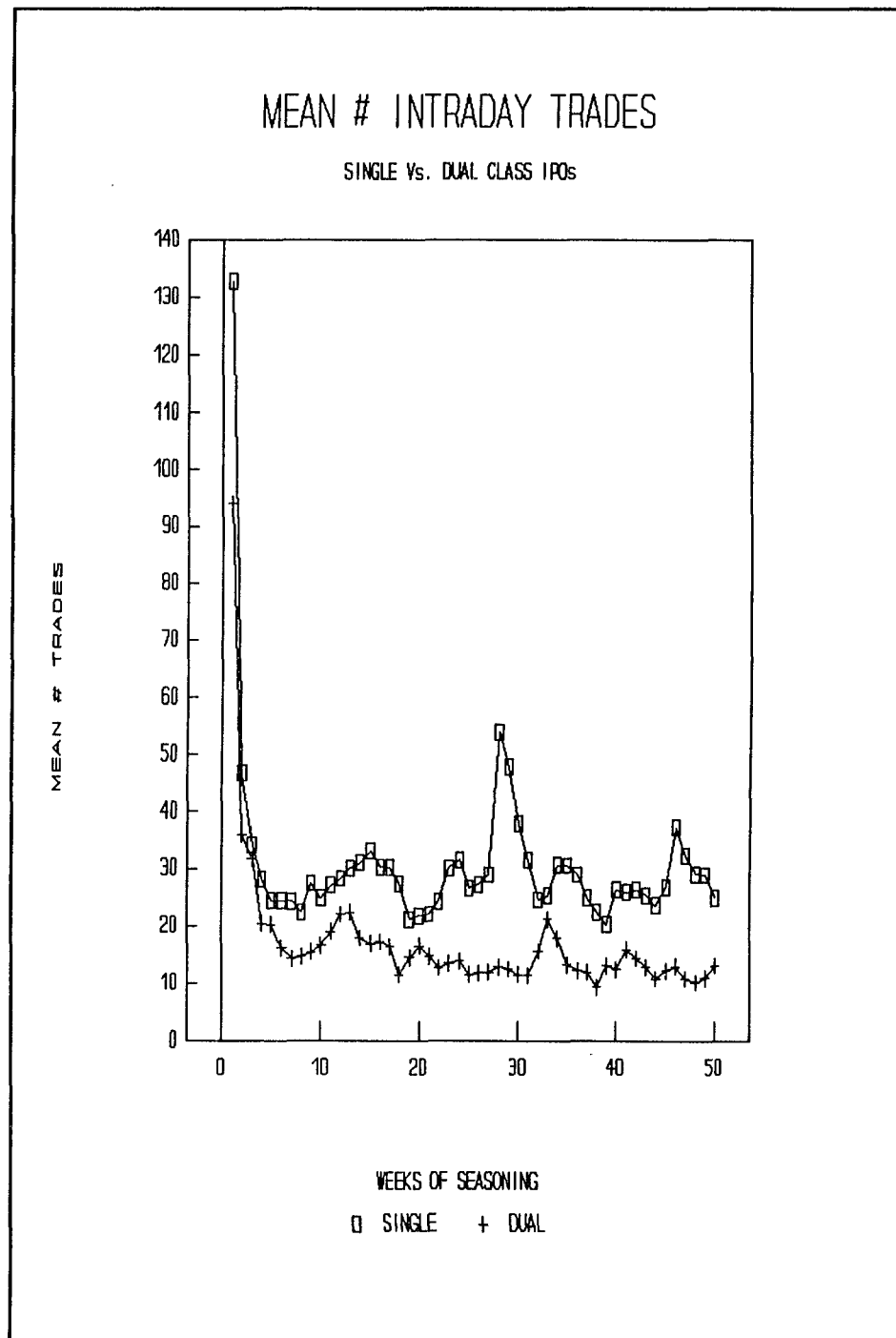


Figure 12. Weekly Averages of Daily Estimates of Intraday Number of Trades for 30 Single and Dual-Class IPOs.

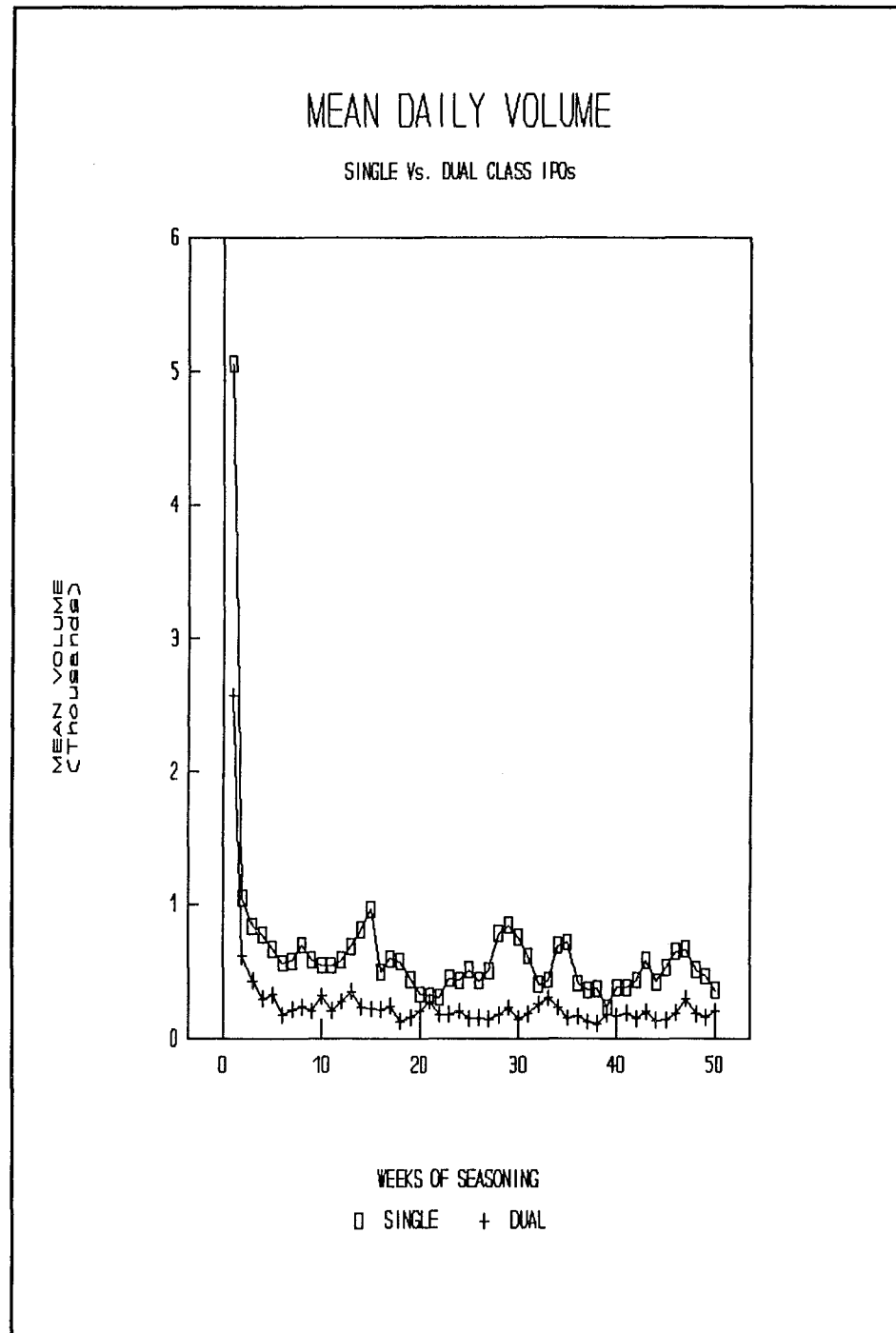


Figure 13. Weekly Averages of Daily Estimates of Total Volume for 30 Single and Dual-Class IPOs.

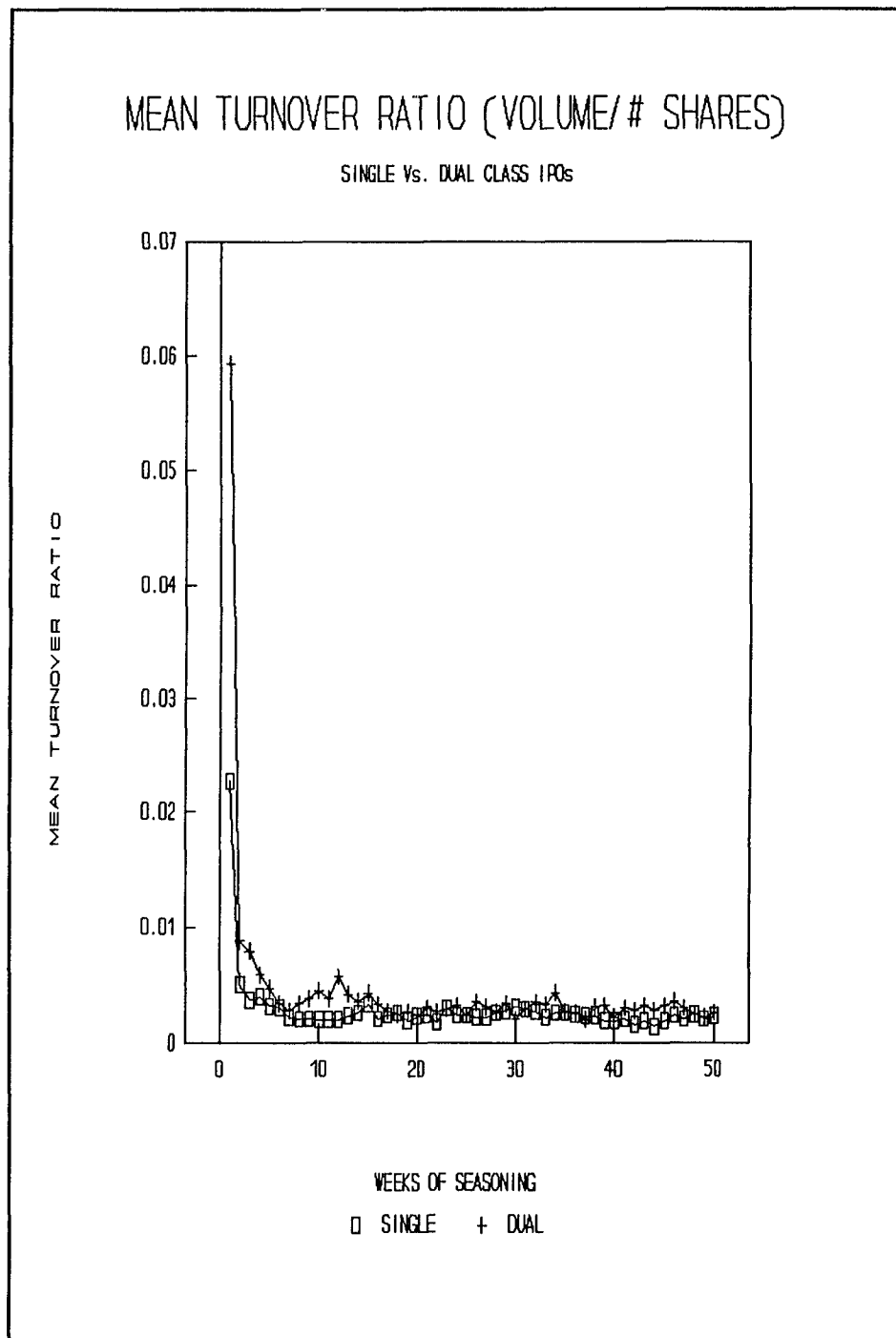


Figure 14. Weekly Averages of Daily Estimates of Turnover Ratio for 30 Single and Dual-Class IPOs.

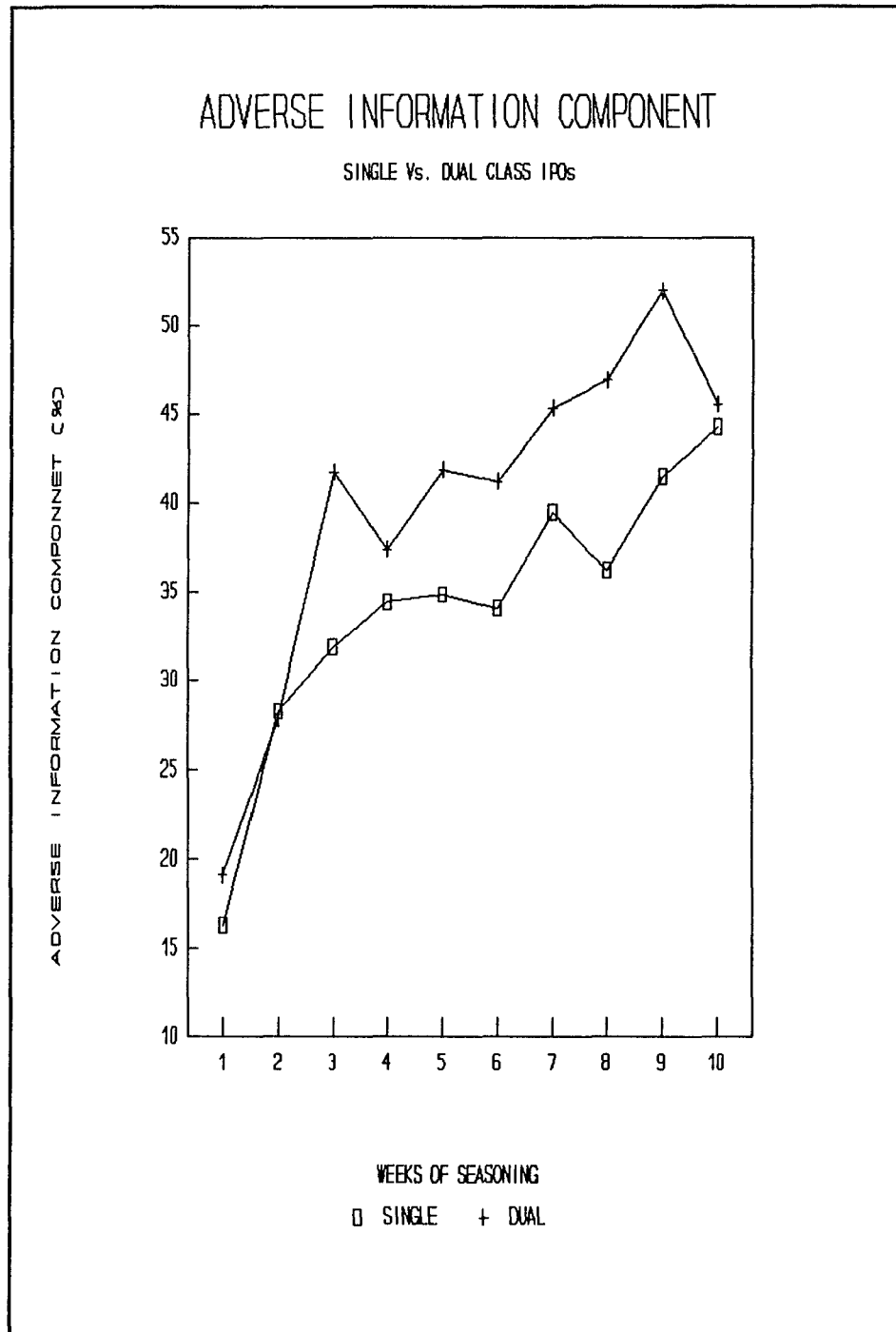


Figure 15. Weekly Averages of Daily Estimates of the Adverse Information Component for 30 Single and Dual-Class IPOs.

average trade size remain consistently higher while average turnover ratio remains consistently lower for single-class firms compared to dual-class. Furthermore, as the IPO stocks season, average relative spread, average trade-to-trade volatility, and the adverse information component of the spread increase over time, while the average trade size and average turnover ratio decrease during the initial days but then remain fairly constant. These trends are also easy to follow using the quarterly averages from Table 24.

Next, the study documents differences in insider trading activity during the first three years of trading after going public between the single and dual-class samples as reported by the ORS tapes supplied by the SEC. The results are reported in Table 29. One does not expect to find insider trades for the first 180-270 days following the IPO date depending on the individual firm's lock-up period during which no insider trades are allowed. Consistent with previous studies of insider trading, the average amount of insider purchases is considerably lower than the average amount of insider sales for either sample. The average number of insiders, however, are twice as many on the buy side compared to the sell side. While the average amount of insider sales is similar for both samples, the insider activity on the buy side for dual-class firms is almost twice that of single-class firms. This study interprets similar insider sales after the expiry of the lock-up period but higher insider purchases for the dual-class firms as a positive signal of superior firm quality.

Table 29 Insider Trading Estimates over the First 3 Years of Trading Subsequent to the IPO for 30 Single and Dual-Class IPOs between 1985-88				
	Single		Dual	
Variable of Interest	Mean	Std Dev	Mean	Std Dev
Insider Purchases				
Number of Firms	21		19	
Average Trade Size (\$)	12,116	8454	24,538	36,397
Average Number of Insiders	4.81	2.82	4.53	2.48
Average Number of Trades	10.90	8.31	17.95	22.93
Insider Sales				
Number of Firms	14		18	
Average Trade Size (\$)	126,047	286,825	145,177	349,655
Average Number of Insiders	2.00	1.10	2.61	1.61
Average Number of Trades	7.36	11.94	7.44	7.89

Note: Estimates are based on data from the ORS tapes.

*, **, *** indicates significantly different from the single-class IPO sample at the 10%, 5%, and 1% level respectively.

Chapter 6

Summary and Concluding Remarks

This study examines the importance of equity structure choice by management in the case of IPOs. It identifies and presents some motives for a dual-class equity structure at the time of IPO, and determines the resultant impact on initial underpricing, subsequent after-market pricing, firm value, insider trading, and related market microstructure issues. Specifically, it analyzes the underpricing and long-run performance of dual-class IPOs where control is concentrated in the hands of management, and compares it with that for single-class IPOs. For the sample of all dual-class IPOs in the 1980s, this study finds no statistically significant abnormal long-run performance over a three year horizon. This contrasts with Ritter's [1991] result that regular IPOs significantly underperform in the three years after going public.

Various studies have examined underpricing and long-run performance of IPOs. No study, however, has examined the underpricing, long-run performance, or market microstructure characteristics of IPOs where control is concentrated in the hands of management. Previous research was rarely concerned with the per-share voting rights of the stock being offered or other corporate-governance provisions that might impact the value or liquidity of the shares offered. This study explicitly considers the implications of differential voting power and control on firm value, post-IPO performance, insider trading, and stock liquidity.

To assess performance and liquidity differences that are due to the firm's ownership structure, a control sample of single-class IPOs is created that is matched to

the dual-class by exchange, firm size, industry, and time of offering. Upon comparing dual-class and control group performance for different exchanges, this study finds that for both NYSE/AMEX and NASDAQ, single-class control IPOs significantly underperform dual-class IPOs in stock-price performance during the three years following the offering. Furthermore, using various accounting cash-flow measures of operating performance, dual-class IPOs on average are twice as profitable as single-class IPOs. The evidence leads to the conclusion that a dual-class equity structure for IPOs has net benefits resulting, *ceteris paribus*, in reduced underpricing, improved stock-price and operating performance, and increased value of the firm's stock. Although such mechanism reduces the threat of hostile takeovers, managerial decisions do not go undisciplined. Moreover, benefits from such contract appear to outweigh the agency costs that may be engendered. The founders retain at least 49% of the cash-flow claim while diluting the firm by 27.21% and retaining more than 68% of the voting control, and are thereby subject to the ex-post wealth consequences of their own decisions.

This study further examines the liquidity characteristics of IPOs with dual-class and single-class common stock structures. It attempts to test the hypothesis concerning the impact of a dual-class common stock structure upon several liquidity measures. The results of the analysis strongly suggest that there are net benefits to a dual-class equity structure for IPOs that stem from microstructure considerations. A direct result is the mitigation of the adverse selection problem facing uninformed traders at the time of going public resulting, *ceteris paribus*, in improved liquidity. The study finds that

during the entire 250-day aftermarket period, dual-class IPOs experience significantly smaller spreads, lower volatility, smaller average trade size and higher turnover ratios compared to the single-class firms. The results are not sensitive to the time frame used for aggregating data and hence the differences persist and remain significant throughout the sample study period irrespective of whether the analyses are performed on a weekly, monthly, quarterly or yearly basis.

The overall evidence in this study as well as the comments obtained from dual-class firm managers suggest that financing and diversification constraints of owner-managers may induce them to sell external equity to take advantage of investment opportunities while still retaining control. In particular, a dual-class framework provides increased incentives for managers to invest in organization-specific human capital since the likelihood that returns to such investment will be expropriated is considerably reduced. In many cases it ensures continued family involvement in the long-term interests of the firm, even after the death of the founder. Furthermore, it allows considerable freedom to the founder (usually also the CEO) to stabilize and steer the company in the desired direction. Comments obtained from dual-class firm CEOs suggest that some of the founders of these firms have spent their lives building the firms with all or most of their money at stake, and now do not wish to lose them to corporate raiders with short-term interests. The founders have long-term vested interests and have a vision for their firms. The IPO exposes the firms to a new legal and operating environment that includes the harsh competitive market for corporate control. The founders thus found it appropriate to adopt a dual-class equity structure

at the time of IPO to ward off all unsolicited external interferences in the attainment of firm goals. A dual-class choice has net benefits for such firms that derive from both governance and market microstructure considerations, as documented in this dissertation.

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Appendix A

Data Available

The following data has been collected for the 98 dual as well as single-class (control group) firms:

1. Issuer name
2. Description of the Business (SIC code)
3. Exchange on which trading (if listed)
4. Offer date
5. Offer amount
6. Offer price per share
7. Shares offered (Primary, Secondary, and Total)
8. Dilution percentage
9. Fully diluted Price/Earnings ratio
10. Market value after offer
11. Market/Book ratio after offer
12. Gross underwriting spread as percentage of price
13. Gross underwriting spread breakdown between management and underwriting fees
14. Managing underwriters
15. Stock price filing range (low and high)
16. Total shares filed
17. Latest twelve month revenues prior to offer date
18. Latest twelve month net income prior to offer date
19. Audited Earnings/Share figures for up to 5 years prior to offer date

The following information has been collected for all firms for each year-end following the IPO until June 1992:

20. Authorized number of class A (inferior voting right) shares
21. Number of class A shares outstanding and publicly traded
22. Par value of class A shares
23. Number of class A shareholders
24. Authorized number of class B (superior voting right) shares
25. Number of class B shares outstanding and closely held (not traded)
26. Par value of class B shares
27. Number of class B shareholders
28. Total long-term debt outstanding (including revolving credit)
29. Bank debt (including lines of credit)
30. Number of employees

31. Voting power distribution(class A firms belong to one of the 4 classes: non voting, pooled voting (shares with fractional voting rights), class voting (shares that are allowed to vote for only a minority of directors), or both pooled and class voting)
 32. Relative voting power of classes of stock - Class A:Class B (firms belong to any one of the 10 classes: 0:1, 1:1, 1:2, 1:3, 1:4, 1:5, 1:10, 1:20, 1:30, 1:500. For Class voting it is 1:1)
 33. Percentage of total voting control closely held
 34. Number of insiders controlling the voting power in number 33
 35. Number and percentage of shares held by officers and directors
 36. Number of shares held by institutions
 37. Number of institutional holders
 38. Percentage of shares held by institutions
 39. Shares owned by 5% blockholders
 40. Number of 5% blockholders
 41. Percentage of shares held by 5% blockholders
 42. Insider shareholdings
 43. Number of insiders
 44. Percentage of shares held by insiders
- Information has also been obtained whether firms merged, got acquired, went private again, changed their names, or filed for Chapter 11. Furthermore, information is being collected on share repurchases and capitalization changes by any of the sample firms.

Appendix B

Criteria for Matching Control Sample

The matching firms for the dual-class IPOs are identified from among the long run single-class IPO sample between 1984 and 1988. Four essential criteria (in order of priority) have been kept in mind while establishing the control group:

- 1) The matching firm trades on the same exchange on which its dual-class contemporary trades.
- 2) The offer date for the matching firm is within 60 days of the offer date of the dual-class firm.
- 3) The matching firm belongs to the same industry (4 digit code or at least 3 digit code) as the dual-class firm.
- 4) The market value for the matching firm at the close of the first trading day is close to that of the dual-class firm (classes A and B combined, assuming that class B trades at the same price as class A).

The four-digit SIC codes are obtained for all firms using any one or more of the following sources: 1) 1991 CRSP, 2) IDD, 3) 1991 Compustat, 4) Million Dollar Directory, and 4) S&P Register of Corporations.

The industry groups are classified as:

0100-0900	Agriculture
1000-1400	Mining
1500-1700	Construction
2000-3900	Manufacturing
4000-4900	Transport/Electric/Gas/Sanitary Services
5000-5100	Wholesale trade
5200-5900	Retail Trade
6000-6700	Finance, Insurance, Real Estate
7000-8900	Services
9100-9700	Public Administration
9900-	Nonclassifiable Establishments

Appendix C

Industry Profile of Dual-Class IPOs

The following is a description of business of the 118 dual-class firms from 1984-1990.

1	BIOLOGICAL PRODUCT RESEARCH	60	MNFR PRINTING PRESS EQUIPMENT
2	BANK HOLDING COMPANY	61	COMMUNICATION HOLDING CO
3	FINANCIAL APPLICATION SOFTWARE	62	PIPE/SEWER/CONDUIT REPAIR
4	MNFR/MKT PHARMACEUTICALS	63	OPERATE SHOWCASE CLUBS
5	MNFR MICROWAVE EQUIP/SYSTEMS	64	DISABILITY INSURANCE
6	COMMERCIAL BANK	65	MNFR PRINTING MACHINES/EQUIP
7	MNFR ADHESIVE PRODUCTS	66	MNFR/MRKT UNDERWEAR
8	SAVINGS BANK	67	ENVIRONMENTAL ENGINEERING
9	OPERATE HEALTH CARE FACILITIES	68	RETAIL FUR APPAREL
10	MNFR AUTOMOTIVE PARTS	69	OPER WOMEN'S APPAREL STORES
11	MNFR TELECOMMUNICATIONS EQUIP	70	EXPLORE/DVLP GOLD MINES
12	MNFR MENS/BOYS SPORTSHIRTS	71	BANK HOLDING COMPANY
13	BANK HOLDING COMPANY	72	PACKAGE/DIST/MRKT COSMETICS
14	MNFR SPECIALTY FURNITURE	73	MRKT/DIST AUTO ACCESSORIES
15	MNFR CASUAL/CHILDREN CLOTHING	74	PRODUCES FLEXIBLE PACKAGING
16	REAL ESTATE INVESTMENT TRUST	75	MNFR MENS & WOMENS SHOES
17	SAVINGS & LOAN	76	OPERATES CRUISE SHIPS
18	MFR/MRKT TELCOM EQUIP/SOFTWARE	77	MNFR HYDRAULIC EQUIPMENT
19	OPERATE RESORTS	78	LIFE/ACCIDENT/HEALTH INSURANCE
20	MNFR/MRKT MOTOR VEHICLES	79	GROW/SELL CRANBERRIES
21	OPERATE CHILD CARE CENTERS	80	CELLULAR TELEPHONE SERVICE
22	IN VITRO FERTILITY SERVICES	81	FURNITURE/INSURANCE HOLDING CO
23	OPERATE HEALTH CARE FACILITIES	82	MNFR CIRCUIT SYSTEMS
24	OPERATE SELF-SERVICE STORES	83	GROCERY RETAILING
25	CABLE TELEVISION	84	CABLE TELEVISION SERVICE
26	BANK HOLDING COMPANY	85	ENGINEERING SOFTWARE/SERVICES
27	SAVINGS & LOAN ASSOCIATION	86	MNFR PAPER MACHINE CLOTHING
28	PROVIDE INVESTMENT SERVICES	87	ENGINEERING CONSULTING FIRM
29	CABLE TELEVISION	88	CATALOG GENERAL MERCHANDISE
30	CABLE TELEVISION SYSTEMS	89	MNFR RECREATIONAL & INK PRODS
31	OPERATE BUSINESS SCHOOL	90	REGIONAL NEWSPAPER PUBLISHER
32	BANK HOLDING COMPANY	91	MNFR AUTOMOBILE MIRRORS/GLASS
33	CABLE TELEVISION HOLDING CO	92	CELLULAR TELEPHONE SERVICE
34	PROV DATA PROCESSING SERVICES	93	CELLULAR TELEPHONE SERVICE
35	DVLP/MRKT DATABASE SYSTEM	94	COPPER/GOLD/SILVER MINING
36	OWN/OPER RADIO STATIONS	95	ART AUCTIONEER/LUXURY REALTOR
37	BANK HOLDING COMPANY	96	WHOLESALE FOOD DISTRIBUTOR
38	DISTR ELECTRONIC/VIDEO PRODUCT	97	REAL ESTATE INVESTMENT TRUST
39	MNFR/RETAIL JEWELRY	98	BONE MARROW RESEARCH
40	BANK HOLDING COMPANY	99	MNFR PAPER PRODUCTS
41	RETAIL WOMENS APPAREL	100	DIVERSIFIED MEDIA COMPANY
42	ENVIRONMENTAL CONSULTING	101	OWNS/OPER STEEL MILLS
43	MRKT SPECIALTY ICE-CREAM	102	OWN/OPER TV/RADIO STATIONS
44	OPER COGENERATION FACILITY	103	OFFICE SUPPLY STORES
45	DVLP/PRODUCE TELEVISION PROG	104	PROVIDE AGRICULTURAL LOANS
46	OPER CABLE TELEVISION SYSTEMS	105	PROVIDE AGRICULTURAL LOANS
47	OPER CABLE TELEVISION SYSTEMS	106	MNFR/MKT MEN'S SPORTSWEAR
48	SAVINGS & LOAN HOLDING COMPANY	107	DISTRIBUTE TV PROGRAMS
49	MNFR/MRKT WATER VALVES	108	OPERATES SUPERMARKET CHAIN
50	BANK HOLDING COMPANY	109	ENVIRONMENTAL SERVICES
51	OPERATE MOVIE THEATERS	110	PUBLISHING COMPANY
52	DVLP SOFTWARE/PRODUCTS	111	AUTO PARTS STORES
53	INVESTMENT MNGT HOLDING CO	112	RETAIL OFFICE SUPPLIES
54	REAL ESTATE COMPANY	113	MNFR COMPOSITE BLDG MATERIAL
55	PROV MANAGEMENT SERVICES	114	CELLULAR PHONE SYSTEMS

56 OWN/OPER T.V. SYSTEMS
57 MERGERS & ACQUISITIONS
58 OPER CONVIENCE STORES
59 OPER RETAIL HOME HEAT COMPANY

115 CAPITAL EQUIPMENT LEASES
116 ENVIRON & ENGINEER SERVICES
117 EXPL/DEV NATURAL GAS
118 INSURANCE HOLDING COMPANY

Appendix D

Comments from Dual-Class Firm CEOs/CFOs

The following excerpts are taken from some of the letters received from CEOs of dual-class firms stating their motivations for adopting a dual-class equity structure.

"The reason for creating two classes of stock is fairly simple. You will note from the proxy statement that holders of Class A common are entitled to one vote per share, while Class B has greater voting power - five per share. Mr. X, who founded the Company, retains all of the Class B common stock. Two classes of stock enabled the Company to put a substantial amount of stock into the original float - 27 million shares - but still retain 80% of the voting control through the ownership of Class B. You will note from our annual report that last year we earned approximately \$282 million. That is more than four-and-a half times the earnings of our nearest competitor which earned approximately \$60 million in 1992."

"At the time we went public our licensor owned 25% of the Company. My family and I owned approximately 45% of the Company. Under the then current estate tax structure, my family's interest would reduce to approximately 20% after my death, whereas our licensor, being a corporation, would never have to pay an estate tax and would never reduce its holding. Therefore, in order to protect against an ultimate change of control to our licensor the dual-class stock structure was enacted, all of which was known to the public purchasing our stock."

"The primary reason for the different classes of stock is to insure that Mr. X controls the Company. Mr. X put together the capital structure in 1987 to purchase the Company. Even though Mr. X controls the Company, his super voting rights end with the sale of his shares. Thus, all shares, whether A, B, or C have equal economic rights."

"For many years until the mid-1980's, the Company had been a family owned Company whose chief executive officer was a member of the controlling family. In 1985, the Company hired an outside executive to be chief operating officer, which was the first step away from family management. At the time of the IPO, the family was not yet ready to turn over complete control to this new management. In 1988, in a follow-up step, a nominating committee arrangement coupled with a trust management with a four-year life, which provided for the conversion of all stock into one class at the end of the four year period was finalized."

"The major reason for dual-class voting on the initial offering was to assure the founders of the Company a significant input in the future of the Company as a public entity. The founders had significant background in our industry and a clear long term strategy for the Company. Raising capital in the public markets enabled the Company to advance toward those goals at a faster pace. As the Company develops and reaches those initial goals, it was anticipated that additional capital would be required to reach new long term goals. The initial class voting difference guaranteed the ability of the founders to carry out the original plans without fear of a take over threat. Basically, the only holders of three-vote stock were the original founders of the Company with virtually the majority of their individual net worth invested in the Company. We were long term investors, not short term profit takers. Since the initial offering, several original long term goals have been achieved and we successfully completed an offering in August of 1992. That offering effectively diluted the effect of the high vote stock by about 20%. In conclusion, the high vote stock provided a mechanism to guarantee the "entrepreneurs" that started the Company the ability to reach initial long term goals without undue outside influence."

"To maintain voting control of the corporation. The Company has been family owned and the family is still active in Company operations. Dual-class was appropriate in maintaining control and providing a diversity of public holders who all purchased the IPO with an understanding of the voting situation and control issues."

"The chairman wished to retain control of the Company. In the early 1980s, we had seen the disastrous consequences of one of our largest competitors being taken over and badly managed. Our Company's roots go back almost 100 years, and I believe the chairman felt it was in the best interests of both the employees and our customers if control remained with Class B shareholders. You should note that people who own B stock cannot profit at the expense of A shareholders by selling it at a "premium." In order for B stock to be sold, it must be transferred to A stock prior to sale. The only significant exception is transfers within a family."

"Our Company had been a privately held company from 1874 to 1986. The primary purpose of the two classes of equity with differential voting rights was to preserve the management control within the Company. It is expected that the voting rights of the Class B common stock may make the company less attractive as the potential target of a hostile tender offer or other proposal to acquire the stock or business of the Company, and merger proposals might be rendered more difficult, even if such actions would be in the best interests of the holders of the Class A common stock. Accordingly, increases in the market price of the Class A common stock,

temporary or otherwise, which might result from actual or rumored hostile takeover attempts, will be inhibited."

"Our Company is an indirect wholly-owned subsidiary of X Inc. which holds approximately 83% of the outstanding shares of Class A common stock, and all of the outstanding shares of Class B common stock, and through its ability to elect all directors of the company, indirectly controls all matters relating to the management of our Company. X Inc. recently formed our Company in connection with a reorganization of its oil and gas business. The reorganization and financial restructuring (including the offerings) were undertaken (i) to enable X Inc. to realize a return of a portion of its investment in our Company through the elimination of intercompany accounts and the distribution to X Inc. of a special \$140 million dividend, (ii) to enable our Company to have direct access to capital markets, (iii) to establish a market value for X Inc.'s equity interest in our Company, and (iv) to create a structure in which our company would be better able to compete and expand."

"The recapitalization through the charter amendment, combined with the results of the exchange offer, have the effect of permitting the "X" Family to elect the entire board of directors, and to determine the outcome of any other matters submitted to the stockholders for approval, including a merger or sale of substantially all of the assets of the Company. The aggregate voting power of the "X" Family is also likely to discourage any proposed takeover of the Company pursuant to a tender offer unless the terms thereof are approved by the "X" Family. The Company presently believes the "X" Family would vote together on any significant corporate matters effecting the management or ownership of the Company. The Company is unable to predict what effect, if any, the voting control of the "X" Family will have on the market price of the Class A common stock."

"We created a dual-class equity structure to provide preferential rights to the public shareholders with regard to the payment of dividends, and liquidation rights. This was to enhance the marketability of the shares being offered to the public in the IPO. Please note that since May 1, 1993 (marking the end of the preference period), the Class A and Class B common stock are identical in all respects."

"The principal purpose of the Reclassification was to provide the Company with a more flexible financial structure to facilitate raising additional equity or to make acquisitions without significantly diluting the voting power of existing stockholders, particularly members of the family of "X". One effect will be to enable the "X" family to maintain practical control over the Company's affairs as long as family members do not

dispose of significant amounts of their Class B common stock. With the sale of the 1,300,000 shares of Class A common offered through the IPO, the outstanding common stock of the Company (both classes) was increased by approximately 53% while the voting power of the Class B common holders was diminished by 7.6%."

"The Company's voting structure, which is similar to voting structures adopted by a number of other media companies, was designed to promote the continued independence and integrity of the Company's media operations under the control of the holders of the Class B Voting Stock while at the same time providing for equity ownership in the Company by a broader group of stockholders through the means of a class of publicly-traded common stock. This structure renders more difficult certain unsolicited or hostile attempts to take over the Company which would disrupt the Company, divert the attention of its Directors, officers and employees and adversely affect the independence and quality of its media operations. The holders of Class B Voting Stock have the power to defeat any attempt to acquire control of the Company with a view to effecting a merger, sale of assets or similar transaction even though such a change in control may be favored by stockholders holding substantially more than a majority of the Company's outstanding equity. This may have the effect of precluding holders of shares in the Company from receiving any premium above market price for their shares in connection with any such attempt to acquire control."

"The Reclassification was implemented principally to facilitate, in the event the Company were to be sold, the negotiation of the best sale price for all stockholders. Because shares of Class B common stock are not transferable except to permitted transferees, holders of Class B common stock, in connection with any sale of the Company, will be able to sell only the Class A common stock into which such shares of Class B common stock are convertible and, thus, will not be able to obtain consideration for the Class B common stock greater than that paid to holders of Class A stock."

Vita

Sanjay B. Varshney was born in India and received his Bachelor's of Commerce degree in Accounting and Financial Management from Bombay University in May, 1989. He came to the United States of America and joined the University of Cincinnati to pursue graduate studies. He completed his Master's degree in Economics in August, 1990. The same month, he joined the Ph.D. program in Business Administration (Finance) at Louisiana State University. He defended and completed his Ph.D. degree on March 22, 1994. His dissertation work received several awards which include the Outstanding Doctoral student Award from the Eastern Finance Association for 1993, the DuPont Fellowship, the Presidential Scholarship from the Treasury Management Association, and the Outstanding Doctoral Student Award from the Southwestern Federation of Administrative Disciplines for 1994. He has accepted the position of Assistant Professor in Finance with the School of Business and Public Management at the State University of New York (SUNY) Institute of Technology, Utica/Rome.

DOCTORAL EXAMINATION AND DISSERTATION REPORT


Candidate: Sanjay B. Varshney


Major Field: Business Administration (Finance)

Title of Dissertation:

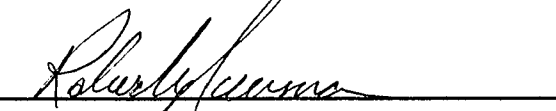
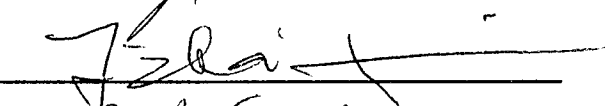
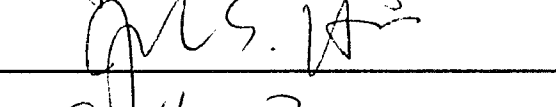
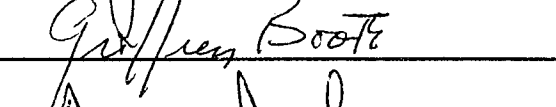

The Effect of Capital Structure and Consolidated Control on Firm Performance, Firm Value, Insider Trading, and Market Microstructure: The Case of Dual Versus Single-Class Initial Public Offerings

Approved:


Major Professor and Chairman


Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

March 22, 1994