The Long-Run Negative Drift of Post-Listing Stock Returns

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ABSTRACT

After firms move trading in their stock to the American or New York Stock Exchanges, stock returns are generally poor. Although many listing firms issue equity around the time of listing, post-listing performance is not entirely explained by the equity issuance puzzle. Similar to the conclusions regarding other long-run phenomena, poor post-listing performance appears related to managers timing their application for listing. Managers of smaller firms, where initial listing requirements may be more binding, tend to apply for listing before a decline in performance. Poor post-listing performance is not observed in larger firms.

A COMMON OCCURRENCE ON the New York Stock Exchange (NYSE) and the American Stock Exchange (ASE) is the listing of stocks which formerly traded over-the-counter or on the National Association of Security Dealers Automated Quotation (Nasdaq) system. Between July 1962 and December 1990, an average of eight firms per month moved from one trading domicile to another. The stock returns of these firms prior to listing have typically been quite good. Furthermore, several studies find that the market response to the announcement of an exchange listing is positive. Yet, surprisingly, abnormal stock returns following listing on a new exchange are *negative* on average. Although several studies report poor return performance in the first few weeks following listing, the cause for this phenomenon has remained a mystery.

In this paper, we pursue two objectives. First, we re-examine the nature of post-listing stock returns, controlling for biases which may affect post-listing performance. We find that not only are abnormal returns negative following listing, but also the drift is longer in duration than has been previously reported. Our second objective is to better understand why post-listing performance is on average negative. We find that this phenomenon is most characteristic of smaller firms that are not widely held by institutional investors.

Similar to the conclusions reported in other areas of the literature, the evidence here is consistent with the hypothesis that managers "time" their initial listing application. For smaller firms, for whom initial listing requirements may pose more meaningful barriers, the evidence suggests that managers tend to apply for listing prior to a decline in performance. For larger firms, for whom initial listing requirements would seem to be of little concern, there is no evidence of negative post-listing performance.

Managers provide numerous reasons for moving the trading locale of their stock (Baker and Johnson (1990)). One of the more frequently cited reasons is the desire by management to gain "prestige" for the company (Van Horne (1970)). Managers often state that they believe their firm will receive added attention from financial analysts and the investing public after listing. Being accepted onto an organized exchange has also been argued to be a signal of management's confidence in the company's future performance, perhaps because of the screening process involved in applying for listing (McConnell and Sanger (1984) and Ying, Lewellen, Schlarbaum, and Lease (1977)). Finally, also frequently cited, but not unanimously supported in the literature, is the argument that trading liquidity will improve when a common stock begins trading on an organized exchange (Sanger and McConnell (1986), Christie and Huang (1993), and Kadlec and McConnell (1994)).[1]

Regardless of why a firm might choose to move trading in its stock to another domicile, the change is typically defended on the premise that shareholders will be better off in some manner. However, the evidence regarding whether shareholders in fact benefit is inconclusive. For more than five decades, researchers find positive abnormal stock performance prior to listing, but negative abnormal performance subsequent to listing. Ule (1937), Van Horne (1970), Ying, Lewellen, Schlarbaum, and Lease (1977) and Sanger and McConnell (1986), among others, show that firms experience significantly positive stock returns prior to listing on the ASE or NYSE. Moreover, several studies report that the market reaction to the announcement that a firm is moving to either the ASE or NYSE is positive.[2]

However, subsequent to listing on the new exchange, stock price performance is poor. For example, McConnell and Sanger (1987) examine the post-listing returns of 2,482 companies that moved trading in their common stock onto the NYSE during the period 1926 to 1982. They report that the average

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[1] Kadlec and McConnell (1994) find that firms that experience the greatest improvement in liquidity by moving to the NYSE also have greater price reactions surrounding the listing announcement than do other firms. Christie and Huang (1993) reach similar conclusions regarding improved liquidity following exchange listing using intra-day returns for 65 exchange listings during 1990. Yet Dubofsky and Groth (1984) observe that firms switching to the NYSE experience only an initial increase in liquidity immediately following listing.

[2] Prior research examining the market reaction to exchange listing announcements is extensive. This literature includes Ule (1937), Van Horne (1970), McConnell and Sanger (1984), Ying, Lewellen, Schlarbaum, and Lease (1977), Sanger and McConnell (1986), and, more recently, Kadlec and McConnell (1994). These studies, which use a variety of approaches and time periods, generally reach the same conclusion that the market reaction to the announcement of a new exchange listing is significantly positive and, on average, is about 5 percent.

market-adjusted abnormal return in the first two months following listing is about −2 percent and further find negative average abnormal returns in each of the subsequent ten months. They test a variety of possible explanations, including the announcement of secondary equity offerings, selling pressure from insiders, and a correction in price occurring from "overreaction" prior to the listing announcement, none of which can explain why stock returns are poor following listing. Furthermore, negative post-listing performance is not unique to U.S. markets. Hwang and Jayaraman (1993) report that companies listing on the Tokyo Stock Exchange also experience poor post-listing performance.

We re-examine the post-listing drift and evaluate its persistence. As in most studies that examine long-horizon returns, methodological issues are important. These issues are of particular concern in this study for a variety of reasons. First, firms that apply for listing on either the ASE or NYSE tend to be smaller than the median ASE/NYSE firm, particularly those moving from the Nasdaq to the ASE. Second, firms that apply for listing generally show very strong performance prior to filing their application with the exchanges. This performance is so positive that more than half of all listing firms have book-to-market ratios in the lowest quintile relative to all ASE/NYSE stocks of similar size. Fama and French (1992) and Lakonishok, Shleifer, and Vishny (1994) show that stock returns tend to be associated with firm size and also with book-to-market ratios. Not controlling for these cross-sectional relations raises the possibility that the post-listing drift may be due to the use of an improper benchmark. Therefore, we also measure long-run performance adjusting for size and book-to-market effects.

Our analysis shows the post-listing drift is more severe in magnitude and longer in duration than has been reported in earlier studies. It is pervasive across industries and through time. The negative drift does not appear to be a consequence of mismeasured abnormal performance due to an improper choice of benchmark; poor post-listing performance is evident even after controlling for size and book-to-market.

A portion of the poor post-listing performance is explained by the large frequency of exchange-listing firms that issue equity prior to listing on either the ASE or NYSE. However, the poor performance of exchange-listing firms is not a simple manifestation of the equity-issuance puzzle of Loughran and Ritter (1995), since poor post-listing performance is also observed in seasoned firms not involved in equity offerings. The evidence is consistent with the hypothesis that some managers may be opportunistically choosing when to apply for listing. This same rationale has been offered elsewhere in the literature to explain other long-run phenomena such as the poor stock price performance observed following initial and seasoned equity offerings (Loughran and Ritter (1995), Mikkelson and Shah (1994), Nelson (1994), and Spiess and Affleck-Graves (1995)). Similarly, Ikenberry, Lakonishok, and Vermaelen (1995) find that firms, on average, outperform the market when they undertake the opposite transaction and announce share repurchases. Thus, the evidence would appear to suggest that managerial market timing may be a general phenomenon

Table I

Exchange Listings: Distributions by Exchange Type and Size Decile

Panel A reports by sub-period the distribution of 2,889 firms that moved their trading in their common stock from the Nasdaq to be listed in the ASE or NYSE, or from the ASE to NYSE between July 1962 and December 1990. Panel B reports the distribution of size decile rankings. Size decile rankings are determined in April prior to listing relative to NYSE and ASE stocks, where decile 1 stocks are smallest.

Panel A: Exchange Listings by Type of Exchange							
Year	All Listings	Nasdaq to NYSE	(%)	Nasdaq to ASE	(%)	ASE to NYSE	(%)
1962–1972	1,456	431	29.6	801	55.0	224	15.4
1973–1981	692	199	28.8	307	44.4	186	26.9
1982–1990	741	292	39.4	329	44.4	120	16.2
All Years	2,889	922	31.9	1,437	49.7	530	18.3

Panel B: Exchange Listings by Size Decile								
Year	All Listings	Deciles 1–2	(%)	Deciles 3–4	(%)	Deciles 5–6	(%)	Deciles 7–10	(%)
1962–1972	1,456	235	16.1	413	28.4	414	28.4	394	27.1
1973–1981	692	111	16.0	218	31.5	203	29.3	160	23.1
1982–1990	741	194	26.2	224	30.2	191	25.8	132	17.8
All Years	2,889	540	18.7	855	29.6	808	28.0	686	23.7

affecting a variety of corporate decisions, including the decision of when to list on an organized exchange.

I. Data

We examine all corporations (with the exception of closed-end mutual funds and real estate investment trusts) whose common stock traded on the Nasdaq[3] and moved to either the ASE or NYSE, or which traded on the ASE and moved to the NYSE.[4] Our examination begins in July 1962, the first point at which returns for ASE firms are available from the Center for Research in Security Prices, and extends through December 1990, for a total of 2,889 exchange listings. Some of our tests require book equity values that were obtained from COMPUSTAT. Because of the more limited nature of COMPUSTAT data, these tests focus on listings occurring in 1973 and later.

Table I provides some descriptive statistics concerning our sample. Panel A summarizes listing activity on the ASE and NYSE from July 1962 through

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[3] For ease of exposition, we refer to non-exchange listed firms as belonging to Nasdaq. Prior to the introduction of the automated quotation system in February 1971, these firms would more properly be referred to as traded "over-the-counter."

[4] Because of NYSE Rule 500, it is extremely uncommon to find firms voluntarily moving from that exchange to either the ASE or NASD. Transfers from the ASE to the Nasdaq during the period of this study were also uncommon.

December 1990. About one-third of the listings are Nasdaq firms moving to the NYSE. Less than one-fifth of the sample are ASE firms moving to the NYSE. Nearly half of all exchange listings are Nasdaq firms moving to the ASE, many of which switched in the late 1960s and early 1970s. Following this period, the number of departures from Nasdaq decreased substantially, about the same time the National Association of Security Dealers (NASD) introduced the automated quotation system. This wave and its abrupt conclusion coincide with a similar pattern in the initial public offering (IPO) market. Ibbotson, Sindelar, and Ritter (1988) report that between 1968 and 1972, an average of 492 firms went public annually. The IPO issuance rate in the five years before and after this period averaged only 71 firms annually.

Panel B reports the distribution of exchange listings by size decile in comparison with existing ASE and NYSE firms. Here, the smallest ten percent of ASE and NYSE firms define decile 1. A clear bias against larger firms exists. Nearly 60 percent of the sample falls into deciles 3 to 6. Less than a quarter of the sample is ranked in the top four deciles at the time of listing. Only 56 of the 2,889 firms (less than 2 percent of the sample) are ranked in size decile 10. The mix between large and small firms has also changed slightly over time, with smaller firms becoming even more predominant in recent years.

II. The Persistence of the Post-Listing Drift

A variety of approaches are available to measure long-run stock performance. A common empirical technique, used even recently to examine post-listing stock returns, is the market-model approach. Apart from a host of well-known problems in applying this procedure, the nature of pre-listing returns makes this procedure subject to bias.[5] To avoid potential problems, we measure performance using two procedures that are not so sensitive to parameter estimation. The first procedure is a size-adjusted returns approach and is the method on which we focus in this section of the paper. A second approach, which we adopt later, adjusts returns for size as well as book-to-market ratio and is motivated by recent papers that find both factors to be important determinants of stock returns (Fama and French (1992, 1993) and Lakonishok, Shleifer, and Vishny (1994)).

To calculate size-adjusted returns, we first rank all stocks trading on the NYSE and ASE at the end of each April into ten portfolios on the basis of market value. Portfolio returns are then calculated monthly on an equally-weighted basis for each of the ten size-based portfolios from May through April of the subsequent year. Each exchange-listed firm is also classified in the April before listing using the same ASE/NYSE defined size groups. Abnormal

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[5] Specifically, the market model assumes that returns in the (pre-listing) estimation period respond only to systematic market forces. Yet firms that list on the organized exchanges cannot be described as having mean-zero idiosyncratic components in their pre-listing returns because of a self-selection bias in firms choosing to list (Sanger and McConnell (1986)). When such stocks are examined using the market model, the intercept will be biased upward. See Chan and Lakonishok (1992) for a more comprehensive discussion of estimation issues related to the market model.
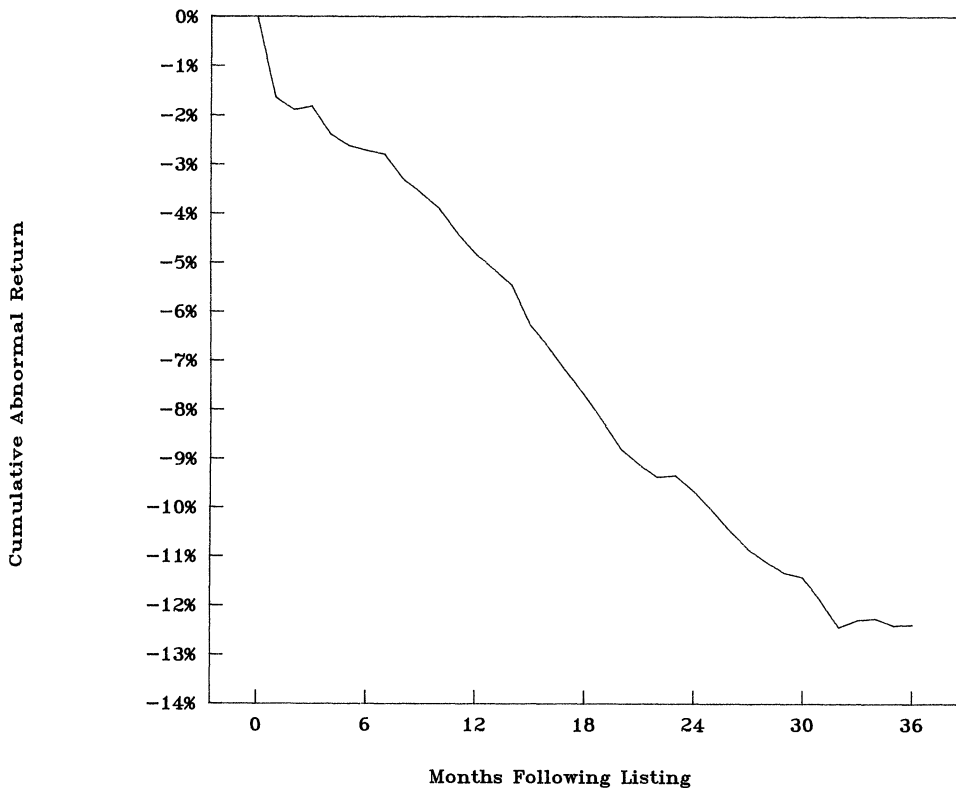
Figure 1. Post-listing cumulative abnormal returns: 1962 to 1990. This figure plots post-listing cumulative abnormal stock returns up to 36 months for 2,889 firms that moved trading in their common stock from the Nasdaq to either the ASE or NYSE or from the ASE to the NYSE during the period July 1962 to December 1990. Abnormal returns are measured on a size-adjusted basis beginning in the first full calendar month following listing.

performance for each newly listed firm is calculated monthly relative to the return to its respective size decile. As event time progresses, decile rankings are recalculated annually to allow the benchmark for a given firm to change as its relative size changes. Abnormal returns for exchange listings are then averaged cross-sectionally in event time. This type of approach has the advantage of not only correcting for market-wide forces, but also of accommodating contemporaneous size effects in stock returns. Statistical significance is calculated using the Crude Dependence Adjustment approach of Brown and Warner (1980).[6]

Figure 1 plots post-listing cumulative abnormal returns, beginning with the first full calendar month following listing, for all exchange listings that oc-

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[6] This approach takes into account cross-sectional dependence in abnormal returns. In addition, we also made corrections for autocorrelation as described by Brown and Warner (1985), although these corrections generally had no impact on the results.

Table II
Post-Listing Cumulative Abnormal Returns: 1962 to 1990

This table reports post-listing cumulative abnormal stock returns for 2,889 firms that moved trading in their common stock from the Nasdaq to either the ASE or NYSE or from the ASE to the NYSE over the period July 1962 to December 1990. Size adjusted abnormal returns are reported for six-month intervals (Six-Mo. CAR) as well as cumulatively (CAR) beginning in the first full calendar month following listing (*t*-statistics in parentheses).

Months		All Years			1962–1972			1973–1981			1982–1990	
	n	Six-Mo. CAR	CAR	*n*	Six-Mo. CAR	CAR	*n*	Six-Mo. CAR	CAR	*n*	Six-Mo. CAR	CAR
1–6	2,889	−2.73	−2.73	1,456	−3.30	−3.30	692	−2.31	−2.31	741	−1.97	−1.97
		(−3.61)	(−3.61)		(−3.14)	(−3.14)		(−2.11)	(−2.11)		(−0.62)	(−0.62)
7–12	2,865	−2.09	−4.81	1,454	−2.72	−6.02	685	−1.69	−4.01	726	−1.19	−3.17
		(−2.77)	(−4.51)		(−2.58)	(−4.04)		(−1.55)	(−2.59)		(−0.38)	(−0.94)
13–18	2,822	−2.89	−7.71	1,436	−2.69	−8.71	677	−2.30	−6.30	709	−3.87	−7.04
		(−3.83)	(−5.89)		(−2.56)	(−4.78)		(−2.10)	(−3.33)		(−1.22)	(−1.96)
19–24	2,776	−1.97	−9.68	1,413	−1.15	−9.86	668	−1.54	−7.84	695	−4.07	−11.11
		(−2.61)	(−6.41)		(−1.10)	(−4.69)		(−1.41)	(−3.59)		(−1.28)	(−2.94)
25–30	2,702	−1.76	−11.43	1,381	−1.33	−11.19	655	−2.15	−9.99	666	−2.24	−13.35
		(−2.32)	(−6.77)		(−1.27)	(−4.76)		(−1.97)	(−4.09)		(−0.71)	(−3.37)
31–36	2,649	−0.96	−12.39	1,362	−0.78	−11.97	641	−1.50	−11.49	646	−0.80	−14.15
		(−1.27)	(−6.70)		(−0.74)	(−4.65)		(−1.50)	(−4.29)		(−0.25)	(−3.42)

curred between July 1962 and December 1990. On average, stock return performance is poor subsequent to listing. The worst return during the entire 36-month post-listing period occurs in the first month, yielding an average abnormal return of −1.64 percent.[7] Over the first six months, the size-adjusted abnormal return is −2.73 percent. Performance continues to deteriorate over the next two years, though the rate of decline diminishes. Although the abnormal return over months 31 to 36 is negative (−0.96 percent), it is less than half the decline observed initially following listing and is no longer significant at traditional confidence intervals.[8] Over the entire 36-month post-listing period, the cumulative abnormal return (CAR) for all exchange listings is −12.39 percent.

Table II summarizes these results for all listings and also by sub-period. Here, abnormal performance is reported over successive six-month intervals (Six-Mo. CAR) as well as cumulatively (CAR). The post-listing drift is not confined to a particular time period. It is similar in magnitude and significant at traditional confidence levels across all sub-periods including the most recent sub-period from 1982 to 1990. In the next several tables, we verify the robustness of the drift by examining its persistence across industries and by exchange type.

[7] The negative returns observed initially following listing are coincident with surprisingly poor earnings, which we briefly discuss later. Similar evidence of poor performance immediately following listing is also reported by others including Sanger and McConnell (1986).

[8] The drift is generally absent beyond month 36. The six-month CAR from months 37 to 42 is −0.13 percent and is 0.45 percent for months 43 to 48, neither of which is significant at traditional confidence levels.

Table III
Post-Listing Cumulative Abnormal Returns by Industry Classification

This table reports post-listing performance by two-digit SIC code for the 20 most common indus-
tries which moved to either the ASE or NYSE between July 1962 and December 1990. Size-
adjusted cumulative abnormal returns beginning in the first complete calendar month following
listing are reported for months 24 and 36 (t-statistics in parentheses).

SIC	Industry	n	24 Months		36 Months	
36	Electronics	220	−16.62	(−3.33)	−18.40	(−3.01)
35	Machinery	217	−5.33	(−1.04)	−9.54	(−1.51)
73	Services/software	139	0.25	(0.04)	−9.64	(−1.32)
13	Oil production	129	−24.18	(−3.28)	−24.54	(−2.72)
67	Finance companies	127	−6.04	(−0.99)	−4.24	(−0.57)
28	Chemicals	120	3.22	(0.66)	2.42	(0.41)
34	Metal fabricating	109	−8.90	(−1.80)	−5.19	(−0.86)
38	Precision instruments	93	−4.08	(−0.82)	−7.76	(−1.27)
50	Metal/electrical parts	87	−15.27	(−2.32)	−8.78	(−1.09)
37	Auto/aircraft parts	74	−1.47	(−0.18)	−13.47	(−1.36)
49	Utilities	72	−7.16	(−1.54)	−11.68	(−2.04)
20	Food processing	71	−18.18	(−2.60)	−16.31	(−1.91)
39	Toys	70	−16.16	(−2.12)	−23.52	(−2.52)
61	Credit services	68	−1.30	(−0.18)	−9.05	(−1.03)
59	Drug stores	68	−8.35	(−1.10)	−14.84	(−1.60)
60	Banking	66	−16.49	(−2.41)	−27.33	(−3.26)
23	Textile apparel	65	−10.47	(−1.54)	−20.46	(−2.46)
65	Real estate services	63	−30.95	(−2.81)	−46.14	(−3.42)
22	Textile products	61	−19.31	(−2.74)	−28.97	(−3.35)
27	Publishing	57	5.06	(0.70)	5.65	(0.64)
	All others	913	−9.60	(−3.85)	−10.09	(−3.31)
	All firms	2,889	−9.68	(−6.41)	−12.39	(−6.70)

We begin by evaluating post-listing performance for listing firms in the
twenty most common industries (defined by two-digit Standard Industrial
Classification codes). Industry representation among exchange listings is quite
broad, indicating that effects of industry clustering are likely to be minor.[9]
With respect to relative size, the bias we observe toward smaller firms is not
attributable to any one industry or group of industries. There is also little
evidence of industry clustering by exchange type.

Table III summarizes post-listing performance by industry. The pervasive-
ness of the post-listing drift is readily apparent. Seventeen of the 20 industries
have negative CARs in month 24. Eighteen industries have negative 36-month
CARs, of which nine differ from zero at traditional confidence levels. Yet these
most common industries do not have an inordinate impact on the drift. The
CAR at month 24 for those firms excluded from the top 20 industries is −9.60

[9] This evidence parallels that occurring with IPOs. For example, four of the top five industries
represented here are included among the top five reported in Ritter's (1991) study of IPOs.

percent ($t = -3.85$) and -10.09 percent ($t = -3.31$) at month 36, results that are similar to all listings taken together.

In Table IV, we examine the persistence of the post-listing drift across the three types of exchange listings in our sample: Nasdaq to ASE, Nasdaq to NYSE and ASE to NYSE. Over the entire period, the post-listing drift is present in each of the three exchange types. Firms moving from the Nasdaq to the ASE show the worst post-listing performance where the CAR in month 12 is -7.78 percent. Post-listing performance deteriorates further to -13.38 percent in month 24 and finally to -17.53 percent in month 36. Post-listing performance is also negative for firms moving to the NYSE from either the Nasdaq or the ASE, though not nearly as severe. These findings are consistent with those reported by McConnell and Sanger (1987). Although they generally focus on short-run performance following listing, they do report performance following listing for 12 months and observe poor post-listing performance for ASE and Nasdaq firms that listed on the NYSE between 1926 and 1982.

While the magnitude of the post-listing drift overall is consistent across sub-periods, it varies over time across the three types of exchange listings. In the early sub-period, 1962 to 1972, the drift is most evident in firms moving from the ASE to the NYSE where the 36-month CAR is -18.53 percent. For firms moving from the Nasdaq to either the ASE or NYSE, the 36-month CAR is -12.51 percent and -7.53 percent, respectively. Following 1972, the nature of the post-listing drift changes. The drift intensifies for firms leaving Nasdaq, particularly those choosing to list on the ASE. Here, the 36-month CAR decreases dramatically from -12.51 percent in the 1962–1972 sub-period to -25.69 percent in 1973–1981 and -22.50 percent in 1982–1990. For firms moving from the Nasdaq to the NYSE, the post-listing drift appears to be a more recent phenomenon after being nearly absent in the 1973 to 1981 sub-period. For ASE to NYSE listings, the negative drift we observe over our total sample period is primarily attributable to those listings during the early years of our analysis. After 1973, there is no evidence in ASE to NYSE listings of poor post-listing performance.

Although some variation is expected from one time period to another, this would not seem to explain why the ASE to NYSE drift apparently vanishes while the Nasdaq to ASE and NYSE drifts intensify. As we saw earlier, a striking number of firms moved from the Nasdaq to the ASE during the late 1960s and early 1970s. Concurrent changes were also underway at the NASD as the automated quotation system was introduced. It is possible that the dynamics affecting when and where firms choose to list changed in some manner during this time period. Yet despite this inter-period variation, the overall pervasiveness of the post-listing drift is not in contention. Its distinctive pattern is observed across a variety of industries throughout the years we examine.

Table IV

Post-Listing Abnormal Returns by Exchange and Time-Period

The following table reports post-listing performance by sub-period for the three exchange types for 2,889 listings between July 1962 and December 1990. Size adjusted abnormal returns are reported at six-month intervals (Six-Mo. CAR) and cumulatively (CAR) beginning in the first full calendar month following listing (*t*-statistics in parentheses).

Post-Listing Months	Nasdaq to NYSE			Nasdaq to ASE			ASE to NYSE		
	n	Six-Mo. CAR	CAR	n	Six-Mo. CAR	CAR	n	Six-Mo. CAR	CAR
All-Years									
1–6	922	−1.38	−1.38	1,437	−3.82	−3.82	530	−2.14	−2.14
		(−1.53)	(−1.53)		(−3.66)	(−3.66)		(−1.78)	(−1.78)
7–12	919	−0.05	−1.43	1,416	−3.96	−7.78	530	−0.65	−2.79
		(−0.06)	(−1.12)		(−3.79)	(−5.26)		(−0.53)	(−1.64)
13–18	904	−1.70	−3.13	1,392	−3.55	−11.33	526	−3.17	−5.96
		(−1.89)	(−2.00)		(−3.40)	(−6.26)		(−2.64)	(−2.86)
19–24	890	−2.62	−5.75	1,371	−2.05	−13.38	515	−0.67	−6.63
		(−2.90)	(−3.18)		(−1.96)	(−6.40)		(−0.55)	(−2.75)
25–30	866	−2.05	−7.80	1,331	−2.60	−15.98	505	0.97	−5.66
		(−2.28)	(−3.86)		(−2.49)	(−6.84)		(0.80)	(−2.10)
31–36	858	0.01	−7.79	1,294	−1.55	−17.53	497	−1.08	−6.74
		(0.01)	(−3.52)		(−1.49)	(−6.85)		(−0.90)	(−2.28)
1962–1972									
1–6	431	−2.26	−2.26	801	−3.25	−3.25	224	−5.47	−5.47
		(−1.82)	(−1.82)		(−2.35)	(−2.35)		(−2.75)	(−2.75)
7–12	430	−0.25	−2.51	800	−4.20	−7.45	224	−2.19	−7.66
		(−0.20)	(−1.43)		(−3.03)	(−3.80)		(−1.10)	(−2.73)
13–18	426	−0.68	−3.19	786	−2.78	−10.23	224	−6.21	−13.87
		(−0.55)	(−1.48)		(−2.00)	(−4.26)		(−3.13)	(−4.03)
19–24	419	−1.86	−5.05	774	−0.26	−10.49	220	−2.93	−16.80
		(−1.50)	(−2.04)		(−0.18)	(−3.78)		(−1.48)	(−4.23)
25–30	412	−1.45	−6.50	754	−1.42	−11.91	215	−0.83	−17.63
		(−1.17)	(−2.34)		(−1.02)	(−3.84)		(−0.41)	(−3.97)
31–36	411	−1.03	−7.53	738	−0.60	−12.51	213	−0.90	−18.53
		(−0.83)	(−2.48)		(−0.43)	(−3.68)		(−0.46)	(−3.81)
1973–1981									
1–6	199	−0.72	−0.72	307	−5.12	−5.12	186	0.57	0.57
		(−0.42)	(−0.42)		(−3.04)	(3.04)		(0.32)	(0.32)
7–12	197	1.82	1.10	302	−4.09	−9.21	186	−1.52	−0.95
		(1.07)	(0.46)		(−2.43)	(−3.86)		(−0.87)	(−0.38)
13–18	195	0.13	1.23	299	−5.06	−14.27	183	−0.41	−1.36
		(0.08)	(0.42)		(−3.00)	(−4.89)		(−0.23)	(−0.45)
19–24	193	−1.36	−0.13	294	−3.11	−17.38	181	0.78	−0.58
		(−0.80)	(−0.04)		(−1.85)	(−5.16)		(0.44)	(−0.17)
25–30	190	−2.48	−2.61	286	−4.72	−22.10	179	2.32	1.74
		(−1.46)	(−0.69)		(−2.80)	(−5.86)		(1.32)	(0.44)
31–36	188	1.05	−1.56	278	−3.59	−25.69	175	−0.96	0.78
		(0.62)	(−0.37)		(−2.13)	(−6.22)		(−0.55)	(0.18)
1982–1990									
1–6	292	−0.52	−0.52	329	−4.00	−4.00	120	−0.13	−0.13
		(−0.22)	(−0.22)		(−1.92)	(−1.92)		(−0.05)	(−0.05)
7–12	292	−1.04	−1.56	314	−3.19	−7.19	120	3.58	3.45
		(−0.44)	(−0.45)		(−1.52)	(−2.43)		(1.25)	(0.85)
13–18	283	−4.52	−6.08	307	−4.08	−11.27	119	−1.75	1.70
		(−1.92)	(−1.42)		(−1.97)	(−3.12)		(−0.61)	(0.34)
19–24	278	−4.67	−10.75	303	−5.60	−16.87	114	1.39	3.09
		(−1.99)	(−2.16)		(−2.69)	(−4.04)		(0.48)	(0.54)
25–30	264	−2.71	−13.46	291	−3.56	−20.43	111	2.27	5.36
		(−1.15)	(−2.41)		(−1.70)	(−4.38)		(0.79)	(0.83)
31–36	259	0.89	−12.57	278	−2.07	−22.50	109	−1.61	3.75
		(0.38)	(−2.05)		(−0.99)	(−4.40)		(−0.56)	(0.53)

III. Understanding Post-listing Stock Returns

Our goal in this section is to better understand the nature of post-listing stock returns. We first explore whether poor post-listing performance is a consequence of choosing an improper benchmark due to a self-selection bias. After rejecting this explanation, we move onto other explanations for why the drift is present in some cases and absent in others. Many exchange-listing firms have been public only a short period of time. Moreover, many firms make seasoned equity offerings soon after listing on an exchange. Thus, one question which arises is whether the negative post-listing drift is a manifestation of the new equity issuance puzzle. Our final line of inquiry examines whether the poor performance of listing firms is attributable to managers applying for listing at opportune times.

A. *Controlling for Other Biases in Cross-Sectional Returns*

Although the size-adjusted returns approach used above is straightforward to calculate, it is biased toward reporting a downward drift in this particular study. Firms choosing to list on the ASE or NYSE typically experience extraordinarily high stock returns prior to listing.[10] This bias away from "losers" is not surprising given ASE and NYSE listing guidelines which stress that applicants should be in stable and growing industries. As a result, firms moving to the ASE or NYSE tend to have low book-to-market ratios. Given that low book-to-market firms tend to have lower returns, at least during the time period we examine, the possibility exists that the poor performance we report following exchange listings is due to an improper choice of benchmark.[11]

Thus, we adopt a second procedure for measuring performance that also takes into account the impact of book-to-market effects on stock returns. To apply this procedure, we sort each of the ten size-based portfolios described earlier into five additional portfolios on the basis of book-to-market ratios, using end-of-April market values. The book-equity value is taken from the annual report in the most recent fiscal year. For companies with fiscal year-ends between January and April, book-equity values from the previous year are used to avoid the possibility of look-ahead bias (Banz and Breen (1986)). Sorting on the basis of size into deciles and further sorting into book-to-market quintiles yields 50 different portfolios. Monthly portfolio returns are then calculated by equally weighting the returns to firms sorted into each of the 50

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[10] Kadlec and McConnell (1994) report that 270 Nasdaq stocks had average abnormal returns of 28.5 percent in the 52 weeks prior to listing on the NYSE during the period 1980 through 1989. In our sample, we find cumulative abnormal returns of more than 40 percent beginning 24 months prior to listing.

[11] The need to control for both size and book-to-market relationships in empirical studies such as this is one of the primary conclusions reached by Fama and French (1993). They suggest, as an example, that the poor long-run performance observed in bidding firms following takeovers (Agrawal, Jaffe, and Mandelker (1992)) would not be observed if the methods used to measure abnormal performance were designed to accommodate the low book-to-market ratios characteristic of bidding firms.

Table V

Listings by Book-to-Market Quintiles

This table reports the distribution of book-to-market quintile rankings at the time firms listed on either the NYSE or ASE between 1973 and 1990. Book-to-market rankings are determined by first sorting into size deciles and then computing book-to-market quintile ranks within each size decile. Rankings are determined in April prior to the listing relative NYSE and ASE stocks followed by COMPUSTAT.

Quintile	All Listings		Nasdaq to NYSE		Nasdaq to ASE		ASE to NYSE	
	n	%	*n*	%	*n*	%	*n*	%
1 (Lowest)	578	(50.4)	184	(46.8)	274	(58.4)	120	(42.4)
2	237	(20.7)	76	(19.3)	82	(17.4)	79	(27.9)
3	151	(13.2)	45	(11.5)	56	(11.9)	50	(17.7)
4	113	(9.9)	47	(12.0)	43	(9.1)	23	(8.1)
5 (Highest)	67	(5.8)	41	(10.4)	15	(3.2)	11	(3.9)
Total	1,146	(100.0)	393	(100.0)	470	(100.0)	283	(100.0)

portfolios for May through the subsequent April, at which point all NYSE and ASE stocks are re-ranked and the process is repeated. Each newly listed firm is classified into one of the 50 size and book-to-market portfolios. The return to this portfolio is then used as a benchmark to measure abnormal performance. After this point, the size and book-to-market approach is procedurally equivalent to the size-adjusted returns approach.

To illustrate the importance of controlling for book-to-market effects in this study, we summarize in Table V book-to-market quintile rankings at the time of the listing announcement.[12] The bias in exchange listings favoring low book-to-market ratios is clearly evident. More than half of the sample is composed of firms in the lowest book-to-market quintile. Less than 6 percent of the sample is classified in the highest book-to-market quintile. Given the strong cross-sectional relationship between returns and book-to-market ratios during the period we are examining, controlling for book-to-market effects would seem imperative.

In Figure 2, we plot post-listing performance measured using this second approach for the three types of listings as well as the overall sample. The evidence reported in Figure 2 is also summarized in Table VI. Although the magnitude of the drift diminishes, overall post-listing performance is still negative. For all listings between 1973 and 1990, the size and book-to-market adjusted CAR in month 36 is -7.02 percent, with most of the decline occurring by month 24. The comparable result using the size-only approach is -12.84 percent. The impact of controlling for book-to-market effects is also readily apparent when looking at Nasdaq to ASE transfers. When returns are adjusted only on the basis of size, the post-listing drift is -24.11 percent. After

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[12] Because of the limited nature of COMPUSTAT data, this table and those that follow focus on listings occurring in 1973 and later.
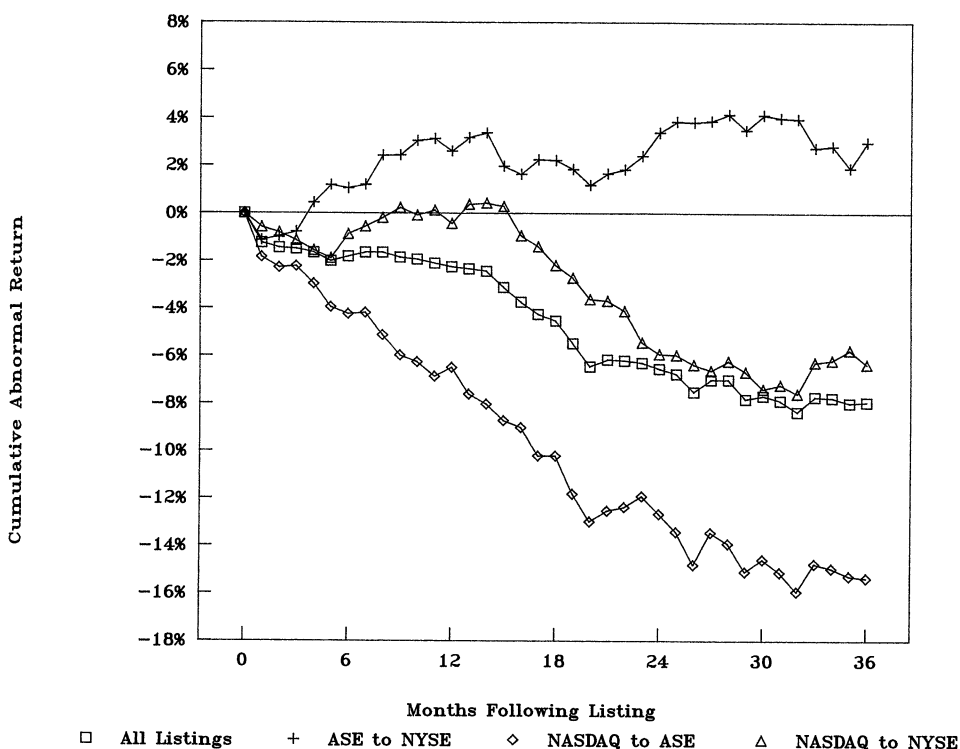
Figure 2. Size and book-to-market adjusted post-listing abnormal returns by exchange listing. This figure plots post-listing performance for 1,146 listings between 1973 and 1990 for all listings and by exchange type. Abnormal returns (in percent) are adjusted on the basis of size and book-to-market beginning with the first complete calendar month following listing.

further controlling for book-to-market effects, the drift is -14.92 percent. Although the difference represents a substantial decrease in the magnitude of the drift, post-listing performance is still negative and statistically significant. Earlier we observed that post-listing performance for ASE to NYSE transfers between 1973 and 1990 was not disappointing when returns were measured with respect to a size benchmark. The results do not change when we use a benchmark which controls for both size and book-to-market.

Some phenomenon other than market-wide factors appears to be affecting the post-listing performance of firms that leave Nasdaq. Measurement error associated with an improper benchmark, although always a possibility, does not seem to fully explain the drift.[13] Yet, despite our efforts, measuring long-run performance is inherently difficult. Dimson and Marsh (1986) convincingly illustrate that minor changes in the benchmark used to measure long-run

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[13] As an additional check on the size and book-to-market approach, we randomly selected 2,500 ASE-NYSE firms and calculated monthly abnormal returns for a random event date. Cumulative abnormal returns based on the size and book-to-market approach ranged with $\pm$ 2 percent over the 36-month post-event period.

Table VI

Post-Listing Abnormal Returns by Exchange Listings

The following table reports post-listing performance for listings between 1973 and 1990 using size and book-to-market adjusted returns for all listings and by exchange type. Abnormal returns (in percent) are reported at six-month intervals and cumulatively beginning with the first complete calendar month following listing (*t*-statistics in parentheses).

	All Listings			Nasdaq to NYSE			Nasdaq to ASE			ASE to NYSE		
Months	*n*	Six-Mo. CAR	CAR	*n*	Six-Mo. CAR	CAR	*n*	Six-Mo. CAR	CAR	*n*	Six-Mo. CAR	CAR
1–6	1,146	−1.91	−1.91	393	−0.88	−0.88	470	−4.55	−4.55	283	1.03	1.03
		(−1.85)	(−1.85)		(−0.62)	(−0.62)		(−2.53)	(−2.53)		(0.62)	(0.62)
7–12	1,139	−0.13	−2.04	392	0.10	−0.78	464	−1.42	−5.97	283	1.65	2.68
		(−0.13)	(−1.40)		(0.07)	(−0.39)		(−0.79)	(−2.34)		(0.99)	(1.14)
13–18	1,121	−2.13	−4.17	384	−1.68	−2.46	458	−3.56	−9.53	279	−0.42	2.26
		(−2.07)	(−2.40)		(−1.19)	(−1.01)		(−1.97)	(−3.05)		(−0.25)	(0.78)
19–24	1,103	−1.95	−6.12	379	−3.11	−5.57	452	−3.10	−12.63	272	1.52	3.78
		(−1.90)	(−2.97)		(−2.21)	(−1.98)		(−1.72)	(−3.50)		(0.91)	(1.14)
25–30	1,074	−1.45	−7.57	367	−2.41	−7.98	439	−2.24	−14.87	268	1.19	4.97
		(−1.40)	(−3.29)		(−1.71)	(−2.53)		(−1.24)	(−3.69)		(0.72)	(1.34)
31–36	1,050	0.55	−7.02	364	2.23	−5.75	421	−0.05	−14.92	265	−0.86	4.11
		(0.53)	(−2.78)		(1.58)	(−1.66)		(−0.02)	(−3.38)		(−0.52)	(1.01)

performance can have a dramatic impact on the conclusions. Long-horizon returns can also be affected by minor biases which are exaggerated when monthly rebalancing is assumed, particularly for low-priced stocks (Conrad and Kaul (1993)).

In order to verify that the negative post-listing performance is not due to potential measurement problems associated with long-horizon returns, we examined performance over a sequence of much shorter intervals using daily returns. For short return intervals, questions over the appropriateness of various benchmarks are of less concern. Specifically, we measured the market reaction to quarterly earnings announcements after firms moved to either the NYSE or ASE. Similar approaches have been used by Jegadeesh and Titman (1993) and Chopra, Lakonishok, and Ritter (1992). Quarterly earnings announcement dates were acquired from COMPUSTAT and supplemented where necessary with announcements reported in *The Wall Street Journal Index*. Cross-sectional average abnormal returns were then calculated from two days before to two days following the announcement for the first 12 quarterly earnings announcements following listing. Although we do not report this evidence here, the market, on average, is disappointed by post-listing earnings. The mean market reaction is negative in each of the 12 quarterly announcements, including those immediately following listing. The cumulative impact over three years is −4.83 percent, about half of the total drift we observe using the size and book-to-market adjusted returns approach. Consistent with our earlier evidence during the 1973 to 1990 period, earnings announced by firms leaving the Nasdaq are more disappointing than those announced by firms leaving the ASE.

Measurement error cannot account for the poor stock returns observed following listing. At least some portion of the drift reflects information perceived by the market as disappointing. However, adjusting for book-to-market effects is clearly important for measuring long-run performance. Hence for the analysis that follows, we continue to use the size and book-to-market approach to measure abnormal performance.

B. Post-Listing Performance and The Impact of Equity Offerings

The poor long-run performance observed following exchange listings has several parallels with the poor performance observed following IPOs. Furthermore, the tendency for IPOs to underperform has, in turn, been found to affect the conclusions reported in other studies.[14] Given that firms involved in exchange listings have often been public only a short period of time, one might question whether the poor post-listing performance is explained by the presence of recent IPOs in our sample. However, in addition to concern over IPOs, several recent papers also report evidence of poor performance following seasoned equity offerings (SEOs) (Loughran and Ritter (1995), Mikkelson and Shah (1994), Nelson (1994), and Spiess and Affleck-Graves (1995)). Moreover, firms initially going public are frequently observed making seasoned offerings within a few years time (Welch (1989)). Thus, a similar question arises as to whether SEOs occurring around the time of listing might explain post-listing performance.

To explore these two possibilities, we calculate post-listing performance by excluding firms involved in equity offerings. We begin by examining post-listing performance after excluding listing firms whose initial public offering was less than two years prior to listing.[15] Following this, we examine post-listing performance after further eliminating firms which made seasoned offerings within two years either before or after listing.

The results are reported in Table VII. The post-listing performance of those firms not excluded by the issuance restrictions are reported in Panel A, while the results of those issuing equity are reported below in Panel B. Focusing on the latter group in Panel B, the negative impact of firms issuing equity on post-listing performance is readily apparent. One-ninth of the firms moving from the Nasdaq to the NYSE have been public less than two years. These firms have a post-listing drift of −10.02 percent after 36 months. About one-sixth of the Nasdaq firms moving to the ASE have been public less than two-years; their 36-month CAR is −22.41 percent.

The presence of IPOs in our sample does not account for the post-listing drift, since post-listing performance is also poor for firms which were public more

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[14] For example, Reinganum (1990) reports that, holding size constant, Nasdaq stocks underperform NYSE stocks by 6 percent per year. Yet, Loughran (1993) finds that more than half of this difference is due to the propensity for IPOs to commence trading on the Nasdaq and not on the organized exchanges.

[15] The results are generally not affected if a more stringent requirement is adopted which excludes firms which issued equity within three years of listing.

Table VII
Post-listing Cumulative Abnormal Returns: The Equity-Issuance Effect

Panel A reports size and book-to-market adjusted post-listing performance (in percent) at six-month intervals (Six-Mo. CAR) and overall (CAR) for all listings from 1973 to 1990, those listing firms which were public at least two years, and finally those listing firms public at least two years which did not have a seasoned equity offering within two years either prior to or following listing. Panel B contains the returns to firms excluded by these two criteria. *t*-statistics are reported in parentheses.

Panel A

	Nasdaq to NYSE						Nasdaq to ASE						ASE to NYSE					
	All Listings (n = 393)		No IPOs within 2 Years (n = 349)		No IPOs or SEOs within 2 Years (n = 254)		All Listings (n = 470)		No IPOs within 2 Years (n = 388)		No IPOs or SEOs within 2 Years (n = 284)		All Listings (n = 283)		No IPOs within 2 Years (n = 271)		No IPOs or SEOs within 2 Years (n = 197)	
Months	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR
1–6	−0.88 (−0.62)	−0.88 (−0.62)	−1.33 (−0.87)	−1.33 (−0.87)	−0.86 (−0.53)	−0.86 (−0.53)	−4.55 (−2.53)	−4.55 (−2.53)	−4.79 (−2.51)	−4.79 (−2.51)	−4.43 (−2.05)	−4.43 (−2.05)	1.03 (0.62)	1.03 (0.62)	1.03 (0.66)	1.03 (0.66)	−1.71 (−0.85)	−1.71 (−0.85)
7–12	0.10 (0.07)	−0.78 (−0.39)	−0.53 (−0.34)	−1.86 (−0.85)	0.34 (0.21)	−0.52 (−0.23)	−1.42 (−0.80)	−5.97 (−2.34)	−0.58 (−0.31)	−5.37 (−1.99)	−0.23 (−0.11)	−4.67 (−1.53)	1.65 (0.99)	2.68 (1.14)	1.58 (1.01)	2.61 (1.18)	2.85 (1.42)	1.14 (0.40)
13–18	−1.68 (−1.19)	−2.46 (−1.01)	−1.18 (−0.78)	−3.04 (−1.13)	−2.00 (−1.25)	−2.52 (−0.91)	−3.56 (−2.00)	−9.53 (−3.05)	−2.93 (−1.53)	−8.30 (−2.51)	−2.38 (−1.10)	−7.05 (−1.88)	−0.42 (−0.26)	2.26 (0.78)	−0.15 (−0.10)	2.46 (0.91)	0.09 (0.04)	1.23 (0.35)
19–24	−3.11 (−2.21)	−5.57 (−1.98)	−3.03 (−1.96)	−6.07 (−1.96)	−0.45 (−0.28)	−2.97 (−0.92)	−3.10 (−1.74)	−12.63 (−3.50)	−2.88 (−1.51)	−11.18 (−2.93)	−4.19 (−1.93)	−11.23 (−2.60)	1.52 (0.91)	3.78 (1.14)	1.66 (1.06)	4.12 (1.32)	0.94 (0.47)	2.17 (0.54)
25–30	−2.41 (−1.71)	−7.98 (−2.53)	−1.98 (−1.29)	−8.05 (−2.32)	−1.82 (−1.14)	−4.78 (−1.34)	−2.24 (−1.26)	−14.87 (−3.69)	−2.17 (−1.14)	−13.35 (−3.13)	−0.61 (−0.28)	−11.84 (−2.45)	1.19 (0.72)	4.97 (1.34)	1.33 (0.85)	5.45 (1.56)	0.96 (0.48)	3.13 (0.70)
31–36	2.23 (1.58)	−5.75 (−1.66)	2.89 (1.89)	−5.16 (−1.36)	2.84 (1.77)	−1.95 (−0.50)	−0.05 (−0.02)	−14.92 (−3.78)	0.00 (0.00)	−13.35 (−2.85)	0.72 (0.33)	−11.12 (−2.10)	−0.86 (−0.52)	4.11 (1.01)	−0.55 (−0.35)	4.90 (1.28)	−1.68 (−0.83)	1.45 (0.30)

Table VII—Continued

Panel B

| | Nasdaq to NYSE | | | | Nasdaq to ASE | | | | ASE to NYSE | | | |
| | IPO within 2 Years (n = 44) | | IPO and/or SEO within 2 Years (n = 139) | | IPO within 2 Years (n = 82) | | IPO and/or SEO within 2 Years (n = 186) | | IPO within 2 Years (n = 12) | | IPO and/or SEO within 2 Years (n = 86) | |
Months	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR
1–6	2.75 (0.63)	2.75 (0.63)	-0.98 (-0.40)	-0.98 (-0.40)	-3.47 (-0.84)	-3.47 (-0.84)	-4.81 (-0.80)	-4.81 (-1.79)	0.94 (0.11)	0.94 (0.11)	7.30 (2.40)	7.30 (2.40)
7–12	5.03 (1.15)	7.78 (1.26)	-0.49 (-0.20)	-1.47 (-0.43)	-5.34 (-1.28)	-8.81 (-1.50)	-3.33 (-1.30)	-8.14 (-2.14)	3.27 (0.39)	4.21 (0.36)	-1.10 (-0.36)	6.21 (1.44)
13–18	-5.45 (-1.25)	2.33 (0.31)	-1.18 (-0.49)	-2.65 (-0.63)	-6.55 (-1.58)	-15.36 (-2.13)	-5.81 (-2.01)	-13.95 (-2.99)	-6.33 (-0.76)	-2.11 (-0.15)	-1.58 (-0.52)	4.62 (0.88)
19–24	-3.71 (-0.85)	-1.38 (-0.16)	-8.14 (-3.34)	-10.79 (-2.22)	-4.16 (-1.00)	-19.52 (-2.35)	-1.67 (-0.35)	-15.62 (-2.90)	-1.58 (-0.19)	-3.69 (-0.22)	2.85 (0.94)	7.48 (1.23)
25–30	-5.78 (-1.32)	-7.16 (-0.73)	-3.88 (-1.59)	-14.67 (-2.70)	-2.64 (-0.63)	-22.16 (-2.38)	-5.27 (-0.83)	-20.89 (-3.47)	-1.70 (-0.20)	-5.39 (-0.29)	1.39 (0.46)	8.87 (1.30)
31–36	-2.86 (-0.65)	-10.02 (-0.94)	0.90 (0.37)	-13.77 (-2.31)	-0.25 (-0.06)	-22.41 (-2.20)	-1.31 (-0.15)	-22.20 (-3.37)	-7.70 (-0.92)	-13.09 (-0.64)	0.76 (0.25)	9.63 (1.29)

than two years prior to listing. For example, for Nasdaq firms leaving for the ASE which, at the time of listing, were seasoned at least two years, the CAR in the first six months following listing is −4.79 percent. By month 36, the CAR is −13.35 percent. This differs little from the −14.92 percent we observe overall for Nasdaq to ASE listings. Similarly, the long-run performance of Nasdaq to NYSE listings is generally unaffected by the exclusion of IPOs. For completeness, ASE to NYSE transfers are also reported. As before, there is little evidence of negative post-listing performance in ASE to NYSE listings during the 1973 to 1990 period and the impact of IPOs on post-listing performance appears to be immaterial.

Next, we further eliminate those firms involved in seasoned equity offerings. Focusing on Nasdaq to ASE listings, the post-listing performance of those firms that were involved in neither initial nor seasoned offerings in the years surrounding listing is still poor. For example, for the sample overall, firms moving from Nasdaq to the ASE have a 36-month CAR of −14.92 percent. After excluding IPOs and SEOs, the 36-month CAR is −11.12 percent. For Nasdaq to NYSE listings, the results change slightly. Recall that for this group of listings, excluding only IPOs does not have a material impact on post-listing performance. However after further screening for SEOs, long-run post-listing performance is less disappointing than otherwise. For example, after removing both IPOs and SEOs, the 30-month CAR is −4.78 percent, whereas the comparable return when only IPOs are excluded is −8.05 percent. The 36-month CAR when both types of offerings are excluded is −1.95 percent, while it is −5.16 percent if only IPOs are removed. Overall, performance throughout the post-listing period for Nasdaq to NYSE listings is not significantly different from zero once SEOs are removed.

Thus, the presence of seasoned equity offerings would appear to explain a meaningful portion of the post-listing drift observed overall among Nasdaq firms listing on the NYSE. One of the motives that managers offer for listing on an organized exchange is the belief that listing will facilitate new equity offerings (Goulet (1974)). Thus one might expect the negative impact of SEOs to be associated with those offerings which occurred following listing. However for Nasdaq to NYSE listings, this is generally *not* the case. Although not reported here, the negative impact of SEOs on post-listing performance is most prevalent in those Nasdaq firms which made seasoned offerings prior to listing on the NYSE.[16]

To summarize, the presence of equity offerings among exchange listings does explain some portion of the poor performance observed following listing, particularly those firms that made seasoned offerings prior to leaving Nasdaq for the NYSE. Yet the equity-issuance puzzle does not fully explain the post-listing phenomenon. The post-listing performance of firms leaving Nasdaq

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[16] This result is similar to that of McConnell and Sanger (1987). They also find that seasoned equity offerings made within one year after listing on the NYSE cannot account for the post-listing drift.

Table VIII
1990 Initial Listing Requirements[a]

Narrative Guidelines
NYSE: "Particular attention is given to such qualifications as 1) the degree of national interest in the company; 2) its relative position and stability in the industry; and 3) whether it is engaged in an expanding industry, with prospects of at least maintaining its relative position."
ASE: Factors considered for listing a company include "the nature of its business, the market for its products, the reputation of its management, its historical record and pattern of growth, its financial integrity, its demonstrated earning power and the outlook for its future."

Financial Guidelines			
Criterion	NYSE	ASE-Regular	ASE-Alternate
Pre-tax income ($million)	2.5 in latest year and 2.0 in each of two prior years, or 4.5 in latest year and 6.5 total in three prior years (all positive)	0.75 in latest year or 2 of most recent 3 years	—
Equity market value ($mil)	18	3	15
Stockholders' equity ($mil)	18	4	4
Share price ($)	—	3	—
Operating history (years)	—	—	3

Distribution Guidelines			
Criterion	NYSE	ASE Set 1	ASE Set 2	ASE Set 3
Public shares (million)	1.1	0.5	1.0	0.5
Stockholders	2,000 with 100 shares or more, or 2,200 and average trading volume of 100,000 shares	800	400	400
Average daily volume	—	—	—	2,000

[a] Sources: *NYSE Fact Book* (New York Stock Exchange, 1990) and *ASE Fact Book* (American Stock Exchange, 1991).

(particularly those leaving for the ASE) is generally disappointing, even after IPOs and SEOs are excluded from the analysis.

C. Post-Listing Performance, Firm Size and Opportunism

Firms choosing to list on one of the two organized exchanges, for whatever reason, face a series of initial listing requirements, or "guidelines," as they are referred to by the exchanges. Table VIII illustrates the nature of these requirements by summarizing the "narrative," "financial," and "share distribution" guidelines for the NYSE and ASE in 1990. For many firms, these guidelines clearly have little bearing on their qualification for listing. However, for other firms, these guidelines pose a more meaningful barrier. For managers of firms who are considering listing, the timing of their application may be important.

For example, at any given time, numerous firms trading on Nasdaq qualify for listing on one or both of the exchanges. In fact, many of these firms may have qualified for some period of time. Yet for some firms, if negative idiosyncratic or market-wide events were to arise in the future, their candidacy for listing might be less certain. Thus, managers considering listing who foresee disappointing performance may choose to make their application to the exchanges while their firms still satisfy initial listing guidelines. For example, if a firm were to report negative pre-tax earnings, it might take several years before its eligibility for listing is restored.[17]

If some managers are prone to such "timing" of their listing application, it would seem more likely to occur in smaller firms than otherwise. For example, the financial guideline regarding pre-tax income is stated in millions of dollars and not as a return on assets ratio which would normalize earnings for size. Furthermore, small firms have greater earnings volatility, increasing the probability of recording losses and violating the earnings guideline (Bamber (1986, 1987)). Exchange requirements concerning equity market value and accounting book value would seem to discourage smaller firms from applying for listing. For larger firms, these guidelines are generally immaterial. On the other hand, firms applying for listing are generally not large corporations. The preponderance of firms listing on the ASE and NYSE are mid- and small-capitalization firms, for whom listing requirements may be more binding, thus allowing the possibility that some firms self-select for listing at opportune times. A testable implication of this "opportunism" hypothesis is that the post-listing drift should be most evident in smaller firms and generally absent in larger firms.

We begin our examination of this hypothesis by reporting post-listing abnormal returns for small- and large-capitalization firms. However in doing so, we place two restrictions on the sample. First, we remove all firms that have been public less than two years as well as firms that issued new equity within two years either prior to or following listing. Second, we exclude ASE to NYSE listings. These two restrictions focus our examination on those listings where the drift is most severe, yet not explained by the equity issuance drift. We classify the remaining firms as either "small" or "large" on the basis of market-equity value relative to the median market-equity value of all ASE and NYSE firms.

The evidence reported in Table IX suggests that the negative post-listing drift is generally confined to smaller firms, a result consistent with the opportunism hypothesis. Similar to the findings reported in earlier tables, much of the post-listing drift observed in smaller firms occurs within the first 24 months. For larger firms, there is no evidence of a negative post-listing per-

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[17] If disappointing performance does transpire subsequent to listing, the question of eligibility for continued listing is generally trivial since these requirements are substantially lower than initial listing requirements. For example, the minimum market equity capitalization for initial listing on the NYSE is $18 million. However once listed, firms remain eligible for listing as long as their market capitalization remains above $5 million. Moreover, continued listing requirements on the NYSE make no reference to earnings.

Table IX
Post-Listing Cumulative Abnormal Returns: The Effect of Firm Size

This table reports post-listing abnormal returns (in percent) over six-month intervals (Six-Mo. CAR) as well as cumulatively (CAR) for firms moving from the Nasdaq to either the ASE or NYSE between 1973 and 1990. Firms moving from the ASE to NYSE are excluded as well as firms public less than 24 months prior to listing or which had a seasoned equity offering within 24 months either prior to or following listing. Firms are ranked either "Small" or "Large" according to whether they are below or above the median in market-equity value of all NYSE and ASE firms at the time of listing (t-statistics are reported in parentheses).

| | All Years | | | | | 1973 to 1981 | | | | | 1982 to 1990 | | | | |
| | Small Firms (n = 370) | | Large Firms (n = 168) | | | Small Firms (n = 181) | | Large Firms (n = 81) | | | Small Firms (n = 189) | | Large Firms (n = 87) | | |
Months	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	CAR Diff.	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	CAR Diff.	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	CAR Diff.
1–6	-4.65 (-2.25)	-4.65 (-2.25)	1.44 (0.68)	1.44 (0.68)	-6.09 (-2.06)	-6.49 (-2.62)	-6.49 (-2.62)	1.44 (0.46)	1.44 (0.46)	-7.93 (-1.97)	-2.76 (-0.93)	-2.76 (-0.93)	1.43 (0.59)	1.43 (0.59)	-4.19 (-1.09)
7–12	-0.70 (-0.34)	-5.32 (-1.83)	1.65 (0.78)	3.09 (1.04)	-8.41 (-2.02)	1.21 (0.48)	-5.44 (-1.52)	1.63 (0.51)	3.07 (0.68)	-8.51 (-1.48)	-2.50 (-0.85)	-5.26 (-1.26)	1.68 (0.69)	3.11 (0.90)	-8.37 (-1.55)
13–18	-2.67 (-1.29)	-8.02 (-2.24)	-1.18 (-0.56)	1.90 (0.52)	-9.92 (-1.94)	-0.17 (-0.07)	-5.62 (-1.28)	0.01 (0.00)	3.08 (0.56)	-8.70 (-1.24)	-5.09 (-1.72)	-10.34 (-2.02)	-2.31 (-0.95)	0.80 (0.19)	-11.14 (-1.68)
19–24	-3.01 (-1.45)	-11.03 (-2.67)	-1.13 (-0.54)	0.77 (0.18)	-11.80 (-1.98)	-2.12 (-0.84)	-7.74 (-1.53)	-1.05 (-0.33)	2.03 (0.32)	-9.77 (-1.20)	-3.88 (-1.32)	-14.22 (-2.41)	-1.23 (-0.50)	-0.43 (-0.09)	-13.79 (-1.79)
25–30	-0.97 (-0.46)	-12.00 (-2.60)	-1.64 (-0.78)	-0.87 (-0.18)	-11.13 (-1.67)	1.48 (0.58)	-6.26 (-1.10)	-2.52 (-0.80)	-0.49 (-0.07)	-5.77 (-0.64)	-3.35 (-1.14)	-17.58 (-2.66)	-0.80 (-0.33)	-1.23 (-0.23)	-16.35 (-1.91)
31–36	2.01 (0.97)	-9.98 (-1.97)	1.18 (0.56)	0.31 (0.06)	-10.29 (-1.42)	0.17 (0.07)	-6.09 (-0.98)	6.23 (1.96)	5.74 (0.74)	-11.83 (-1.19)	3.84 (1.30)	-13.74 (-1.90)	-3.74 (-1.53)	-4.97 (-0.83)	-8.77 (-0.93)

formance. After 36 months, the CAR for firms with market capitalization above the median ASE/NYSE firm is nearly 0 percent. For each six-month period following listing, the difference between small and large firms is negative. The cumulative impact is such that after three years, the spread between small and large firms is -10.29 percent. Moreover, the tendency for poor post-listing performance to be concentrated among smaller firms is consistent across the two sub-periods.

The observation that poor post-listing performance is generally characteristic of smaller firms would appear to explain why the post-listing drift for Nasdaq to ASE listings is, on average, more severe than among Nasdaq to NYSE listings. Firms leaving Nasdaq for the ASE are typically smaller than those leaving for the NYSE. Of the 370 "small" firms in the analysis above, 72 percent are Nasdaq firms leaving for the ASE. Of the 168 "large" firms above, only 10 percent were Nasdaq firms leaving for the ASE. However, the poor post-listing performance of smaller firms is not specific to the ASE. Although not reported here, the post-listing performance of the smaller Nasdaq firms listing on the NYSE is comparable to that of smaller Nasdaq firms listing on the ASE.

D. Opportunism and Institutional Holdings

In addition to size, the level of institutional ownership is also a likely proxy for the propensity of managers to time their listing application. Potter (1992) reports a correlation of 0.64 between the level of institutional holdings and the number of analysts following a stock. To the extent that institutional ownership is a proxy for the degree of "national interest," firms widely held by institutions are more likely to meet the narrative listing guidelines. These firms would seem to have little incentive to time their listing application to precede anticipated future bad news. Accordingly, firms with low institutional holdings would seem more likely to opportunistically time their application for listing than otherwise.

To investigate this hypothesis, we obtained the percentage of institutional holdings for each firm in our sample in the month of listing from the *Standard & Poor's Stock Guide*. However, analyzing institutional holdings directly over a sample period as long as ours is problematic since institutional ownership in U.S. corporations has increased dramatically over time, nearly doubling between 1973 and 1990.[18] To account for this growth, we normalize the institutional holding percentages of each exchange-listing firm by the percentage of institutional holding in all U.S. corporations at that time. We refer to the resulting ratio as "relative" institutional ownership. Firms applying for listing generally have below-average institutional holdings. For firms moving from Nasdaq to the NYSE, the median relative institutional ownership is 0.557. For

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[18] Total percentage institutional holdings at the end of 1970, 1975, 1980, 1985, and 1990 were, respectively, 20.6, 29.3, 29.3, 37.5, and 47.5 percent, as reported by the Securities Industry Association.

Table X
Post-Listing Cumulative Abnormal Returns: The Effect of Relative Institutional Ownership

This table reports post-listing abnormal returns (in percent) for firms moving from the Nasdaq to either the ASE or NYSE between 1973 and 1990. Firms moving from the ASE to NYSE are excluded as well as firms public less than 24 months prior to listing or which had a seasoned equity offering within 24 months either prior to or following listing. "Low Ownership" firms are those ranked in the lowest relative institutional ownership quartile at the time of listing, while "High Ownership" firms are those ranked in the highest quartile. Quartile rankings of relative institutional holdings are defined within each size decile each year. *t*-statistics are reported in parentheses.

| | All Years | | | | | 1973 to 1981 | | | | | 1982 to 1990 | | | | |
| | Low Ownership (n = 146) | | High Ownership (n = 121) | | CAR Diff. | Low Ownership (n = 87) | | High Ownership (n = 58) | | CAR Diff. | Low Ownership (n = 59) | | High Ownership (n = 63) | | CAR Diff. |
Months	Six-Mo. CAR	CAR	Six-Mo. CAR	CAR		Six-Mo. CAR	CAR	Six-Mo. CAR	CAR		Six-Mo. CAR	CAR	Six-Mo. CAR	CAR	
1–6	−5.19 (−1.57)	−5.19 (−1.57)	−4.72 (−1.68)	−4.72 (−1.68)	−0.47 (−0.11)	−4.77 (−1.24)	−4.77 (−1.24)	−2.48 (−0.65)	−2.48 (−0.65)	−2.29 (−0.15)	−5.76 (−1.05)	−5.76 (−1.05)	−6.76 (−1.95)	−6.76 (−1.95)	−1.00 (−0.48)
7–12	2.60 (0.78)	−2.59 (−0.55)	1.16 (0.42)	−3.56 (−0.89)	0.97 (0.16)	3.88 (1.01)	−0.90 (−0.17)	2.49 (0.66)	0.01 (0.00)	−0.91 (−0.12)	0.76 (0.14)	−5.00 (−0.64)	−0.03 (−0.01)	−6.78 (−1.39)	1.78 (0.19)
13–18	−7.87 (−2.37)	−10.45 (−1.82)	2.44 (0.86)	−1.12 (−0.23)	−9.32 (−1.24)	−5.39 (−1.40)	−6.28 (−0.94)	6.36 (1.68)	6.37 (0.97)	−12.65 (−1.35)	−11.44 (−2.09)	−16.44 (−1.73)	−1.26 (−0.37)	−8.04 (−1.34)	−8.40 (−0.75)
19–24	−3.52 (−1.06)	−13.97 (−2.11)	0.32 (0.11)	−0.80 (−0.14)	−13.17 (−1.51)	−5.36 (−1.39)	−11.64 (−1.51)	−0.07 (−0.02)	6.30 (0.83)	−17.94 (−1.06)	−0.82 (−0.15)	−17.25 (−1.58)	0.71 (0.21)	−7.33 (−1.06)	−9.92 (−0.77)
25–30	0.78 (0.23)	−13.20 (−1.78)	−0.10 (−0.03)	−0.90 (−0.14)	−12.30 (−1.25)	1.14 (0.30)	−10.50 (−1.22)	1.95 (0.51)	8.25 (0.97)	−18.75 (−1.55)	0.27 (0.05)	−16.98 (−1.39)	−2.09 (−0.61)	−9.42 (−1.22)	−7.56 (−0.56)
31–36	−1.35 (−0.41)	−14.55 (−1.79)	−0.22 (−0.08)	−1.12 (−0.16)	−13.43 (−1.25)	−1.42 (−0.37)	−11.92 (−1.26)	0.39 (0.10)	8.64 (0.93)	−20.56 (−1.55)	−1.20 (−0.22)	−18.19 (−1.36)	−0.82 (−0.24)	−10.24 (−1.21)	−7.95 (−0.50)

Nasdaq firms moving to the ASE, the median ratio is substantially lower, 0.064.

Table X reports post-listing performance for the lowest and highest relative institutional ownership quartiles. However, if post-listing performance is reported only on the basis of relative institutional ownership, the results, to a large degree, would reflect the impact of firm size. To focus more exclusively on the impact of institutional ownership, we sort relative institutional ownership within each size decile into quartiles on a year-by-year basis. Stocks in the top and bottom ownership quartiles are then pooled across size deciles and over time. This procedure assures that the size composition between lowest and highest ownership quartiles is similar.

The evidence is generally consistent with the opportunism hypothesis. The drift is more severe in firms that lack wide institutional following. For example, the post-listing CAR in month 36 for firms in the lowest relative institutional ownership quartile is −14.55 percent. By contrast, the comparable CAR for firms in the highest institutional ownership quartile is −1.12 percent.[19] Significance tests regarding the difference in long-run performance between the top and bottom ownership groups provide only mild support for the opportunism story. Yet the magnitude of the difference between the two groups is material and is comparable in magnitude to the size effect reported earlier. Furthermore, the difference in long-run performance between the lowest and highest ownership quartiles is generally consistent across the two sub-periods.

E. Summarizing The Opportunism Hypothesis

The post-listing drift is more severe for smaller firms. Likewise, holding size constant, the post-listing drift is more severe in those firms with relatively low institutional holdings. Together, these findings are consistent with the opportunism hypothesis. In Figure 3, we summarize this evidence by contrasting those firms in which opportunistic timing should be most evident with those firms where managers would appear to have little incentive to time their listing application. More specifically, we plot the post-listing performance of firms categorized as "small" that are classified in the lowest quartile of institutional ownership against "large" firms that are classified in the highest quartile of institutional ownership.

The evidence is striking. For smaller firms with low institutional ownership, post-listing performance is quite poor with a 36-month CAR of less than −15 percent. For those firms in which initial listing guidelines would seem immaterial, there is no evidence of a post-listing drift. Recall that, as before, this sub-sample is drawn from those cases where the overall drift is most negative, specifically seasoned firms leaving Nasdaq.

To some degree, these findings provide some motivation for why the post-listing drift is not observed for firms moving from the ASE to the NYSE, at

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[19] Because of the large number of listing firms that had no institutional following at the time of their listing, particularly in the earlier years, the number of firms in the lowest ownership quartile is greater than that in the highest ownership quartile.
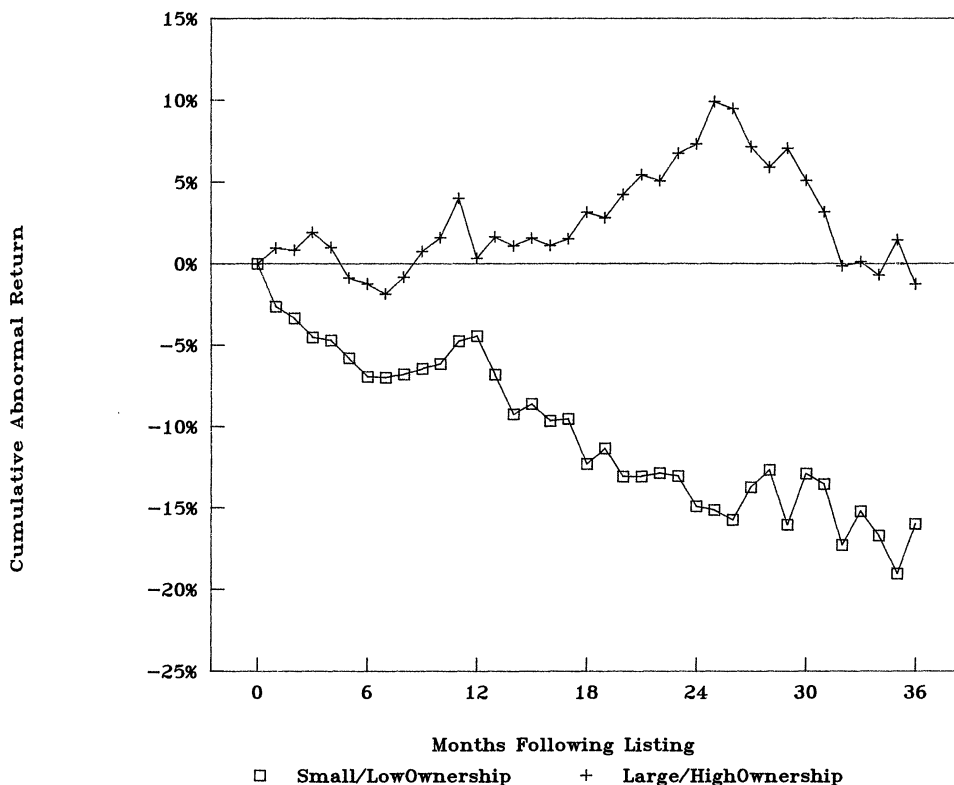
Figure 3. Post-listing performance and opportunism; 1973 to 1990. This figure plots post-listing performance for two groups of firms that left the Nasdaq for listing on either the ASE or NYSE during the period 1973 to 1990. One group contains those firms whose market equity value was below the median NYSE/ASE firm at the time of listing and that, given their size decile, were in the lowest quartile of institutional ownership. The second group contains those firms with above median market-cap and that were in the highest quartile of institutional ownership for their size group. Abnormal returns (in percent) are adjusted on the basis of size and book-to-market, beginning with the first complete calendar month following listing. Firms that were public less than two years or that issued equity within two years of listings were excluded.

least during the latter part of our study. Between 1973 and 1990, firms leaving the ASE were, on average, slightly larger than those leaving Nasdaq. Furthermore, even after controlling for size, firms leaving the ASE also had larger institutional ownership than those leaving Nasdaq.

IV. Conclusions

The listing of previously traded firms onto one of the two U.S. organized stock exchanges is an event that occurs with regularity. Yet as common as this event is, post-listing stock returns are surprisingly poor for an extended period of time. Not only does the post-listing drift continue in more recent years, it is

larger in magnitude and longer in duration than has been reported in the literature. Moreover, the phenomenon is pervasive. The magnitude of the drift overall is remarkably similar from the 1960s through the 1980s and is observed in numerous industries.

A substantial number of exchange-listing firms are, in fact, recent IPOs. Furthermore, many firms make seasoned equity offerings either prior to or following listing on the ASE or NYSE. However, the poor performance we observe in exchange listings is not entirely explained by the negative long-run performance often observed following equity issuances. Although firms issuing equity around the time of listing show poor post-listing performance, poor post-listing performance is also evident in firms that do not issue new equity. Although the possibility always exists that we may have mismeasured performance in some manner, the post-listing drift does not appear to be due to the choice of an improper benchmark. Listing firms tend to have low book-to-market ratios, yet post-listing performance is still poor after this fact is accounted for.

Researchers continue to examine why it is that excess long-run performance persists over time. While efforts progress along these lines, the evidence here is consistent with the notion that managers time their application for listing on an organized stock exchange. This argument parallels that offered to explain the poor stock returns observed following initial and seasoned equity offerings. For example, Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995) find evidence that managers appear to take advantage of transitory windows of opportunity and issue new equity when prices are high. Correspondingly, Ikenberry, Lakonishok, and Vermaelen (1995) find evidence that when share prices are low, managers announce stock repurchases.

In the case of exchange listings, the initial listing requirements posed by the exchanges appear to encourage a self-selection bias in when firms choose to list on the ASE or NYSE. For some firms, these requirements are easily satisfied and do not impede listing. However for other firms, initial listing requirements may be more binding. The desire by managers in these firms to have their stock traded on an organized exchange, for whatever reason, appears to lead some to apply for listing at opportune times. These times tend to precede a decline in firm performance, after which the firm's eligibility for listing might be less certain. The firms most constrained by exchange listing requirements are smaller firms and those without broad national interest. This is where the post-listing drift manifests itself. Larger firms that are more widely held by institutional investors show little evidence of poor post-listing performance.

REFERENCES

Agrawal, Anup, Jeffrey F. Jaffe, and Gershon N. Mandelker, 1992, The post-merger performance of acquiring firms: A re-examination of an anomaly, *Journal of Finance* 47, 1605–1621.

American Stock Exchange, 1991, *Fact Book: Equities and Options* (American Stock Exchange, Inc., New York).

Baker, H. Kent, and Martha Johnson, 1990, A survey of management's view on exchange listing, *Quarterly Journal of Business and Economics* 29, 3–20.

Bamber, Linda S., 1986, The information content of annual earnings releases: A trading volume approach, *Journal of Accounting Research* 24, 40–56.

Bamber, Linda S., 1987, Unexpected earnings, firm size, and trading volume around quarterly earnings announcements, *The Accounting Review* 62, 510–532.

Banz, Rolf W., and William J. Breen, 1986, Sample dependent results using accounting and market data: Some evidence, *Journal of Finance* 41, 779–794.

Brown, Stephen J., and Jerold B. Warner, 1980, Measuring security price performance, *Journal of Financial Economics* 8, 205–258.

Brown, Stephen J., and Jerold B. Warner, 1985, Using daily stock returns: The case of event studies, *Journal of Financial Economics* 14, 3–31.

Chan, Louis K. C., and Josef Lakonishok, 1992, Robust measurement of beta risk, *Journal of Financial and Quantitative Analysis* 27, 265–282.

Chopra, Navin, Josef Lakonishok, and Jay R. Ritter, 1992, Measuring abnormal performance: Do stocks overreact?, *Journal of Financial Economics* 31, 235–268.

Christie, William G., and Roger D. Huang, 1993, Market structures and liquidity: A transactions data study of exchange listings, *Journal of Financial Intermediation* 3, 300–326.

Conrad, Jennifer, and Gautam Kaul, 1993, Long-term market overreaction or biases in computed returns?, *Journal of Finance* 48, 39–63.

Dimson, Elroy, and Paul Marsh, 1986, Event study methodologies and the size effect: The case of U.K. press recommendations, *Journal of Financial Economics* 17, 113–142.

Dubofsky, David A., and John C. Groth, 1984, Exchange listing and stock liquidity, *Journal of Financial Research* 7, 291–302.

Fama, Eugene F., and Kenneth R. French, 1992, The cross-section of expected stock returns, *Journal of Finance* 47, 427–465.

Fama, Eugene, and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3–56.

Goulet, Waldemar M., 1974, Price changes, managerial actions and insider trading at the time of listing, *Financial Management* 3, 30–36.

Hwang, C. Y., and N. Jayaraman, 1993, The post-listing puzzle: Evidence from Tokyo Stock Exchange listings, *Pacific-Basin Finance Journal* 1, 111–126.

Ibbotson, Roger G., Jody L. Sindelar, and Jay R. Ritter, 1988, Initial public offerings, *Journal of Applied Corporate Finance* 1, 37–45.

Ikenberry, David, Josef Lakonishok, and Theo Vermaelen, 1995, Market underreaction to open market share repurchases, *Journal of Financial Economics,* Forthcoming.

Jegadeesh, Narasimhan, and Sheridan Titman, 1993, Returns to buying winners and selling losers: Implications for stock market efficiency, *Journal of Finance* 48, 65–92.

Kadlec, B. Gregory, and John J. McConnell, 1994, The effect of market segmentation and illiquidity on asset prices: Evidence from exchange listings, *Journal of Finance* 49, 611–636.

Lakonishok, Josef, Andrei Shleifer, and Robert W. Vishny, 1994, Contrarian investing, extrapolation and risk, *Journal of Finance* 49, 1541–1578.

Loughran, Tim, 1993, NYSE vs Nasdaq returns: Market microstructure or the poor performance of IPOs?, *Journal of Financial Economics* 33, 241–260.

Loughran, Tim, and Jay R. Ritter, 1995, The new issues puzzle, *Journal of Finance* 50, 23–51.

McConnell, John J., and Gary C. Sanger, 1984, A trading strategy for new listings on the NYSE, *Financial Analyst Journal* 40, 34–48.

McConnell, John J., and Gary C. Sanger, 1987, The puzzle in post-listing common stock returns, *Journal of Finance* 42, 119–140.

Mikkelson, W. H., and K. Shah, 1994, Performance of companies around initial public offerings, Working paper, University of Oregon.

Nelson, William R., 1994, Do firms buy low and sell high?: Evidence of excess returns on firms that issue or repurchase equity, Working paper, Federal Reserve Board.

New York Stock Exchange, 1990, *Fact Book* (New York Stock Exchange, Inc., New York).

Potter, Gordon, 1992, Accounting earnings, announcements, institutional investor concentration, and common stock returns, *Journal of Accounting Research* 30, 146–155.

Reinganum, Marc R., 1990, Market microstructure and asset pricing: An empirical investigation of NYSE and Nasdaq securities, *Journal of Financial Economics* 28, 127–147.

Ritter, Jay R., 1991, The long-run performance of initial public offerings, *Journal of Finance* 46, 3–27.

Sanger, Gary C., and J. J. McConnell, 1986, Stock exchange listings, firm value, and security market efficiency: The impact of Nasdaq, *Journal of Financial and Quantitative Analysis* 21, 1–25.

Spiess, D. Katherine, and John Affleck-Graves, 1995, Under performance in long-run stock returns following seasoned equity offerings, *Journal of Financial Economics* 38, 243–267.

Ule, Maxwell G., 1937, Price movements of newly listed common stock, *Journal of Business* 10, 346–369.

Van Horne, James C., 1970, New listings and their price behavior, *Journal of Finance* 25, 783–794.

Welch, Ivo, 1989, Seasoned offerings, imitation costs, and the underpricing of initial public offerings, *Journal of Finance* 44, 421–449.

Ying, Louis K. W., Wilbur G. Lewellen, Gary G. Schlarbaum, and Ronald C. Lease, 1977, Stock exchange listings and securities returns, *Journal of Financial and Quantitative Analysis* 12, 415–432.