A Comparative Analysis of the Performance of Emerging v. Nonemerging Industry Initial Public Offerings

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This study fills a gap in previous research by investigating differences between the short- and long-run aftermarket performances in a sample of emerging v. nonemerging industries. Utilizing the entire population of biotechnology, semiconductor, and Internet IPOs from 1993–1996 as a representative sample of emerging industries, this study found that emerging firms were significantly underpriced compared to a set of nonemerging IPOs.

Small businesses receive their initial seed and start-up capital from a variety of sources that include personal assets, venture capitalists, and lending institutions (Van Auken and Carter 1988; Van Auken and Doran 1990). Despite attracting outside money, these firms frequently fail because of a lack of sustained financial resources (Bruno, Leidecker, and Harder 1986; Peterson, Kozmetsky, and Ridgeway 1983). One way small firms can reduce their exposure to failure due to limited funding is through an initial public offering (IPO). Funds raised from an IPO provide a foundation of capital enabling the firm to finance research projects or rapid growth without regularly seeking additional funds for projects. The importance of this source of funds can be seen by the amount of IPO money raised from August 2000 to February 2001—$21.438 billion. Almost 44 percent ($9.4 billion) went to technology companies (*IPOMonitor.com 2001*).

The purpose of this study is to examine the IPO period for emerging firms and their subsequent performance over a one-year period (Kazanjian and Drazin, 1990 classified an emerging industry as one in which the majority of firms are less than 15 years old). The results of the study will benefit future entrepreneurs of these companies who are considering taking their firms public by understanding the performance of emerging industry IPOs.

Much of the finance literature reports that many IPOs are underpriced. For example, one study finds the average abnormal return from the offering to the end of the first trading day is 14.1 percent (Ritter 1991). After the first month, abnormal returns remain significant at 11.4 percent (Ibbotson 1975). After three years, however, returns turn negative (-37.4%). Offerings of smaller firms have lower abnormal returns after the first years than larger firms. Furthermore, younger firms, exhibit both higher initial abnormal returns and lower three-year abnormal returns than older firms going public. It, thus, appears that IPOs are first underpriced and then overpriced.

The phenomenon of underpricing occurs when the initial offering price for a stock is below the closing price for stock at the end of the first day of trading. In addition to the finance literature, entrepreneurship research also recognizes the linkage between equity financing and financial performance (see Prasad, Vozikis, Bruton, and Merikas 1995; Bruton and Prasad 1997).

This study fills a gap in previous research by focusing on the biotechnology, semiconductor, and Internet industries as a representative sample of emerging industries. The importance of emerging industries has received widespread attention. Kazanjian and Drazin (1990); Barley, Freeman, and Hybels (1992); Powell, Koput, and Smith-Doerr (1996); Deeds, DeCarolis, and Coombs (1997); Finkle, (1998); Stuart, Hoang, and Hybels (1999) and Zahra and Bogner (2000) report on various aspects of emerging industries. Little attention, however, has been focused on the underpricing and after-market performance of IPOs within emerging industries.

Utilizing a set of 169 emerging industry IPOs (the entire population of biotechnology, semiconductor, and Internet IPOs from 1993–1996) and a comparison set of 100 nonemerging IPOs that went public during the same time period, the following questions are addressed:

- To what degree does underpricing exist within emerging industry IPOs?
- Do emerging industry and nonemerging IPOs behave differently during the first trading day?
- Do emerging industry and nonemerging IPOs behave differently during the first trading year?

Finding that emerging industry IPOs are significantly underpriced compared to the nonemerging comparison sample, may reflect their relative higher risk. Thus, entrepreneurs should not be surprised with a higher premium at the offering compared to nonemerging firms. At the same time, they should not be disturbed by the apparent forfeiture of capital to the firm as a result of the underpricing.

This article provides an overview of the theoretical background for the study, examines the methodology used, reports the empirical results, and discusses the main conclusions of the study.

Theoretical Underpinnings

This section outlines the theoretical setting for this study.

Underpricing

Abundant empirical evidence indicates that IPOs of common stock generate large short-run returns, on average, for investors fortunate enough to purchase the stock at the offer price (Barry and Jennings 1993). Exhibit 1 summarizes the studies that have been done on underpricing.

The extent of underpricing has varied from study to study due to the different number of IPOs that were issued, methodology used, and time periods examined (Prasad, Vozikis, Bruton, and Merikas 1995). Several studies have focused on first-day returns to investors. Overall, these studies indicate that first-day underpricing averages between 6.2 and 30.0 percent (Finkle 1999).

Several streams of research have arisen to try and explain the underpricing phenomenon:

1. investment bankers (Barry, Muscarella, and Vetsuypens 1991; Beatty and Ritter 1986; Carter and Dark 1993; Carter and Manster 1990; Johnson and Miller 1988; Logue 1973; Ritter 1984);
2. reduction of underwriter risk (Neuberger and La Chapelle 1983);
3. insurance against legal liability (Alexander 1993; Drake and Vetsuypens 1993; Ibbotson 1975; Tinic 1988);
4. asymmetric information (Allen and Faulhaber 1989; Allen and Gorton 1992; Baron 1982; Benveniste and Spindt 1989; Grinblatt and Hwang 1989; Muscarella and Vetsuypens, 1989; Rock 1986; Welch 1989);
5. ceiling regulations (Brandi 1985; 1987);
6. favor to investors (Logue 1973; Baron and Holmstrom 1980); and
7. certification of insider information (Booth and Smith 1986), and cascades (Welch 1991).

Almost all of the explanations are based on, or related to, the level of risk perceived by the potential incoming investors (Prasad, Vozikis, Bruton, and Merikas 1995). Ritter (1984) suggests that underwriters intentionally underprice issues. Large and reputable investment banking firms usually underwrite more established firms rather than small, start-up companies. Smaller firms may be forced to use investment banks that, for some reason, have the ability to exercise greater bargaining power over them. As a result, smaller firms may tend to be underpriced more than established firms. Further research is needed in this area to determine if large investment banks avoid underwriting smaller issues.

Chalk and Peavey (1987) state that these underpriced issues are allocated to regular and favored clients who pay commissions and fees far in excess of competitive rates. It may be, then, that underwriters deliberately underprice IPOs to capture these premiums.

Another explanation is that investment bankers may underprice to protect against legal liability and associated damages to reputations. Underwriters underprice new issues as an inexpensive method of lowering the probability that the price will fall after the issue, which in turn reduces the likelihood of legal action by disgruntled buyers (Loderer, Sheehan, and Kadlec 1991).

Information asymmetry (Rock 1986) has been applied to several models of IPO underpricing. Rock argues that IPOs are underpriced because there are informed and uninformed investors. If new shares are priced at their expected value, Rock states that the informed investors would try to purchase the good issues. Bad issues would be rejected by informed investors, leaving them to the uninformed investors who would face losses and pull out of the market. To avoid this, investment bankers underprice IPOs so that uninformed investors earn a normal expected return and stay in the market. Carter and Manaster (1990) find a relationship between more prestigious underwriters and lower risk IPOs. Prestigious underwriters may have more information about the firm. IPOs backed by more prestigious underwriters may, therefore, have lower returns because there is less uncertainty about them.

One factor linked to underpricing that recurs in the literature is the perceived risk associated with the IPO. We hypothesize that emerging industries, such as the Internet, are new industries that have yet to be proven in the marketplace. This may increase the risk to the investment banker taking these firms public. Consequently, we hypothesize that investment bankers will significantly underprice the stock of emerging industry IPOs to compensate for the increased level of risk.

Hypothesis 1: The mean percentage return at the end of the first day of trading for emerging industry IPOs is significantly higher than the mean percentage return at the end of the first day of trading for a sample of nonemerging industry IPOs.

Long-run Underperformance

Underpricing can have a significant affect on a stock's movement in the aftermarket. Studies have found that IPOs tend to underperform the market over the long run (one to five years). For example, in a study of 1,526 IPOS from 1975–1984, Ritter (1991) finds that three years after going public firms significantly underperform a set of comparable seasoned firms matched by size and industry (34.5% v. 61.9%). Aggarwal and Rivoli (1990) find negative aftermarket performance (–13.7%) in the first year following the IPO for 1,435 IPOs from 1977–1987. Loughran (1993) examines a population of IPOs from

Exhibit 1
Summary of Studies on the Underpricing of IPOs

Study	*Sample*	*Number*	*Period of Study*	*Period of Return (from offering date)*	*Level of Returns*
Reilly & Hatfield (1969)	NASDAQ	53	1963-1965	1 Week	9.00
				1 Month	
McDonald & Fisher (1972)	NYSE	142	1969	1 Week	28.50
	AMEX			1 Month	34.60
	NASDAQ				
Logue (1973)	NYSE	250	1965-1969	1st day published	30.00
	AMEX				
	NASDAQ				
Neuberger & Hammond	NYSE	816	1965-1969	1 Week	17.10
(1974)	AMEX			1 Month	19.10
	NASDAQ				
Ibbotson (1975)	NYSE	128	1960-1969	1 Month	11.40
	AMEX				
	OTC				
Ibbotson & Jaffe (1975)	NYSE	All	1/160-10/31/70	1 Month	16.83
	AMEX				
	NASDAQ				
Reilly (1977)	NASDAQ	486	1972-1975	1 Week	10.90
				1 Month	11.60
Block & Stanley (1980)	NASDAQ	102	1974-1978	1 Week	5.96
				1 Month	3.36
Neuberger & LaChapelle	NYSE	118	1975-1980	1 Week	27.70
(1983)	AMEX			1 Month	26.50
	NASDAQ				
Ritter (1984)	NYSE	1028	1977-1982	1 Day	26.50
	AMEX				
	NASDAQ				
Beatty and Ritter (1986)	NYSE	545	1981-1982	1 Day	14.10
	AMEX				
	NASDAQ				
Miller & Reilly (1987)	NASDAQ	510	1982-1983	1 Day	9.87
Buser & Chan (1987)	NASDAQ	1078	1981-1985	1 Day	6.20
					11.20
Chalk & Peavy (1987)	NYSE	649	1975-1982	1 Day	21.67
	AMEX				
	NASDAQ				
Brandi (1987)	NYSE AMEX NASDAQ	128	1973-1980	1 Week	-0.688 3.873 3.192
Ibbotson, Sindlear & Ritter	NYSE		1960-1987	1 Month	21.25
(1988)	AMEX			1 Month	8.95
	NASDAQ			1 Month (1980-1987)	16.09
Aggrawal & Rivoli (1990)	NASDAQ	1598	1977-1987	1 Day	10.67
				20 Days	10.83
				100 Days	11.17
Ritter (1991)	NYSE	1526	1975-1984	1 Day	14.06
	AMEX				
	NASDAQ				

Source: Bruton and Prasad (1997).

1967–1987 and reports that NASDAQ listed IPOs underperform for six years after the offering date. Loughran and Ritter (1995) examine 4,753 IPOs from 1970–1990 and report that companies have an average 5.0 percent return for the first five years after the offering, excluding the first day of trading, while a control group matched by size and market capitalization has a 12.0 percent return. Other studies find similar significant underperformance in international markets (Uhlir 1989; Levis 1993; and Aggrawal, Leal, and Hernandez 1993).

Researchers have attempted to explain the long-run underperformance phenomenon with three theories. Miller's (1977) divergence of opinion hypothesis argues that investors who are the most optimistic about an IPO will be the buyers. If there is a great deal of uncertainty about the value of an IPO, the valuations of optimistic investors may be much higher than those of pessimistic investors (Ibbotson and Ritter 1995). As time goes by, more information will become available and the price of the stock will eventually decline, resulting in underperformance.

The impresario hypothesis (Shiller 1990) argues that the IPO market is subject to fads and that IPOs are underpriced by investment bankers to create excess demand. Accordingly, companies with the highest initial returns will have the lowest subsequent returns.

Finally, the windows of opportunity hypothesis (Loughran and Ritter 1995; Ritter 1991) states that firms try to take advantage of periods of high volume when going public to benefit from swings in investor sentiment. Similar to the rationale of the impresario hypothesis (Shiller 1990), we hypothesize that the IPO market for emerging industry firms is subject to fads and IPOs will be underpriced by investment bankers. As a result, we expect significant emerging industry IPOs to significantly underperform a set of nonemerging industry IPOs in the aftermarkets.

Hypothesis 2: Emerging industry IPOs will significantly underperform a sample of nonemerging industry IPOs one year after going public (excluding the first day of trading).

Data and Methodology

This section examines the data and methodology employed in this study.

Sample

The study examines the entire population of biotechnology (144), semiconductor (41), and Internet (39) IPOs as a representative sample of emerging industries that went public from 1993–1996. Although semiconductors have been available for 50 years, we include the sector among emerging industries. The availability of personal computers to consumers, and the advancements in microchip technology have revolutionized and resurrected this once-mature industry into one whose growth rates are among the highest in the economy. (Holding out the semiconductor sample does not materially impact on results.) The final sample consists of 169 companies and is comprised of 102 biotech (72% of the initial sector), 32 semiconductor (73% of the initial sector), and 35 Internet (90% of the initial sector) firms. Fifty-five companies were discarded because they are subsidiaries of existing firms.

Firms representing nonemerging industry IPOs are randomly selected from a list of all of the IPOs from 1993–1996. Industry classification is closely examined to ensure the firms are in a nonemerging industry. The various industry classifications for the nonemerging industry sample are presented in Exhibit 2. Data for both the emerging and nonemerging firms is obtained from each firm's prospectus (Form S-1) registered with the SEC, Disclosure Inc., Standard and Poor's Daily Stock Price Record, and CRSP.

Methodology

To examine if the phenomenon of underpricing exists in the aftermarket, the initial period return (end of first day of trading) is calculated in addition to one-year buy and hold returns. The S&P 500 Index is used to control for risk. Similar to Aggrawal and Rivoli (1990), we use Equation 1, which calculates the first-day and one-year S&P 500 market-adjusted returns for both emerging and nonemerging industries. Market-adjusted yearly returns are calculated for a buy and hold strategy where an IPO is purchased at the end of the first day of trading day and held for a 252-day trading interval (event days 2-253).

$$X_t = [(P_t - P_0 / P_0 - (I_t - I_0)/I_0] * 100 \quad (1)$$

where

X_t = market-adjusted excess return t trading days after the initial offering;

P_t = the closing price of the security t trading days after the initial offering, adjusted for stock dividends and splits;

P_0 = the initial offering price of the security;

I_t = the value of the S&P 500 t days after the offering; and

I_0 = the value of the S&P 500 index on the date of the initial offering.

Exhibit 2
Nonemerging Industry IPOs Used in Study

Industry	*SIC Code*	*Number*
Audio & Video Equipment	3670	1
Auto & Truck Manufacturers	3790	2
Auto & Truck Parts	3710	1
Beverages (Nonacoholic)	2080	1
Business Services	8090	5
Casinos & Gaming	5960	2
Chemical Manufacturing	2813	2
Communications Equipment	3660	1
Computer Peripherals	3570	1
Computer Services	7360	1
Constr. - Supplies & Fixtures	5960	2
Constr. & Agric. Machinery	6324	1
Consumer Financial Services	6160	2
Electric, Gas, and Sanitary Services	4950	2
Family Clothing Stores	5650	1
Fish/Livestock	910	1
Food Processing	2090	1
Food Stores	5490	1
Footwear	3140	1
Furniture & Fixtures	2520	1
Gold & Silver	1040	1
Health Services	8070	1
Healthcare Facilities	8040	3
Hotels & Motels	7010	1
Industrial & Commercial Machinery	3570	1
Insurance (Prop. & Casualty)	6331	2
Investment Offices	6720	3
Investment Services	6210	1
Iron & Steel	3310	1
Medical Equipment & Supplies	3840	1
Misc. Fabricated Products	3334	2
Natural Gas Utilities	4920	1
Non Depository Credit Institutions	6150	1
Oil & Gas Operations	4920	2
Personal & Household Products	5190	2
Printing & Publishing	2730	2
Pulp Mills-newsprint	2611	1
Radio & TV	3660	1
Railroads	4010	1
Real Estate Operations	6798	2
Recreational Activities	6510	1
Recreational Products	3944	1
Regional Banks	6020	7
Restaurants	5810	12
Retail (Catalog & Mail Order)	5960	1
Retail (Drugs)	8200	1
Retail (Specialty)	5550	3
S&Ls/Savings Banks	6710	10
Software & Programming	5700	1
Trucking	4210	1
Waste Management Services	8980	1
Water Utilities	4940	1
Total		100

Empirical Results

This section reports on the results of the study.

Characteristics of IPOs

The mean and median age for the sample of emerging firms is 6.3 and 5.0 years, respectively. The average (median) age of the biotech, semiconductor, and Internet firms is 6.2 (5.0), 8.2 (7.0), and 4.2 (4.0) years. The average (median) age for the sample of nonemerging firms is 9.09 (8.04) years. After controlling for inflation with the Consumer Price Index, the initial offering size (IOS) is calculated by subtracting the underwriter's fees from the total value of capital raised during the IPO.

Exhibit 3 compares the two samples by year, number of IPOs, gross proceeds, mean IOS, and S&P 500 market-adjusted returns. For the emerging industry IPOs, the largest amount of capital raised and the largest number of firms going public occurred in 1995 and 1996. In 1996, 60 biotech, 25 Internet, and 5 semiconductor firms went public. Emerging firms and nonemerging firms are matched by the size of the IPO. The total amount of money raised for the sample of emerging industry IPOs is approximately $5.21 billion, with a mean IOS of $30.8 million. For nonemerging firms, $3.24 billion is raised with a mean IOS of $34.13 million.

Exhibit 4 breaks down the emerging industry IPOs into means, medians, standard deviations, and quartiles, and examines their respective total assets, IOS, age, and one-day and one-year returns. It appears the emerging industry IPOs are underpriced at the issue. As the age of the issue advances toward one year, a price reversal is observed. This behavior is consistent with other IPO performance literature cited above.

Size Effect in IPOs

Exhibit 5 examines the returns for both samples in regard to six separate classifications of money raised at the time of the IPO. The table shows that regardless of the size of the IPO, emerging firms tend to be underpriced relative to nonemerging firms. An important size classification, however, appears to be the $20 million level. First-day returns for issues larger than $20 million are markedly larger than those issues smaller than $20 million. Most pronounced is the one-day return for the largest size classification. By contrast, first-day returns for nonemerging firms are fairly consistent across size classifications. Perhaps a higher degree of enthusiasm and expectation is associated with larger emerging firm IPOs than for more traditional and smaller IPOs.

Exhibit 3
Distribution of Emerging and Nonemerging Industry IPOs, 1993–1996

Panel A
S&P 500 Adjusted Returns for Emerging Industry IPOs from First Day

Year	*# IPOs*	*Biotech IPOs*	*Semi-conductor IPOs*	*Internet IPOs*	*Total Issued ($ m)*	*Mean ($ m)*	*1 Day (%)*	*1 Year (%)*
1993	16	13	1	2	252.24	15.77	-.87	22.60
1994	22	11	9	2	323.94	14.73	5.9	8.9
1995	42	18	18	6	1796.49	42.77	29.33	-20.65
1996	89	60	4	25	2838.89	31.54	20.10	-35.33
Total	169	102	32	35	5211.559	30.838	18.566	-20.442

Panel B
S&P 500 Adjusted Returns for Nonemerging Industry IPOs from First Day

Year	*Nonemerging IPOs*	*Total Issued ($ m)*	*Mean ($ m)*	*1 Day (%)*	*1 Year (%)*
1993	9	237	26.33	4.26	2.30
1994	13	279	19.93	2.95	-25.82
1995	25	1030	42.92	9.39	2.49
1996	53	1697	32.02	7.04	-33.36
Total	100	3243	34.13	6.84	-20.21

Exhibit 4
S&P 500 Adjusted Returns for Emerging Industry IPOs, 1993–1996

	Initial Offering Size ($m)	*Total Assets ($m)*	*Age at IPO (yrs)*	*1 Day (%)*	*1 Year (%)*
Mean	30.838	3117.98	6.252	18.566	-20.442
Median	25.000	7.96	5.000	7.6	-36.461
Standard Deviation	37.070	39962.2	4.767	.441	.685
Third Quartile %	36	19.75	8	22.09	5.48
First Quartile %	13.8	2.54	3	.219	-71.17
Total Number of Issues	169	168	163	169	169

The $20 million size effect persists after the first year of trading; however, it now involves a sign reversal. Beyond the $20 million level, returns are sharply lower than for smaller IPOs. For nonemerging firms, the return reversal is fairly constant across size classifications.

First-Day Returns

Hypothesis 1 states that the average percentage return at the end of the first day of trading for emerging industry IPOs is significantly higher than the average percentage return for nonemerging IPOs. This hypothesis is supported through the results in Exhibit 6. The average market-adjusted percentage return for an emerging firm is 18.6 percent v. a return of 6.8 percent for nonemerging firms. This difference is significant at the 1 percent level ($p < .00$). The standard deviation for emerging firms is about three times greater, indicating more variability among emerging firm returns. The coefficient of variation, however, indicates that on a per unit of risk basis, both emerging (0.024) and nonemerging (0.022) firms exhibit similar performance. On average, investors are compensated to a similar degree based on risk. The return difference is even more pronounced when considering the median performance. Emerging industry IPOs earned 165 times that of nonemerging IPOs.

Exhibit 5
Mean Performance Measures for Emerging and Nonemerging Industry IPOs, from 1993–1996, Categorized by Gross Proceeds

Gross Proceeds ($)	*IPOs*		*1 Day %*		*1 Year %*	
	Emerging	*Non*	*Emerging*	*Non*	*Emerging*	*Non*
1,000,000-9,999,999	22	8	9.3	9.3	-6.7	-49.97
10,000,000-19,999,999	42	28	4.4	2.33	-6.5	-21.64
20,000,000-29,999,999	39	19	15.86	7.75	-24.14	-32.10
30,000,000-39,999,999	31	13	28.99	5.63	-38.68	-11.39
40,000,000-49,999,999	20	12	15.12	12.39	-11.03	-34.69
50,000,000-408,000,000	15	20	64.05	8.25	-44.04	-34.20
Total Issues	169	100				
All (mean)			18.57	6.84	-20.442	-20.21
All (median)			7.6	.046	-36.46	-27.26

Exhibit 6
Aftermarket Performance Distribution of Emerging and Nonemerging Industry IPOs, 1993–1996

Panel A
S&P 500 Market-Adjusted Returns from Offering (Including First Day)

Time	*Mean*		*Median*		*Standard Deviation*	
	Emerging	*Non*	*Emerging*	*Non*	*Emerging*	*Non*
Day 1	18.57	6.84	7.60	.046	.441	.148
Year 1	-1.87	-13.37	-15.98	-.006	.596	.667

Panel B
S&P 500 Market-Adjusted Returns (Excluding First Day)

Time	*Mean*		*Median*		*Standard Deviation*	
	Emerging	*Non*	*Emerging*	*Non*	*Emerging*	*Non*
Year 1	-20.44	-20.21	-36.46	-27.26	.685	.643

Cross-sectional and Time-series Patterns in the Aftermarket

Hypothesis 2 states that the average long-term performance (one year) for emerging industry IPOs, excluding the first day, significantly underperforms a sample of nonemerging firms. The results failed to support Hypothesis 2. Emerging firms and nonemerging firms both underperform the S&P 500 Index by approximately 20 percent.

Exhibit 7 breaks out the sample into emerging industry components. The Internet sector has the highest level of first-day underpricing at 37 percent, followed by semiconductor (25%) and biotech (10%). That each of the three sectors earn more than the nonemerging IPO sample indicates that the premium (degree of underpricing) for emerging industry IPOs in Exhibit 6 (and corresponding Hypothesis 1) is not driven disproportionately by any one sector.

Among emerging industry firms, it appears that Internet IPOs produced the highest one-day premium (underpricing). Perhaps investors exhibited some form of irrational exuberance toward this sector, particularly since many dot-coms failed by 2001. This sector also exhibits the largest sign reversal after one year. Biotech, with the lowest one-day performance, has the smallest reversal after one year. This may be due to the high failure rate of

Exhibit 7
Mean Performance and Age Categorized by Industry for IPOs 1993–1996 (One-year returns excluding first day)

Industry	*# IPO*	*Age of Firm*		*1 Day %*	*1 Year %*
		Mean	*Median*	*S&P*	*S&P*
Biotech	102	6.21	5.00	10.27	-11.66
Semiconductor	32	8.17	7.00	24.63	-13.53
Internet	35	4.19	4.00	37.20	-52.34
Emerging IPOs	169	6.25	5.00	18.57	-20.44
Non-Emerging IPOs	100	9.09	8.04	6.84	-20.21

firms in this sector. Moreover, many biotech firms ultimately merge with large pharmaceuticals (Burrill and Lee 1994). Since the average biotech firm is only 6.2 years old, and most new biotech drugs take at least 10 years to develop (and only one in ten successfully completes clinical trials), most of the firms have not developed a commercially successful product. Still, biotech IPOs earn a premium over nonemerging firm IPOs, reflecting their higher relative risk. The returns for semiconductors fall between biotech and Internet for both one-day and one-year periods. These relationships are consistent with the literature showing that the largest one-day gainers end up with the largest one-year losses.

Conclusions

The findings of this analysis are of significant value to entrepreneurs and/or managers of emerging firms. The results indicate that although variability in performance is observed across industries, underpricing is still more pronounced for emerging firms than for nonemerging firms. Stakeholders in emerging firms prior to the IPO thus receive a premium at the issue over their nonemerging counterparts. The reversal in price after one year indicates a similar pattern for both emerging and nonemerging firms. The difference in behavior, then, is at the time of issue, with emerging industry IPOs providing a substantial premium.

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