Some Thoughts on Initial Public Offering

Why do firms go public?

- Raise capital
- Achieve liquidity
  - Investors can be more diversified
  - Stock can be used for M&A activity
- Entrepreneurs regain control from venture capitalists when shares are distributed
- Signals stability and dependability to customers and suppliers

Costs of going public

- IPO creates substantial fees
  – Legal, accounting, investment banking fees are often 10% of funds raised in the offering
- Greater degree of disclosure and scrutiny
- First day under-pricing
- Market cycles in IPOs valuations

Direct and Indirect Costs of IPOs

Proceeds (in millions of dollars)	Gross Spreads (in %)	Other Expenses (in %)	Total Direct Costs (in %)	Average Initial Return (in %)	Average Direct & Indirect Costs (in %)	Number of IPOs	Interquartile Range of Spread (in %)
2-9.99	9.05	7.91	16.96	16.36	25.16	337	8.00-10.00
10-19.99	7.24	4.39	11.63	9.65	18.15	389	7.00-7.14
20-39.99	7.01	2.69	9.70	12.48	18.18	533	7.00-7.00
40-59.99	6.96	1.76	8.72	13.65	17.95	215	7.00-7.00
60-79.99	6.74	1.46	8.20	11.31	16.35	79	6.55-7.00
80-99.99	6.47	1.44	7.91	8.91	14.14	51	6.21-6.85
100-199.99	6.03	1.03	7.06	7.16	12.78	106	5.72-6.47
200-499.99	5.67	0.86	6.53	5.70	11.10	47	5.29-5.86
500-up	5.21	0.51	5.72	7.53	10.36	10	5.00-5.37
Totals:	**7.31**	**3.69**	**11.00**	**12.05**	**18.69**	**1767**	**7.00-7.05**

Direct and Indirect Costs (in %) of Equity IPOs from 1990 to 1994

Based on: Lee, Lochhead, Ritter, and Zhao (1996)

Step 1: Selecting an underwriter

- Criteria:
  - Reputation of the analyst covering the firm
  - Performance of past IPOs
  - Not a criteria: fees! (7% of capital raised)
- Hi-Tech IPOs are often underwritten by a consortium
  - Technology specialist plus large underwriter, “bulge bracket”

Step 2: Tasks of the underwriter

- Due Diligence
- Determine the offering size
- Prepare the marketing material
- Prepare regulatory filings (S-1) together with the legal representation of the firm

Step 3: Marketing the offering

- "Red Herring": Circulate a preliminary prospectus to potential investors
- Road-Show
- Book-building: Collect information about the demand from potential investors to set the price and size of the offering
  - "Firm commitment offerings": Investment bank commits to sell the shares at the set price

Step 4: The offering

- The underwriter buys the shares from the company at a fixed price and immediately sells it to investors at the IPO price
- “Green Shoe” option:
    - Clause in the underwriter agreement specifying that in case of exceptional public demand the issuer will authorize additional shares for distribution by the underwriter at the offering price (usual is over-allotment option of 15%)

Step5: Aftermarket activities

- Short covering:
    - Underwriter shorts the stock prior to the IPO. If the share price rises after the IPO, underwriter uses over-allotment option to cover the short, if the price falls it buys stocks in the market
- "Pure" stabilization bids
    - Underwriter posts bid in the open market not exceeding the offer price
- Penalty bids
    - Revoke selling concession if shares are "flipped"

Empirical Regularities

- First-day under-pricing
- Long-run under-performance
- IPO markets are very cyclical
  - "Hot issue markets"

First day under-pricing

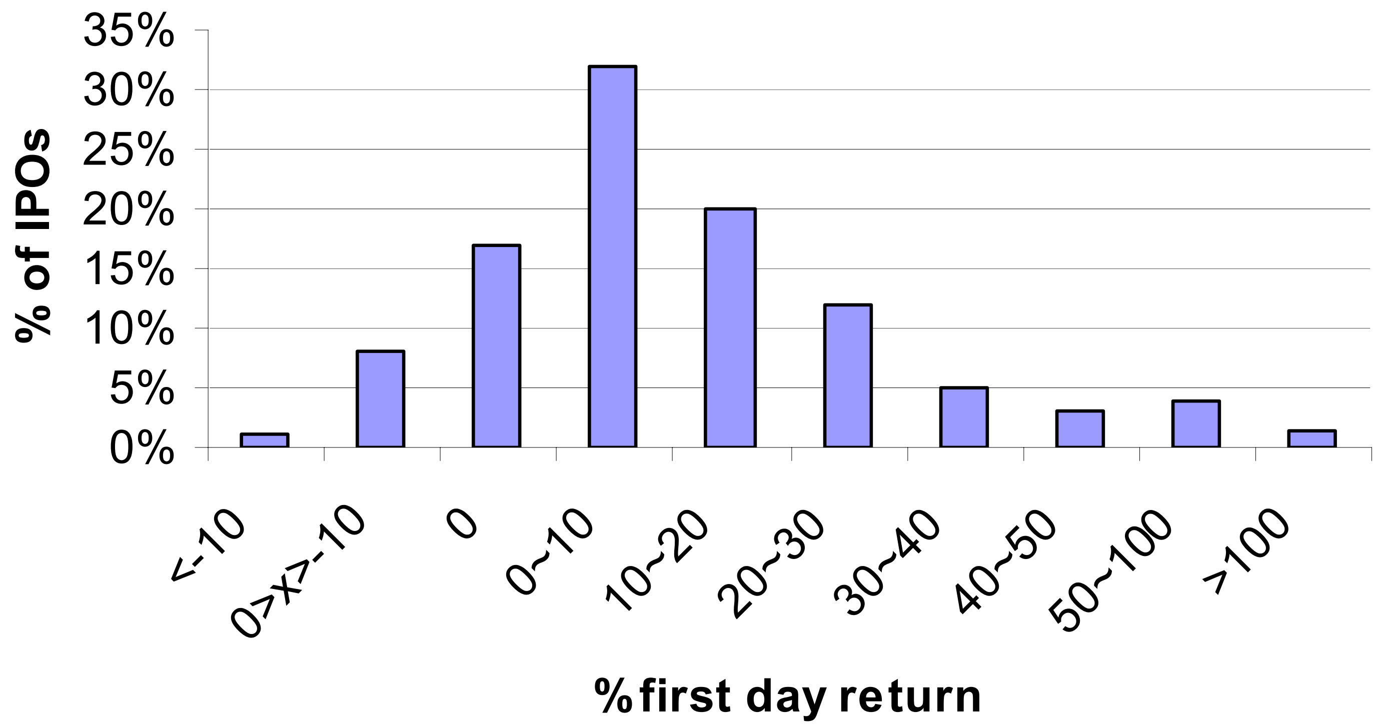
- On average the stock price jumps on the first day of trading
  – From 1990 to 1998 companies left over $27 billion on the table
  – The median firm has modest first day return, but a few firms have several hundred percent
- This pattern is found in most developed capital markets

Average first-day returns on IPOs

	1980s Return (in %)	1980s N	1990s Return (in %)	1990s N
Segmented by issue size				
- Small	8.7	944	12.9	1761
- Large	6.7	1425	27.5	2280
Segmented by underwriter prestige				
- Low prestige	8.7	1889	14.5	2056
- High prestige	5.0	663	26.8	2189
Segmented by venture capital backing				
- Not VC-backed	6.7	1664	15.7	2293
- VC-backed	7.8	515	29.0	1637
All	**7.8**	**2552**	**20.9**	**4245**
All (excluding OP < $5.00)	**6.8**	**2358**	**20.9**	**4129**

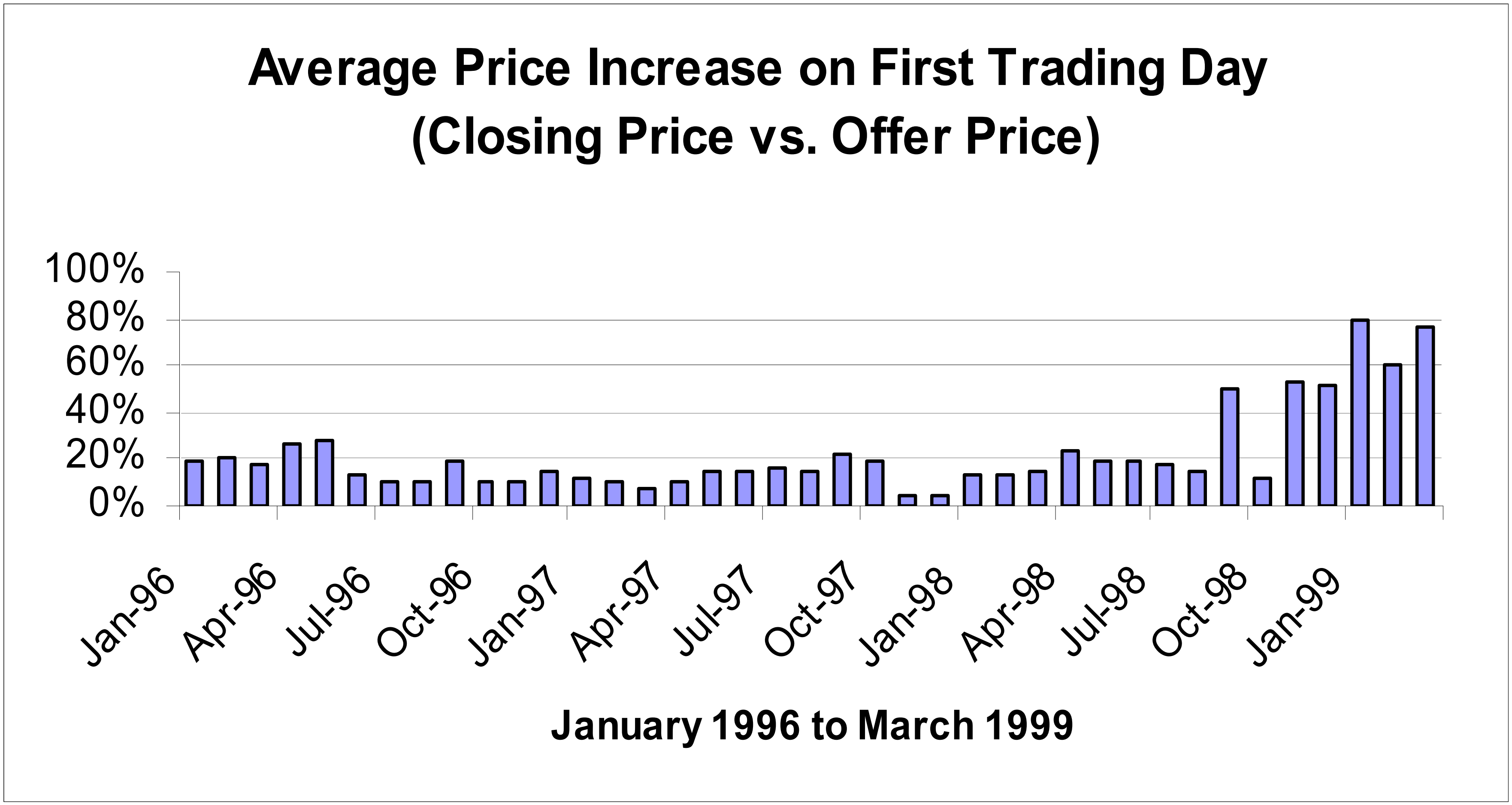
Data Source: Lee, Locheed, Ritter and Zhao (1996)

First day returns of IPOs (1990-98)



Data Source: SDC

Average first-day returns



Data Source: SDC

Money left on the table

Company	Lead Underwriter	Offer Price	Pricing Valuation (mil.)	First Trade Price	First Trade Valuation (mil.)	Money on the Table (mil.)
Priceline.com	Morgan Stanley Dean Witter	$16	$160	$81	$810	$650
Ivillage Inc	Goldman Sachs	$24	$88	$95.88	$350	$262
Pacific Internet	Lehman Brothers	$17	$51	$88	$264	$213
MarketWatch.com	BT Alex Brown	$17	$47	$90	$248	$201
United Pan-Europe Communications	Goldman Sachs	$32.78	$577	$43	$757	$180
Covad Communications Group	Bear Stearns	$18	$140	$40.50	$316	$176
Delphi Automotive Systems Corporations	Morgan Stanley Dean Witter	$17	$1,700	$18.75	$1,875	$175
ZDNet Group	Goldman Sachs	$19	$190	$35.75	$358	$168
OneMain.com	BT Alex Brown	$22	$187	$38	$323	$136
Autobytel.com	BT Alex Brown	$23	$104	$52.75	$238	$134

Data Source: "Why Don't Issuers Get Upset About Leaving Money on the Table in IPOs?," Tim Loughran and Jay R. Ritter, *Review of Financial Studies*, Vol. 15, No. 2 (2002), pp. 413-443.

Possible reasons for under-pricing

- Herding effects
  - Demand by institutional investors induces less informed investors to “rush in”
- Winner’s Curse
  - Uniformed investors fear that they will only be allotted shares in bad IPOs
- “Leave a good after taste”
- Market power:
  - Underwriter has control over the order book

Flipping and spinning

- **Flipping:** Investors that are allocated shares in the IPO sell these at the first day of trading at a significant profit
  – A way for investment banks to reward their institutional clients?
- **Spinning:** Underwriters offer shares in hot IPOs to executives in companies, whose business the bank is looking to attract

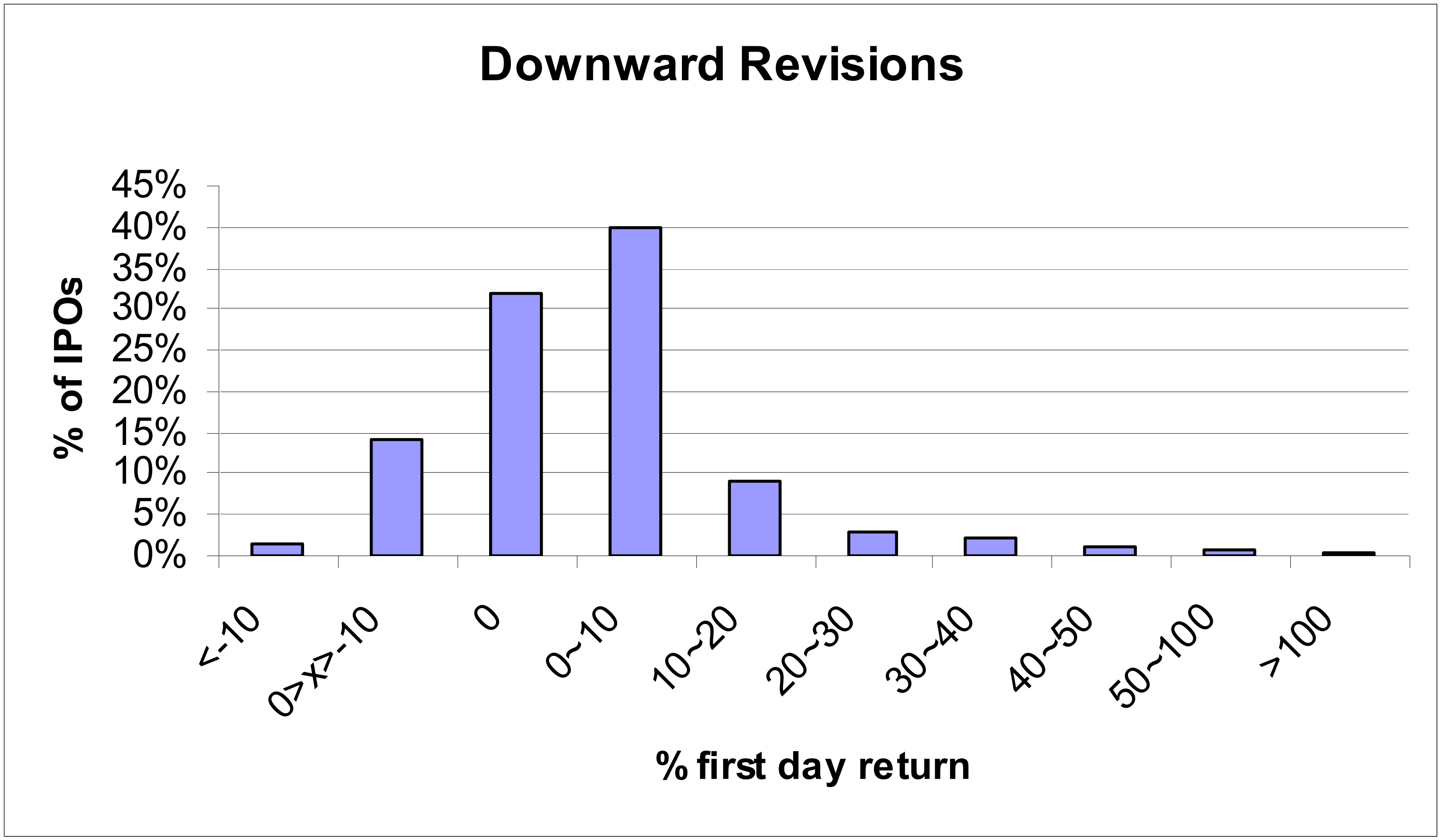
Flipping of IPO shares

Institution	Shares allocated in the IPO	Shares bought on the first day	Shares sold on the first day	% of Allocation bought/sold
Fidelity Management	150,000	0	150,000	100%
AIM Capital Management	60,000	0	60,000	100%
Alliance Capital Management	60,000	0	60,000	100%
American Express	60,000	0	60,000	100%
Morgan Stanley Asset Mgt.	60,000	0	60,000	100%
Delaware Inv. Advisers	60,000	470,000	0	783%
Weiss Peck & Greer	30,000	180,000	0	600%
Columbia Management	25,000	25,000	0	100%

Why don’t issuers get upset about leaving money on the table?

- Issuers believe the reasons their investment bankers present to them
- Issuers are very risk averse and want to make sure that IPO succeeds
- Since the issuers get rich themselves in the IPO, they do not mind the under-pricing
- Some of them do!
  – WR Hambrecht’s OpenIPO, E-Offering

IPOs with downward revisions have less under-pricing



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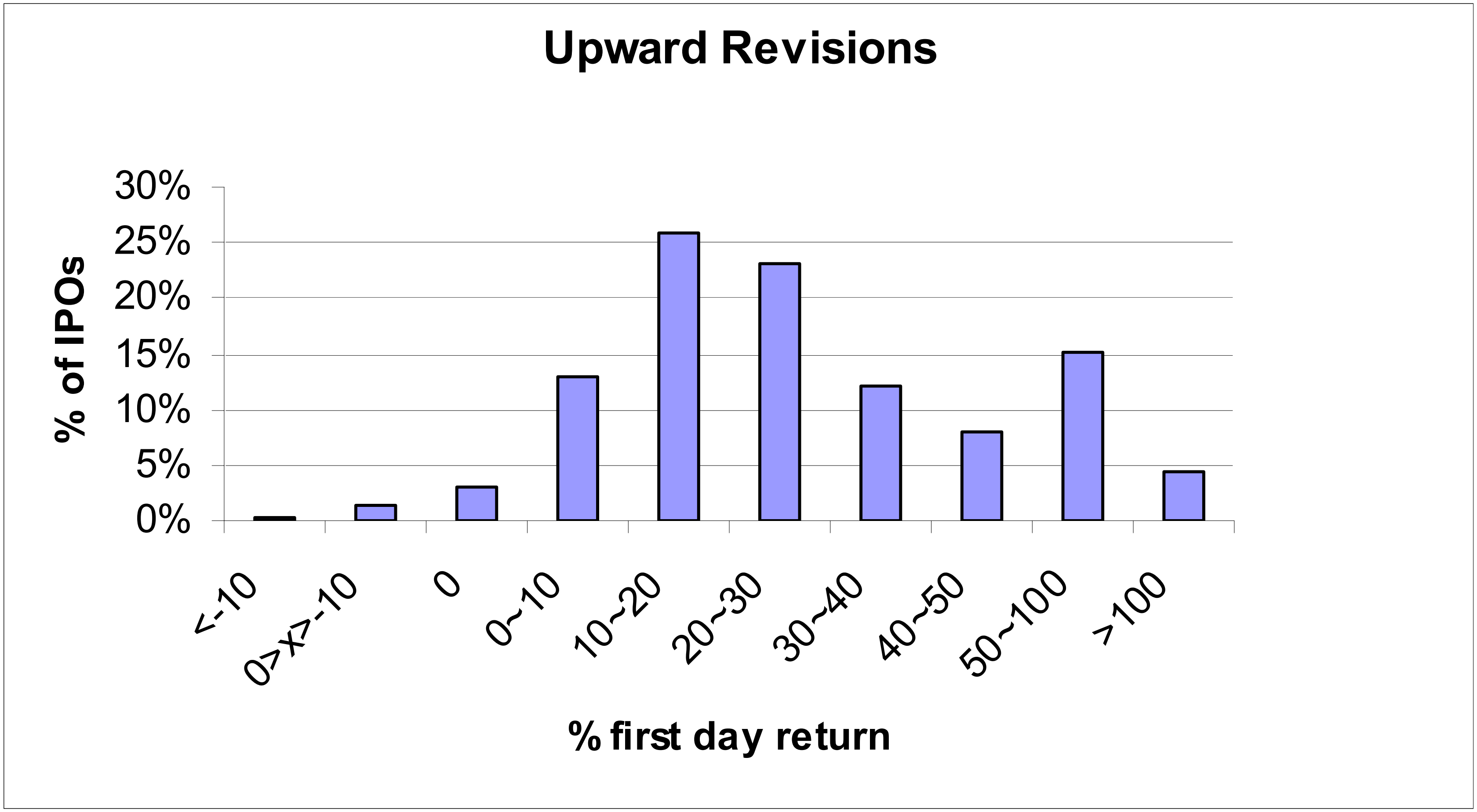
IPOs with upward revisions have more under-pricing



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Quiet Period

- During the first 25 days after the IPO the firm and its underwriters have to remain silent about the firm's financial prospects
  - Prevent insiders from "hyping up" the price
- After 25 days underwriters release their (usually favorable) reports about the firm
- On average stock price rises at the end of the quiet period

Lock-up Period

- Underwriters require that initial pre-IPO shareholders do not sell their stock for a pre-determined period (usually 180 days)
  – Keep incentives aligned
  – Prevent pressure on stock prices, if demand curves are downward sloping
- Stock price drops significantly after the expiration of the lock-up period

Long-run under-performance

- IPOs under-perform the market in the 5 years after the IPO
- Reasons:
  - "Clientele effects": Only optimistic investors buy into an IPO, but believes converge when more information is released about the firm
  - "Window of opportunity": Valuations of IPOs is subject to fads so issues try to go public in "hot markets"

Long-run under-performance

	First six months	Second six months	First year	Second year	Third year	Fourth year	Fifth year	Geometric Mean years 1-5
IPO firms	6.2%	2.6%	9.2%	8.5%	10.4%	13.7%	12.1%	10.7%
Size-matched	4.5%	5.9%	10.8%	14.1%	14.2%	17.2%	14.0%	14.1%
Difference	1.7%	-3.3%	-1.6%	-5.6%	-3.8%	-3.5%	-1.9%	-3.4%
Number	6226	6215	6226	6113	5327	4400	3704	6621
IPO firms	6.8%	2.9%	10.1%	11.5%	11.4%	12.6%	9.7%	11.0%
Style-matched	2.2%	4.4%	6.7%	12.4%	11.2%	13.1%	10.8%	10.8%
Difference	4.6%	-1.5%	3.4%	-0.9%	0.2%	-0.5%	-1.1%	0.2%
Number	5967	5957	5967	5676	4911	4010	3348	6081

Percentage Returns on IPOs During the First Five Years After Issuing (1970-1998)

Data Source: Lee, Locheed, Ritter and Zhao (1996)

Long-run performance of VC-backed IPOs

- VC-backed IPOs show much less under-performance than non-VC-backed IPOs
- Relative to their **industry benchmarks** VC-backed IPOs have no under-performance
  - VCs are better able to time industry cycles?
- Most of the under-performance in the aggregate is driven by the smaller offerings

VC-backed IPOs

Five-Year Equal-Weighted Buy-and-Hold Returns

Benchmarks	IPO Return	Benchmark Return	Wealth Relative	IPO Return	Benchmark Return	Wealth Relative
S&P 500 Index	44.6	65.3	0.88	22.5	71.8	0.71
NASDAQ Composite	44.6	53.7	0.94	22.5	52.4	0.80
NYSE/AMEX Value-Weighted	44.6	61.4	0.90	22.5	66.4	0.75
NYSE/AMEX Equal-Weighted	44.6	60.8	0.90	22.5	55.7	0.79
Size and Book-to-Market (5x5)	46.4	29.9	1.13	21.7	20.8	1.01
Fama-French Industry Portfolio	46.8	51.2	0.97	26.2	60.0	0.79
	Venture-Backed IPOs			Nonventure-Backed IPO		

Five-Year Value-Weighted Buy-and-Hold Returns

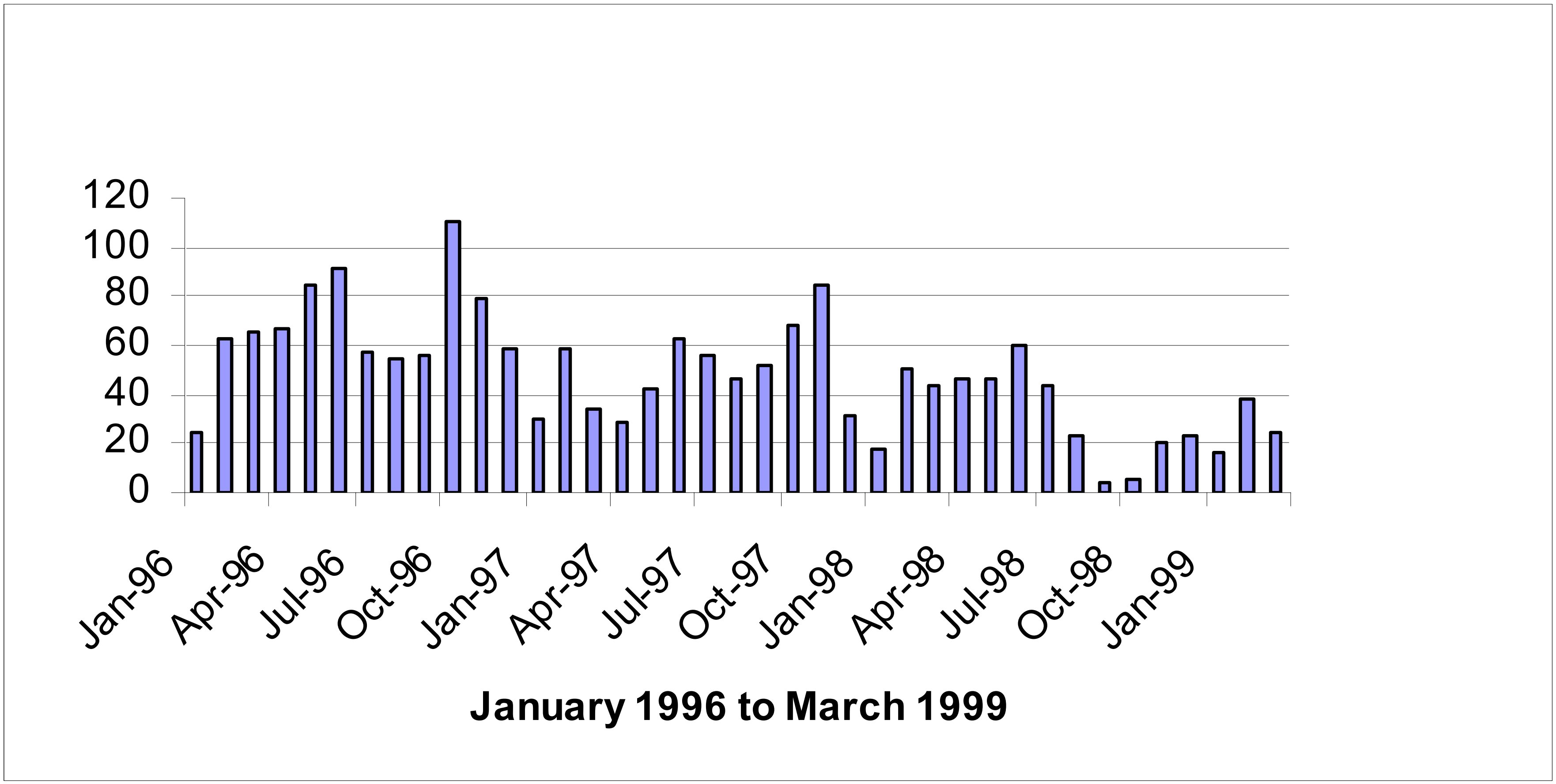
Benchmarks	IPO Return	Benchmark Return	Wealth Relative	IPO Return	Benchmark Return	Wealth Relative
S&P 500 Index	43.4	64.5	0.87	39.3	62.4	0.86
NASDAQ Composite	43.4	50.4	0.95	39.3	51.1	0.92
NYSE/AMEX Value-Weighted	43.4	60.0	0.90	39.3	57.6	0.88
NYSE/AMEX Equal-Weighted	43.4	56.4	0.92	39.3	47.7	0.94
Size and Book-to-Market (5x5)	41.9	37.6	1.03	33.0	38.7	0.96
Fama-French Industry Portfolio	46.0	45.0	1.01	45.2	53.2	0.95
	Venture-Backed IPOs			Nonventure-Backed IPO		

Data Source: Brav and Gompers, Journal of Finance (2001)

"Hot Issue" Markets

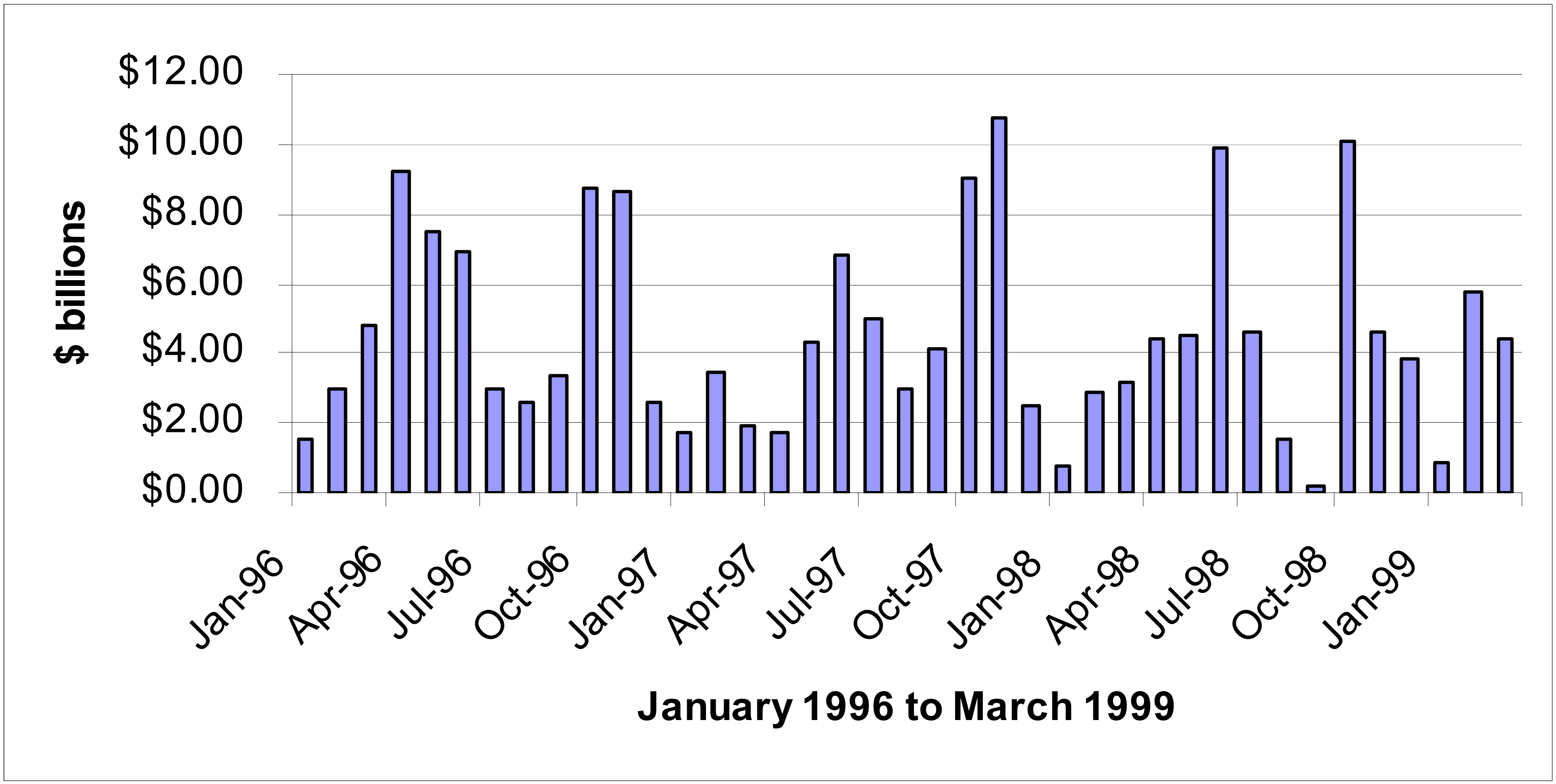
- High average initial IPO returns lead to higher volume in the IPO market
- Reasons:
  - Cycles in the quality and risk composition of firms that go public
  - Correlation in the fund inflow of large money managers, but this cannot explain under-pricing
  - "Animal spirits"

Number of IPOs from 1996-1999



Data Source: SDC

IPO volume from 1996 to 1999



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