

Initial Public Offerings: Sales Statistics Through 2018

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Table 16a: Long-run Returns on IPOs Categorized by \$1 Billion Sales of the Firm, 1980-2016

Table 2 (updated Dec. 31, 2018)**Mean First-day Returns, Categorized by Sales, for IPOs from 1980-2018**

Sales, measured in millions, are for the last twelve months prior to going public. All sales have been converted into dollars of **2003 purchasing power**, using the Consumers Price Index. From 2003 to 2017, the CPI has increased by 33.6%, so \$10 million in 2003 is equivalent to \$13.36 million in 2017. There are 8,497 IPOs, after excluding IPOs with an offer price of less than \$5.00 per share, units, REITs, SPACs, ADRs, closed-end funds, banks and S&Ls, small best efforts offers, firms not listed on CRSP within six months of the offering, and natural resource limited partnerships. Sales are from Thomson Financial's SDC, Dealogic, EDGAR, and the Graeme Howard-Todd Huxster collection of pre-EDGAR prospectuses. The average first-day return is 17.9%.

	1980-1989		1990-1998		1999-2000		2001-2017	
	Return	N	Return	N	Return	N	Return	N
0≤sales<\$10m	10.3%	425	17.2%	741	68.9%	331	10.0%	429
\$10m≤sales<\$20m	8.6%	242	18.5%	393	81.4%	138	13.5%	85
\$20m≤sales<\$50m	7.8%	501	18.8%	789	75.5%	154	15.7%	228
\$50m≤sales<\$100m	6.3%	356	12.8%	590	62.2%	86	20.8%	293
\$100m≤sales<\$200m	5.1%	234	11.8%	454	35.8%	56	19.5%	259
\$200m≤sales	3.4%	290	8.7%	646	25.0%	91	11.9%	686
All	7.2%	2,048	14.8%	3,613	64.6%	856	14.3%	1,980

Table 4a (updated Dec. 21, 2018)

Technology Company IPOs, 1980-2018

There are 3,086 tech stock IPOs, after excluding those with an offer price below \$5.00 per share, unit offers, ADRs, closed-end funds, natural resource limited partnerships (and most other LPs, but not buyout firms such as Carlyle Group), acquisition companies, REITs, bank and S&L IPOs, and firms not listed on CRSP. Missing and questionable numbers from the SDC new issues database are supplemented by direct inspection of prospectuses on EDGAR, information from Dealogic for IPOs after 1991, Howard and Co.'s *Going Public: The IPO Reporter* from 1980-1985, and the Graeme Howard-Todd Huxster collection of IPO prospectuses for 1975-2006. Tech stocks are defined as internet-related stocks plus other technology stocks including telecom, but not including biotech. Loughran and Ritter (2004) list the SIC codes in their appendix 3 and sources of founding dates in appendix 1. The definition of technology stocks has been changed from that in Loughran and Ritter (2004 *Financial Management*), with SIC=3559, 3576, and 7389 added to tech. Some 7389 (business services) companies have had their SIC codes changed into non-tech categories, such as consulting and two new SIC codes: 5614 for telemarketing firms and 7388 for non-tech business services such as Sotheby's Auctions.

For the column with VC-backed IPOs, there are 3,091 IPOs including both technology and non-technology companies.

For buyout-backed IPOs, the founding date of the predecessor company is used. Price-to-sales ratios are computed using both the offer price (OP) and the first closing market price (MP) for computing the market capitalization of equity. Market cap is calculated using the post-issue shares outstanding, with all share classes included in the case of dual-class companies. The undiluted number of shares is used, which in some cases (e.g., Facebook, Twitter, and Castlight Health) understates the market cap due to the existence of substantial amounts of in-the-money employee stock options that are highly likely to be exercised. Sales are the last twelve months (LTM) revenues as reported in the prospectus. The median sales, in millions, is expressed in both nominal dollars and in dollars of 2014 purchasing power using the CPI. The median age, in years, is the number of years since the calendar year of the founding date and the calendar year of the IPO. The percentage of IPOs that are profitable measures profitability using trailing LTM earnings (usually using after extraordinary items earnings, and usually using pro forma numbers that are computed assuming that any recent or concurrent mergers have already occurred, and the conversion of convertible preferred stock into common stock). In some cases, last fiscal year earnings are used when LTM earnings are unavailable.

Even concepts like market cap (for the price-to-sales ratios) become ambiguous when you realize that companies like Facebook have many deep in-the-money options outstanding, so whether you use the fully diluted number of shares or the undiluted number can affect the calculations substantially for some companies.

(table on the next page)

Year	Number of Tech IPOs	Proceeds in \$millions		Median Price-to-sales		Median sales, \$mm		Median age	% profitable
		VC-backed	Technology	OP	MP	Nominal	\$2014		
1980	22	388	378	3.4	3.8	16.2	48.8	6.5	91%
1981	73	648	845	3.5	3.6	12.8	34.5	9	88%
1982	42	490	648	4.2	4.5	10.5	26.2	5	83%
1983	173	2,768	3,271	5.9	6.6	8.6	20.6	6	71%
1984	50	614	551	2.4	2.5	9.8	22.4	6.5	80%
1985	37	667	375	2.3	2.4	13.4	29.7	7	84%
1986	77	1,558	1,217	3.4	3.6	13.0	27.8	6	74%
1987	58	1,315	1,324	3.2	3.2	18.3	38.4	5.5	86%
1988	28	674	888	3.0	3.4	24.0	48.5	5.5	79%
1989	35	869	748	3.4	4.0	31.5	60.9	6	77%
1990	31	1,085	747	3.6	3.7	29.1	53.5	9	94%
1991	70	3,887	2,738	3.2	3.7	34.5	59.9	9	74%
1992	113	4,970	5,847	3.4	3.6	22.8	38.6	8	65%
1993	126	5,929	5,416	3.0	3.6	27.0	44.2	8	74%
1994	116	3,691	3,624	3.7	4.0	21.1	33.7	8	70%
1995	204	7,023	9,781	4.6	5.7	21.6	33.6	8	71%
1996	274	11,594	16,185	6.9	8.3	16.7	25.2	7	47%
1997	173	4,994	7,447	5.2	5.7	21.5	31.6	7	50%
1998	113	3,882	8,118	8.8	11.9	22.1	32.0	6	36%
1999	370	22,012	33,512	26.5	43.0	12.1	17.2	4	14%
2000	260	23,304	42,442	31.7	49.5	12.0	16.6	5	14%
2001	23	2,658	5,773	8.1	13.4	24.6	32.9	9	30%
2002	20	1,956	2,587	2.9	3.1	95.2	125.8	9	40%
2003	18	1,789	2,242	4.1	4.6	86.2	111.0	7	39%
2004	61	7,183	9,064	6.4	7.1	55.5	70.1	8	44%
2005	45	3,676	6,994	4.5	4.5	68.0	83.5	9	36%
2006	48	4,662	4,873	5.5	6.3	57.6	67.9	9	50%
2007	75	9,820	11,371	6.5	8.0	70.0	78.4	8	29%
2008	6	863	1,194	4.9	5.7	156.7	173.6	14	67%
2009	14	1,697	4,126	3.0	3.6	174.3	193.1	11	71%
2010	33	3,873	4,347	3.4	3.9	119.5	129.0	11	64%
2011	36	8,603	9,412	6.1	6.6	141.3	150.1	10	36%
2012	39	21,031	20,250	4.4	4.9	108.1	111.7	9	44%
2013	43	11,553	8,486	5.3	6.1	105.8	107.5	9	28%
2014	53	18,289	9,965	6.1	6.8	90.5	90.5	11	17%
2015	38	9,319	10,087	5.3	6.2	130.8	130.9	11	26%
2016	21	5,945	2,510	4.2	4.3	109.5	108.2	10	29%
2017	30	10,878	7,844	5.0	6.3	188.4	184.1	13	17%
2018	38	16,787	11,983	7.6	11.3	173.6	167.3	12	16%
1980-2018	3,086	242,942	279,209	5.8	6.9	22.5	37.0	7	49%

Table 4b (updated Dec. 20, 2018)

Technology and Biotechnology Company IPOs, 1980-2018

There are 3,086 tech and 785 biotech IPOs from 1980-2018, after excluding those with an offer price below \$5.00 per share, unit offers, ADRs, closed-end funds, partnerships, acquisition companies, REITs, bank and S&L IPOs, and firms not listed on CRSP. Missing and questionable numbers from the SDC new issues database are supplemented by direct inspection of prospectuses on EDGAR, information from Dealogic for IPOs after 1991, Howard and Co.'s *Going Public: The IPO Reporter* from 1980-1985, and the Graeme Howard-Todd Huxster collection of IPO prospectuses for 1975-2006. Tech stocks are defined as internet-related stocks plus other technology stocks including telecom, but not including biotech. Loughran and Ritter (2004) list the SIC codes in their appendix 3 and sources of founding dates in appendix 1. The definition of technology stocks has been changed from that in Loughran and Ritter (2004 *Financial Management*), with SIC=3559, 3576, and 7389 added to tech. Some 7389 (business services) companies have had their SIC codes changed into non-tech categories, such as consulting and two new SIC codes that I created: 5614 for telemarketing firms and 7388 for non-tech business services such as Sotheby's Auctions.

Biotech is defined as SIC=2830, 2833, 2834, 2835, 2836, and 8731.

Sales are the last twelve months (LTM) revenues as reported in the prospectus. The median sales, in millions, are expressed in dollars of 2014 purchasing power using the CPI. Pro forma numbers are usually used if there have been recent mergers or mergers that coincide with the IPO. The percentage of IPOs that are profitable measures profitability using trailing LTM earnings (usually using after extraordinary items earnings, and usually using pro forma numbers that are computed assuming that any recent or concurrent mergers have already occurred, and the conversion of convertible preferred stock into common stock). In some cases, last fiscal year earnings are used when LTM earnings are unavailable.

(table on the next page)

Year	Number of IPOs			% Profitable			Median sales (\$2014, millions)		
	Tech	Biotech	Other	Tech	Biotech	Other	Tech	Biotech	Other
1980	22	3	46	91%	67%	70%	48.8	17.1	64.4
1981	73	10	110	88%	30%	85%	34.5	4.1	36.1
1982	42	2	33	83%	50%	79%	26.2	3.3	24.9
1983	173	21	257	71%	43%	86%	20.6	6.1	73.9
1984	50	2	119	80%	100%	85%	22.4	113.4	57.9
1985	37	5	144	84%	40%	87%	29.7	10.4	88.5
1986	77	25	291	74%	32%	84%	27.8	9.0	79.2
1987	58	11	216	86%	18%	85%	38.4	5.9	92.3
1988	28	2	75	79%	0%	87%	48.5	8.2	191.1
1989	35	4	77	77%	0%	83%	60.9	2.2	101.7
1990	31	4	75	94%	0%	87%	53.5	3.8	106.4
1991	70	33	183	74%	15%	88%	59.9	5.7	128.8
1992	113	33	266	65%	18%	80%	38.6	2.2	116.7
1993	126	28	356	74%	21%	75%	44.2	2.6	100.8
1994	116	20	266	70%	20%	80%	33.7	2.6	87.5
1995	204	22	235	71%	14%	75%	33.6	4.2	98.9
1996	274	47	356	47%	17%	73%	25.2	3.9	82.7
1997	173	22	279	50%	14%	77%	31.6	8.2	93.0
1998	113	12	156	36%	42%	69%	32.0	18.9	104.1
1999	370	11	95	14%	27%	63%	17.2	16.9	162.9
2000	260	56	64	14%	11%	50%	16.6	5.5	164.9
2001	23	6	50	30%	0%	66%	32.9	0.2	473.9
2002	20	5	41	40%	40%	63%	125.8	189.7	569.9
2003	18	8	37	39%	0%	76%	111.0	0.1	519.1
2004	61	30	82	44%	7%	70%	70.1	4.4	250.2
2005	45	16	98	36%	13%	70%	83.5	15.2	266.3
2006	48	24	85	50%	8%	80%	67.9	4.0	393.3
2007	75	19	65	29%	5%	74%	78.4	1.6	272.7
2008	6	1	14	67%	0%	57%	173.6	0.3	223.6
2009	14	3	24	71%	67%	71%	193.1	41.7	498.2
2010	33	11	47	64%	0%	70%	129.0	0.0	348.6
2011	36	8	37	36%	0%	59%	150.1	3.3	343.4
2012	39	10	44	44%	0%	75%	111.7	0.5	347.1
2013	43	41	73	28%	10%	56%	107.5	10.9	420.3
2014	53	74	79	17%	7%	57%	90.5	0.0	271.0
2015	38	42	38	26%	0%	66%	130.9	0.0	171.3
2016	21	25	29	29%	8%	59%	108.2	0.9	645.4
2017	30	32	45	17%	3%	44%	181.5	0.0	421.1
2018	38	57	39	16%	0%	51%	167.3	0.0	452.4
2001-18	641	412	927	35%	6%	66%	104.3	0.4	340.8
1980-2018	3,086	785	4,626	49%	13%	76%	37.0	2.7	111.3

Table 12 (Dec. 19, 2018)**Number of IPOs Categorized by the LTM Sales (in 2005 \$), 1980-2018**

LTM is last twelve months. MV is the post-issue market value valued at the offer price. PSR is the price-to-sales ratio, and is the median ratio, not the ratio of medians. There has been 24% inflation since 2005.

Year	Number of IPOs LTM Sales \$2005		Percentage of IPOs LTM Sales \$2005		Medians, \$2005		
	<\$50 mm	>\$50 mm	<\$50 mm	>\$50mm	Sales	MV	PSR
1980	38	33	54%	46%	44	74	2.2
1981	141	52	73%	27%	28	72	2.9
1982	54	23	70%	30%	21	65	3.0
1983	286	165	63%	37%	28	88	2.8
1984	99	72	58%	42%	39	53	1.6
1985	95	91	51%	49%	46	68	1.3
1986	199	194	51%	49%	49	77	1.5
1987	137	148	48%	52%	53	96	1.5
1988	44	61	42%	58%	83	116	1.5
1989	49	67	42%	58%	60	111	2.0
1990	44	66	40%	60%	56	124	2.0
1991	118	168	41%	59%	69	127	1.6
1992	191	221	46%	54%	58	119	1.8
1993	230	280	45%	55%	61	115	1.9
1994	214	188	53%	47%	47	92	1.8
1995	257	204	56%	44%	39	134	3.0
1996	411	266	61%	39%	32	137	3.9
1997	273	201	58%	42%	41	133	3.0
1998	146	135	52%	48%	47	194	3.4
1999	341	135	72%	28%	19	361	18.3
2000	279	101	73%	27%	14	460	30.1
2001	25	54	32%	68%	146	479	2.4
2002	16	50	24%	76%	263	517	2.1
2003	15	48	24%	76%	173	370	2.7
2004	70	103	40%	60%	87	298	3.8
2005	46	113	29%	71%	133	360	2.6
2006	54	103	34%	66%	105	325	3.8
2007	59	100	37%	63%	81	373	6.1
2008	4	17	19%	81%	172	375	4.0
2009	4	37	10%	90%	239	517	1.8
2010	22	69	24%	76%	132	355	2.7
2011	24	57	30%	70%	131	614	4.9
2012	19	74	20%	80%	126	377	3.4
2013	58	99	37%	63%	93	438	5.0
2014	98	108	48%	52%	60	286	7.2
2015	60	58	51%	49%	46	403	9.8
2016	34	41	45%	55%	65	422	5.0
2017	48	59	45%	55%	82	470	6.3
2018	71	63	53%	47%	33	408	12.3
1980-2018	4,373	4,124	51%	49%	\$47	\$167	3.1

Table 12a (updated Dec. 19, 2018)

Number of IPOs Categorized by the LTM Sales (in 2005 \$), 1980-2018

MV is the post-issue market value valued at the **first closing price**. Sales and MV are in millions. PSR is the price-to-sales ratio. There has been 24% inflation since 2005.

Year	Number of IPOs LTM Sales \$2005		Percentage of IPOs LTM Sales \$2005		Medians, \$2005		
	<\$50 mm	>\$50 mm	<\$50 mm	>\$50mm	Sales	MV	PSR
1980	38	33	54%	46%	44	83	2.5
1981	141	52	73%	27%	28	77	3.0
1982	54	23	70%	30%	21	68	3.1
1983	286	165	63%	37%	28	93	3.2
1984	99	73	58%	42%	39	54	1.6
1985	95	92	51%	49%	46	69	1.5
1986	199	194	51%	49%	49	78	1.6
1987	137	148	48%	52%	53	99	1.6
1988	44	60	42%	58%	83	126	1.6
1989	49	67	42%	58%	60	122	2.4
1990	44	66	40%	60%	56	131	2.2
1991	118	168	41%	59%	69	144	1.8
1992	191	221	46%	54%	58	133	2.0
1993	230	280	45%	55%	61	124	2.1
1994	214	188	53%	47%	47	98	2.1
1995	257	204	56%	44%	39	161	3.5
1996	411	266	61%	39%	32	158	4.5
1997	273	201	58%	42%	41	149	3.3
1998	146	135	52%	48%	47	224	3.6
1999	341	135	72%	28%	19	551	30.2
2000	279	101	73%	27%	14	641	40.9
2001	25	54	32%	68%	146	507	2.9
2002	16	50	24%	76%	263	560	2.3
2003	15	48	24%	76%	173	392	2.7
2004	70	103	40%	60%	87	352	4.2
2005	46	113	29%	71%	133	347	2.7
2006	54	103	34%	66%	105	353	3.9
2007	59	100	37%	63%	83	457	6.7
2008	4	17	19%	81%	172	425	3.9
2009	4	37	10%	90%	239	622	2.0
2010	22	69	24%	76%	132	379	2.8
2011	24	57	30%	70%	131	747	5.6
2012	19	74	20%	80%	126	503	4.4
2013	58	99	37%	63%	93	551	5.4
2014	98	108	48%	52%	60	350	8.9
2015	60	58	51%	49%	46	437	12.2
2016	34	41	45%	55%	65	409	6.5
2017	48	59	45%	55%	82	497	7.7
2018	71	63	53%	47%	33	491	17.3
1980-2018	4,373	4,124	51%	49%	\$47	\$186	3.4

Table 12b
Number of IPOs Categorized by the LTM Sales (in 2011 \$), 1980-2018

Year	Number of IPOs	Number of IPOs LTM Sales, \$2011		Percentage of IPOs LTM Sales, \$2011	
		<\$1 billion	>\$1 billion	<\$1 billion	>\$1 billion
1980	71	71	0	100%	0%
1981	193	191	2	99%	1%
1982	77	77	0	100%	0%
1983	451	440	11	98%	2%
1984	171	169	2	99%	1%
1985	186	182	4	98%	2%
1986	393	375	18	95%	5%
1987	285	267	18	94%	6%
1988	105	94	11	90%	10%
1989	116	108	8	93%	7%
1990	110	103	7	94%	6%
1991	286	270	16	94%	6%
1992	412	385	27	93%	7%
1993	510	481	29	94%	6%
1994	403	384	18	96%	4%
1995	461	436	25	95%	5%
1996	677	658	19	97%	3%
1997	474	450	24	95%	5%
1998	281	262	19	93%	7%
1999	476	455	21	96%	4%
2000	380	366	14	96%	4%
2001	79	60	19	76%	24%
2002	66	50	16	76%	24%
2003	63	58	5	92%	8%
2004	173	151	22	87%	13%
2005	159	139	20	87%	13%
2006	157	138	19	88%	12%
2007	159	142	17	89%	11%
2008	21	18	3	86%	14%
2009	41	28	13	68%	32%
2010	91	78	13	86%	14%
2011	81	67	14	83%	17%
2012	93	77	16	83%	17%
2013	157	128	29	82%	18%
2014	206	175	31	85%	15%
2015	118	107	11	91%	9%
2016	75	61	14	81%	19%
2017	107	91	16	85%	15%
2018	134	121	13	90%	10%
1980-2018	8,497	7,913	584	93%	7%

Table 16 (updated April 25, 2018)**Long-run Returns on IPOs Categorized by the Pre-issue Sales of the Firm, 1980-2016**

All Last Twelve Months (LTM) sales figures for the firms going public have been converted into dollars of 2015 purchasing power using the Consumer Price Index. 8,252 IPOs from 1980-2016 are used, with returns calculated through the end of December, 2017. IPOs with an offer price below \$5.00 per share, unit offers, ADRs, REITs, closed end funds, natural resource partnerships, banks and S&Ls, small best efforts offers, and IPOs not listed on CRSP within six months of the offer date are excluded. Mm is millions of dollars. Buy-and-hold returns are calculated until the earlier of the three-year anniversary or the delisting date (no later than Dec. 29 of 2017 for IPOs from 2015 and 2016). Market-adjusted returns use the CRSP value-weighted index. Style adjustments use firms matched by market cap and book-to-market ratio with at least five years of CRSP listing and no follow-on equity issues in the prior five years. For post-issue book value of equity numbers, I use the post-issue common equity numbers from SDC with corrections by checking the prospectus, and for the remaining missing numbers I use the equity book values reported for the nearest quarter after the IPO on COMPUSTAT, and further missing numbers are calculated using the reported pre-IPO equity book values plus the amount of the proceeds (assuming that overallotment option shares and costs of issuing offset each other) times the fraction of the primary shares. For dual-class shares, the post-issue book-to-market ratio is calculated using the larger of the post-issue number of shares reported from SDC (with corrections to account for all share classes) and the total shares outstanding reported from CRSP at end of the IPO date. Market capitalization (size) is calculated using the first closing market price after the IPO and the post-issue number of shares outstanding. All returns include dividends and capital gains, including the index returns.

Sales (in 2015\$)	Number of IPOs	Average First-day Return	Average 3-year Buy-and-hold Return		
			IPOs	Market-adjusted	Style-adjusted
0-9.999 mm	1,573	22.2%	-10.2%	-46.1%	-30.1%
10-19.999 mm	706	28.1%	8.4%	-31.3%	-8.8%
20-49.999 mm	1,493	22.5%	20.0%	-23.2%	-6.9%
50-99.999 mm	1,368	17.6%	30.1%	-12.7%	-4.3%
100-499.999 mm	2,081	12.4%	39.0%	-3.5%	3.6%
500 mm and up	1,031	9.4%	37.1%	1.7%	-0.9%
0-99.999 mm	5,140	21.9%	11.9%	-28.5%	-13.5%
100 mm and up	3,112	11.4%	38.4%	-1.8%	2.1%
1980-2016	8,252	17.9%	21.9%	-18.4%	-7.6%

Table 16a (updated April 25, 2018)

Long-run Returns on IPOs Categorized by the Pre-issue Sales of the Firm, 1980-2016

All Last Twelve Months (LTM) sales figures for the firms going public have been converted into dollars of 2015 purchasing power using the Consumer Price Index. 8,252 IPOs from 1980-2016 are used, with returns calculated through the end of December, 29 2017. IPOs with an offer price below \$5.00 per share, unit offers, ADRs, REITs, closed end funds, natural resource partnerships, banks and S&Ls, small best efforts offers, and IPOs not listed on CRSP within six months of the offer date are excluded. Mm is millions of dollars. Buy-and-hold returns are calculated from the first closing market price until the earlier of the three-year anniversary or the delisting date (Dec. 29 of 2017 for IPOs from 2015 and 2016). Market-adjusted returns use the CRSP value-weighted index. Style adjustments use firms matched by market cap and book-to-market ratio with at least five years of CRSP listing and no follow-on equity issues in the prior five years. The market-adjusted and style-adjusted returns are the average buy-and-hold return on the IPOs minus the average compounded return on the benchmark. For post-issue book value of equity numbers, I use the post-issue common equity numbers from SDC with corrections by checking the prospectus, and for the remaining missing numbers I use the equity book values reported for the nearest quarter after the IPO on COMPUSTAT, and further missing numbers are calculated using the reported pre-IPO equity book values plus the amount of the proceeds (assuming that overallotment option shares and costs of issuing offset each other) times the fraction of the primary shares. For dual-class shares, the post-issue book-to-market ratio is calculated using the larger of the post-issue number of shares reported from SDC (with corrections to account for all share classes) and the total shares outstanding reported from CRSP at end of the IPO date. Market capitalization (size) is calculated using the first closing market price after the IPO and the post-issue number of shares outstanding. All returns include dividends and capital gains, including the index returns.

Sales (in 2015\$)	Number of IPOs	Average First-day Return	Average 3-year Buy-and-hold Return		
			IPOs	Market-adjusted	Style-adjusted
Less than \$1 billion	7,654	18.6%	20.2%	-20.6%	-8.9%
\$1 billion and up	598	8.6%	42.7%	9.0%	8.4%
1980-2016	8,252	17.9%	21.9%	-18.4%	-7.6%

Note: The 9.0% 3-year market-adjusted buy-and-hold return for large companies corresponds to an annualized market-adjusted return of 2.2% per year, with an average holding period of 2.9 years for the large companies, because $1.427/1.337=1.0666$, and $1.0666^{0.34}=1.022$. The 1.337 is 9.0% below the 42.7% average buy-and-hold return, and 0.34 is equal to $1/2.9$. The -20.6% 3-year market-adjusted buy-and-hold return for small companies, with an average holding period of 2.8 years, corresponds to an annualized market-adjusted return of -5.5% per year, since the wealth relative (public market equivalent) is $1.202/1.408=0.854$.