

# Initial Public Offerings: VC-backed IPO Statistics Through 2019

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## Table 4

### Median Age and Fraction of IPOs with VC and Buyout Backing, 1980-2019

There are 8,608 IPOs after excluding those with an offer price below \$5.00 per share, unit offers, ADRs, closed-end funds, oil & gas limited partnerships, acquisition companies, REITs, bank and S&L IPOs, and firms not listed on CRSP. Missing numbers 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, the Graeme Howard-Todd Huxster collection of IPO prospectuses for 1975-2006, and the Stanford GSB microfiche collection of registration statements from the 1980s. Tech stocks are defined as internet-related stocks plus other technology stocks, not including biotech. Loughran and Ritter (2004) list the SIC codes in their appendix 3 and sources of founding dates in appendix 1. Age is defined as the year of the IPO minus the year of founding. For buyout-backed IPOs, the founding date of the predecessor company is used. For rollups, the founding date of the oldest acquired company is used in most cases. Private equity (PE) or buyout-backed IPOs were restricted to "reverse LBOs" in the 1980s and 1990s. Jerry Cao has assisted with providing information on which IPOs are buyout-backed.

The financial backers of some companies are easy to classify, such as when Sequoia Capital and Kleiner Perkins invested in Google, or when KKR invested in Dollar General. But other situations involve growth capital investing, as when Warburg Pincus finances a company that rolls up some doctors' offices. With just two categories (VC and buyout), there is some arbitrariness in the categorization of IPOs backed by growth capital investors. 404 growth capital-backed IPOs are classified as VC-backed.

The last column gives the percentage of tech stocks that have VC backing.

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.

(table on the next page)

| Year             | Number of IPOs | Median Age | VC-backed    |            | Buyout-backed |            | Technology IPOs |             |
|------------------|----------------|------------|--------------|------------|---------------|------------|-----------------|-------------|
|                  |                |            | No.          | %          | No.           | %          | No.             | % VC-backed |
| 1980             | 71             | 6          | 23           | 32%        | 1             | 1%         | 22              | 64%         |
| 1981             | 193            | 8          | 53           | 27%        | 1             | 1%         | 73              | 40%         |
| 1982             | 77             | 5          | 21           | 27%        | 2             | 3%         | 42              | 36%         |
| 1983             | 451            | 7          | 115          | 25%        | 12            | 3%         | 173             | 38%         |
| 1984             | 171            | 8          | 45           | 26%        | 3             | 2%         | 50              | 52%         |
| 1985             | 186            | 9          | 39           | 21%        | 18            | 10%        | 37              | 43%         |
| 1986             | 393            | 8          | 79           | 20%        | 42            | 11%        | 77              | 40%         |
| 1987             | 285            | 8          | 66           | 23%        | 41            | 14%        | 58              | 66%         |
| 1988             | 105            | 8          | 32           | 30%        | 9             | 9%         | 28              | 61%         |
| 1989             | 116            | 8          | 40           | 34%        | 10            | 9%         | 35              | 66%         |
| 1990             | 110            | 9          | 42           | 38%        | 13            | 12%        | 31              | 74%         |
| 1991             | 286            | 10         | 116          | 41%        | 72            | 25%        | 70              | 63%         |
| 1992             | 412            | 10         | 138          | 33%        | 98            | 24%        | 114             | 59%         |
| 1993             | 510            | 9          | 172          | 34%        | 79            | 15%        | 127             | 69%         |
| 1994             | 402            | 8          | 129          | 32%        | 22            | 5%         | 116             | 55%         |
| 1995             | 462            | 7          | 186          | 40%        | 30            | 7%         | 205             | 55%         |
| 1996             | 677            | 7          | 265          | 39%        | 34            | 5%         | 274             | 55%         |
| 1997             | 474            | 9          | 133          | 28%        | 38            | 8%         | 173             | 42%         |
| 1998             | 281            | 8          | 77           | 27%        | 30            | 11%        | 113             | 48%         |
| 1999             | 476            | 5          | 275          | 58%        | 31            | 7%         | 370             | 66%         |
| 2000             | 380            | 6          | 242          | 64%        | 32            | 8%         | 260             | 69%         |
| 2001             | 79             | 12         | 32           | 41%        | 21            | 27%        | 23              | 70%         |
| 2002             | 66             | 15         | 23           | 35%        | 20            | 30%        | 20              | 65%         |
| 2003             | 63             | 11         | 24           | 38%        | 21            | 33%        | 18              | 61%         |
| 2004             | 173            | 8          | 79           | 46%        | 43            | 25%        | 61              | 66%         |
| 2005             | 159            | 13         | 46           | 29%        | 67            | 42%        | 45              | 49%         |
| 2006             | 157            | 13         | 54           | 34%        | 68            | 43%        | 48              | 52%         |
| 2007             | 159            | 9          | 71           | 45%        | 31            | 19%        | 76              | 66%         |
| 2008             | 21             | 14         | 9            | 43%        | 3             | 14%        | 6               | 67%         |
| 2009             | 41             | 15         | 12           | 29%        | 19            | 46%        | 14              | 43%         |
| 2010             | 91             | 10         | 40           | 44%        | 27            | 30%        | 33              | 73%         |
| 2011             | 81             | 11         | 44           | 54%        | 18            | 22%        | 36              | 81%         |
| 2012             | 93             | 12         | 48           | 52%        | 28            | 30%        | 40              | 87%         |
| 2013             | 157            | 12         | 76           | 48%        | 36            | 23%        | 45              | 73%         |
| 2014             | 206            | 11         | 129          | 63%        | 38            | 18%        | 51              | 71%         |
| 2015             | 118            | 10         | 72           | 61%        | 22            | 19%        | 38              | 71%         |
| 2016             | 75             | 10         | 46           | 61%        | 14            | 19%        | 21              | 71%         |
| 2017             | 107            | 12         | 62           | 58%        | 19            | 18%        | 30              | 77%         |
| 2018             | 134            | 10         | 88           | 66%        | 14            | 10%        | 39              | 77%         |
| 2019             | 110            | 10         | 76           | 69%        | 10            | 9%         | 34              | 74%         |
| 1980-1989        | 2,048          | 8          | 513          | 25%        | 139           | 7%         | 595             | 46%         |
| 1990-1998        | 3,614          | 8          | 1,258        | 35%        | 416           | 12%        | 1,223           | 55%         |
| 1999-2000        | 856            | 5          | 517          | 60%        | 63            | 7%         | 630             | 68%         |
| 2001-2019        | 2,090          | 10         | 1,029        | 49%        | 519           | 25%        | 678             | 68%         |
| <b>1980-2019</b> | <b>8,608</b>   | <b>8</b>   | <b>3,317</b> | <b>39%</b> | <b>1,137</b>  | <b>13%</b> | <b>3,126</b>    | <b>59%</b>  |

## Table 4a

### Technology Company IPOs, 1980-2019

There are 3,126 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. I have also added the S.E.C.'s computer communications equipment code of 3576 for 21 companies, including Cisco Systems.

For the column with VC-backed IPOs, there are 3,126 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<br>of Tech<br>IPOs | Proceeds in \$millions |                | Median<br>Price-to-sales |            | Median sales, \$mm |             | Median<br>age | %<br>profitable |
|------------------|---------------------------|------------------------|----------------|--------------------------|------------|--------------------|-------------|---------------|-----------------|
|                  |                           | VC-backed              | Technology     | Price-to-sales           |            | Nominal            | \$2014      |               |                 |
|                  |                           |                        |                | OP                       | MP         |                    |             |               |                 |
| 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             | 114                       | 4,970                  | 5,871          | 3.5                      | 3.7        | 22.6               | 38.3        | 8             | 65%             |
| 1993             | 127                       | 5,929                  | 5,715          | 3.0                      | 3.6        | 27.0               | 44.3        | 8             | 74%             |
| 1994             | 116                       | 3,691                  | 3,624          | 3.7                      | 4.0        | 21.1               | 33.7        | 8             | 70%             |
| 1995             | 205                       | 7,023                  | 9,786          | 4.6                      | 5.8        | 21.4               | 33.3        | 8             | 71%             |
| 1996             | 274                       | 11,623                 | 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        | 7             | 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             | 76                        | 9,820                  | 12,572         | 6.5                      | 7.8        | 71.2               | 79.8        | 8             | 30%             |
| 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             | 40                        | 21,031                 | 20,887         | 4.5                      | 5.0        | 113.4              | 117.1       | 9             | 43%             |
| 2013             | 45                        | 11,553                 | 8,662          | 5.3                      | 6.1        | 105.8              | 107.5       | 9             | 27%             |
| 2014             | 51                        | 18,058                 | 9,551          | 5.4                      | 6.6        | 88.7               | 88.7        | 11            | 16%             |
| 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              | 181.5       | 13            | 17%             |
| 2018             | 39                        | 16,412                 | 12,246         | 7.7                      | 11.7       | 179.2              | 169.1       | 12            | 15%             |
| 2019             | 34                        | 26,693                 | 22,748         | 7.8                      | 10.6       | 222.6              | 207.0       | 11.5          | 32%             |
| <b>1980-2019</b> | <b>3,126</b>              | <b>269,057</b>         | <b>304,148</b> | <b>5.9</b>               | <b>6.9</b> | <b>22.9</b>        | <b>37.5</b> | <b>7</b>      | <b>49%</b>      |

## Table 4b

### Technology and Biotechnology Company IPOs, 1980-2019

There are 3,126 tech and 834 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. I have also added the S.E.C.'s computer communications equipment code of 3576 for 21 companies, including Cisco Systems.

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%         | 85%        | 48.5                            | 8.2        | 191.1        |
| 1989             | 35             | 4          | 77           | 77%          | 0%         | 82%        | 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             | 114            | 33         | 265          | 65%          | 18%        | 80%        | 38.3                            | 2.2        | 117.3        |
| 1993             | 127            | 28         | 355          | 74%          | 21%        | 75%        | 44.3                            | 2.6        | 100.7        |
| 1994             | 116            | 20         | 266          | 70%          | 20%        | 80%        | 33.7                            | 2.6        | 87.5         |
| 1995             | 205            | 22         | 235          | 71%          | 14%        | 75%        | 33.3                            | 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             | 76             | 19         | 65           | 30%          | 5%         | 73%        | 79.8                            | 1.6        | 268.8        |
| 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             | 40             | 10         | 43           | 43%          | 0%         | 77%        | 111.7                           | 0.5        | 353.3        |
| 2013             | 45             | 41         | 71           | 27%          | 10%        | 58%        | 107.5                           | 10.9       | 421.9        |
| 2014             | 51             | 74         | 81           | 16%          | 7%         | 57%        | 88.7                            | 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%          | 0%         | 42%        | 181.5                           | 0.0        | 421.1        |
| 2018             | 39             | 58         | 37           | 15%          | 0%         | 51%        | 169.1                           | 0.0        | 455.7        |
| 2019             | 34             | 48         | 28           | 32%          | 2%         | 50%        | 207.0                           | 0.0        | 143.5        |
| 2001-19          | 678            | 461        | 951          | 35%          | 5%         | 65%        | 106.0                           | 0.2        | 340.8        |
| <b>1980-2019</b> | <b>3,126</b>   | <b>834</b> | <b>4,648</b> | <b>49%</b>   | <b>12%</b> | <b>76%</b> | <b>37.5</b>                     | <b>2.6</b> | <b>111.4</b> |

## Table 4c

### VC-backed, Growth Capital-backed, and Buyout-backed IPOs, 1980-2019

There are 8,608 IPOs after excluding those with an offer price below \$5.00 per share, unit offers, ADRs, closed-end funds, natural resource limited partnerships, special purpose acquisition companies (SPACs), REITs, bank and S&L IPOs, small best efforts offerings, and firms not listed on CRSP within six months of the IPO. Missing numbers in the Thomson Reuters new issues database are found by direct inspection of prospectuses on EDGAR, information from Dealogic for IPOs after 1989, Howard and Co.'s *Going Public: The IPO Reporter* from 1980-1985, and the Graeme Howard-Todd Huxster collection of IPO prospectuses for 1975-1996. Some foreign company IPOs from 1997-2001 that did not use ADRs but did not file electronically, and therefore do not have a prospectus available on EDGAR, were also accessed from the Graeme Howard-Todd Huxster database. Additional information was collected from microfiches at Stanford's GSB library. 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, and I have slightly updated the classifications.

Growth capital-backed IPOs are IPOs with a financial sponsor that, unlike a buyout-sponsored deal, typically owns far less than 90% of the equity prior to the IPO. Furthermore, many growth capital-backed IPOs have debt in their capital structure. The main criteria for classifying a financial sponsor as growth capital rather than venture capital is whether the company is investing in tangible assets (e.g., stores or hospitals) or intangibles (e.g., R&D); this is highly correlated with the industry of the company: restaurants, retail operations such as clothing store chains, healthcare operations (doctors' offices and dental offices), and retirement homes are generally classified as growth capital-backed. Many growth capital-backed IPOs are involved in rollups of a fragmented industry, where the financial sponsor has provided capital to make acquisitions to consolidate a fragmented industry, such as funeral homes. If a company is growing via acquisitions, it would generally be categorized as growth capital-backed rather than venture-backed. Jerry Cao has provided some information on which IPOs are buyout-backed. **404 growth capital-backed IPOs are not classified as VC-backed in this table.** See my article "Growth Capital-backed IPOs" in *The Financial Review* (November 2015) for further details.

(table on the next page)



| Year             | Number of<br>IPOs | Financial sponsor-<br>backed |            | VC-backed    |            | Growth capital-<br>backed |           | Buyout-backed |            |
|------------------|-------------------|------------------------------|------------|--------------|------------|---------------------------|-----------|---------------|------------|
|                  |                   | No.                          | %          | No.          | %          | No.                       | %         | No.           | %          |
| 1980             | 71                | 24                           | 34%        | 20           | 28%        | 3                         | 4%        | 1             | 1%         |
| 1981             | 193               | 54                           | 28%        | 44           | 23%        | 9                         | 5%        | 1             | 1%         |
| 1982             | 77                | 23                           | 30%        | 19           | 25%        | 2                         | 3%        | 2             | 3%         |
| 1983             | 451               | 127                          | 28%        | 103          | 23%        | 12                        | 3%        | 12            | 3%         |
| 1984             | 171               | 48                           | 28%        | 38           | 22%        | 7                         | 4%        | 3             | 2%         |
| 1985             | 186               | 57                           | 31%        | 28           | 15%        | 11                        | 6%        | 18            | 10%        |
| 1986             | 393               | 121                          | 31%        | 72           | 18%        | 7                         | 2%        | 42            | 11%        |
| 1987             | 285               | 108                          | 38%        | 61           | 21%        | 5                         | 2%        | 42            | 15%        |
| 1988             | 105               | 41                           | 39%        | 25           | 24%        | 7                         | 7%        | 9             | 9%         |
| 1989             | 116               | 50                           | 43%        | 30           | 26%        | 10                        | 9%        | 10            | 9%         |
| 1990             | 110               | 56                           | 51%        | 37           | 34%        | 5                         | 5%        | 14            | 13%        |
| 1991             | 286               | 188                          | 66%        | 97           | 34%        | 19                        | 7%        | 72            | 25%        |
| 1992             | 412               | 236                          | 57%        | 121          | 29%        | 17                        | 4%        | 98            | 24%        |
| 1993             | 510               | 251                          | 49%        | 160          | 31%        | 12                        | 2%        | 79            | 15%        |
| 1994             | 402               | 151                          | 38%        | 113          | 28%        | 16                        | 4%        | 22            | 5%         |
| 1995             | 461               | 216                          | 47%        | 157          | 34%        | 29                        | 6%        | 30            | 7%         |
| 1996             | 677               | 299                          | 44%        | 219          | 32%        | 45                        | 7%        | 35            | 5%         |
| 1997             | 474               | 171                          | 36%        | 102          | 22%        | 31                        | 7%        | 38            | 8%         |
| 1998             | 281               | 107                          | 38%        | 59           | 21%        | 18                        | 6%        | 30            | 11%        |
| 1999             | 476               | 306                          | 64%        | 259          | 54%        | 16                        | 3%        | 31            | 7%         |
| 2000             | 380               | 274                          | 72%        | 239          | 63%        | 3                         | 1%        | 32            | 8%         |
| 2001             | 79                | 53                           | 67%        | 22           | 28%        | 10                        | 13%       | 21            | 27%        |
| 2002             | 66                | 43                           | 65%        | 11           | 17%        | 12                        | 18%       | 20            | 30%        |
| 2003             | 63                | 45                           | 71%        | 20           | 32%        | 4                         | 6%        | 21            | 33%        |
| 2004             | 173               | 122                          | 71%        | 73           | 42%        | 6                         | 3%        | 43            | 25%        |
| 2005             | 159               | 113                          | 71%        | 40           | 25%        | 6                         | 4%        | 67            | 42%        |
| 2006             | 157               | 122                          | 78%        | 52           | 33%        | 2                         | 1%        | 68            | 43%        |
| 2007             | 159               | 102                          | 64%        | 63           | 40%        | 8                         | 5%        | 31            | 19%        |
| 2008             | 21                | 12                           | 57%        | 7            | 33%        | 2                         | 10%       | 3             | 14%        |
| 2009             | 41                | 31                           | 76%        | 12           | 29%        | 0                         | 0%        | 19            | 46%        |
| 2010             | 91                | 66                           | 73%        | 38           | 42%        | 2                         | 2%        | 26            | 29%        |
| 2011             | 81                | 62                           | 77%        | 40           | 49%        | 4                         | 5%        | 18            | 22%        |
| 2012             | 93                | 76                           | 82%        | 45           | 48%        | 3                         | 3%        | 28            | 30%        |
| 2013             | 157               | 112                          | 71%        | 64           | 41%        | 12                        | 8%        | 36            | 23%        |
| 2014             | 206               | 166                          | 81%        | 111          | 54%        | 17                        | 9%        | 38            | 18%        |
| 2015             | 118               | 93                           | 79%        | 68           | 58%        | 4                         | 3%        | 21            | 18%        |
| 2016             | 75                | 60                           | 80%        | 36           | 48%        | 10                        | 13%       | 14            | 19%        |
| 2017             | 107               | 81                           | 76%        | 54           | 50%        | 8                         | 7%        | 19            | 18%        |
| 2018             | 134               | 101                          | 75%        | 80           | 60%        | 7                         | 5%        | 14            | 10%        |
| 2019             | 110               | 86                           | 78%        | 74           | 67%        | 2                         | 2%        | 10            | 9%         |
| 1980-1989        | 2,048             | 652                          | 32%        | 440          | 21%        | 73                        | 4%        | 139           | 7%         |
| 1990-1998        | 3,614             | 1,674                        | 46%        | 1,066        | 29%        | 192                       | 5%        | 416           | 12%        |
| 1999-2000        | 856               | 580                          | 68%        | 498          | 58%        | 19                        | 2%        | 63            | 7%         |
| 2001-2019        | 2,090             | 1,548                        | 74%        | 909          | 43%        | 120                       | 6%        | 519           | 25%        |
| <b>1980-2019</b> | <b>8,608</b>      | <b>4,454</b>                 | <b>52%</b> | <b>2,913</b> | <b>34%</b> | <b>404</b>                | <b>5%</b> | <b>1,137</b>  | <b>13%</b> |

## Table 4d

### VC-backed IPOs, U.S.-headquartered Companies Only, 1980-2019

There are 3,194 venture capital-backed IPOs of U.S. headquartered companies, 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. VC-backed includes growth capital-backed IPOs. 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.

The public float is calculated as the shares issued multiplied by the first closing market price, and does not include overallotment shares. All numbers use the undiluted number of shares outstanding. For dual-class companies such as Facebook, all share classes are included, with the assumption that the price per share is the same for each class.

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.

Example: For 1980, the 23 VC-backed IPOs raised \$388 million, the shares of which had a market cap of \$500 million using the first closing market price. The market cap, using all shares outstanding, was \$3.374 billion in total. Of this, Apple Computer issued 4.6 million shares at \$22 per share (proceeds of \$101.2 million), closing at \$28.75 per share (public float value of \$132.25 million), with 55.136 million shares outstanding (\$1,585 million market cap).

(table on the next page)

| Year             | No. of VC-backed | Proceeds in \$millions<br>VC-backed | At first market price, \$millions |                  |
|------------------|------------------|-------------------------------------|-----------------------------------|------------------|
|                  |                  |                                     | Public float                      | Market cap       |
| 1980             | 23               | 388                                 | 500                               | 3,374            |
| 1981             | 53               | 648                                 | 719                               | 3,534            |
| 1982             | 21               | 490                                 | 575                               | 2,640            |
| 1983             | 114              | 2,710                               | 3,046                             | 14,106           |
| 1984             | 44               | 605                                 | 626                               | 2,936            |
| 1985             | 38               | 660                                 | 682                               | 2,751            |
| 1986             | 79               | 1,558                               | 1,671                             | 7,081            |
| 1987             | 66               | 1,315                               | 1,446                             | 5,921            |
| 1988             | 31               | 658                                 | 708                               | 3,039            |
| 1989             | 39               | 843                                 | 941                               | 3,611            |
| 1990             | 41               | 1,057                               | 1,177                             | 4,926            |
| 1991             | 114              | 3,765                               | 4,339                             | 16,079           |
| 1992             | 137              | 4,934                               | 5,560                             | 18,529           |
| 1993             | 169              | 5,828                               | 6,867                             | 24,931           |
| 1994             | 126              | 3,528                               | 4,011                             | 14,023           |
| 1995             | 184              | 6,972                               | 9,130                             | 35,126           |
| 1996             | 258              | 11,080                              | 13,342                            | 56,650           |
| 1997             | 131              | 4,877                               | 5,912                             | 26,860           |
| 1998             | 77               | 3,882                               | 4,928                             | 23,380           |
| 1999             | 273              | 21,901                              | 45,844                            | 314,946          |
| 2000             | 224              | 21,631                              | 40,409                            | 288,086          |
| 2001             | 30               | 2,406                               | 2,895                             | 15,825           |
| 2002             | 23               | 1,956                               | 2,216                             | 10,563           |
| 2003             | 24               | 1,789                               | 2,099                             | 8,326            |
| 2004             | 76               | 7,042                               | 8,306                             | 54,895           |
| 2005             | 42               | 3,327                               | 4,013                             | 12,968           |
| 2006             | 52               | 4,238                               | 4,934                             | 21,473           |
| 2007             | 68               | 9,640                               | 12,320                            | 69,688           |
| 2008             | 9                | 863                                 | 936                               | 4,428            |
| 2009             | 12               | 1,697                               | 2,057                             | 8,302            |
| 2010             | 37               | 3,627                               | 4,171                             | 19,934           |
| 2011             | 41               | 6,439                               | 7,753                             | 62,007           |
| 2012             | 48               | 21,031                              | 22,885                            | 125,538          |
| 2013             | 70               | 10,666                              | 14,428                            | 90,416           |
| 2014             | 112              | 15,623                              | 19,174                            | 94,684           |
| 2015             | 63               | 7,981                               | 10,116                            | 56,083           |
| 2016             | 42               | 4,693                               | 5,842                             | 33,528           |
| 2017             | 53               | 9,626                               | 12,132                            | 73,459           |
| 2018             | 80               | 13,178                              | 16,633                            | 94,677           |
| 2019             | 70               | 24,308                              | 28,526                            | 225,375          |
| <b>1980-2019</b> | <b>3,194</b>     | <b>249,459</b>                      | <b>334,258</b>                    | <b>1,954,701</b> |

**Table 17** (updated March 10, 2020)**Long-run Returns on IPOs Categorized by VC-backing or Buyout Fund-backing**

All Last Twelve Months (LTM) sales figures for the firms going public have been converted into dollars of January 2019 purchasing power using the Consumer Price Index. IPOs from 1980-2018 are used, with returns calculated through the end of December, 2019. In Panel A, the sample size is 8,497 firms. Growth capital-backed IPOs are included in the VC-backed category. IPOs with an offer price below \$5.00 per share, unit offers, small best efforts offerings, ADRs, REITs, closed-end funds, natural resource limited partnerships, banks and S&Ls, and IPOs not listed on CRSP within six months of the offer date are excluded. In Panel B, one additional screen is implemented, reducing the sample size. This additional screen is that the last twelve months (LTM) sales of the issuing firm is at least \$50 million (2019 purchasing power). Buy-and-hold returns are calculated until the earlier of the three-year anniversary or the delisting date (Dec. 31 of 2019 for IPOs from 2017 and 2018). Market-adjusted returns use the CRSP value-weighted index. All returns include dividends and capital gains. 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. All returns include dividends and capital gains, including the index returns. Jerry Cao of Sun Yat-sen University has assisted in providing data on the classification of IPOs as buyout-backed. Growth capital-backed IPOs are classified as VC-backed.

**Panel A: IPOs from 1980-2018 categorized by venture capital backing**

| VC-backed or not    | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|---------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                     |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| VC-backed           | 3,240          | 26.5%                    | 26.0%                              | -9.3%           | 1.2%           |
| NonVC-backed        | 5,257          | 12.5%                    | 20.3%                              | -22.6%          | -11.3%         |
| NonVC and nonBuyout | 4,129          | 13.5%                    | 17.0%                              | -29.3%          | -14.1%         |
| All                 | 8,497          | 17.9%                    | 22.4%                              | -17.5%          | -6.6%          |

Note: The nonVC- and nonBuyout-backed IPOs do not include a minimum sales screen, unlike in Panel B.

**Panel B: IPOs with at least \$50 million in LTM sales (2019 purchasing power) from 1980-2018 categorized by private equity (buyout fund) backing**

| Buyout-backed or not | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|----------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                      |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| Buyout-backed        | 1,060          | 8.8%                     | 34.1%                              | 3.0%            | 2.4%           |
| NonBuyout-backed     | 3,625          | 14.9%                    | 37.3%                              | -6.3%           | 1.0%           |
| All                  | 4,685          | 13.5%                    | 36.6%                              | -4.2%           | 1.3%           |

**Table 17a** (updated March 10, 2020)

**Long-run Returns on IPOs Categorized by VC-, Growth Capital-, or Buyout Fund-backing**

8,497 IPOs from 1980-2018 are used, with returns calculated through the end of December, 2019. Buy-and-hold returns are calculated from the first closing price until the earlier of the three-year anniversary or the delisting date (Dec. 31 of 2019 for IPOs from 2017 and 2018). Market-adjusted returns use the CRSP value-weighted index. All returns include dividends and capital gains. 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. This table is an updated version of Table 3 of my “Growth Capital-backed IPOs” published in the 2015 *Financial Review*. Growth capital-backed IPOs are defined to be IPOs with a financial sponsor that is financing investments in tangible assets and/or acquisitions are a major part of its growth strategy. Buyouts involve the financial sponsor taking control by buying out prior shareholders. Corporate venture capital and angel investors are not included as financial sponsors.

|                         | Number<br>of IPOs | Average<br>First-day<br>Return | Average 3-year Buy-and-hold Return |                     |                    |
|-------------------------|-------------------|--------------------------------|------------------------------------|---------------------|--------------------|
|                         |                   |                                | IPOs                               | Market-<br>adjusted | Style-<br>adjusted |
| VC-backed               | 2,839             | 28.3%                          | 22.2%                              | -11.8%              | -0.9%              |
| Growth capital-backed   | 401               | 14.1%                          | 52.8%                              | 8.8%                | 16.1%              |
| Buyout-backed           | 1,128             | 9.1%                           | 32.3%                              | 1.8%                | -1.2%              |
| Financial Sponsored     | 4,368             | 22.0%                          | 27.6%                              | -6.4%               | 0.6%               |
| Non-Financial Sponsored | 4,129             | 13.5%                          | 17.0%                              | -29.3%              | -14.1%             |
| All                     | 8,497             | 17.9%                          | 22.4%                              | -17.5%              | -6.6%              |

Note: The high average 3-year buy-and-hold return for growth capital-backed IPOs is partly attributable, in a mechanical sense, to the five IPOs with the highest buy-and-hold returns in this subsample: The May 10, 1984 IPO of restaurant chain This Can't Be Yogurt (4,076.6%); the April 10, 1997 IPO of middleware software developer and distributor BEA Systems (2,562.2%); the November 15, 1989 IPO of original equipment manufacturer Solectron (944.0%); the April 24, 1996 IPO of outdoor advertising (billboards) operator Outdoor Systems (935.1%); the February 9, 1983 IPO of health care provider United States Health Care (636.6%); and the September 19, 1989 IPO of health care provider Vencor (635.8%).

**Table 18** (updated March 10, 2020)

**Long-run Returns on IPOs Categorized by VC-backing, by Subperiod**

The sample is composed of 8,497 IPOs from 1980-2018, with returns calculated through the end of December 2019. Growth capital-backed IPOs are classified as venture capital (VC)-backed in all panels. IPOs with an offer price below \$5.00 per share, unit offers, small best efforts offerings, ADRs, REITs, closed end funds, SPACs, natural resource limited partnerships, banks and S&Ls, and IPOs not listed on CRSP within six months of the offer date are excluded. 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. 31 of 2019 for IPOs from 2017 and 2018). Market-adjusted returns use the CRSP value-weighted index. All returns include dividends and capital gains. 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. Market capitalization (size) is calculated using the first closing market price after the IPO. All returns include dividends and capital gains, including the index returns.

**Panel A: IPOs from 1980-2018 categorized by venture capital backing**

| VC-backed or not | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                  |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| VC-backed        | 3,240          | 26.5%                    | 26.0%                              | -9.3%           | 1.2%           |
| NonVC-backed     | 5,257          | 12.5%                    | 20.3%                              | -22.6%          | -11.3%         |
| All              | 8,497          | 17.9%                    | 22.4%                              | -17.5%          | -6.6%          |

**Panel B: IPOs from 1980-1989**

| VC-backed or not | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                  |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| VC-backed        | 513            | 8.5%                     | 31.9%                              | -14.0%          | 13.9%          |
| NonVC-backed     | 1,534          | 6.8%                     | 19.3%                              | -25.5%          | -1.8%          |
| All              | 2,047          | 7.2%                     | 22.5%                              | -22.6%          | 2.2%           |

**Panel C: IPOs from 1990-1998**

| VC-backed or not | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                  |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| VC-backed        | 1,258          | 17.3%                    | 60.0%                              | -1.9%           | 26.3%          |
| NonVC-backed     | 2,356          | 13.5%                    | 29.0%                              | -31.2%          | -14.4%         |
| All              | 3,614          | 14.8%                    | 39.8%                              | -21.0%          | -0.2%          |

**Panel D: IPOs from 1999-2000**

| VC-backed or not | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                  |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| VC-backed        | 517            | 81.3%                    | -62.1%                             | -40.4%          | -62.5%         |
| NonVC-backed     | 339            | 39.1%                    | -39.4%                             | -18.6%          | -53.4%         |
| All              | 856            | 64.6%                    | -53.1%                             | -31.8%          | -58.9%         |

**Panel E: IPOs from 2001-2018**

| VC-backed or not | Number of IPOs | Average First-day Return | Average 3-year Buy-and-hold Return |                 |                |
|------------------|----------------|--------------------------|------------------------------------|-----------------|----------------|
|                  |                |                          | IPOs                               | Market-adjusted | Style-adjusted |
| VC-backed        | 952            | 18.7%                    | 25.6%                              | 0.4%            | -4.3%          |
| NonVC-backed     | 1,028          | 10.2%                    | 21.3%                              | -0.1%           | -4.6%          |
| All              | 1,980          | 14.3%                    | 23.4%                              | 0.2%            | -4.5%          |

Guide to what is Initial Public Offering or IPO. Here we discuss how it works and which factors you need to consider before conducting an IPO process. An Initial Public Offering (IPO) is the process in which the shares of the private companies are listed for the first time in the stock exchange for allowing trading of its shares to the public and this allows the private company to raise the capital for different investments. Let's take an example to understand this. An initial public offering (IPO) refers to the process of offering shares of a private corporation to the public in a new stock issuance. An IPO can be seen as an exit strategy for the company's founders and early investors, realizing the full profit from their private investment. How an Initial Public Offering (IPO) Works. Prior to an IPO, a company is considered private. As a private company, the business has grown with a relatively small number of shareholders including early investors like the founders, family, and friends along with professional investors such as venture capitalists or angel investors.