Initial Public Offerings: Technology Stock IPOs

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Figure 2: Fraction of IPOs with Negative EPS and Fraction of Tech Stocks, 1980-2021
There are 9,086 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 form 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. 449 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)
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<td>No.</td>
<td>%</td>
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<td>91</td>
<td>10</td>
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<td>65%</td>
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<td>90</td>
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<td>15</td>
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<td>112</td>
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<td>77</td>
<td>69%</td>
<td>11</td>
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<tr>
<td>2020</td>
<td>165</td>
<td>9</td>
<td>113</td>
<td>68%</td>
<td>22</td>
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<td>311</td>
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<td>175</td>
<td>56%</td>
<td>67</td>
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<tr>
<td>1980-1989</td>
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<td>8</td>
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<td>1990-1998</td>
<td>3,614</td>
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<td>856</td>
<td>5</td>
<td>523</td>
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<td>62</td>
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<td>2001-2021</td>
<td>2,569</td>
<td>11</td>
<td>1,355</td>
<td>53%</td>
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<td>1980-2021</td>
<td>9,086</td>
<td>8</td>
<td>3,657</td>
<td>40%</td>
<td>1,220</td>
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Table 4a (updated February 17, 2022)

Technology Company IPOs, 1980-2021 including Direct Listings

There are 3,297 IPOs and 9 direct listings that are tech stocks, for a total of 3,306 listings, 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 Huxter 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, 3844, 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 have made up: 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 3,469 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 is 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)
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<th>Year</th>
<th>Number of Tech IPOs</th>
<th>Proceeds in $millions VC-backed Technology</th>
<th>Median Price-to-sales</th>
<th>Median sales, $mm Nominal</th>
<th>Median sales, $mm $2014</th>
<th>Median age</th>
<th>% profitable</th>
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<td>22</td>
<td>388 378</td>
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<td>16.2 48.8</td>
<td>6.5 91%</td>
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<td>1981</td>
<td>72</td>
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<td>42</td>
<td>490 648</td>
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<td>667 375</td>
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<td>14</td>
<td>1,697 4,126</td>
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<td>2010</td>
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<td>4,038 4,347</td>
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<td>141.3 150.1</td>
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<td>40</td>
<td>21,096 20,887</td>
<td>4.5 5.0</td>
<td>113.4 117.1</td>
<td>9.5 43%</td>
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Table 4b (updated February 17, 2022)

Technology and Biotechnology (Biopharma) Company IPOs, 1980-2021

There are 3,298 tech and 1,007 biotech IPOs from 1980-2021, 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. Biotech includes pharmaceutical firms.

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 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)
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| 1980-2021 | 3,298 | 393,033 | 244 | $3,718,109 | $1,127 | $213 |
**Table 4h (updated February 16, 2022)**  
**Technology Company IPO Underpricing, 1980-2021**

Underpricing is measured as the equally weighted average of the first-day return from the offer price to close. The screens described in Table 1 apply, including the exclusion of ADRs.

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</tr>
<tr>
<td>2013</td>
<td>158</td>
<td>45</td>
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<tr>
<td>2014</td>
<td>206</td>
<td>53</td>
</tr>
<tr>
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<td>38</td>
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<td>2016</td>
<td>75</td>
<td>21</td>
</tr>
<tr>
<td>2017</td>
<td>106</td>
<td>30</td>
</tr>
<tr>
<td>2018</td>
<td>134</td>
<td>39</td>
</tr>
<tr>
<td>2019</td>
<td>112</td>
<td>37</td>
</tr>
<tr>
<td>2020</td>
<td>165</td>
<td>44</td>
</tr>
<tr>
<td>2021</td>
<td>311</td>
<td>118</td>
</tr>
</tbody>
</table>
Table 9 (updated February 18, 2022)

Fraction of IPOs with Negative Earnings, 1980-2021

IPOs 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 within six months of the offer date are excluded. When available, I use the earnings per share for the most recent twelve months (commonly known as LTM for last twelve months) prior to going public. When a merger is involved, we use the pro forma numbers (as if the merger had already occurred). I am not completely consistent in the use of earnings before or after extraordinary items. Some extraordinary items are associated with the IPO, including gains or losses on conversion of convertible securities at the time of the IPO, or writeups or writedowns associated with mergers. I usually use the before extraordinary items EPS if the one-time charges are associated with the IPO. When the trailing twelve months EPS number is unavailable, I use the most recent fiscal year EPS number. Missing numbers are supplemented by direct inspection of prospectuses on EDGAR, EPS information from Dealogic for IPOs after 1991, and Howard and Co.’s Going Public: The IPO Reporter from 1980-1995. Remaining missing numbers have been found in the Graeme Howard-Todd Huxster collection of IPO prospectuses and the Stanford Business School microfiche collection of prospectuses from the 1980s. Don Patton of UC-Davis has tracked down a couple of remaining missing numbers. 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.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of IPOs</th>
<th>No. with missing EPS</th>
<th>Percentage Tech Stocks</th>
<th>Percentage of IPOs with EPS&lt;0</th>
<th>Mean First-day Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EPS&lt;0</td>
</tr>
<tr>
<td>1980-1989</td>
<td>2,047</td>
<td>1</td>
<td>29%</td>
<td>19%</td>
<td>9.2%</td>
</tr>
<tr>
<td>1990-1998</td>
<td>3,614</td>
<td>0</td>
<td>34%</td>
<td>32%</td>
<td>16.0%</td>
</tr>
<tr>
<td>1999-2000</td>
<td>856</td>
<td>0</td>
<td>74%</td>
<td>78%</td>
<td>71.1%</td>
</tr>
<tr>
<td>2001-2021</td>
<td>2,569</td>
<td>0</td>
<td>33%</td>
<td>61%</td>
<td>19.9%</td>
</tr>
<tr>
<td>1980-2021</td>
<td>9,086</td>
<td>1</td>
<td>36%</td>
<td>42%</td>
<td>26.5%</td>
</tr>
</tbody>
</table>

(year-by-year on the next page)
<table>
<thead>
<tr>
<th>Year</th>
<th>Number of IPOs</th>
<th>No. with missing EPS</th>
<th>Percentage Tech Stocks</th>
<th>Percentage of IPOs with EPS&lt;0</th>
<th>Mean First-day Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>71</td>
<td>0</td>
<td>31%</td>
<td>24%</td>
<td>7.1% 16.5%</td>
</tr>
<tr>
<td>1981</td>
<td>192</td>
<td>0</td>
<td>38%</td>
<td>17%</td>
<td>8.0% 5.4%</td>
</tr>
<tr>
<td>1982</td>
<td>77</td>
<td>0</td>
<td>55%</td>
<td>19%</td>
<td>6.4% 12.1%</td>
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<tr>
<td>1983</td>
<td>451</td>
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<td>22%</td>
<td>14.0% 8.8%</td>
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<tr>
<td>1984</td>
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<td>29%</td>
<td>16%</td>
<td>11.1% 2.2%</td>
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<tr>
<td>1985</td>
<td>186</td>
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<td>15%</td>
<td>5.2% 6.6%</td>
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<td>1986</td>
<td>393</td>
<td>1</td>
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<td>21%</td>
<td>8.8% 5.4%</td>
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<tr>
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<td>5.1% 5.8%</td>
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<td>1988</td>
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<td>27%</td>
<td>18%</td>
<td>6.0% 5.3%</td>
</tr>
<tr>
<td>1989</td>
<td>116</td>
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<td>30%</td>
<td>22%</td>
<td>8.3% 7.9%</td>
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<tr>
<td>1990</td>
<td>110</td>
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<td>15%</td>
<td>9.5% 11.0%</td>
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<td>1991</td>
<td>286</td>
<td>0</td>
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<td>24%</td>
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<td>1993</td>
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<td>26%</td>
<td>8.0% 10.2%</td>
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<tr>
<td>1995</td>
<td>462</td>
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<td>30%</td>
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<tr>
<td>1996</td>
<td>677</td>
<td>0</td>
<td>40%</td>
<td>41%</td>
<td>16.7% 17.6%</td>
</tr>
<tr>
<td>1997</td>
<td>474</td>
<td>0</td>
<td>36%</td>
<td>36%</td>
<td>12.6% 14.9%</td>
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<tr>
<td>1998</td>
<td>281</td>
<td>0</td>
<td>40%</td>
<td>46%</td>
<td>32.2% 13.2%</td>
</tr>
<tr>
<td>1999</td>
<td>476</td>
<td>0</td>
<td>78%</td>
<td>76%</td>
<td>81.0% 40.2%</td>
</tr>
<tr>
<td>2000</td>
<td>380</td>
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<td>81%</td>
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<tr>
<td>2001</td>
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<td>49%</td>
<td>15.3% 12.8%</td>
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<tr>
<td>2002</td>
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<td>0</td>
<td>30%</td>
<td>45%</td>
<td>5.6% 12.0%</td>
</tr>
<tr>
<td>2003</td>
<td>63</td>
<td>0</td>
<td>29%</td>
<td>44%</td>
<td>10.0% 13.2%</td>
</tr>
<tr>
<td>2004</td>
<td>173</td>
<td>0</td>
<td>35%</td>
<td>50%</td>
<td>11.9% 12.7%</td>
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<tr>
<td>2005</td>
<td>159</td>
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<td>28%</td>
<td>45%</td>
<td>7.3% 12.8%</td>
</tr>
<tr>
<td>2006</td>
<td>157</td>
<td>0</td>
<td>31%</td>
<td>40%</td>
<td>7.3% 15.4%</td>
</tr>
<tr>
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<td>48%</td>
<td>55%</td>
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<td>43%</td>
<td>1.8% 8.7%</td>
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<tr>
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<td>29%</td>
<td>12.8% 8.6%</td>
</tr>
<tr>
<td>2010</td>
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<td>41%</td>
<td>6.9% 11.1%</td>
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<tr>
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<td>57%</td>
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<td>46%</td>
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</tr>
<tr>
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<td>29%</td>
<td>63%</td>
<td>20.2% 21.9%</td>
</tr>
<tr>
<td>2014</td>
<td>206</td>
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<td>25%</td>
<td>71%</td>
<td>17.1% 11.4%</td>
</tr>
<tr>
<td>2015</td>
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<td>70%</td>
<td>19.1% 19.6%</td>
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<tr>
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<td>13.2% 17.0%</td>
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<tr>
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<td>106</td>
<td>0</td>
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<td>77%</td>
<td>12.4% 14.8%</td>
</tr>
<tr>
<td>2018</td>
<td>134</td>
<td>0</td>
<td>29%</td>
<td>81%</td>
<td>20.4% 10.5%</td>
</tr>
<tr>
<td>2019</td>
<td>112</td>
<td>0</td>
<td>32%</td>
<td>77%</td>
<td>25.2% 17.9%</td>
</tr>
<tr>
<td>2020</td>
<td>165</td>
<td>0</td>
<td>25%</td>
<td>80%</td>
<td>45.3% 26.9%</td>
</tr>
<tr>
<td>2021</td>
<td>311</td>
<td>0</td>
<td>38%</td>
<td>75%</td>
<td>30.0% 38.6%</td>
</tr>
<tr>
<td>1980-2021</td>
<td>9,086</td>
<td>1</td>
<td>36%</td>
<td>42%</td>
<td>26.5%</td>
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</table>
Table 16c (updated March 4, 2021)
Long-run Returns Measured from the Offer Price on Tech and non-Tech Stock IPOs Excluding the Internet Bubble, 1980-2019


<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of IPOs</th>
<th>Average 1st-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Tech</td>
<td>2,504</td>
<td>18.6%</td>
<td>82.0%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>5,250</td>
<td>10.1%</td>
<td>36.4%</td>
</tr>
<tr>
<td>All</td>
<td>7,754</td>
<td>12.8%</td>
<td>51.1%</td>
</tr>
</tbody>
</table>

Panel B: Categorized by sales and industry

<table>
<thead>
<tr>
<th>LTM Sales</th>
<th>Number of IPOs</th>
<th>Average 1st-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Sales &lt; $100 million</td>
<td>1,821</td>
<td>18.9%</td>
<td>72.5%</td>
</tr>
<tr>
<td>Tech</td>
<td>1,821</td>
<td>18.9%</td>
<td>72.5%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>2,764</td>
<td>11.1%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Sales&gt; $100 million</td>
<td>683</td>
<td>17.6%</td>
<td>107.4%</td>
</tr>
<tr>
<td>Tech</td>
<td>683</td>
<td>17.6%</td>
<td>107.4%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>2,486</td>
<td>8.9%</td>
<td>50.1%</td>
</tr>
</tbody>
</table>

Panel C: Profitable issuers, categorized by sales and industry

<table>
<thead>
<tr>
<th>LTM Sales</th>
<th>Number of IPOs</th>
<th>Average 1st-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Sales &lt; $100 million</td>
<td>1,019</td>
<td>17.4%</td>
<td>71.1%</td>
</tr>
<tr>
<td>Tech</td>
<td>1,019</td>
<td>17.4%</td>
<td>71.1%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>1,469</td>
<td>10.6%</td>
<td>29.7%</td>
</tr>
<tr>
<td>Sales&gt; $100 million</td>
<td>420</td>
<td>15.0%</td>
<td>108.8%</td>
</tr>
<tr>
<td>Tech</td>
<td>420</td>
<td>15.0%</td>
<td>108.8%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>2,070</td>
<td>9.1%</td>
<td>51.4%</td>
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</table>

Panel D: Unprofitable issuers, categorized by sales and industry

<table>
<thead>
<tr>
<th>LTM Sales</th>
<th>Number of IPOs</th>
<th>Average 1st-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Sales &lt; $100 million</td>
<td>802</td>
<td>20.8%</td>
<td>74.3%</td>
</tr>
<tr>
<td>Tech</td>
<td>802</td>
<td>20.8%</td>
<td>74.3%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>1,295</td>
<td>11.6%</td>
<td>17.6%</td>
</tr>
<tr>
<td>Sales&gt; $100 million</td>
<td>263</td>
<td>21.6%</td>
<td>105.2%</td>
</tr>
<tr>
<td>Tech</td>
<td>263</td>
<td>21.6%</td>
<td>105.2%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>416</td>
<td>7.9%</td>
<td>43.9%</td>
</tr>
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</table>
Table 16d (updated March 10, 2020)
Long-run Returns Measured from the First Closing Market Price on Tech and non-Tech Stock IPOs Excluding the Internet Bubble, 1980-2019


<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Tech</td>
<td>2,504</td>
<td>18.6%</td>
<td>49.5%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>5,250</td>
<td>10.1%</td>
<td>25.1%</td>
</tr>
<tr>
<td>All</td>
<td>7,754</td>
<td>12.8%</td>
<td>32.9%</td>
</tr>
</tbody>
</table>

Panel B: Categorized by sales and industry

<table>
<thead>
<tr>
<th>LTM Sales</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Sales &lt; $100 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech</td>
<td>1,821</td>
<td>18.9%</td>
<td>41.0%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>2,764</td>
<td>11.1%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Sales &gt; $100 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech</td>
<td>683</td>
<td>17.6%</td>
<td>72.2%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>2,486</td>
<td>8.9%</td>
<td>38.2%</td>
</tr>
</tbody>
</table>

Panel C: Profitable issuers, categorized by sales and industry

<table>
<thead>
<tr>
<th>LTM Sales</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Sales &lt; $100 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech</td>
<td>1,019</td>
<td>17.4%</td>
<td>43.0%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>1,469</td>
<td>10.6%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Sales &gt; $100 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech</td>
<td>420</td>
<td>15.0%</td>
<td>76.7%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>2,070</td>
<td>9.1%</td>
<td>39.1%</td>
</tr>
</tbody>
</table>

Panel D: Unprofitable issuers, categorized by sales and industry

<table>
<thead>
<tr>
<th>LTM Sales</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOS</td>
</tr>
<tr>
<td>Sales &lt; $100 million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech</td>
<td>802</td>
<td>20.8%</td>
<td>38.3%</td>
</tr>
<tr>
<td>Non-Tech</td>
<td>1,295</td>
<td>11.6%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Sales &gt; $100 million</td>
<td></td>
<td></td>
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<tr>
<td>Tech</td>
<td>263</td>
<td>21.6%</td>
<td>64.9%</td>
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<tr>
<td>Non-Tech</td>
<td>416</td>
<td>7.9%</td>
<td>33.8%</td>
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</tbody>
</table>
This table lists the number of IPOs each year that have dual class shares among tech IPOs and among non-tech IPOs. The sample is IPOs with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE, and NASDAQ stocks).

<table>
<thead>
<tr>
<th>Year</th>
<th>Tech IPOs</th>
<th>Non-tech IPOs</th>
<th>All IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dual</td>
<td>Total</td>
<td>%</td>
</tr>
<tr>
<td>1980</td>
<td>0</td>
<td>22</td>
<td>0%</td>
</tr>
<tr>
<td>1981</td>
<td>2</td>
<td>72</td>
<td>2.8%</td>
</tr>
<tr>
<td>1982</td>
<td>0</td>
<td>42</td>
<td>0%</td>
</tr>
<tr>
<td>1983</td>
<td>3</td>
<td>173</td>
<td>1.7%</td>
</tr>
<tr>
<td>1984</td>
<td>2</td>
<td>50</td>
<td>4.0%</td>
</tr>
<tr>
<td>1985</td>
<td>1</td>
<td>37</td>
<td>2.7%</td>
</tr>
<tr>
<td>1986</td>
<td>3</td>
<td>77</td>
<td>3.9%</td>
</tr>
<tr>
<td>1987</td>
<td>1</td>
<td>59</td>
<td>1.7%</td>
</tr>
<tr>
<td>1988</td>
<td>3</td>
<td>28</td>
<td>10.7%</td>
</tr>
<tr>
<td>1989</td>
<td>1</td>
<td>35</td>
<td>2.9%</td>
</tr>
<tr>
<td>1990</td>
<td>0</td>
<td>32</td>
<td>0%</td>
</tr>
<tr>
<td>1991</td>
<td>7</td>
<td>71</td>
<td>9.9%</td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>115</td>
<td>1.7%</td>
</tr>
<tr>
<td>1993</td>
<td>3</td>
<td>127</td>
<td>2.4%</td>
</tr>
<tr>
<td>1994</td>
<td>7</td>
<td>115</td>
<td>6.1%</td>
</tr>
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<td>1995</td>
<td>8</td>
<td>205</td>
<td>3.9%</td>
</tr>
<tr>
<td>1996</td>
<td>16</td>
<td>276</td>
<td>5.8%</td>
</tr>
<tr>
<td>1997</td>
<td>10</td>
<td>174</td>
<td>5.7%</td>
</tr>
<tr>
<td>1998</td>
<td>8</td>
<td>113</td>
<td>7.1%</td>
</tr>
<tr>
<td>1999</td>
<td>22</td>
<td>370</td>
<td>5.9%</td>
</tr>
<tr>
<td>2000</td>
<td>19</td>
<td>260</td>
<td>7.3%</td>
</tr>
<tr>
<td>2001</td>
<td>2</td>
<td>23</td>
<td>8.7%</td>
</tr>
<tr>
<td>2002</td>
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<td>18</td>
<td>16.7%</td>
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</tr>
<tr>
<td>2005</td>
<td>9</td>
<td>45</td>
<td>20.0%</td>
</tr>
<tr>
<td>2006</td>
<td>1</td>
<td>48</td>
<td>2.1%</td>
</tr>
<tr>
<td>2007</td>
<td>5</td>
<td>76</td>
<td>6.6%</td>
</tr>
<tr>
<td>2008</td>
<td>0</td>
<td>6</td>
<td>0%</td>
</tr>
<tr>
<td>2009</td>
<td>2</td>
<td>14</td>
<td>14.3%</td>
</tr>
<tr>
<td>2010</td>
<td>2</td>
<td>33</td>
<td>6.1%</td>
</tr>
<tr>
<td>2011</td>
<td>5</td>
<td>36</td>
<td>13.9%</td>
</tr>
<tr>
<td>2012</td>
<td>6</td>
<td>40</td>
<td>15.0%</td>
</tr>
<tr>
<td>2013</td>
<td>5</td>
<td>45</td>
<td>11.1%</td>
</tr>
<tr>
<td>2014</td>
<td>3</td>
<td>53</td>
<td>5.7%</td>
</tr>
<tr>
<td>2015</td>
<td>14</td>
<td>38</td>
<td>36.8%</td>
</tr>
<tr>
<td>2016</td>
<td>5</td>
<td>21</td>
<td>23.8%</td>
</tr>
<tr>
<td>2017</td>
<td>13</td>
<td>30</td>
<td>43.3%</td>
</tr>
<tr>
<td>2018</td>
<td>14</td>
<td>39</td>
<td>35.9%</td>
</tr>
<tr>
<td>2019</td>
<td>13</td>
<td>37</td>
<td>35.1%</td>
</tr>
<tr>
<td>2020</td>
<td>19</td>
<td>44</td>
<td>43.2%</td>
</tr>
<tr>
<td>2021</td>
<td>54</td>
<td>117</td>
<td>46.2%</td>
</tr>
<tr>
<td>1980-21</td>
<td>298</td>
<td>3,297</td>
<td>9.0%</td>
</tr>
</tbody>
</table>
Table 24 (February 15, 2022)

Long-run Returns on IPOs Categorized by Dual Class Status

8,775 IPOs from 1980-2020 are used, with returns calculated through the end of December 2021. 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 (all of which have dual class structures), 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 close until the earlier of the three-year anniversary or the delisting date (Dec. 31 of 2021 for IPOs from 2019 and 2020). 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. All returns include dividends and capital gains, including the index returns. Firms with three or more classes of shares are classified as dual class. Firms with pre-IPO convertible preferred that converted into common at the time of the IPO are classified based on the pro forma (post-conversion) share structure.

Panel A: IPOs from 1980-2020 categorized by dual class status

<table>
<thead>
<tr>
<th>Dual class or not</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOs</td>
</tr>
<tr>
<td>Dual class</td>
<td>780</td>
<td>17.7%</td>
<td>45.8%</td>
</tr>
<tr>
<td>Single class</td>
<td>7,995</td>
<td>18.5%</td>
<td>21.6%</td>
</tr>
<tr>
<td>1980-2020</td>
<td>8,775</td>
<td>18.4%</td>
<td>23.7%</td>
</tr>
</tbody>
</table>

Panel B: IPOs from 1980-2020 categorized by dual class and tech status

<table>
<thead>
<tr>
<th>Buyout-backed or not</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
<th>Average 3-year Buy-and-hold Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>IPOs</td>
</tr>
<tr>
<td>Tech stocks</td>
<td></td>
<td></td>
<td>IPOs</td>
</tr>
<tr>
<td>Dual class</td>
<td>244</td>
<td>32.8%</td>
<td>73.1%</td>
</tr>
<tr>
<td>Single class</td>
<td>2,936</td>
<td>31.0%</td>
<td>22.7%</td>
</tr>
<tr>
<td>All tech stocks</td>
<td>3,180</td>
<td>31.2%</td>
<td>26.6%</td>
</tr>
<tr>
<td>Non-tech stocks</td>
<td></td>
<td></td>
<td>IPOs</td>
</tr>
<tr>
<td>Dual class</td>
<td>536</td>
<td>10.8%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Single class</td>
<td>5,059</td>
<td>11.2%</td>
<td>20.9%</td>
</tr>
<tr>
<td>All non-tech stocks</td>
<td>5,595</td>
<td>11.1%</td>
<td>22.1%</td>
</tr>
</tbody>
</table>
Figure 2: See Table 9 for details.