

Data Appendix / Methodology
The Middle-Market IPO Tax
SEC Commissioner Robert J. Jackson, Jr.

In this appendix we briefly explain the data and methodology behind the analysis described in Commissioner Jackson’s speech *The Middle-Market IPO Tax*, delivered on April 25, 2018. In Part 1, we describe the underlying data on initial public offerings (IPOs). In Part 2, we describe our analysis and results. Part 3 concludes.

We consider this analysis preliminary; and we especially welcome inquiries and further analysis on this important policy issue. Should you have any questions, please do not hesitate to contact Commissioner Jackson at jacksonro@sec.gov or 202-551-5070.

Part 1: Sample

In a seminal research study published in the *Journal of Finance*, Chen and Ritter (2000) documented that the underwriting fees, or gross spreads, paid to investment bankers tended to cluster around seven percent of the offering proceeds.¹ Professor Ritter has published numerous research articles on IPOs and he generously provides access to IPO data and statistics on his website.² Professor Ritter shared with us additional data and statistics on U.S. IPOs from 1980 through 2017. We also reviewed IPO data and company-level financial information from SDC Platinum and CRSP / Compustat. All IPO statistics reported below are for operating companies that list on U.S. exchanges, and exclude ADRs, penny stocks, units, closed-end funds, REITs, SPACS, natural resource limited partnerships, and non-CRSP-listed securities.

¹ Chen, Hsuan-Chi and Jay R. Ritter, 2000, The Seven Percent Solution, *Journal of Finance* 55, 1105-1132.

² Available at: <https://site.warrington.ufl.edu/ritter/ipo-data/>. Sources: Dealogic, SDC Platinum, and Edgar, Jay R. Ritter, Cordell Eminent Scholar, Warrington College of Business, University of Florida.

Part 2: Analysis

We begin by documenting the fees paid to investment banks in relation to the IPO process. These fees, or gross spreads, are calculated as a percentage of the IPO proceeds. Chen and Ritter (2000) documented that these fees increasingly clustered at exactly 7% over the period 1985 to 1998 for moderately-sized IPOs.³ In Table 1 below we report the spreads for moderate vs. large IPOs from 2001 through 2016. Moderate IPOs are those that raise proceeds between \$25 million and \$100 million while large IPOs are those that raise proceeds of more than \$100 million in 2011 inflation-adjusted U.S. dollars.

Table 1 shows that 96.6% of moderately-sized IPOs involved spreads of exactly 7%. In contrast, only 50.4% of large IPOs had spreads of exactly 7%. Almost 49% of large IPO firms paid less than 7% spreads as direct fees to the underwriting investment banks. Thus, spreads have remained remarkably consistent at 7% over the past 15+ years on moderately-sized IPOs, while demonstrating more variation among larger IPOs.

Figure 1 graphs the percentage of moderately-sized IPOs with spreads of exactly 7%, less than 7%, and more than 7% on a yearly basis from 1980 through 1999. Consistent with the trend documented in Chen and Ritter (2000), the clustering at 7% increased steadily during the 1980s and reached over 90% of IPOs by the late 1990s. Figure 2 reports the same statistics during the period of 2000 through 2017. Spreads have remained clustered at exactly 7% for the majority of IPOs throughout all of the 2000s. The stark lack of variation in fees charged by investment banks for moderately-sized IPOs raises important questions about the pricing competitiveness among the underwriting investment banks.

³ Chen, Hsuan-Chi and Jay R. Ritter, 2000, The Seven Percent Solution, *Journal of Finance* 55, 1105-1132. See Figure 1 on page 1110 of the study.

While the gross spreads represent a direct cost to companies in the public listing process, an indirect, but potentially significant, cost arises from the underpricing of shares offered in the IPO. When setting an offering price, investment banks tend to underprice shares in order to achieve a positive first day return. This positive return rewards the institutional investors who have participated in the book-building process and who have subscribed for the initial shares. Retail investors do not typically receive the underpriced share allocations and thus miss out on the first day return. Moreover, the IPO companies miss out on the additional proceeds that could have been raised had the shares been priced according to their underlying values. The first day return, or underpricing, thus represents an indirect cost to firms of accessing the public markets for the first time.

Table 2 reports the average levels of underpricing for IPOs from 2000 through 2017. These averages are reported for middle-market firms, or those with trailing 12 month sales at their time of IPO between \$50 million and \$1 billion in 2017 inflation-adjusted U.S. dollars. The averages are also reported for large company IPO firms, or those with sales exceeding \$1 billion. The average percentage amount of underpricing is higher for middle-market firms in every single year. Investment banks tend to price shares closer to fundamental values for large IPO firms, while middle-market firms tend to bear a larger degree of underpricing of initial offering shares.

Table 2 also reports the average “money left on the table,” which is calculated as the percentage amount of underpricing multiplied by the IPO proceeds. This represents the dollar amount of IPO proceeds that accrues to initial investors instead of to the companies issuing new shares. The final two columns in Table 2 sum these aggregated amounts by middle-market vs. large IPO firms. In aggregate, from 2000 through 2017, middle-market firms left \$38.9 billion on the table while large IPO firms left \$23.7 billion on the table. Thus, middle-market firms bear

higher direct underwriting costs as a percentage spread of proceeds raised, and also bear higher aggregate indirect costs in the form of underpricing and thus money left on the table.

To put this in perspective for a typical middle-market company, consider a firm with \$215 million in sales that conducts an IPO with proceeds of \$100 million. If the firm must pay the typical 7% spread to investment bankers and issues shares that are underpriced by 15%, then the company incurs \$22 million in costs to go public (not including the legal, accounting, compliance, and other expenses). If this hypothetical firm has a 5% profit margin, then these IPO costs represent over four years' worth of annualized profits. In this example, money left on the table represents twice the gross spread in terms of the costs of going public.

Part 3: Conclusions

Gross spreads paid by middle-market firms to underwriting investment banks in the IPO process have remained remarkably consistent over the past two decades, clustering at exactly 7% of IPO proceeds. In contrast, the largest IPO firms often pay less than 7%. Moreover, middle-market firms experience a greater degree of underpricing in their IPO shares than large firms. In aggregate, middle-market firms leave billions of dollars on the table in order to access public equity markets in the U.S.

Table 1.
Gross Spreads for Moderate and Large IPOs, 2001-2016

| <i>Proceeds:</i> | <u>\$25-\$100 million</u> | | <u>More than \$100 million</u> | |
|------------------|----------------------------------|------------------|---------------------------------------|------------------|
| | <u>% of IPOs</u> | <u># of IPOs</u> | <u>% of IPOs</u> | <u># of IPOs</u> |
| < 7% | 2.5% | 16 | 48.9% | 457 |
| = 7% | 96.6% | 676 | 50.4% | 472 |
| > 7% | <u>1.1%</u> | <u>8</u> | <u>0.6%</u> | <u>6</u> |
| Total | 100% | 700 | 100% | 935 |

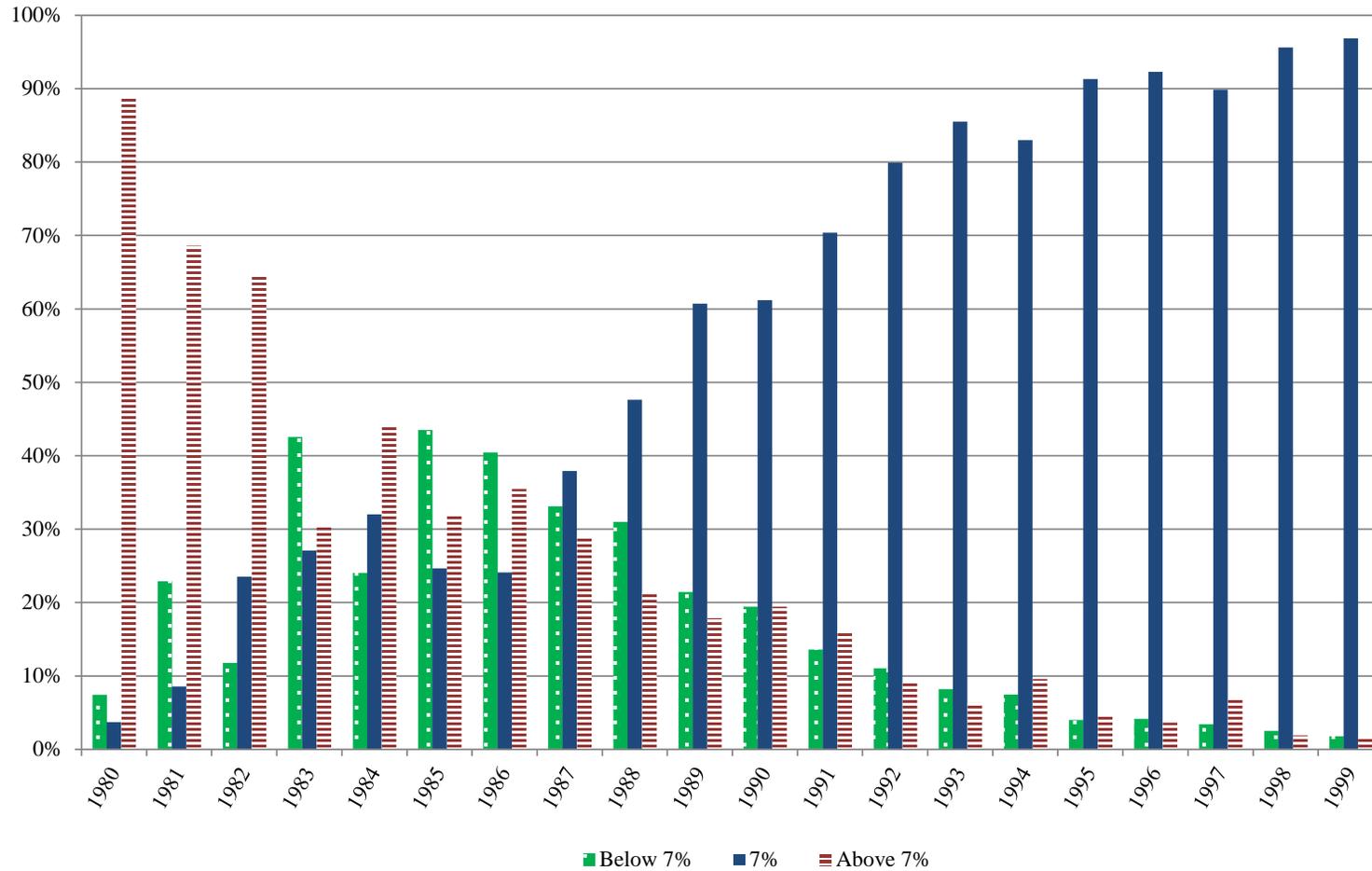
Spreads on book-building IPOs from 2001 to 2016 based on proceeds (2011 inflation-adjusted U.S. dollars). Source: Jay Ritter.

Table 2.
Average Levels of Underpricing and Money Left on the Table for Middle-Market and Large Company IPOs, 2000-2017

| Year | Middle-Market Company IPOs | | | Large Company IPOs | | | Aggregate Money Left on the Table (\$ millions) | |
|--------------|----------------------------|----------------------|---|--------------------|----------------------|---|---|-----------------|
| | Number of IPOs | Average Underpricing | Average Money Left on the Table (\$ millions) | Number of IPOs | Average Underpricing | Average Money Left on the Table (\$ millions) | Middle-Market Companies | Large Companies |
| 2000 | 92 | 51.0% | \$74.9 | 15 | 18.4% | \$211.3 | \$6,888.8 | \$3,169.7 |
| 2001 | 34 | 13.6% | \$17.5 | 21 | 11.2% | \$99.1 | \$596.0 | \$2,081.3 |
| 2002 | 40 | 12.0% | \$18.1 | 16 | 6.4% | \$21.4 | \$723.9 | \$341.7 |
| 2003 | 43 | 12.9% | \$14.7 | 6 | 10.3% | \$47.1 | \$634.1 | \$282.4 |
| 2004 | 91 | 14.4% | \$23.0 | 23 | 10.4% | \$61.1 | \$2,090.8 | \$1,406.1 |
| 2005 | 99 | 13.1% | \$20.9 | 22 | 4.1% | \$20.3 | \$2,074.0 | \$447.5 |
| 2006 | 93 | 15.0% | \$24.7 | 19 | 9.5% | \$74.8 | \$2,293.1 | \$1,421.9 |
| 2007 | 96 | 17.0% | \$35.7 | 18 | 8.9% | \$61.6 | \$3,426.0 | \$1,108.4 |
| 2008 | 14 | 8.4% | \$44.9 | 3 | 2.5% | \$1,664.9 | \$628.6 | \$4,994.8 |
| 2009 | 24 | 12.4% | \$20.8 | 13 | 8.3% | \$73.6 | \$498.0 | \$956.9 |
| 2010 | 57 | 11.9% | \$17.2 | 14 | 5.7% | \$57.9 | \$981.3 | \$810.1 |
| 2011 | 47 | 18.1% | \$48.2 | 14 | 6.5% | \$76.4 | \$2,266.6 | \$1,069.4 |
| 2012 | 63 | 22.2% | \$33.7 | 16 | 10.8% | \$37.4 | \$2,124.5 | \$598.1 |
| 2013 | 75 | 27.2% | \$64.0 | 31 | 15.9% | \$77.5 | \$4,798.5 | \$2,402.6 |
| 2014 | 80 | 18.8% | \$40.6 | 33 | 4.9% | \$19.6 | \$3,248.5 | \$646.5 |
| 2015 | 50 | 19.1% | \$37.0 | 12 | 15.9% | \$62.5 | \$1,852.2 | \$749.4 |
| 2016 | 29 | 29.0% | \$39.7 | 13 | 9.2% | \$42.0 | \$1,151.8 | \$545.6 |
| 2017 | 45 | 14.8% | \$58.8 | 17 | 10.1% | \$41.5 | <u>\$2,645.5</u> | <u>\$705.1</u> |
| <i>Total</i> | | | | | | | \$38,922.0 | \$23,737.5 |

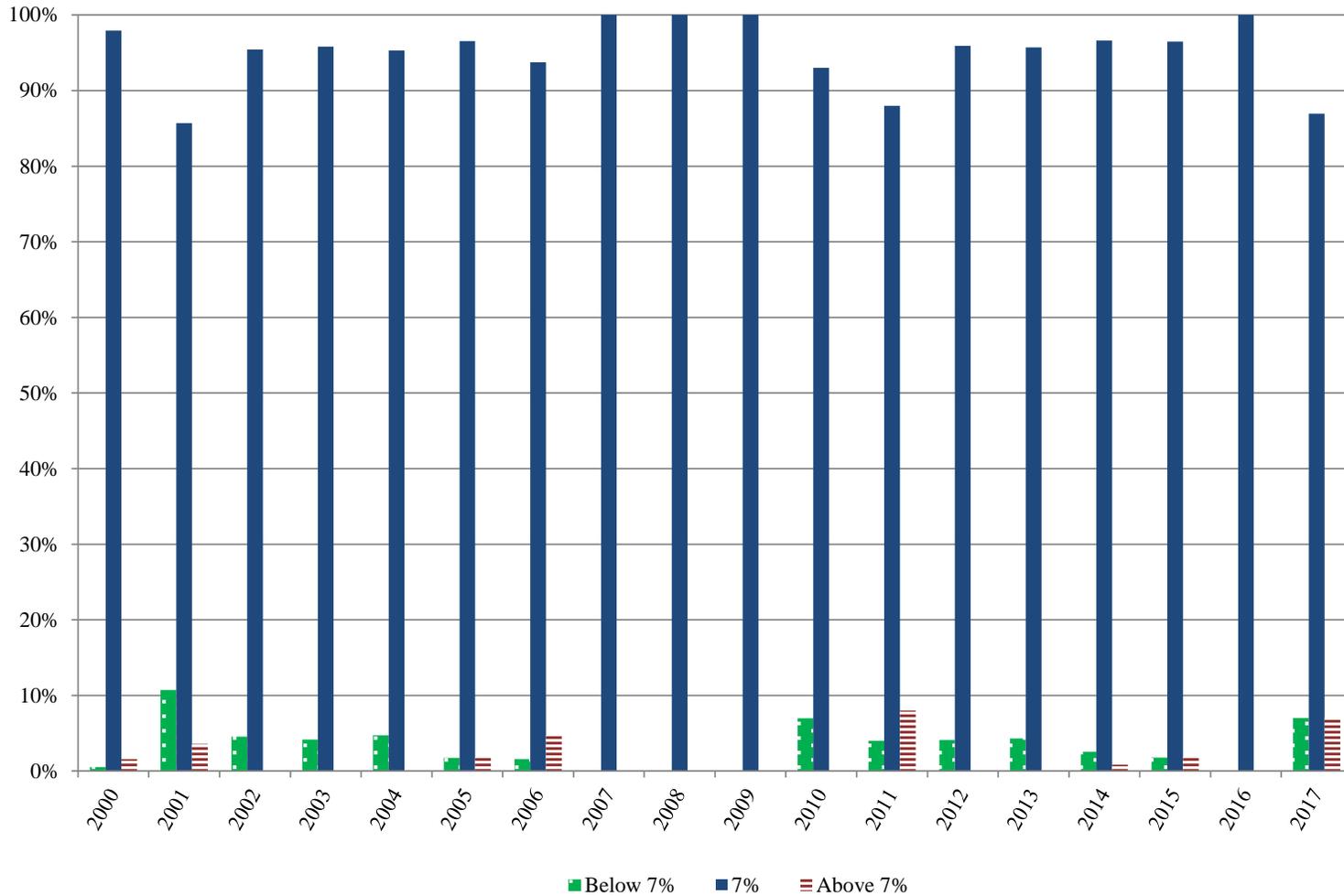
Middle-market companies are those with trailing 12-month sales of \$50 million to \$1 billion in inflation-adjusted 2017 U.S. dollars. Large companies are those with sales > \$1 billion. The 2008 numbers are affected by the Visa IPO, which left \$5 billion on the table in a year with very few IPOs. Money Left on the Table equals Underpricing (first-day return) multiplied by proceeds. Source: Jay Ritter.

Figure 1. Gross Spreads for Moderate-Sized IPOs, 1980-1999



Percentage of moderate-size IPOs with gross spreads equal to 7%, below 7%, and above 7%. Includes IPOs with proceeds between \$30 million and \$120 million in 2017 inflation-adjusted U.S. dollars. Source: Jay Ritter.

Figure 2. Gross Spreads for Moderate-Sized IPOs, 2000-2017



Percentage of moderate-size IPOs with gross spreads equal to 7%, below 7%, and above 7%. Includes IPOs with proceeds between \$30 million and \$120 million in 2017 inflation-adjusted U.S. dollars. Source: Jay Ritter.