# PUBLIC PURPOSE FINANCE: DATA APPENDIX

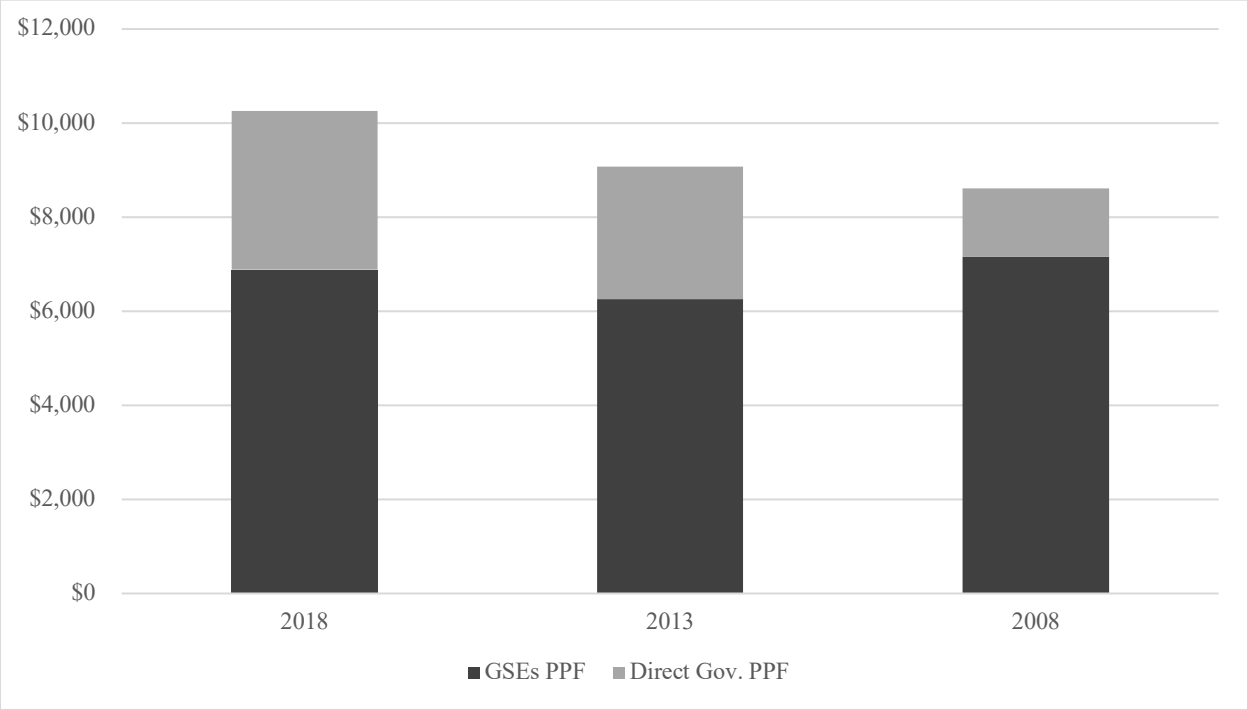
Nadav Orian Peer

## I

**Table 1. Public Purpose Finance (PPF): Government State Enterprises (GSEs) and Direct Government PPF (figures in billions)[1]**

| | 2018 | 2013 | 2008 |
|---|---|---|---|
| **GSEs PPF** | $6,881 | $6,254 | $7,161 |
| **Direct Gov. PPF** | $3,372 | $2,819 | $1,457 |
| **Total PPF** | $10,253 | $ 9,073 | $8,618 |

**Figure 1. PPF: GSEs and Direct Government PPF (figures in billions)**




[1] Figures based on the data presented in Part II, Tables 1–2.

**Table 1. Direct Government PPF (figures in billions)**

| | | Loans | | Guarantees | | | | | | Ginnie Mae | Total Direct Gov. PPF[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Total Loans** | **Student Loans** | **Total Guarantees[3]** | **FHA** | **VA Housing** | **Education** | **SBA** | **USDA** | **Total Securities Issued** | -- |
| **2018[4]** | **Accounting Concept** | Loans Receivable (gross) | Loans Receivable (gross) | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Outstanding MBS Securities | -- |
| | **Figure** | $1,411 | $1,179 | $1,960 | $1,327 | $168 | $154 | $106 | $111 | $2,008[5] | $3,372 |
| **2013[6]** | **Accounting Concept** | Face Value of Loans Outstanding | Face Value of Loans Outstanding | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Outstanding MBS Securities | -- |
| | **Figure (billions)** | $985 | $758 | $1,834 | $1,192 | $89 | $258 | $79 | $83 | $1,457[7] | $2,819 |
| **2008[8]** | **Accounting Concept** | Face Value of Loans Outstanding | Face Value of Loans Outstanding | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Principle Amount Guaranteed by the U.S. | Outstanding MBS Securities | -- |
| | **Figure** | $308 | $157 | $1,149 | $535 | $36 | $405 | $62 | $24 | $577[9] | $1,457 |

[2] Total Direct Gov. PPF = Total Loans + Total Guarantees. Ginnie Mae securities consist of loans already included under the guaranteed loans figures, and are therefore excluded to prevent double-counting. This is explained in Part II of the Article. *See* Nadav Orian Peer, *Public Purpose Finance: The Government's Role as Lender*, 83 LAW & CONTEMP. PROBS., no. 1, 2020, at 101, 104–07.

[3] The various individual guarantees included in the table are non-exhaustive, such that the "Total Guarantees" figure is greater than the sum of individual columns.

[4] With the exception of the Ginnie Mae figure, all figures from 2018 come from U.S. DEP'T OF TREASURY, FINANCIAL REPORT FY18 OF THE U.S. GOVERNMENT 82–83 (2018).

[5] GINNIE MAE, 2018 ANNUAL REPORT 69 (2019).

[6] With the exception of the Ginnie Mae figure, all 2013 figures come from U.S. DEP'T OF TREASURY, A CITIZEN'S GUIDE TO THE FISCAL YEAR 2013 FINANCIAL REPORT OF THE UNITED STATES GOVERNMENT 68–69 (2013).

[7] OFFICE OF THE INSPECTOR GEN., FIN. AUDITS DIV., GOVERNMENT NATIONAL MORTGAGE ASSOCIATION FISCAL YEARS 2013 AND 2012 FINANCIAL STATEMENTS AUDIT 30 (2013).

[8] With the exception of the Ginnie Mae figure, all 2008 figures come from U.S. DEP'T OF TREASURY, A CITIZEN'S GUIDE TO THE 2008 FINANCIAL REPORT OF THE UNITED STATES GOVERNMENT: THE FEDERAL GOVERNMENT'S FINANCIAL HEALTH 52–53 (2008).

[9] OFFICE OF THE INSPECTOR GEN., AUDIT REPORT OF GINNIE MAE'S FY 2008 FINANCIAL STATEMENTS 22 (2008).

**Table 2. Total GSEs PPF (figures in billions)[10]**

| | | Fannie Mae | Freddie Mac | FHLB | Farm Credit System | Farmer Mac | Total GSE PPF |
|---|---|---|---|---|---|---|---|
| **2018** | **Accounting Concept** | Guaranty Book of Business + Retained Mortgage Portfolio | Total Guarantee Portfolio + Mortgage-related Investments Portfolio | Advances + Mortgage Loans Held for Portfolio | Net Loans | Total Business Volume | -- |
| | **Figure** | $3,448[11] | $2,352[12] | $791[13] | $270[14] | $20[15] | $6,881 |
| **2013** | **Accounting Concept** | Guaranty Book of Business + Total Capital Markets Mortgage Portfolio | Total Mortgage Portfolio | Advances + Mortgage Loans Held for Portfolio | Net Loans | Total Business Volume | -- |
| | **Figure** | $3,581[16] | $1,915[17] | $544[18] | $200[19] | $14[20] | $6,254 |
| **2008** | **Accounting Concept** | Guaranty Book of Business + Mortgage Portfolio | Total Mortgage Portfolio | Advances + Mortgage Loans Held for Portfolio | Net Loans | Total Business Volume | -- |
| | **Figure** | $3,768[21] | $2,207[22] | $1,016[23] | $160[24] | $10[25] | $7,161 |

[10] The construction of this Table required use of accounting concepts that are complex and, that at times, appeared to vary across entities, and within each entity, across years. While efforts were made to ensure accuracy, the features of this accounting data involve greater risk of error.
[11] Guarantee Book of Business and Retained Mortgage Portfolio figures are $3,269 and $179 respectively. Fed. Nat'l Mortg. Ass'n, Annual Report 45, 61 (Form 10-K) (Feb. 2019).
[12] Total Guarantee Portfolio and Mortgage-related Investments Portfolio figures are $2,133 and $218 respectively. Fed. Home Loan Mortg. Corp., Annual Report 11 (Form 10-K) (Feb. 14, 2019).
[13] FED. HOME LOAN BANKS, COMBINED FINANCIAL REPORT FOR THE YEAR ENDED DECEMBER 31, 2018, at F-5 (Mar. 27, 2019).
[14] FARM CREDIT SYS., 2018 ANNUAL INFORMATION STATEMENT OF THE FARM CREDIT SYSTEM 3 (Mar. 1, 2019).
[15] FARMER MAC, 2018 ANNUAL REPORT 14 (2019).
[16] Fed. Nat'l Mortg. Ass'n, Annual Report 66, 96 (Form 10-K) (Feb. 2014).
[17] Fed. Home Loan Mortg. Corp., Annual Report 57 (Form 10-K) (Apr. 9, 2013).
[18] FED. HOME LOAN BANKS, COMBINED FINANCIAL REPORT FOR THE YEAR ENDED DECEMBER 31, 2013, at F-3 (Mar. 24, 2014).
[19] FARM CREDIT SYS., 2013 ANNUAL INFORMATION STATEMENT OF THE FARM CREDIT SYSTEM 3 (Feb. 28, 2014).
[20] FARMER MAC, FEDERAL AGRICULTURAL MORTGAGE CORPORATION 2013 ANNUAL REPORT 13 (2014).
[21] Fed. Nat'l Mortg. Ass'n, Annual Report 81 (Form 10-K) (Feb. 2009).
[22] Fed. Home Loan Mortg. Corp., Annual Report 58 (Form 10-K) (Mar. 11, 2009).
[23] FED. HOME LOAN BANKS, 2008 COMBINED FINANCIAL REPORT 48 (Apr. 21, 2009).
[24] FARM CREDIT ADMIN., 2008 ANNUAL REPORT ON THE FARM CREDIT SYSTEM 14 (2009).
[25] Fed. Agricultural Mortg. Corp., Annual Report 61 (Form 10-K) (Mar. 16, 2008).

III

**Table 1. U.S. Budgetary Data (figures in billions)**

| | **2018**[26] | **2013**[27] | **2008**[28] |
|---|---|---|---|
| **Outlays** | | | |
| Total Spending | $4,108 | $3,454 | $2,978 |
| Mandatory | $2,520 | $2,032 | $1,597 |
| Net interest | $325 | $221 | $249 |
| Discretionary – Defense | $622 | $625 | $572 |
| Discretionary – Non-Defense | $642 | $576 | $517 |
| **Receipts** | | | |
| Total Revenue | $3,329 | $2,774 | $2,524 |
| Individual Income Taxes | $1,684 | $1,316 | $1,146 |
| Corporate Income Taxes | $205 | $274 | $304 |
| Payroll Taxes | $1,171 | $948 | $900 |
| **General** | | | |
| Deficit | $779 | $680 | $455 |
| Gross Federal Debt | $21,461 | $16,171 | $9,986 |

[26] All figures in this column come from CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029 at 7, 16, 62 (Jan. 2019).
[27] All figures in this column come from CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: 2014 TO 2024 at 12, 17, 50 (Feb. 2014).
[28] All figures in this column come from CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: FISCAL YEARS 2009 TO 2019 at 16, 19 (Jan. 2009), except "discretionary-defense" and "discretionary non-defense," which are 2008 projections (as opposed to actual figures) from CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: FISCAL YEARS 2008 TO 2018 at 52 (Jan. 2008).

**Table 1. Credit Spreads: Government, Corporation, Mortgages (Percent)[29]**

| Date | AAA[30] - GS20[31] | BAA[32] - GS20 | MTG[33] - GS20 |
|---|---|---|---|
| 2010-01-01 | 0.80 | 1.80 | 0.51 |
| 2010-04-01 | 0.84 | 1.98 | 0.72 |
| 2010-07-01 | 0.99 | 2.18 | 0.85 |
| 2010-10-01 | 1.01 | 2.06 | 0.59 |
| 2011-01-01 | 0.81 | 1.77 | 0.53 |
| 2011-04-01 | 0.98 | 1.79 | 0.59 |
| 2011-07-01 | 1.14 | 2.14 | 0.96 |
| 2011-10-01 | 1.18 | 2.50 | 1.25 |
| 2012-01-01 | 1.10 | 2.40 | 1.12 |
| 2012-04-01 | 1.25 | 2.54 | 1.25 |
| 2012-07-01 | 1.09 | 2.51 | 1.19 |
| 2012-10-01 | 1.08 | 2.12 | 0.90 |
| 2013-01-01 | 1.13 | 2.06 | 0.75 |
| 2013-04-01 | 1.19 | 2.06 | 0.90 |
| 2013-07-01 | 1.07 | 1.97 | 1.00 |
| 2013-10-01 | 1.09 | 1.86 | 0.79 |
| 2014-01-01 | 1.02 | 1.70 | 0.95 |
| 2014-04-01 | 1.04 | 1.64 | 1.05 |
| 2014-07-01 | 1.11 | 1.73 | 1.13 |
| 2014-10-01 | 1.19 | 2.05 | 1.27 |
| 2015-01-01 | 1.25 | 2.18 | 1.40 |
| 2015-04-01 | 1.27 | 2.21 | 1.20 |
| 2015-07-01 | 1.44 | 2.60 | 1.31 |
| 2015-10-01 | 1.40 | 2.82 | 1.30 |
| 2016-01-01 | 1.61 | 2.99 | 1.42 |
| 2016-04-01 | 1.44 | 2.52 | 1.44 |
| 2016-07-01 | 1.43 | 2.35 | 1.54 |
| 2016-10-01 | 1.29 | 2.12 | 1.32 |
| 2017-01-01 | 1.18 | 1.88 | 1.39 |
| 2017-04-01 | 1.17 | 1.86 | 1.35 |
| 2017-07-01 | 1.08 | 1.76 | 1.31 |
| 2017-10-01 | 0.94 | 1.65 | 1.31 |
| 2018-01-01 | 0.84 | 1.57 | 1.38 |
| 2018-04-01 | 0.94 | 1.78 | 1.55 |
| 2018-07-01 | 0.91 | 1.82 | 1.57 |
| 2018-10-01 | 0.95 | 1.96 | 1.61 |
| 2019-01-01 | 0.98 | 2.12 | 1.52 |
| 2019-04-01 | 1.00 | 2.01 | 1.42 |
| 2019-07-01 | 1.02 | 1.94 | 1.58 |
| 2019-10-01 | 0.93 | 1.82 | 1.61 |
| **Total period average** | 1.10 | 2.07 | 1.17 |
| **5-year average (1/2015–10/2019)** | 1.15 | 2.09 | 1.43 |

[29] The values in this Table are the author's calculations using data from FRED® Economic Data, *infra* notes 30–33.

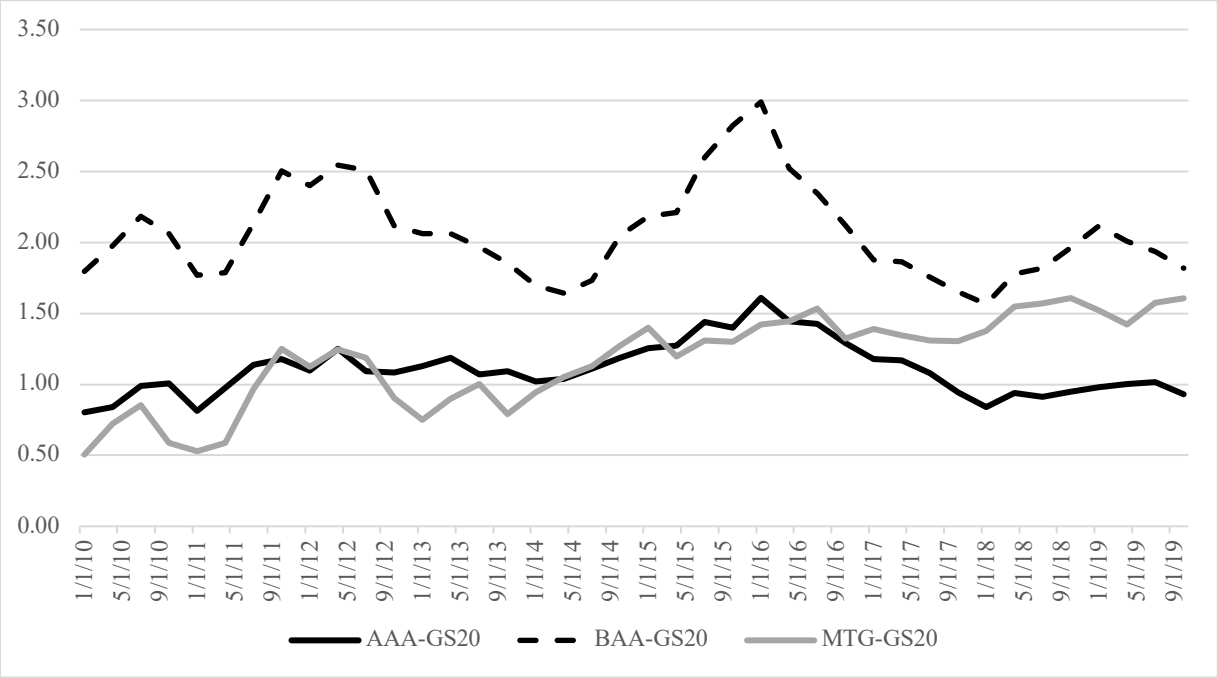
[30] AAA = Moody's Seasoned Aaa Corporate Bond Yield, Percent, Quarterly, Not Seasonally Adjusted. *Moody's Seasoned Aaa Corporate Bond Yield (AAA)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/AAA [https://perma.cc/ZS7V-9VB8] (last updated June 10, 2020).

[31] GS20 = the 20-Year Treasury Constant Maturity Rate, Percent, Quarterly, Not Seasonally Adjusted. *20-Year Treasury Constant Maturity Rate (DGS20)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/DGS20#0 [https://perma.cc/8JE9-8KS2] (last updated June 12, 2020).

[32] BAA = Moody's Seasoned Baa Corporate Bond Yield, Percent, Quarterly, Not Seasonally Adjusted. *Moody's Seasoned BAA Corporate Bond Yield (BAA)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/BAA [https://perma.cc/R73X-XRUV] (last updated June 11, 2020).

[33] MTG = 30-Year Fixed Rate Mortgage Average in the United States, Percent, Quarterly, Not Seasonally Adjusted. *30-Year Fixed Mortgage Average in the United States (MORTGAGE30US)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/MORTGAGE30US [https://perma.cc/2BM4-WYKE] (last updated June 11, 2020).

**Figure 1. Credit Spreads: Government, Corporate, Mortgages (Percent)**




## Assumptions Used to Estimate Corporate Baa/Treasury Spread for 2013–2019 Period[34]

Table 1 and Figure 1 in Part IV above are used to calculate credit spreads between mortgage borrowing costs, government securities, and corporate bonds (Aaa and Baa). Conversely, this note and Table 2 below are an attempt to estimate credit spreads between borrowing costs on student loans, government securities, and Baa corporate bonds.

As discussed in the Article,[35] since 2013, rates on major student loans are calculated as the cost of 10-year treasuries plus a 2.05% statutorily determined add-on. Turning to corporate bonds, the spread between Moody's Seasoned Baa Corporate Bond and 10-year treasuries for the relevant period was 2.40% (see Column 1 below in Table 2 below). This spread, however, is likely an overestimation, given that the Moody's time series is based on corporate bonds with maturities 20 years and above. The reason is that longer maturities often require a "term-premium," such that if direct observations on 10-year corporate bond maturities were used, their yield would have been lower.

Columns 2–4 in Table 2 below attempt to control for the term premium by calculating term-spreads within the Treasury yield curve. Three such spreads are calculated: the difference between 20-year and 10-year treasuries; the difference between 30-year and 20-year treasuries; and the difference between 30- and 10-year treasuries (the sum of the two previous spreads). The average term spreads for the period were 37 bps (20-10 year spread), 24 bps (30-20 year spread) and 61 bps (30-10 year bps spread).

The 2% estimation used in the Article text is based on the assumption that most corporate bonds in the Moody's index are likely to have maturities closer to 20 than 30 years, such that the relevant term spread would be 37 bps. The 2% estimation thus equals the 2.4% Moody's index figure minus a 37 bps estimated term spread. Note that if the average maturity of bonds included in the Moody's index is greater than 20 years, the equivalent maturity credit spread would be even lower.

[34] This note regarding assumptions corresponds to Nadav Orian Peer, *Public Purpose Finance: The Government's Role as Lender*, 83 LAW & CONTEMP. PROBS., no. 1, 2020, at 101, 120 nn.111–12.
[35] *Id.*

**Table 2. Accounting for the Term Premium in Baa Corporate Debt (20 Years and Above) Relative to 10-Year Treasury Securities[36]**

| Date | 1. BAA-GS10[37] | 2. DGS20-GS10[38] | 3. GS30-GS20[39] | 4. GS30-GS10[40] |
|---|---|---|---|---|
| 2013-07-01 | 2.69 | 0.73 | 0.28 | 1.01 |
| 2013-10-01 | 2.61 | 0.76 | 0.28 | 1.04 |
| 2014-01-01 | 2.35 | 0.65 | 0.27 | 0.92 |
| 2014-04-01 | 2.20 | 0.56 | 0.26 | 0.82 |
| 2014-07-01 | 2.24 | 0.51 | 0.26 | 0.77 |
| 2014-10-01 | 2.46 | 0.42 | 0.27 | 0.69 |
| 2015-01-01 | 2.53 | 0.35 | 0.23 | 0.58 |
| 2015-04-01 | 2.67 | 0.46 | 0.26 | 0.72 |
| 2015-07-01 | 3.02 | 0.42 | 0.31 | 0.74 |
| 2015-10-01 | 3.23 | 0.41 | 0.36 | 0.77 |
| 2016-01-01 | 3.39 | 0.40 | 0.40 | 0.80 |
| 2016-04-01 | 2.91 | 0.40 | 0.42 | 0.82 |
| 2016-07-01 | 2.69 | 0.35 | 0.37 | 0.72 |
| 2016-10-01 | 2.51 | 0.38 | 0.31 | 0.69 |
| 2017-01-01 | 2.22 | 0.34 | 0.26 | 0.60 |
| 2017-04-01 | 2.23 | 0.37 | 0.26 | 0.64 |
| 2017-07-01 | 2.09 | 0.33 | 0.24 | 0.58 |
| 2017-10-01 | 1.90 | 0.25 | 0.20 | 0.45 |
| 2018-01-01 | 1.71 | 0.15 | 0.13 | 0.27 |
| 2018-04-01 | 1.86 | 0.08 | 0.09 | 0.16 |
| 2018-07-01 | 1.89 | 0.07 | 0.07 | 0.14 |
| 2018-10-01 | 2.11 | 0.14 | 0.09 | 0.23 |
| 2019-01-01 | 2.32 | 0.20 | 0.16 | 0.36 |
| 2019-04-01 | 2.26 | 0.25 | 0.19 | 0.44 |
| 2019-07-01 | 2.22 | 0.29 | 0.20 | 0.49 |
| 2019-10-01 | 2.12 | 0.30 | 0.16 | 0.46 |
| Avg. since Jul. 2013 | 2.40 | 0.37 | 0.24 | 0.61 |

[36] The values in this Table are the author's calculations using data from FRED® Economic Data, *infra* notes 37–40.
[37] BAA-GS10 = *Moody's Seasoned Baa Corporate Bond Yield [minus] 10-Year Treasury Constant Maturity Rate*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/graph/?g=fk1 [https://perma.cc/SY5B-7HRT].
[38] GS20-GS10 = Author's calculation of difference between 20-Year Treasury Constant Maturity Rate and 10-Year Treasury Constant Maturity Rate. *20-Year Treasury Constant Maturity Rate (DGS20)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/DGS20 [https://perma.cc/EV4K-N9X4] (updated June 12, 2020); *10-Year Treasury Constant Maturity Rate (DGS10)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/DGS10 [https://perma.cc/8RQK-NNW9] (last updated June 12, 2020).
[39] GS30-GS20= Author's calculation of difference between 30-Year Treasury Constant Maturity Rate and 20-Year Treasury Constant Maturity Rate. *30-Year Treasury Constant Maturity Rate (DGS30)*, FED. RESERVE BANK OF ST. LOUIS ECON. RESEARCH, https://fred.stlouisfed.org/series/DGS30 [https://perma.cc/5KH2-VTSS] (last updated June 12, 2020); *20-Year Treasury Constant Maturity Rate (DGS20)*, *supra* note 38.
[40] GS30-GS10= Author's calculation of difference between 30-Year Treasury Constant Maturity Rate and 10-Year Treasury Constant Maturity Rate. *30-Year Treasury Constant Maturity Rate (DGS30)*, *supra* note 38; *10-Year Treasury Constant Maturity Rate (DGS10)*, *supra* note 38.

**Table 3. GSE Guarantee Fees (Basis Points)[41]**

| | Upfront fees | Ongoing fees | Total |
|---|---|---|---|
| 2007[42] | 5 | 17 | 22 |
| 2008 | 11 | 14 | 25 |
| 2009[43] | 9 | 13 | 22 |
| 2010 | 10 | 14 | 24 |
| 2011 | 12 | 15 | 26 |
| 2012 | 11 | 26 | 36 |
| 2013 | 11 | 40 | 51 |
| 2014[44] | 15 | 43 | 57 |
| 2015 | 16 | 42 | 59 |
| 2016 | 16 | 40 | 56 |
| 2017 | 15 | 38 | 53 |
| 2018 | 15 | 40 | 55 |

[41] The data in this table correspond to Nadav Orian Peer, *Public Purpose Finance: The Government's Role as Lender*, 83 LAW & CONTEMP. PROBS., no. 1, 2020, at 101, 120 n.102.
[42] The data for 2009–2013 come from FED. HOUSING FIN. AGENCY, FANNIE MAE AND FREDDIE MAC SINGLE-FAMILY GUARANTEE FEES IN 2007 AND 2008, at 20 (2009).
[43] The data for 2009–2013 come from FED. HOUSING FIN. AGENCY, FANNIE MAE AND FREDDIE MAC SINGLE-FAMILY GUARANTEE FEES IN 2013, at 8 (2014).
[44] The data for 2014–2018 come from FED. HOUSING FIN. AGENCY, FANNIE MAE AND FREDDIE MAC SINGLE-FAMILY GUARANTEE FEES IN 2018, at 8 (2019).