



How to Evaluate the Pricing of Ratepayer-Backed Bonds

Using Comparable High-Quality
Corporate Securities to Evaluate Costs to
Ratepayers When Negotiating with
Utilities and Underwriters

June 11, 2022

Paul Sutherland
Saber Partners, LLC

Table of Contents

INTRODUCTION	2
FIGURE 1 CORPORATE BOND ISSUERS RATED AAA/AAA (MOODY’S AND S&P) SINCE 2000.....	3
WHAT IS PRICING EFFICIENCY AND WHY IS IT IMPORTANT IN PRICING SECURITIES?	3
ALL BENCHMARKS ARE NOT ALIKE IN QUALITY OR PURPOSE	4
FIGURE 2 HISTORICAL NEW ISSUE PRICING SPREADS TO BENCHMARK SWAPS.....	5
FIGURE 3 JUNE 15, 2015, YIELD CURVES.....	6
CORPORATE BENCHMARKS STILL MATTER FOR RELATIVE VALUE COMPARISONS	6
CALCULATION OF CREDIT SPREADS TO U.S. AGENCIES	6
FIGURE 4 - 2010-2016 RATEPAYER-BACKED BOND SPREADS TO INTERPOLATED U.S. AGENCIES CURVE	7
TABLE 1 – DUKE ENERGY FLORIDA PROJECT FINANCE PRICING	7
FIGURE 5 – BLOOMBERG I26 U.S. AGENCY YIELD CURVE.....	8
TABLE 2 – U.S. AGENCY YIELDS.....	9
FIGURE 6 - DUKE ENERGY FLORIDA PROJECT FINANCE VS. I-26 U.S. AGENCIES	9
TABLE 3 - DEF SPREADS TO AGENCIES	10
CALCULATING CUSTOMER/ RATEPAYER SAVINGS FROM ACTIVE MANAGEMENT	10
TABLE 4 – DUKE ENERGY FLORIDA PROJECT FINANCE INTEREST SAVINGS.....	10
WHAT TO DO WHEN THE MARKET CHANGES: FROM THE CREDIT CRISIS TO COVID-19	11
FIGURE 7 TIGHTENING OF CREDIT SPREADS U.S. BENCHMARK RATES, 2016 TO 2021	11
FIGURE 8 – PRICING COMPARISONS TO AAA CORPORATE SECURITIES FOR DEF AND SCE.....	12
BENCHMARKING TO A BASKET OF COMPARABLE SECURITIES	13
TABLE 5 – COMPARABLES AT SCE PRICING ON 2/17/2021 USING FINRA TRACE REPORTED INSTITUTIONAL TRADES OF \$250K OR MORE ...	13
FIGURE 9 – PRICING OF SCE RECOVERY FUNDING LLC ON 2-17-2021 VS. AAA COMPARABLE SECURITIES SECONDARY TRADE G-SPREADS	14
FIGURE 10 – PRICING OF DEP/DEC BONDS ON 11-17-2021 VS. AAA COMPARABLE SECURITIES SECONDARY TRADE G-SPREADS.....	14
TABLE 6 – IMPACT OF PRICING ABOVE THE HIGH-QUALITY BENCHMARK TRENDLINE.....	15
FIGURE 11 – VARIANCE TO COMPARABLES BY TRANCHE FROM JUNE, 2016 TO MAY, 2022	16
FIGURE 12 – COST OF INEFFICIENT PRICING IN BASIS POINTS FOR 9 RECENT TRANSACTIONS AND 3 EARLIER TRANSACTIONS	16
FIGURE 13 – COST OF INEFFICIENT PRICING FOR 9 RECENT TRANSACTIONS AND 3 EARLIER TRANSACTIONS: NPV AS % OF PRINCIPAL.....	17
SAVINGS FROM BETTER-THAN-AVERAGE PRICING EXECUTION	17
FIGURE 14 – PRICING EFFECTIVENESS BY TRANCHE FOR SCE PRICINGS RELATIVE TO THE AVERAGE OF ALL OTHERS	18
TABLE 7 – SAVINGS IN BASIS POINTS AND NPV FROM BETTER-THEN AVERAGE PRICING VS. HIGH-QUALITY BENCHMARK TRENDLINE.....	18
CONCLUSION	18
APPENDICES	20
APPENDIX A - AAA CORPORATE AND AGENCY COMPARABLES USED FOR ALL DEALS FROM 2/17/2021 THROUGH 5/11/2022	20
APPENDIX B - ADDITIONAL AAA CORPORATE AND AGENCY COMPARABLES USED FOR PGE 5/3/2022 WITH WAL OF 18.3 YEARS	21
APPENDIX C - AAA CORPORATE AND AGENCY COMPARABLES USED FOR DEF 6/15/2016.....	22
APPENDIX D - INTEREST RATE ENVIRONMENT IN 2021 AND 2022	23

Introduction

When pricing corporate debt securities, it is useful to compare indicative utility securitization or ratepayer-backed bonds¹ (RBB) pricings to recent new issues of comparable benchmark securities. Have ratepayers paid too much to Wall Street underwriters or investors? This is especially important for securities that are less liquid and/or not frequently issued and/or traded on the open secondary market. Unlike traditional cost of capital utility financing, there is no further review for a ratepayer-backed bond. Commissions and ratepayer representatives get “one shot” to get it right.

Moreover, after a pricing is complete, it is useful to perform such comparisons to evaluate the success (i.e., the quality) of the actual final pricing relative to other RBB pricings in the same period. This method helps finance managers determine the success in achieving the bond’s “**relative value**” in the marketplace under market conditions at the time of pricing.²

Relative Value is the critical component when evaluating pricing efficiency and success in achieving the lowest cost of funds for ratepayers.

The AAA or top credit rating on a bond does not guarantee the lowest cost of funds at any time in the market. Not all AAA-rated securities price alike. There is no single AAA rate. There are wide and material differences. The market is not “efficient” on its own. Markets are efficient when all market participants act assertively in their economic interests in negotiating pricings.

In the past, such RBB comparable securities have included:

- 1) AAA-rated corporate debt issues by issuers like Johnson & Johnson (JNJ) or Microsoft;
- 2) U.S. agencies debt issues by the likes of Fannie Mae (FNMA), Federal Home Loan Bank (FHLB), or Tennessee Valley Authority (TVA); or
- 3) AAA-rated asset-backed securities (ABS) of credit card receivables known as Credit Card bonds.

Credit Card ABS comparisons have been used for maturities of up to 10 years. However, since the financial crisis, there has been a lack of longer-term issues. So, they are only really useful for 2 and 5-year maturities though securities firms and other still quote credit spreads for up to 10-year maturities.

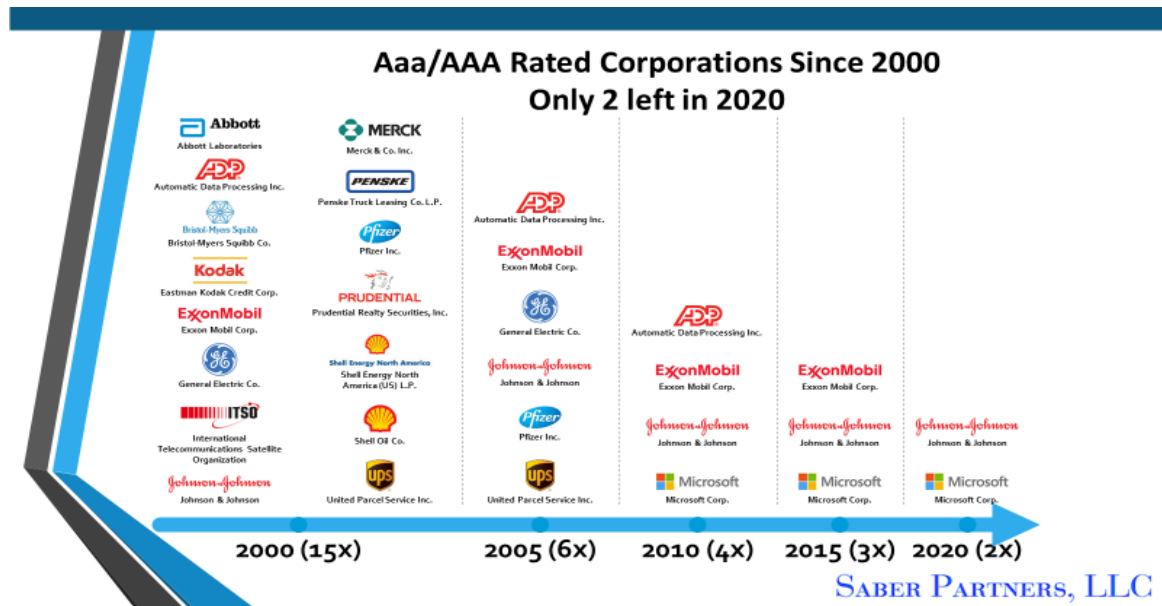
Corporate issue comparables are limited because there are only two remaining corporate issuers, JNJ and Microsoft (MSFT), rated AAA by both major rating agencies, Moody’s and Standard & Poor’s. Tennessee Value Authority (TVA) is another private corporation, but it has U.S. government ownership and is treated more as a quasi U.S. government agency.

¹ Also referred to as “ratepayer obligation charge,” “rate reduction,” or “stranded cost” bonds in general or for specific uses such as storm cost securitization or nuclear asset recovery bonds among others.

² See Saber Partners, LLC, “Pricing Utility Securitizations/Ratepayer-Backed Bonds: How to Evaluate Success in the Capital Markets” © Copyright 2018

While some issuers may be rated AAA by one rating agency, they are not AAA-rated by both of the two major rating agencies. There are a few more high-quality corporate issuers just one notch below AAA like Apple and Amazon and now Exxon. While not pure AAA, investors treat them almost as if the top category. They are good but not perfect comparables to AAA.

Figure 1 Corporate Bond Issuers Rated Aaa/AAA (Moody’s and S&P) Since 2000



What is Pricing Efficiency and Why Is It Important in Pricing Securities?

The term *efficient market* is a theoretical concept that says that the price of a security incorporates all publicly available information about the security into its price. Consequently, if markets are in fact efficient, there will be only one price for a given security at a particular time. Thus, for example, a share of General Motors stock would not trade at one price on the New York Stock Exchange while another share of GM stock trades at a different price on a different exchange. The same would be true for bond prices. In like manner, if two bonds had essentially all the same relevant characteristics of term, callability, financial risk, liquidity, taxability, etc., then the bonds should be priced to have the same yield even if the issuers are different.

Unfortunately, financial markets are not 100% efficient, and the markets for some types of securities are more efficient than others. The markets for conventional corporate bonds and for U.S. government bonds tends to be more efficient because of the large amount of bonds outstanding and the high volume of trades each day the market is open. Thus, when corporate bonds are priced, they will usually be priced very close to the yields on similar bonds that are outstanding. Unfortunately, the market for RBBs is not nearly as efficient due to the lack of bonds outstanding and the much lower trading volume. Consequently, two different RBBs that are the same in every way but from two different issuers might be priced around the same time with different yields. The purpose of benchmarking, then, is to be able to see how much of the difference is due to changes in the market and how much is due to poor execution of the deal.

While efficient market theory assumes that all potential buyers have all publicly available information about a security, that might not be true if the underwriters do not do a good job of marketing the bonds. The objective for choosing the right benchmark is to choose a security that is similar to the RBB in terms of risk, term, etc. so that its yield moves in the market as closely as possible to the RBB. By measuring the spread to the benchmark rather than the absolute yield on the RBB, we can compare different RBB pricings over time while filtering out market changes. An RBB pricing that comes the closest to the benchmark would be considered the most efficient pricing. The following discussion describes various types of benchmarks that have been used to compare RBB pricings at various points over the last 2 decades.

All Benchmarks Are Not Alike in Quality or Purpose

Underwriters use one type of debt benchmark when they make an offer to buy a new issue of debt security from an issuer for resale to investors. Both during the bond's pre-marketing period – where only “indication of interest” can be solicited – and in the final marketing and sale when investor orders can be taken, underwriters do not offer to buy the securities at a specific bond yield.³ Rather, they offer to buy at a specific spread (in basis points) over the yield of a specific, highly liquid and high-quality benchmark security (Pricing Benchmark).

For conventional corporate debt, that benchmark security is usually United States Treasury (UST) notes and bonds. For structured products like asset-backed securities (ABS), the benchmark historically has been the LIBOR fixed interest swap rate.

Utility securitization debt in years past has most often priced like ABS securities as a “spread to swaps.” However, in recent years more RBBs have been priced off the UST curve and are structured and priced like conventional corporate debt. Examples of this includes the 2016 Duke Energy Florida Project Finance, LLC⁴ transaction, as well as the PE and MP Environmental Funding bonds offered in 2007 and 2009. Saber Partners was advisor to the Florida Public Service Commission and the West Virginia Public Service Commission respectively for those transactions. In 2021, the SCE Recovery Funding Bonds, PG&E Recovery Funding Bonds and the Duke Energy Progress and Duke Energy Carolinas NC Storm Funding Bonds were all priced off of US Treasuries, as well as the SCE Green Recovery Bonds and the DTE Electric Securitization Funding Bonds in 2022.

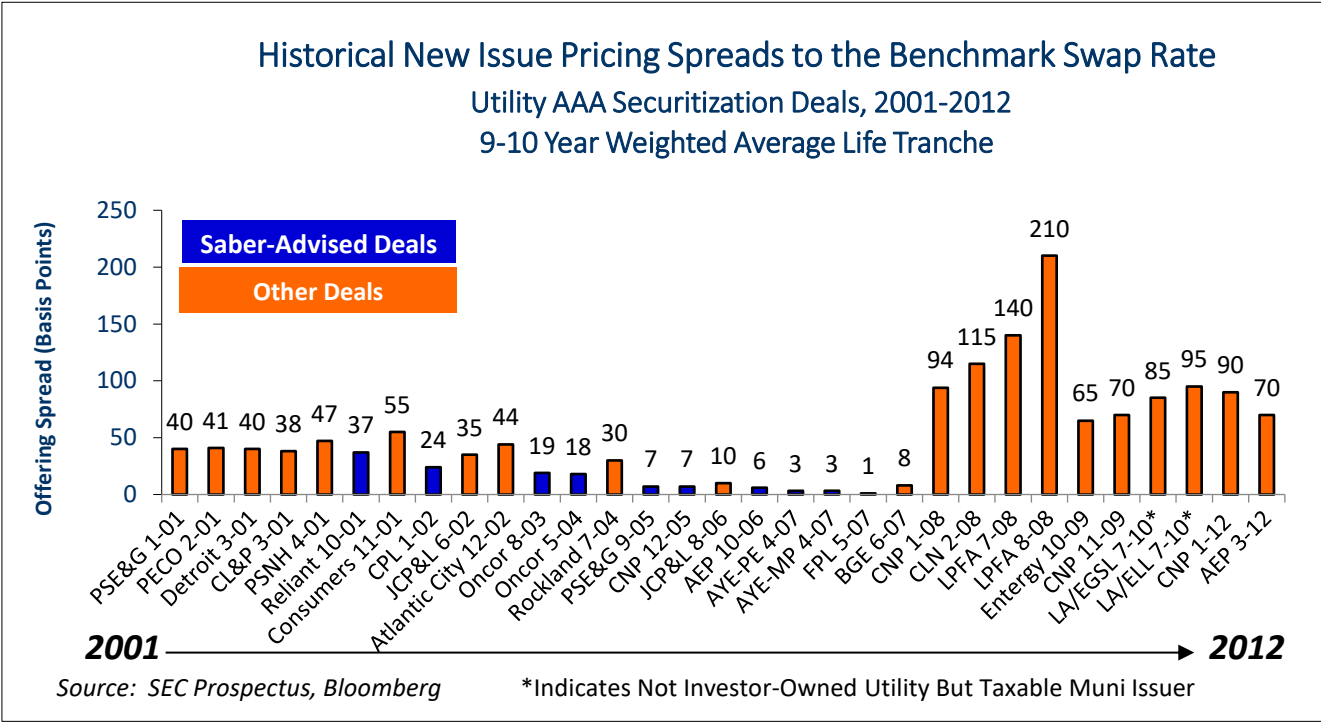
From the issuer's perspective, it is difficult to judge relative value and the attractiveness of the underwriter's offer based solely on the spread to a Pricing Benchmark. This is, in part, because credit spreads to Pricing Benchmarks can change dramatically over time, depending on economic and other conditions that are independent of the issuers and their credit worthiness. A spread that might seem good today might be bad a year from now and vice versa.

Figure 2, below, shows how new issue pricing of RBBs to swaps was dramatically affected by the Great Recession in 2008-2009/credit crisis as investors dramatically and fundamentally reconsidered the pricing of credit and liquidity risk premium in bonds.

³ These are the rules for publicly offered securities that are registered with the U.S. Securities and Exchange Commission (SEC).

⁴ See Duke Energy Florida Project Finance, LLC SEC filings: [DEF Term Sheet](#), [Prospectus](#) and [Final Pricing Advice and Issuance Advice Letter](#) filed with the Florida Public Service Commission

Figure 2 Historical New Issue Pricing Spreads to Benchmark Swaps

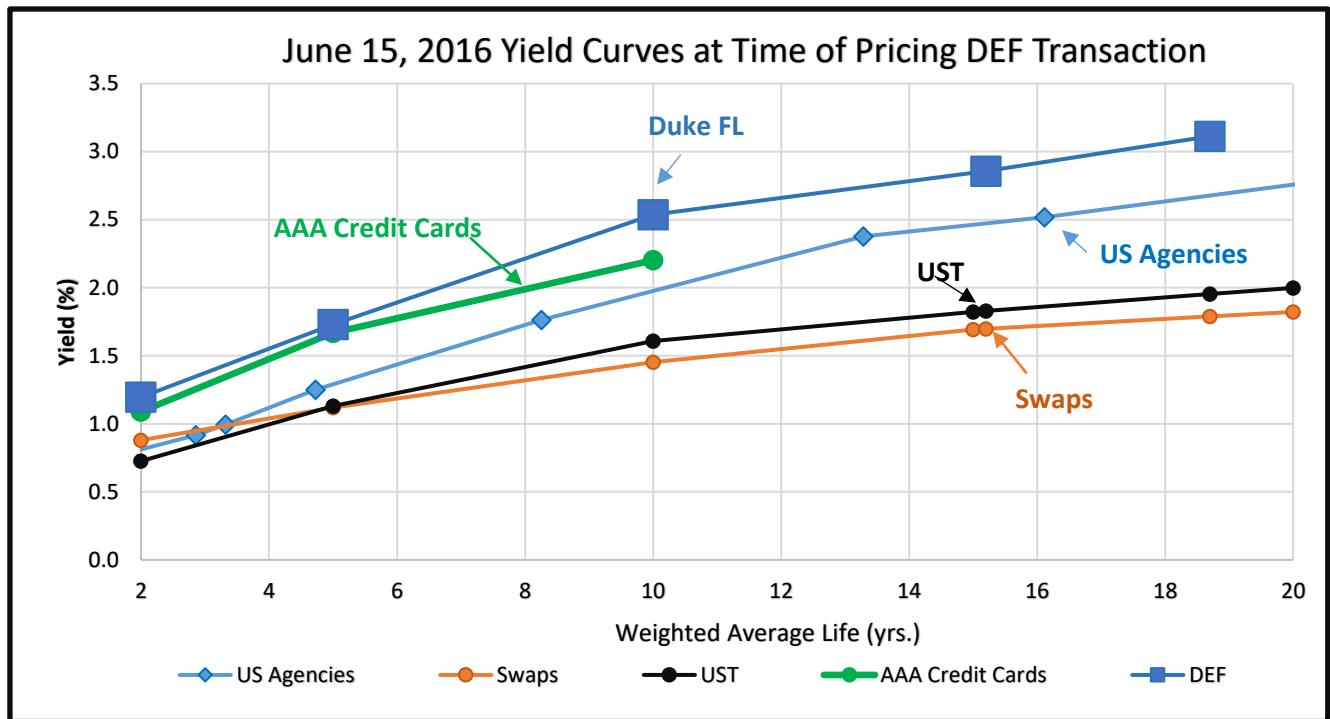


Because of this variability in investor evaluations of credit and liquidity risk, issuers need to look for alternative “relative value” benchmarks. By doing so, issuers will be better able to judge the fairness and efficiency of any new issue pricing offer from underwriters. This will also allow issuers to evaluate how well a deal was priced relative to other similar RBB issuances and different maturities (weighted average life) over time.

Ideally, such benchmark securities would be as like RBB securities as possible over a wide range of maturities or weighted average lives (WALs).

Figure 3, below, shows yield curves for 4 different possible relative value benchmarks compared to the actual pricing of 5 series of Duke Energy Florida RBBs on June 15, 2016.

Figure 3 June 15, 2015, Yield Curves



As can be seen from Figure 3, both of the Pricing Benchmarks commonly used by underwriters (UST and Swaps) have rather wide spreads to the DEF issue, especially as WALs increase. Credit card securitizations seem to price very close to RBBs, but there are no such issues with maturities beyond 10 years and there are very few even at 10 years. U.S. Agency securities such as the FHLMC and FNMA, on the other hand, are AAA rated due to implicit government guarantees and price relatively close to the RBBs across the range of WALs up to about 16 years. Consequently, Saber used U.S. Agency securities as a relative value benchmark in the Duke Florida transaction in 2016. We did this both to evaluate underwriter pricing offers and to judge how we have done compared to other RBBs issued over time.

Corporate Benchmarks Still Matter for Relative Value Comparisons

While U.S. Agency securities are a valuable relative value benchmark, it is also useful to examine other types of debt such as highly rated corporate debt (e.g., AAA-rated JNJ and Microsoft). We also may want to consider electric utility first mortgage bonds, even though none are rated higher than AA. Electric utility debt may be relevant due to it being in the same industry and could be used to establish an absolute upper bound on any spread being contemplated for RBBs at pricing.

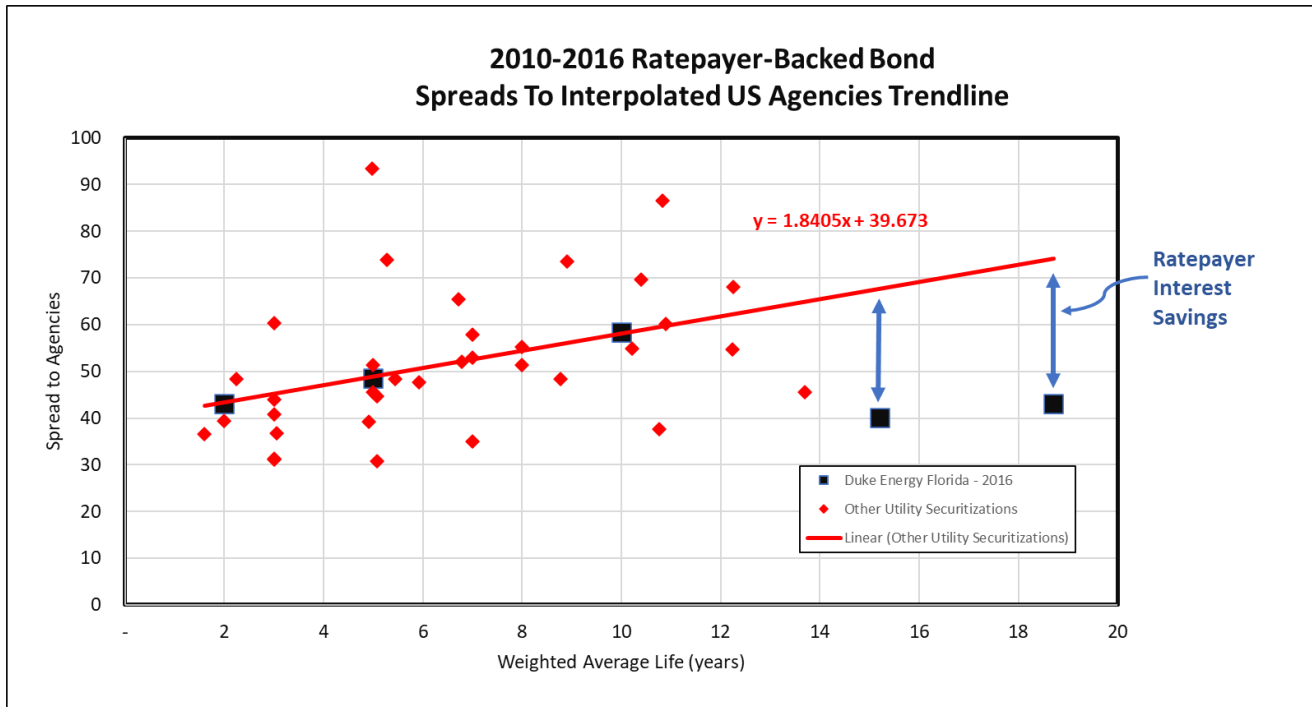
Calculation of Credit Spreads to U.S. Agencies

Following is a description of how such benchmarking to can be done, using Saber’s 2016 pricing of the Duke Energy Florida (DEF) Project Finance⁵ transaction as an example. Below is a graphical

⁵ See <http://www.floridapsc.com/library/filings/2016/03735-2016/03735-2016.pdf>

representation⁶ of the result showing the DEF pricing to the Agency benchmark compared to all other (non-Saber) RBBs over the period from 2010 through 2016.

Figure 4 - 2010-2016 Ratepayer-backed Bond Spreads to Interpolated U.S. Agencies Curve



The Duke Florida transaction was priced against *interpolated* U.S. Treasuries, i.e., known as the “Treasury G Curve” in 5 series (i.e., in 5 weighted average life maturities), as follows:⁷

Table 1 – Duke Energy Florida Project Finance Pricing

Tranche/Series	Principal Amount (\$)	Weighted Average Life (Years)	Yield (%)	Spread to G-curve - Interpolated UST (Basis Points (bps))	Spread to swaps (bps)
A-1/Series A 2018	\$183,000,000	2	1.20%	G + 47	Libor+31.6
A-2/Series A 2021	150,000,000	5	1.73%	G + 60	Libor+61.1
A-3/Series A 2026	436,000,000	10	2.54%	G + 93	Libor+108.6
A-4/Series A 2032	250,000,000	15.2	2.86%	G + 103	Libor+116.1
A-5/Series A 2035	275,290,000	18.7	3.11%	G + 116	Libor+132.5
Total	\$1,294,290,000		2.72%		

⁶ From Saber Partners, LLC “Savings Sensitivity Analysis Model V7 – Final Pricing”; Saber Partners, LLC Webinar November 30, 2017, slide #21”, and Duke Energy Florida Pricing Book, June 20, 2016

⁷ For comparison purposes, the corresponding swaps or Libor spreads are also included.

As said previously, one should not just compare U.S. Treasury spreads or Swap spreads for different RBB transactions to judge which ones were the best and worst executed. Those spreads vary due to many externalities which are not necessarily a function of how well the RBB deal was executed.

The key comparison focuses on relative value to a basket of comparables.

As shown in Figure 2, during the Great Recession that began in 2008, RBB pricing spreads widened substantially. Therefore, it is necessary to find benchmarks that price much closer to RBBs to provide valid comparative results, especially in the current volatile economic environment. U.S. Agency debt instruments meet that criterion.

Another potential problem if it is decided to use U.S. Agency debt as a benchmark, is to avoid “cherry-picking” i.e., selectively choosing data by selecting only those securities that justify/support one’s point while ignoring other data. This is because, unlike UST and swaps, no two Agency issues are exactly alike, even if they have the exact same WAL and same AAA bond rating.

To resolve this problem, we have used those U.S. Agency issues from the “Bloomberg I26 Agency Yield Curve”

Below is an example of an I26 U.S. Agency curve from Bloomberg.⁸

Figure 5 – Bloomberg I26 U.S. Agency Yield Curve



⁸ Bloomberg is a financial and news database subscription service widely used by capital markets participants.

To ensure the spreads to agencies is a valid comparison, it is important to determine that the U.S. Agency debt yields are reported with their actual WAL rather than just associated with the closest round number of years (e.g., 2, 5, 10) shown on the graph. Then we must interpolate to match any odd WALs of the securitization in question, such as the A-4 and A-5 series in the DEF deal (15.2 and 18.7 years, respectively).

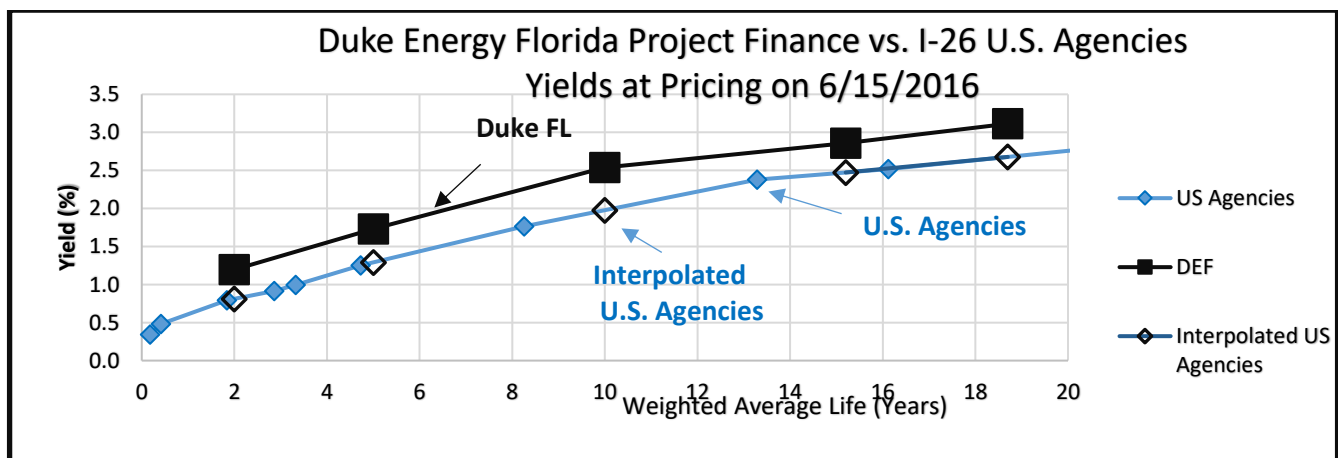
Below is a table showing the U.S. Agency debt issues and their respective values for comparison with the DEF pricing.

Table 2 – U.S. Agency Yields

I26 US Agencies Curve	Maturity	Weighted Average Life (years)	I26 U.S. Agencies Curve 06/15/16 Mid Price (%)	I26 U.S. Agencies Curve 06/15/16 Yield (%)
FNMDN 0 08/10/16 Corp	8/10/16	0.20	0.359	0.345
FREDN 0 11/04/16 Corp	11/4/16	0.40	0.468	0.483
FHLMC 0 ¾ 04/09/18 Corp	4/9/18	1.80	100.002	0.749
FHLMC 1 ¼ 04/15/19 Corp	4/15/19	2.90	100.734	0.862
FHLMC 1 ½ 10/02/19 Corp	10/2/19	3.30	100.997	0.948
FNMA 1 ¾ 02/26/21 Corp	2/26/21	4.70	100.801	1.199
FNMA 2 ¾ 09/06/24 Corp	9/6/24	8.30	106.851	1.727
FHLMC 6 ¾ 09/15/29 Corp	9/15/29	13.30	149.435	2.377
FHLMC 6 ¼ 07/15/32 Corp	7/15/32	16.10	149.456	2.497
FHLB 5 ½ 07/15/36 Corp	7/15/36	20.10	141.726	2.775

The Figure 6 graph below shows the yields for U.S. Agency issues from the Bloomberg I26 yield curve on the day of pricing (6/15/2016) in relation to the actual DEF yields for the five series.

Figure 6 - Duke Energy Florida Project Finance vs. I-26 U.S. Agencies



From this information, the following table can be constructed with the spreads between each of the 5 DEF series and the interpolated U.S. Agency yield curve.

Table 3 - DEF Spreads to Agencies

DEF Series	WAL (Years)	DEF Yield (%)	Interpolated Agency Yields (%)	Spread to Agencies (bps)
A-1/Series A 2018	2.0	1.196	0.766	+43
A-2/Series A 2021	5.0	1.731	1.245	+49
A-3/Series A 2026	10.0	2.538	1.954	+58
A-4/Series A 2032	15.2	2.858	2.458	+40
A-5/Series A 2035	18.7	3.112	2.681	+43
Overall		2.720		

These are the spreads to U.S. Agency debt shown in Figure 3. In a similar way, spreads to U.S. Agency debt for prior securitization deals were calculated for all deals priced between 2010 and 2016 and shown in Figure 4.

Calculating Customer/ Ratepayer Savings from Active Management

The graph in Figure 4 shows two linear regression lines, one generated by the five DEF pricing points and the other generated by all the pricing points from other securitizations between 2010 and 2016 (all of which were non-Saber deals).

The difference between each DEF pricing point and the non-Saber regression line at each of the five WALs can be considered a measure of Saber’s “Active Management” savings, in basis points. When multiplied by the dollar principal amount of each series, a total dollar savings amount from effective and efficient pricing can be estimated.

The following table shows the savings calculation.

Table 4 – Duke Energy Florida Project Finance Interest Savings

Tranche/Series	Principal Amount (\$)	Weighted Avg. Life (X axis)	Non-Saber Spread (Y axis)	DEF Spread (Y axis)	Basis Point Savings	Nominal Savings (\$)	NPV [1] Savings at 2.72% (\$)	NPV [2] Savings at 8.12% (\$)
A-1/Series A 2018	183,000,000	2	43.354	43.044	0.31	11,343	10,751	9,704
A-2/Series A 2021	150,000,000	5	48.876	48.621	0.254	19,055	16,663	12,897
A-3/Series A 2026	436,000,000	10	58.078	58.364	-0.286	-124,710	-95,359	-57,127
A-4/Series A 2032	250,000,000	15.2	67.649	40.039	27.609	10,491,547	6,977,501	3,202,343
A-5/Series A 2035	275,290,000	18.7	74.09	43.106	30.985	15,950,586	9,657,134	3,704,535
Total	\$1,294,290,000					\$26,347,822	\$16,566,689	\$6,872,351

(1) Discounted at the duration-weighted interest rate for the DEF bonds, which was 2.72%

(2) Discounted at DEF’s weighted average cost of capital of 8.12%.

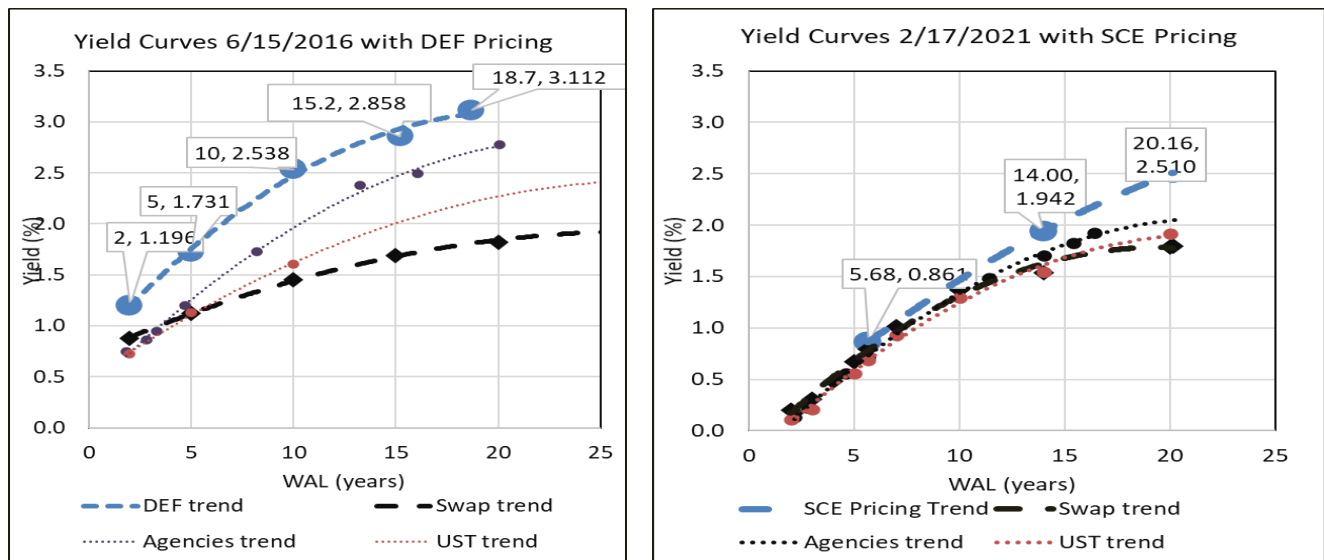
In the case of DEF, total net present value interest savings calculated using the above methodology totaled \$16.6 million when discounted at the RBB rate of 2.72% and \$6.9 million when discounted at DEF’s weighted average cost of capital (WACC) of 8.12%. Using the same methodology but including underwriting costs for both Saber and non-Saber deals, the NPV savings increases slightly to \$16.8 million discounted at the RBB or \$7.1 million discounted at Duke FL weighted average cost of capital of 8.12%.⁹

What To Do When the Market Changes: From the Credit Crisis to Covid-19

Occasionally, it may be desirable to compare a transaction done after a major market change to one completed before the market changed. For example, this might have been the case if it was desired to compare a deal done before with one don after the financial/credit crisis of 2008-2009.

More recently, there was a dramatic market change in March 2020 due to the COVID pandemic, when the Federal Reserve began buying corporate debt and helping mid-size businesses get loans for the first time ever. As a result, credit spreads tightened substantially. This could present problems, for example, in comparing the SCE Recovery Funding of 2/17/21 to the DEF Project Finance of 6/15/2016. This market shift is illustrated in Figure 7, below.

Figure 7 Tightening of Credit Spreads U.S. Benchmark Rates, 2016 to 2021



If we cannot use spreads to swaps, agencies or U.S. Treasuries to compare pricings before and after a financial shift, there is only one solution, however imperfect. That solution is to find debt securities that trade in the secondary market with no spread, or at least very little spread, to well-priced RBBs. That is easier said than done. Figure 8, below, shows the result of such a search for the longest tranche in both the DEF and the SCE financings.

⁹ If we were to look at non-Saber deals over a shorter period, for example 2013 to 2016, the savings calculated would be less but still significant at \$13.2 million (including underwriting costs).

Figure 8 – Pricing Comparisons to AAA Corporate Securities for DEF and SCE

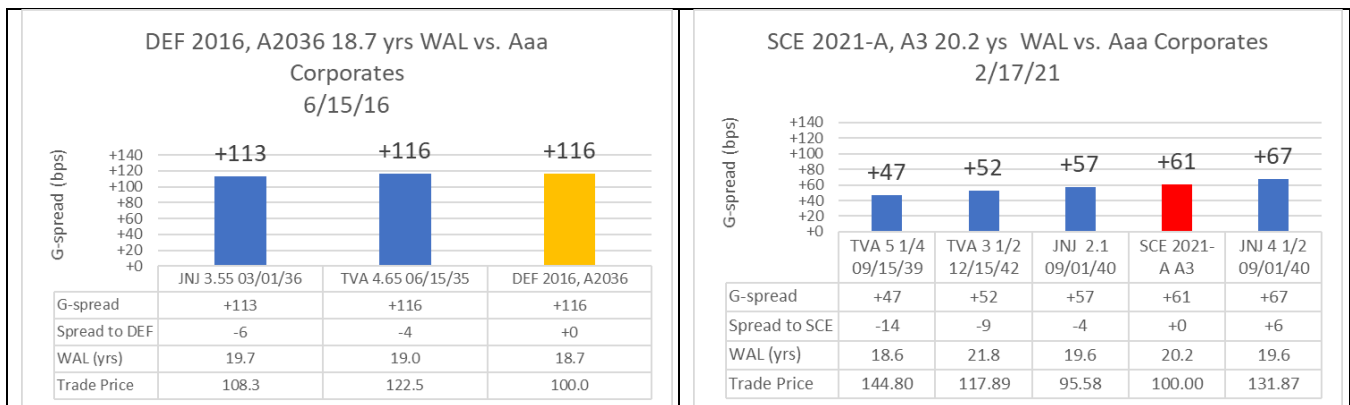


Figure 8 shows both the benefits and the downside of using individual comparable debt issues rather than an index or standardized yield curve such as UST, swaps or I-26 agencies. On the downside, there is a fair amount of variance in spreads for the same issuer with different issues depending on the coupon and price differences.

For example, with respect to the SCE comparables, J&J has two issues maturing on 9/1/2040.

- One has a coupon of 4.5% and a dollar price of 131.87.¹⁰
- The other has a coupon of 2.1% and a price of 95.58.

This means the investor in the former bond investors are paying a dollar price of \$131.87 over the face or par amount of the bond of \$100 which they will receive at maturity. This is known as a “premium bond.” Investors in the latter bond is paying a discount to par of \$442 for dollar price of \$95.58. They will receive \$100 back if held to maturity. Since the investors in the first bond receive less at maturity than what they paid, they usually want a higher yield/credit spread to compensate them for the big difference.

Consequently, the g-spread¹¹ on the former bond is 10 bps greater than the latter because it is a “premium bond.” Thus, the spread is overstated for purposes of comparison to the SCE pricing. Likewise, the J&J and TVA issues are both high-dollar price “premium bonds,” meaning their g-spreads are overstated for comparative purposes.

Here we see a 10 basis points difference attributable solely to the dollar price. There are market conventions for adjusting spreads as the price diverges from par. However, no specific rule exists and all prices are subject to negotiation. So in this case, it is 10 basis points while in other cases it could be much higher.

Similarly, the two TVA issues on the DEF chart are also premium bonds (although less than the 4.5% J&J bond) and so the spread is likely overstated for comparative purposes with DEF pricing. The other

¹⁰ Dollar prices for all bond transactions are required to be reported to Financial Industry Regulatory Authority (FINRA) by all broker-dealers within 15 minutes of the trade for market transparency.

¹¹ G-spread is the yield spread in basis points over an interpolated U.S. Treasury bond. This allows for an apples-to-apples comparison such that the WAL of the RBB is equal to the WAL of the U.S. Treasury used for comparison.

downside of this approach is that comparable issues can be cherry-picked by setting cut-off trade sizes or other parameters.

On the positive side, by looking at the two charts in Figure 8, one can feel comfortable saying that the two RBBs priced about equally well for the tranche in question, which is to say, just a few basis points over both JNJ and TVA, when adjusted for price and WAL differences. Thus, it is also fair to say that both RRBs priced their longest tranche equally well, given the financial environment, even though DEF priced with a g-spread of 116 bps while SCE priced with a g-spread of just 61 bps.

Benchmarking to a Basket of Comparable Securities

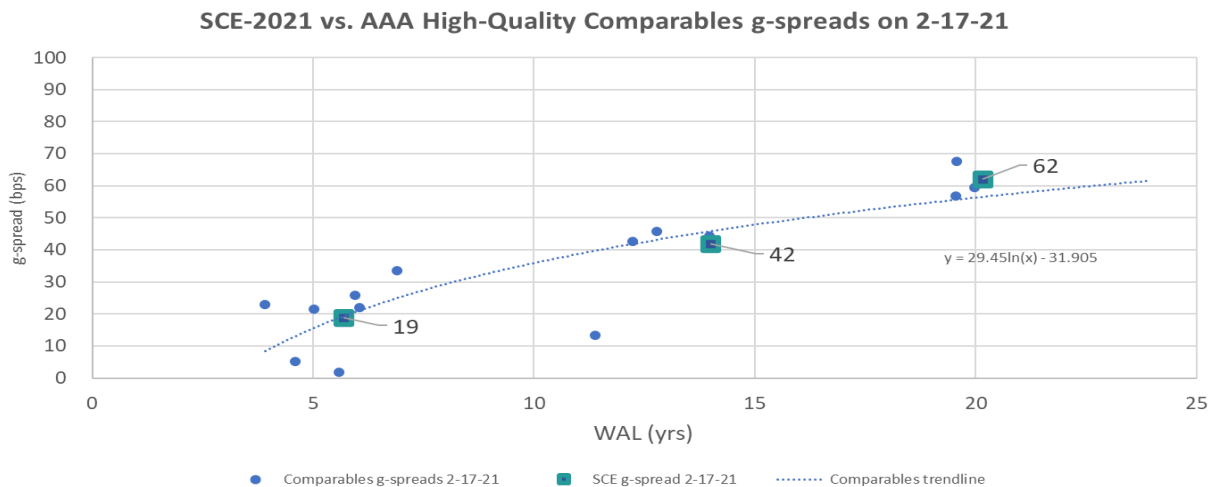
In order to avoid any accusations of “cherry picking” 2 to 4 securities in the secondary market that may have traded in small amounts or at steep discounts or premiums, another approach is to select all AAA corporates (and possibly US Agencies as well) that trade in the secondary market within a time period close to the RBB pricing date and then create a “best-fit” benchmark yield curve against which all the tranches in a particular RBB pricing can be judged. Table 5 shows a list of 14 comparable AAA corporate and U.S. Agency securities showing secondary trades within 2 weeks (and most within 2 days) of the pricing for the SCE Recovery Funding LLC securitization in February, 2021.

Table 5 – Comparables at SCE Pricing on 2/17/2021 Using FINRA TRACE Reported Institutional Trades of \$250K or More

#	CUSIP	Security Name	Issuer Name	M / S / F Rating	Maturity (years)	Last Trade Date	Trade Price	Trade Size (\$ 000s)	G-Spread (bps)	Yield (%)
1	478160CJ1	JNJ 2 5/8 01/15/25	Johnson & Johnson	Aaa / AAA / WD	3.9	2/12/2021	107.7	\$ 500	+23	0.54
2	ZO621537	FHLMC 0 3/8 09/23/25	Freddie Mac	Aaa / AA+ / AAA	4.6	2/17/2021	99.3	\$ 81,260	+5	0.53
3	478160BY9	JNJ 2.45 03/01/26	Johnson & Johnson	Aaa / AAA / WD	5.0	2/16/2021	107.9	\$ 300	+21	0.76
4	QZ659415	FNMA 1 7/8 09/24/26	Fannie Mae	Aaa / AA+ / AAA	5.6	2/17/2021	106.5	\$ 20,310	+2	0.68
5	594918BY9	MSFT 3.3 02/06/27	Microsoft Corp	Aaa / AAA / AAAu	6.0	2/17/2021	113.1	\$ 6,387	+26	0.94
6	478160CE2	JNJ 2.95 03/03/27	Johnson & Johnson	Aaa / AAA / WD	6.1	2/11/2021	112.0	\$ 3,810	+22	0.83
7	478160CK8	JNJ 2.9 01/15/28	Johnson & Johnson	Aaa / AAA / WD	6.9	2/17/2021	110.9	\$ 3,500	+33	1.19
8	EC523369	FHLMC 6 1/4 07/15/32	Freddie Mac	Aaa / AA+ / AAA	11.4	2/17/2021	149.8	\$ 27,005	+13	1.49
9	478160AL8	JNJ 4.95 05/15/33	Johnson & Johnson	Aaa / AAA / WD	12.2	2/16/2021	133.4	\$ 467	+42	1.88
10	478160BJ2	JNJ 4 3/8 12/05/33	Johnson & Johnson	Aaa / AAA / WD	12.8	2/17/2021	127.4	\$ 13,475	+46	1.87
11	594918BC7	MSFT 3 1/2 02/12/35	Microsoft Corp	Aaa / AAA / AAAu	14.0	2/16/2021	118.0	\$ 775	+44	1.97
12	478160CR3	JNJ 2.1 09/01/40	Johnson & Johnson	Aaa / AAA / NR	19.6	2/12/2021	95.6	\$ 2,000	+57	2.38
13	478160AV6	JNJ 4 1/2 09/01/40	Johnson & Johnson	Aaa / AAA / WD	19.6	2/5/2021	131.9	\$ 400	+67	2.44
14	594918AM6	MSFT 5.3 02/08/41	Microsoft Corp	Aaa / AAA / AAAu	20.0	2/17/2021	144.2	\$ 1,106	+59	2.48

By selecting securities over a range of maturities, it is possible to construct a yield curve of comparables to span the range of all tranches of the RBB being priced. Also, by including securities that are traded at a discount as well as others traded at a premium, we can minimize the risk of distortion of the curve from what it would be if all bonds were priced at par. Figure 9 shows how the g-spreads for the 3 tranches of the SCE financing priced in relation to the g-spreads of the secondary trades of the comparable securities.

Figure 9 – Pricing of SCE Recovery Funding LLC on 2-17-2021 vs. AAA Comparable Securities Secondary Trade G-spreads



From Figure 9 we can see that SCE priced virtually on top of the logarithmic trendline established from the set of 14 comparable securities. Other RBB pricings completed within a reasonably similar time period can be compared by using the same set of comparables but with secondary trades close to those other RBB pricings. For example, the Duke Energy Progress and Duke Energy Carolinas NC Storm Funding Bonds (DEP/DEC bonds) were priced 9 months later on 11/17/2021. However, as Figure 10 shows, while the benchmark yield curve moved up by about 7 basis points across the curve from 9 months earlier, the 5 tranches priced by Duke were 20 to 27 bps above the new comparables trendline.

Figure 10 – Pricing of DEP/DEC Bonds on 11-17-2021 vs. AAA Comparable Securities Secondary Trade G-spreads

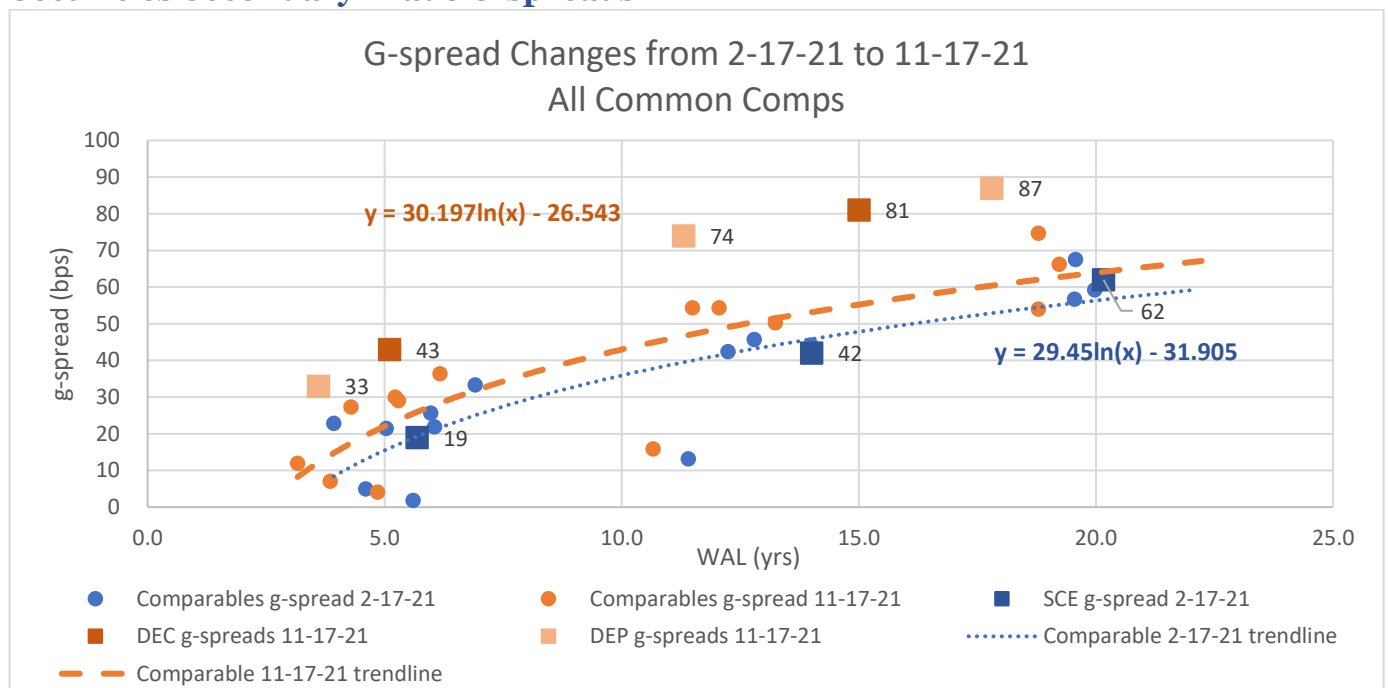


Table 6 – Impact of Pricing Above the High-Quality Benchmark Trendline

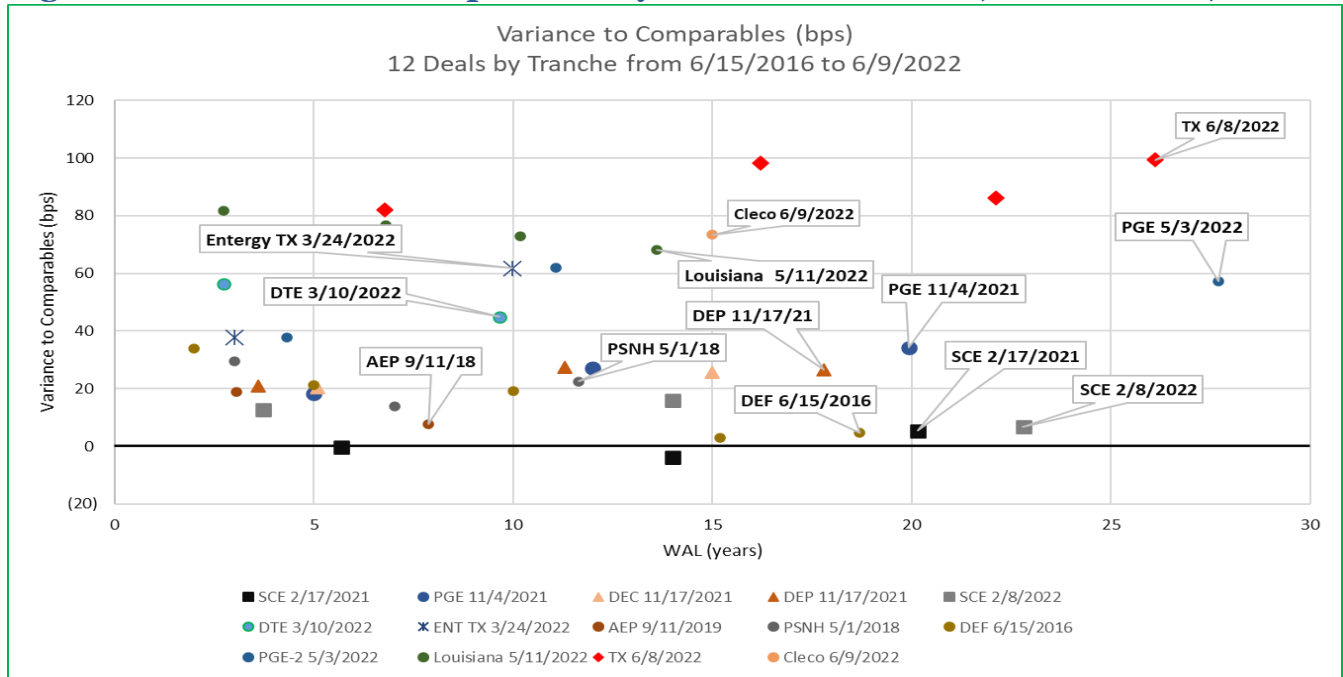
		DEC/DEP Pricing		11/17/2021					
Final Sch. Yrs. O/S (yrs.)	Tranche	WAL (yrs.)	g-spread (bps)	yield (%)	Principal Amount (\$millions)	Variance from Trendline (bps)	Cost vs. trendline (bps)	Approx. PVRR Cost vs. trendline (\$MM)	
19.6	DEC A-1	5.1	43	1.679	100.000	20.3			
	DEC A-2	15	81	2.610	137.210	25.8			
	Total/Wtd Average	10.83			237.210		24.7	3.6	
19.6	DEP A-1	3.6	33	1.295	221.000	20.9			
	DEP A-2	11.3	74	2.387	352.000	27.3			
	DEP A-3	17.8	87	2.799	196.627	26.6			
	Total/Wtd Average	10.21			810.210		26.4	13.8	
Grand Total									17.4

An overall variance in basis points from the trendline for each deal can be calculated as a weighted average of each tranche’s variance weighted by the WAL, principal amount and tranche variance. In this case, pricing above comparables cost each utility 24 to 26 basis points, on average. When the cost in annual revenue requirements is discounted at the utility’s estimated WACC, pricing above the comparables trendline cost ratepayers a total of about \$17 million. Such pricing might be referred to as inefficient pricing in that it is pricing away from where the market is pricing comparable AAA securities.

The methodology described above can be used to compare a group of RBB pricings if they all occur within a reasonable time period such that the same group of comparables can be used for all the deals¹². Figure 11 shows the variance to comparables by tranche for each of 9 RBB issuances between February, 2021 and May 2022. It is interesting to note that the SCE tranches for both the 2021 and 2022 deals are all priced closer to comparables than any tranches on any other of the 9 transactions. The chart also shows spreads to comparables for 3 deals priced from 2/15/2016 to 9/11/2019. The list of AAA comparables for these 3 deals is slightly different but with almost identical issuers. See Appendix C for the DEF 6/15/2016 list of comparables.

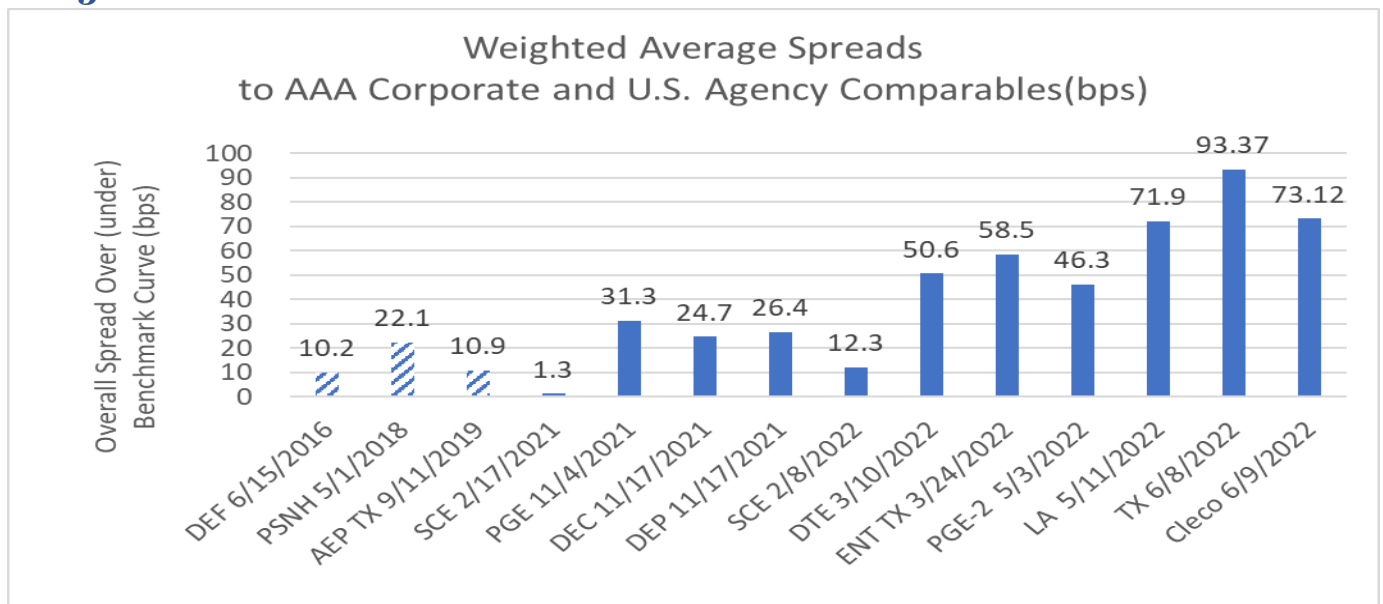
¹² This analysis used the same set of corporate and agency comparables for the deals between February, 2021 and May, 2022 with the exception that additional AAA issues with WAL greater than 19 years were added in the PGE 11/4/2021 analysis to address the extra long WAL of that transaction. See Appendix B.

Figure 11 – Variance to Comparables by Tranche from June, 2016 to June, 2022



It is also instructive to look at the overall weighted average spread to benchmark comparables, which is shown in Figure 12. This spread can be thought of as the cost of inefficient pricing, since there appears to be no identifiable market reason why the RBBs should have priced a any spread to comparables, with the possible exception of the 1 bp spread for the first SCE deal, which may be attributable to what is known as the “new issue concession”, i.e., the rate premium required to sell a new issue versus selling an existing issue in the secondary market.

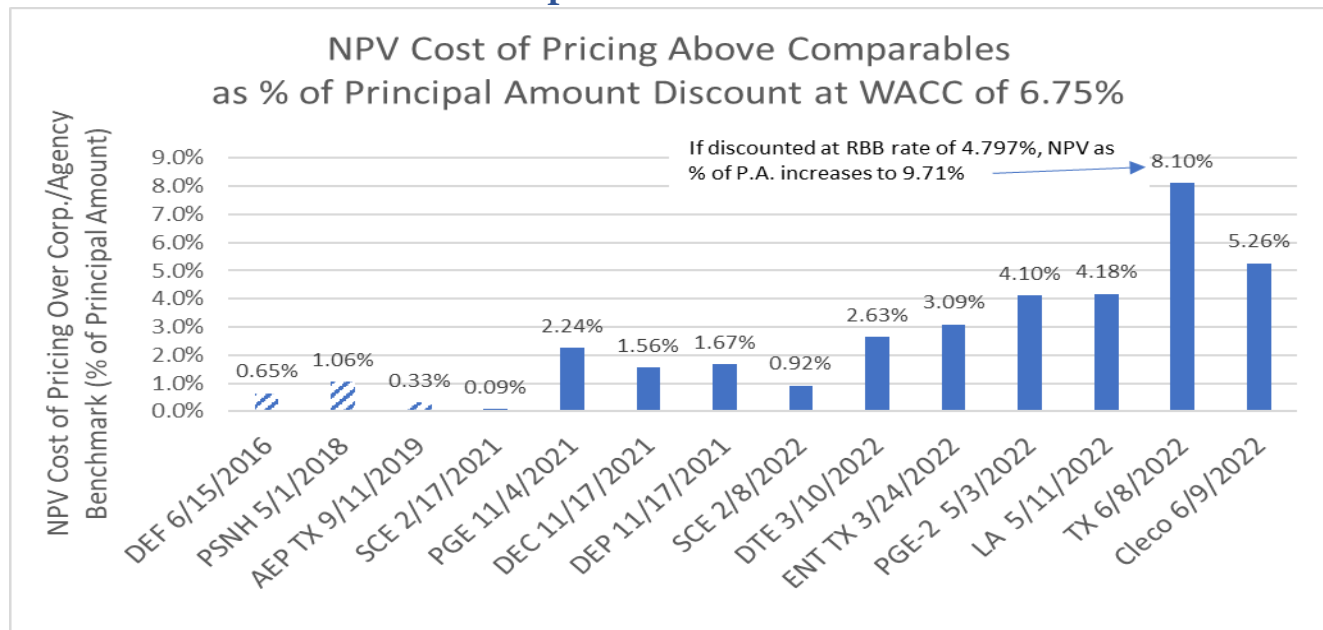
Figure 12 – Cost of Inefficient Pricing in Basis Points for 11 Recent Transactions and 3 Earlier Transactions



In trying to justify the increase in spread from SCE in February, 2021 to Texas ERCOT bonds priced on June 8 2022, some might argue that “market conditions changed” over that period. It is true that the interest rate has risen by about 1.7% on the 10-year U.S. Treasury bond. However, the comparables trendline g-spread has increased at the 10-year WAL by just 18 bps (.18%), and there is no reason to believe that the spread between the comparables trendline and the efficient RBB pricing has increased at all. At most, you might say it increased by eleven bps, i.e., the difference between the SCE pricing in 2021 and the same company’s pricing in 2022. That leaves 9 other RBB pricings that appear to not have been well executed, bearing in mind that the credit risk of an RBB is not related to the utility that sponsors the issuance but rather is primarily a function of the collective ratepayers of the utility (hence the name Ratepayer Backed Bonds).

This disparity in pricing is exactly the type of information that good benchmarking is designed to reveal. It can have very material consequences for ratepayers. Figure 13 shows the impact in terms of the net present value cost as a percentage of the principal amount of the financing.

Figure 13 – Cost of Inefficient Pricing for 11 Recent Transactions and 3 Earlier Transactions: NPV as % of Principal

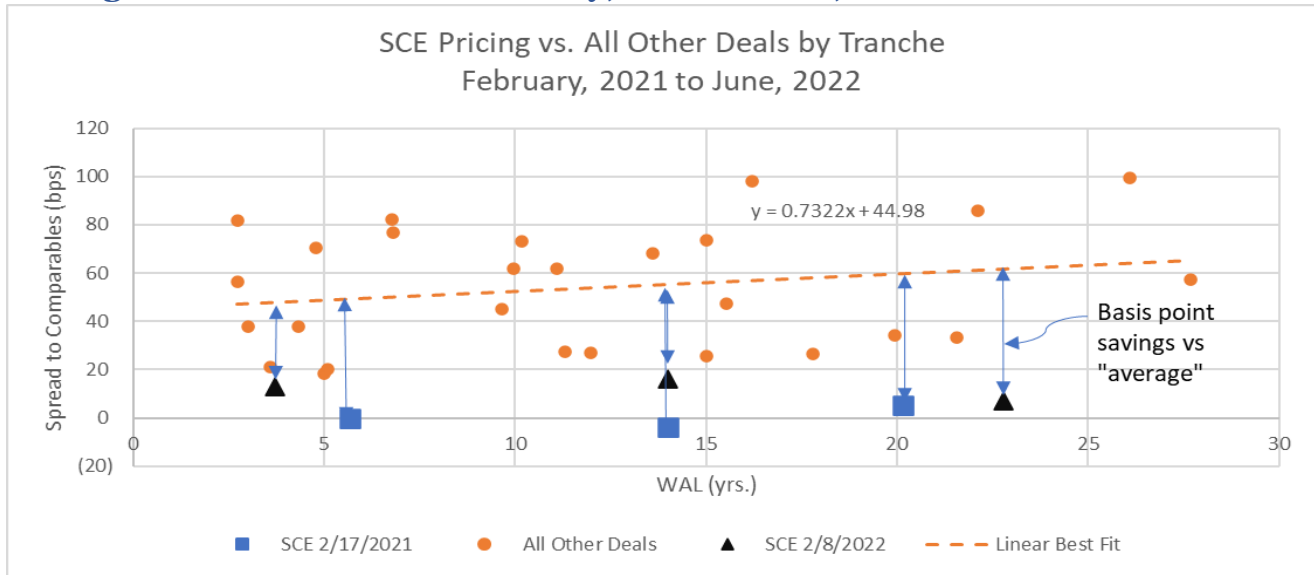


Savings from Better-than-Average Pricing Execution

For a variety of reasons, it is not always possible to price RBB issues with perfect pricing efficiency, i.e., right on top of the AAA comparables benchmark. The best-fit comparables trendline, is just that, i.e., the AAA comparables benchmark. It is the best fit to represent pricing over an entire yield curve, but it may not represent pricing that is achievable for a particular WAL on a particular day for a particular principal amount. Consequently, it may be appropriate to judge success by how well bonds are priced relative to the average spread to comparables of all other RBBs during a particular time period, looking at the pricing of all the tranches. Figure 14 shows how well the two SCE issues priced on 2/17/2021 and 2/8/2022, respectively, for each tranche compared to the average of all other RBB pricings from 2/17/2021 through 6/9/2022. This is similar to the approach shown in Figure 4 except that in this case

the basket of comparables is priced in the secondary market much closer, if not the same as, the best RBB pricing, and therefore less subject to changes in credit spread.

Figure 14 – Pricing Effectiveness by Tranche for SCE Pricings Relative to the Average of All Others from February, 2021 to June, 2022



The basis point savings shown in Figure 14 can be converted into NPV savings based on the principal amounts of the tranche in question and an assumed weighted average cost of capital (WACC) used as the discount rate, as shown in the following Table 7.

Table 7 – Savings in Basis Points and NPV from Better-than-Average Pricing vs. High-Quality Benchmark Trendline from February 2021 to June, 2022

Tranche	WAL (yrs.)	Principal Amount (\$ millions)	SCE Savings vs. All Others (bps)	Additional NPV Savings* from Better-Than Average Pricing (\$ millions)
EIX 2021 A1	5.7	137.783	49.4	
EIX 2021 A2	14.0	100.000	59.0	
EIX 2021 A3	20.2	100.000	54.3	
		<u>\$337.783</u>		<u>\$12.9</u>
EIX 2022 A1	3.7	100.000	35.0	
EIX 2022 A2	14.0	305.000	39.3	
EIX 2022 A3	22.8	128.265	54.9	
		<u>\$533.265</u>		<u>\$18.5</u>

* NPV Savings are calculated by discounting cash flows at an assumed WACC of 6.75%/year.

Conclusion

Various categories of debt securities may be useful in providing comparable securities, in some sense, during the marketing and pricing of RBB securitization bonds. These include high quality corporates

such as Johnson & Johnson and AAA-rated U.S. Agency debt. At the shorter end of the yield curve (2-5 years), credit card securitizations provide useful comparisons. It can also be useful to look at electric utility debt (first mortgage bonds) for limited purposes even though the highest rated of such debt is AA. While swap spreads have been used as benchmarks for RBBs in the past, they are not as useful now that the majority of RBBs are being priced off of U.S. Treasury bonds.

During periods of relative market stability, for quantifying pricing efficiency and dollar savings through effective and efficient pricing, using AAA-rated U.S. Agency debt may be the most useful and defensible approach to take with respect to RBB debt issuances up to 16 to 18 years WAL. However, during periods of major market changes and for longer-term RBBs, it may be necessary to give up the use of the I-26 U.S. Agency curve as an unbiased benchmark and instead use AAA corporate debt and U.S. Agencies, either individually or, preferably, as a basket of securities across an entire yield curve.

Appendices

Appendix A - AAA Corporate and Agency Comparables Used for All Deals from 2/17/2021 through 5/11/2022

#	CUSIP	Security Name	Issuer Name	M / S / F Rating
1	478160CJ1	JNJ 2 5/8 01/15/25	Johnson & Johnson	Aaa / AAA / WD
2	ZO621537	FHLMC 0 3/8 09/23/25	Freddie Mac	Aaa / AA+ / AAA
3	478160BY9	JNJ 2.45 03/01/26	Johnson & Johnson	Aaa / AAA / WD
4	QZ659415	FNMA 1 7/8 09/24/26	Fannie Mae	Aaa / AA+ / AAA
5	594918BY9	MSFT 3.3 02/06/27	Microsoft Corp	Aaa / AAA / AAAu
6	478160CE2	JNJ 2.95 03/03/27	Johnson & Johnson	Aaa / AAA / WD
7	478160CK8	JNJ 2.9 01/15/28	Johnson & Johnson	Aaa / AAA / WD
8	EC523369	FHLMC 6 1/4 07/15/32	Freddie Mac	Aaa / AA+ / AAA
9	478160AL8	JNJ 4.95 05/15/33	Johnson & Johnson	Aaa / AAA / WD
10	478160BJ2	JNJ 4 3/8 12/05/33	Johnson & Johnson	Aaa / AAA / WD
11	594918BC7	MSFT 3 1/2 02/12/35	Microsoft Corp	Aaa / AAA / AAAu
12	478160CR3	JNJ 2.1 09/01/40	Johnson & Johnson	Aaa / AAA / NR
13	478160AV6	JNJ 4 1/2 09/01/40	Johnson & Johnson	Aaa / AAA / WD
14	594918AM6	MSFT 5.3 02/08/41	Microsoft Corp	Aaa / AAA / AAAu

**Appendix B - Additional AAA Corporate and Agency Comparables Used For PGE
5/3/2022 with WAL of 18.3 years**

#	CUSIP	Security Name	Issuer Name	M / S / F Rating
15	478160BA1	JNJ 4.85 05/15/41	Johnson & Johnson	Aaa / AAA / WD
16	478160BK9	JNJ 4 1/2 12/05/43	Johnson & Johnson	Aaa / AAA / WD
17	594918BD5	MSFT 3 3/4 02/12/45	Microsoft Corp	Aaa / AAA / AAAu
18	478160BV5	JNJ 3.7 03/01/46	Johnson & Johnson	Aaa / AAA / WD
19	478160CS1	JNJ 2 1/4 09/01/50	Johnson & Johnson	Aaa / AAA / NR
20	594918BE3	MSFT 4 02/12/55	Microsoft Corp	Aaa / AAA / AAAu
21	880591DZ2	TVA 5 3/8 04/01/56	Tenn Valley Authority	Aaa / AA+ / AAA
22	478160CT9	JNJ 2.45 09/01/60	Johnson & Johnson	Aaa / AAA / NR
23	594918CF9	MSFT 3.041 03/17/62	Microsoft Corp	Aaa / AAA / AAAu

Appendix C - AAA Corporate and Agency Comparables Used For DEF 6/15/2016

#	CUSIP	Security Name	Issuer Name	M / S / F Rating
1	478160BR4	JNJ 1 1/8 03/01/19	Johnson & Johnson	Aaa / AAA / WD
2	594918BG8	MSFT 2 11/03/20	Microsoft Corp	Aaa / AAA / AAAu
3	478160BS2	JNJ 1.65 03/01/21	Johnson & Johnson	Aaa / AAA / WD
4	478160BT0	JNJ 2.05 03/01/23	Johnson & Johnson	Aaa / AAA / WD
5	594918BJ2	MSFT 3 1/8 11/03/25	Microsoft Corp	Aaa / AAA / AAAu
6	478160BY9	JNJ 2.45 03/01/26	Johnson & Johnson	Aaa / AAA / WD
7	478160BY9	JNJ 2.45 03/01/26	Johnson & Johnson	Aaa / AAA / WD
8	EC523369	FHLMC 6 1/4 07/15/32	Freddie Mac	Aaa / AA+ / AAA
9	478160BJ2	JNJ 4 3/8 12/05/33	Johnson & Johnson	Aaa / AAA / WD
10	594918BC7	MSFT 3 1/2 02/12/35	Microsoft Corp	Aaa / AAA / AAAu
11	594918BK9	MSFT 4.2 11/03/35	Microsoft Corp	Aaa / AAA / AAAu
12	478160BU7	JNJ 3.55 03/01/36	Johnson & Johnson	Aaa / AAA / WD
13	478160AV6	JNJ 4 1/2 09/01/40	Johnson & Johnson	Aaa / AAA / WD
14	594918AM6	MSFT 5.3 02/08/41	Microsoft Corp	Aaa / AAA / AAAu
15	594918BL7	MSFT 4.45 11/03/45	Microsoft Corp	Aaa / AAA / AAAu
16	478160BV5	JNJ 3.7 03/01/46	Johnson & Johnson	Aaa / AAA / WD

Appendix D - Interest Rate Environment in 2021 and 2022

