

Borrow to fund

Updated: Do PBGC premiums incent sponsors to borrow to fund their pension plans?



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ISSUE:

The Bipartisan Budget Act of 2015 (“BBA 2015”) increases premiums payable to the Pension Benefit Guaranty Corporation (“PBGC”), the third major increase since 2012¹. The variable rate component of these premiums is now a very significant cost for sponsors with underfunded pension plans. However, the same legislation makes it easier for an underfunded plan to be maintained, by giving greater flexibility to sponsors in determining their contribution schedules (i.e. reducing the required minimum contributions). Are sponsors better off taking advantage of the increased flexibility and deferring contributions, or is it better to fully fund the plan and avoid the PBGC variable premium?

RESPONSE:

Earlier analysis (following the previous round of increases) found that it was generally cheaper for sponsors to fully fund their pension plan – even if they needed to borrow money to do so – than to maintain the underfunded position. The latest increases in PBGC variable premiums strengthens that conclusion. Borrowing to fund the pension plan both eliminates PBGC variable rate premiums and allows the sponsor to take advantage of a tax arbitrage, especially if contributions and loan interest payments are tax-deductible. We believe that the changes brought about by the recent legislation should prompt sponsors to review their contribution strategies and to consider whether they can benefit by borrowing to fund their plan.

Background

Explanation of PBGC premiums

The PBGC is an independent government organization whose purpose is to provide pension benefits for participants in the defined benefit pension plans of organizations that, for one reason or another, it has been determined would be unable to meet their long term obligations. The PBGC can be thought of as the insurance system for corporate defined benefit pension plans. The main sources of the funds the PBGC uses to make these pension payments are: the assets held by plans taken over by the PBGC and the premiums paid by sponsors of defined benefit pension plans.

The PBGC collects the payment of premiums in two ways, through a “flat-rate premium” the sponsor pays for each plan participant and through a “variable rate premium” based on a percentage of the plan’s unfunded vested liabilities. Exhibit 1 shows the progression of the PBGC variable rate premium as a result of recent legislation.

Please note that these same legislations increased the flat-rate premium; however, we will ignore that for the purposes of this study, as the flat-rate premium is paid on a per-participant basis and therefore has no impact on the sponsor’s decision to fund the pension plan.² In addition, there is a PBGC variable rate premium cap of \$500 per participant, a rate that increases after 2016 in line with wage inflation³.

Exhibit 1: The impact of recent legislation on PBGC variable rate premiums 2016 – 2020, dollars shown are amounts payable per \$1,000 of unfunded vested benefits

	PRIOR TO MAP-21	MAP-21	BBA 2013	BBA 2015
2016	\$9	\$20	\$30	\$30
2017	\$9	\$20	\$31	\$34
2018	\$9	\$21	\$32	\$39
2019	\$9	\$21	\$33	\$44
2020	\$9	\$22	\$34	\$45

PBGC variable rate premiums are subject to annual increases in line with wage inflation, for this purpose, we have assumed that rate to be 3%.

Base case analysis⁴

Base case assumptions:

Amount of unfunded vested benefits	\$20 million
Liability discount rate	5%
Pension plan asset return	5%
Corporate tax rate	0%
Wage inflation	3%

Corporate debt structure is a seven-year mortgage-like bond, with level payments

Every sponsor of an unfunded pension plan faces the choice of either funding the plan now or contributing towards reducing the unfunded amount over a period of years. We will analyze the decision to immediately fund the pension versus funding over a seven-year period⁵. A sponsor who decides to fund over that period, will pay into the pension plan a level amount each year as a contribution. This process is called “amortization of unfunded liabilities”. For example, to fully fund a pension plan that is \$20 million underfunded and that uses a 5% discount rate, the sponsor will pay \$3,456,396 per year for seven-years.⁶ This amount, in a sense, includes both principal and interest and is therefore similar to paying a debt.

The sponsor of an underfunded plan also has the option of funding the entire amount at once, either by paying with corporate cash or by borrowing. This paper will further discuss the benefits of borrowing to fund the pension plan, by starting with a simplified example and then building out various complexities that exist within pension plans.

The sponsor who elects to fund a \$20 million shortfall over a seven-year period could also decide to issue debt and structure the payments such that they pay back that loan over a

seven-year period, with principal and interest, much like a mortgage. If the sponsor is able to borrow at 5%, the same rate at which the unfunded liability is amortized,⁷ then the annual payments to creditors would be \$3,456,396, the same as the annual contributions to the plan. This is cash-flow-neutral from the sponsor's perspective, and the sponsor would be indifferent between the two choices of a) funding over the seven-year amortization schedule and b) borrowing from creditors, contributing to the pension plan, and then repaying the creditors.

All else equal, it is fairly obvious, if a sponsor is able to borrow at a lower than 5% rate (because of their high credit rating), then they would prefer to borrow and fund the plan. A borrowing rate of lower than 5% would produce annual loan payments less than \$3,456,396 (the annual contribution) and therefore be advantageous to the sponsor. However, if the borrowing rate is greater than 5% (because of their low credit rating), their preference would be to fund the plan over time because their annual loan payments would exceed \$3,456,396. The only variable on the decision to borrow and fund would be whether or not the sponsor could issue debt at a rate less than the liability discount rate.

This paper will further analyze four items that may tip the scales in favor of the option to borrow and fund the plan and will use a breakeven interest rate approach for comparison.

The breakeven interest rate approach is to compare two payment streams, which differ by amount and timing, and solve for the interest rate that would make the present value of the payment streams equivalent. It is at this interest rate at which the sponsor would be indifferent between the two approaches to funding the pension plan. If the sponsor's borrowing rate is less than the breakeven interest rate then it would be more favorable to borrow and immediately fund the pension plan. However, if the company's borrowing rate is greater than the breakeven interest rate then it would be more favorable to fund the pension plan annually.

Those four key factors are the inclusion of:

1. PBGC variable rate premiums
2. A change from a mortgage loan structure to a more traditional corporate bond structure
3. Corporate tax rates and the tax deductibility of pension contributions and debt interest payments, and
4. Additional considerations that may impact the breakeven interest rate

Inclusion of PBGC variable rate premiums

The sponsor who decides to fund the plan over the seven-year amortization schedule will pay PBGC variable rate premiums, annually, on the amount of unfunded vested benefits. The sponsor who decides to borrow and immediately fund the plan will not pay this same amount. The difference is a tax, or penalty, that the sponsor must pay for being underfunded, and this amount can be thought of as additional interest that is paid each year. These PBGC payments must be incorporated in the breakeven interest rate analysis. This will make it more favorable for sponsors to borrow and fund their pension plans and will even allow them to borrow at higher rates than the assumed 5%. Exhibit 2 shows the breakeven interest rate and how it has changed through time with changes to the PBGC variable rate premium.

Exhibit 2: The impact of recent legislation on PBGC variable rate premium

YEAR	UNFUNDED LIABILITY	PRIOR TO MAP-21	MAP-21	BBA 2013	BBA 2015
2016	\$20,000,000	\$180,000	\$400,000	\$600,000	\$600,000
2017	17,543,604	157,892	350,872	543,852	596,483
2018	14,964,387	134,679	314,252	478,860	583,611
2019	12,256,210	110,306	257,380	404,455	539,273
2020	9,412,625	84,714	207,078	320,029	423,568
2021	6,426,859	57,842	147,818	224,940	302,062
2022	3,291,806	29,626	75,712	118,505	158,007
Breakeven rate	5.00%	5.89%	7.05%	8.11%	8.66%

We define the breakeven rate in Exhibit 2 to be the highest rate at which the sponsor would be willing to borrow in order to fund the pension plan and therefore avoid paying PBGC premiums. Remember, the initial borrowing rate prior to the inclusion of PBGC premiums was 5%. From the exhibit, we can see that even prior to MAP-21's increasing PBGC premiums; sponsors would have been willing to borrow at rates of up to 5.89% to fund the pension plan. As PBGC premiums have increased, the case has been made even stronger. Sponsors would now be willing to borrow at rates up to 8.66% in order to immediately fund and avoid paying PBGC premiums. In the examples above, the additional interest payable to creditors is equivalent to the payment of annual PBGC premiums. The sponsor prefunding this plan eliminates the need to pay nearly \$3.2 million in total PBGC variable premiums, nearly the equivalent of an additional one-year's pension contribution.

In this analysis, the higher the PBGC premiums the higher the breakeven interest rate. Therefore, if the decision to borrow and fund the plan were to be delayed the breakeven interest rate would be even higher because the BBA 2015 premiums will not be fully phased in until 2019, and after that they still increase in line with wage inflation.

In the sections below, we will build on the analysis using the PBGC variable rate premiums enacted by BBA 2015. Therefore, borrowing rates in later sections of this paper should be compared to the breakeven interest rate of 8.66%.

Inclusion of a change from a mortgage loan structure to a more traditional corporate bond structure

The next change we will make is to the structure of the loan repayment pattern. The above example was done in a "mortgage" loan structure, meaning that level payments (which included both principal repayment and interest payments) were paid for seven-years (to match up with the annual contribution payments of the amortization of unfunded liabilities for minimum funding purposes). In reality, corporations don't borrow in this manner. Corporations typically issue bonds where the pattern is to pay interest only until the maturity date, at which time the principal is paid and the debt is settled. The maturity periods of these loans are typically 10 or 30 years, but they could be shorter or longer. For instance, a 5% loan on \$20 million, payable at 10 years would have a payment pattern such as is shown in Exhibit 3.

Exhibit 3: Sample payment pattern of a 10-year \$20 million loan issued at 5%

YEAR	ANNUAL LOAN INTEREST PAYMENT	LOAN PRINCIPAL PAYMENTS	TYPE OF PAYMENT
1	\$1,000,000	\$0	Interest
2	1,000,000	0	Interest
3	1,000,000	0	Interest
4	1,000,000	0	Interest
5	1,000,000	0	Interest
6	1,000,000	0	Interest
7	1,000,000	0	Interest
8	1,000,000	0	Interest
9	1,000,000	0	Interest
10	1,000,000	20,000,000	Interest / principal

Taking into account this more standard loan payment structure, the breakeven interest rate would decrease to 6.77% (compared to 8.66% in the "mortgage" loan example).

Exhibit 4 shows the payment pattern of a loan issued for 10 years at a rate of 6.77%. The cash flow pattern of the annual loan payment has an equivalent present value to the cash flow pattern for the contributions plus PBGC premiums. Meaning that the sponsor would be willing to borrow up to 6.77%, if the loan is payable over the 10-year period, in order to fund the plan and avoid having to pay the PBGC premium. This is not as high as the borrowing rate in the previous section because the loan repayment period is being extended and the sponsor continues to pay interest to the creditors beyond the point at which the sponsor would otherwise have been funded and beyond the point at which PBGC premiums are being paid.

Exhibit 4: Sample payment pattern of a 10-year - \$20 million loan issued at 6.77%, the breakeven interest rate

YEAR	BORROW \$20 MILLION AND FUND IMMEDIATELY		ANNUAL CONTRIBUTION STRATEGY WITHOUT ISSUING DEBT	
	Loan payment	Type of Payment	Yearly Contribution strategy	PBGC Premium
1	1,353,526	Interest	3,456,396	\$600,000
2	1,353,526	Interest	3,456,396	596,483
3	1,353,526	Interest	3,456,396	583,611
4	1,353,526	Interest	3,456,396	539,273
5	1,353,526	Interest	3,456,396	423,568
6	1,353,526	Interest	3,456,396	302,062
7	1,353,526	Interest	3,456,396	158,007
8	1,353,526	Interest	0	0
9	1,353,526	Interest	0	0
10	21,353,526	Interest / principal	0	0

In another example, if the loan were to be extended to 30 years (another common maturity period for corporate bonds) the breakeven interest rate would decrease to 5.89%. The longer the loan repayment period, the more the additional interest payments are being spread out and the further in the future the principal payment is made, therefore the lower the breakeven interest rate.

The sections below will build on the analysis using PBGC variable rate premiums enacted by BBA 2015 and a loan repayment period of 10 years and therefore should be compared to the breakeven interest rate of 6.77%.

Inclusion of corporate tax rates and the tax deductibility of pension contributions and debt interest payments

The next change we will make to the analysis reflects the implication of taxes on the payments being made. In this section, we will assume that all contributions made to the plan, and all interest payments made to holders of corporate debt, are tax-deductible. Therefore, we must adjust Exhibit 4 so that the cash flows are “after tax” cash flows and then compare those cash flows, using our breakeven interest rate approach.

Exhibit 5 is an example of a bond issued for 10 years at an 8.43% interest rate. For each of the primary payment streams, annual loan payments and contributions, including PBGC premiums, we adjust for a 25% tax rate. This will create an after-tax payment pattern. In this example, the breakeven interest rate is 8.43%, meaning that if the company has a tax rate of 25%, the sponsor would be willing to borrow at a rate as high as 8.43%. It is at this rate that the after-tax cash flow patterns are equal. This borrowing allows for the double impact of not paying PBGC premiums and being able to take advantage of a tax arbitrage⁸.

Exhibit 5: Sample payment pattern of a 10-year \$20 million loan issued at 8.43%, the breakeven interest rate for a tax rate of 25%

YEAR	BORROW \$20 MILLION AND FUND IMMEDIATELY		ANNUAL CONTRIBUTION STRATEGY WITHOUT ISSUING DEBT	
	Loan payment	After tax loan Payment	Contribution, including PBGC premium	After tax contribution, including PBGC premiums
1	\$1,686,859	\$1,265,145	\$4,056,396	\$3,042,297
2	1,686,859	1,265,145	4,052,879	3,039,659
3	1,686,859	1,265,145	4,040,007	3,030,006
4	1,686,859	1,265,145	3,995,670	2,996,752
5	1,686,859	1,265,145	3,879,964	2,909,973
6	1,686,859	1,265,145	3,758,459	2,818,844
7	1,686,859	1,265,145	3,614,403	2,710,802
8	1,686,859	1,265,145	0	0
9	1,686,859	1,265,145	0	0
10	21,686,859	21,265,145	0	0

For sponsors with different tax rates, the higher the rate, the more a sponsor would be willing to borrow, because the breakeven interest rate will increase with higher tax rates. In fact, there is a formula for adjusting the breakeven interest rate from pre-tax to post-tax. The adjustment to the pre-tax breakeven interest rate is to add the assumed rate of return on the pension plan multiplied by the ratio of the tax rate divided by 1 minus the tax rate. For example:

$$\text{Breakeven interest rate for 25\% tax rate} = 6.77\% + 5.00\% \times (25\% / 75\%) = 8.43\%$$

Exhibit 6 shows the breakeven interest rate, using the previously mentioned formula, for different corporate tax rates, and the levels at which companies would favor borrowing to fund the plan, to avoid the PBGC premiums.

Exhibit 6: Breakeven interest rates for various corporate tax rates

TAX RATE	BREAKEVEN INTEREST RATE
0%	6.77%
10%	7.32%
20%	8.02%
25%	8.43%
30%	8.91%
35%	9.46%

Additional considerations that may impact the decision on whether to borrow to fund the pension plan

- 1. Pension contributions are typically not level, in fact they are often back loaded.** Recent pension interest rate relief has had the effect of delaying required pension contributions. To the extent that contributions are delayed because of pension interest rate smoothing, the breakeven interest rate analysis would need to reflect that. This would increase the breakeven interest rate, as PBGC premiums would be higher and paid for a longer period under a delaying funding scenario. Therefore, the issuing of debt would be even more advantageous.
- 2. Market volatility.** Markets are volatile, and the above example is based off a deterministic scenario where asset returns and discount rates are constant at 5%. If actual asset return is more favorable, the sponsor may have borrowed too much because the excess returns would have decreased future contributions. The same would be true if discount rates were to increase in the future. Of course, the opposite would be true if rates were to decrease and/or asset returns were to be less than the assumed 5%. This may point toward some additional analysis being done with a stochastic process or by using various stress testing scenarios.
- 3. Impact on investment strategy.** A sizable upfront contribution equal to the plan's unfunded amount may trigger a reevaluation of the plan's investment strategy. It is typically the case that a better-funded (in this case, fully funded) pension plan would want to invest more via liability-driven investment (LDI)/fixed income strategies. More likely, a plan might already have a liability-responsive asset allocation (LRAA) glide path investment strategy; where allocations to fixed income are increased (and allocations to return-seeking are decreased) should funded status improve. Either way, a sponsor may be concerned about trapped capital – the idea that pension surplus is hard to recapture – and would therefore undertake an “immunization” strategy with the amount contributed after the debt issuance.
- 4. PBGC per participant limit.** The PBGC variable premium can be limited by a per participant variable premium cap. For instance, if the plan in this practice note had only 1,000 participants then the annual premium would be limited to \$500,000 (or 1,000 participants x \$500 per participant). To the extent that the PBGC per-participant cap lowers the overall PBGC premium, the breakeven interest rate would decline and borrowing would be less advantageous.

¹ Here, I am referring to the Moving Ahead for Progress in the 21st Century Act (MAP-21), the Bipartisan Budget Act of 2013 (BBA 2013) and the Highway and Transportation Funding Act of 2014 (HATFA). The spending within these laws is, at least partially, paid for by delaying the original schedule for required pension contributions and the increasing of PBGC premiums. The exact mechanism for this delay, namely the raising of discount rates to value liabilities, as well as the minimum funded regulations are well documented elsewhere and therefore will not be covered here.

² Prior to MAP-21 the PBGC flat-rate premium was \$35 per participant. MAP-21 increased this rate to \$42 in 2013 and then \$49 in 2014. BBA 2013 again increased this rate to \$57 in 2015 and \$64 in 2016. BBA 2015 increases this rate to \$69 in 2017, \$74 in 2018, and \$80 in 2019. Future increases beyond that point are determined by wage inflation.

³ In our analysis, we assume that our PBGC premiums are not impacted by this limitation, and therefore it does influence the analysis.

⁴ This base case utilizes the analysis in a paper titled “PBGC variable premiums vs. borrow-and-fund – effect of increases to \$28/\$1,000 of UVB” by Mike Barry of Plan Advisory Services Group, released December 13, 2013 as well as other Russell Research Practice Notes written on this topic at the time of previous legislation. These papers are available to clients of Russell Investments via their ClientLink access. I thank Mike Barry for his initial analysis, and hope you appreciate the additional analysis provided in this paper.

⁵ The minimum funding rules are much more complicated than appear in this paper and for illustration; we have assumed that they are simply a 7-year amortization of initial unfunded vested liability. A comment appears in the last section as to how following the minimum funding regulations would impact a borrow and fund decision.

⁶ This calculation assumes, as do all future calculations, which any initial contribution amount to fully fund the plan is made immediately and that periodic contributions are made at the end of each year.

⁷ This is a reasonable assumption, seeing that pension discount rates are based on the borrowing rate of high-quality corporations.

⁸ This tax arbitrage was first laid out by Fischer Black “The Tax Consequences of Long-Run Pension Policy,” Financial Analysts Journal, July-August 1980.

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