



PUERTO RICO TEACHERS RETIREMENT SYSTEM

GASB 73 PENSION EXPENSE, INCLUDING TRANSITION FROM GASB 68 ON JULY 1, 2017

Measurement Year: July 1, 2017 to June 30, 2018

Reporting Year: July 1, 2018 to June 30, 2019

Milliman, Inc.
1550 Liberty Ridge Drive
Wayne, PA 19087
Tel +1 610 687 5644
Fax +1 610 687 4236
milliman.com

March 8, 2022

This work product was prepared solely for the Puerto Rico Teachers Retirement System ("PRTRS") for the purposes described herein and may not be appropriate to use for other purposes. Milliman and PRTRS do not intend to benefit and assume no duty or liability to other parties who receive this work. Milliman and PRTRS recommend that any third party recipient be aided by its own actuary or other qualified professional when reviewing the Milliman work product.

Table of Contents

Certification	1
Executive Summary	3
Pension Expense	4
Schedule of Deferred Inflow and Outflow of Resources	5
GASB 73 Summary for Measurement Year	6

GASB 73 Expense for Measurement Year Ending June 30, 2018 for Reporting Year Ending June 30, 2019

Puerto Rico Teachers Retirement System

This work product was prepared solely for the Puerto Rico Teachers Retirement System ("PRTRS") for the purposes described herein and may not be appropriate to use for other purposes. Milliman and PRTRS do not intend to benefit and assume no duty or liability to other parties who receive this work. Milliman and PRTRS recommend that any third party recipient be aided by its own actuary or other qualified professional when reviewing the Milliman work product.

Certification

Actuarial computations presented in this report under Statements No. 68 and 73 of the Governmental Accounting Standards Board are for purposes of assisting the Puerto Rico Teachers Retirement System ("PRTRS") in fulfilling its financial accounting requirements. No attempt is being made to offer any accounting opinion or advice. This report is for measurement year July 1, 2017 to June 30, 2018 for reporting periods ending June 30, 2018 through June 30, 2019. The measurement date for determining plan assets and obligations is June 30, 2018. The calculations enclosed in this report have been made on a basis consistent with our understanding of the plan provisions. Determinations for purposes other than meeting financial reporting requirements may be significantly different than the results contained in this report. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security or meeting employer funding requirements.

In preparing this report, we relied, without audit, on information as of July 1, 2017 as well as benefit payment information as of June 30, 2018 furnished by PRTRS. This information includes, but is not limited to, statutory provisions, member census data, and financial information. Please refer to Milliman's June 30, 2018 valuation report dated March 8, 2022 for more information on the plan's participants as of July 1, 2017, summaries of the plan provisions and actuarial methods and assumptions, and calculations under GASB 73.

We performed a limited review of the census and financial information used directly in our analysis and have found them to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

We hereby certify that, to the best of our knowledge, this report, including all costs and liabilities based on actuarial assumptions developed by Milliman in conjunction with PRTRS, is complete and accurate and determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions and supporting Recommendations of the American Academy of Actuaries.

This valuation report is only an estimate of the Plan's financial condition as of a single date. It can neither predict the Plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of Plan contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of such future measurements.

Certification

Milliman's work is prepared solely for the use and benefit of the PRTRS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to the Plan Sponsor's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System; and (b) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their specific needs.

The results shown in this report were developed using models intended for valuations that use standard actuarial techniques.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and has been prepared in accordance with generally recognized accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.



Glenn D. Bowen, FSA, EA, MAAA
Principal and Consulting Actuary



Katherine A. Warren, FSA, EA, MAAA
Principal and Consulting Actuary

Executive Summary

PRTRS is a single employer pension plan for purposes of GASB 73 reporting. This report presents the results of the actuarial valuation in accordance with GASB 73 as of June 30, 2018 for PRTRS to be used for reporting periods ending June 30, 2018 through June 30, 2019.

In addition, due to Act 106-2017 (effective August 23, 2017) resulting in PRTRS becoming a pay-as-you-go retirement system and subject to GASB 73 instead of GASB 68 in future years, this report reflects the transition to GASB 73 reporting effective July 1, 2017. Based on discussion with the System and their auditors, this transition results in setting beginning of year assets of \$517 million to \$0, reducing the Total Pension Liability by \$23 million to reflect the transfer of hybrid plan members' accounts to a separate defined contribution plan, and immediate recognition of all deferred inflows and outflows as of July 1, 2017 of \$522 million.

Due to the transition to GASB 73, the Net Pension Liability as of June 30, 2017 of \$15.9 billion increased to the Total Pension Liability as of July 1, 2017 of \$16.4 billion. The Total Pension Liability decreased from \$16.4 billion as of July 1, 2017 to \$15.9 billion as of June 30, 2018. The pension expense for PRTRS for the measurement year ending June 30, 2018 is \$1.74 billion, which includes \$1.02 billion due to the transition to GASB 73.

Deferred inflows total \$0.45 billion due to changes in actuarial assumptions (including the market-rate change in the GASB 73 discount rate from 3.58% as of June 30, 2017 to 3.87% as of June 30, 2018). Changes in actuarial assumptions are amortized over the expected working lifetime of active and inactive participants. A portion of this item is recognized beginning with the current measurement year in accordance with GASB 73.

Deferred outflows total \$0.05 billion due to demographic losses. Demographic losses are amortized over the expected working lifetime of active and inactive participants. A portion of this item is recognized beginning with the current measurement year in accordance with GASB 73.

Benefit payments made subsequent to the measurement date should be reported as deferred outflows of resources. These contributions for the fiscal year ending June 30, 2019 will then be reflected in the GASB 73 expense development for the following measurement year.

Liability changes due to demographic gains and losses and changes in actuarial assumptions are amortized over the expected working lifetime of active and inactive participants in the plan as of the beginning of the measurement year. The period is 5 years and equals the total expected working lifetime of active members of 0.42 million divided by the number of plan participants of 76,888.

Pension Expense

Measured as of June 30, 2018 for Fiscal Year Ending June 30, 2019

Pension Expense	<u>July 1, 2017 to June 30, 2018</u>
Service cost	\$240,453,122
Interest on total pension liability	581,584,654
Effect of plan changes	0
Recognition of Deferred Inflows/Outflows of Resources	
Recognition of economic/demographic gains or losses	13,559,000
Recognition of assumption changes or inputs	<u>(111,802,657)</u>
Pension Expense	723,794,119
Transition to GASB 73 reporting	<u>1,015,567,056</u>
Total Pension Expense	1,739,361,175

As of June 30, 2018, the deferred inflows and outflows of resources are as follows:

Deferred Inflows / Outflows of Resources	<u>Deferred Inflows of Resources</u>	<u>Deferred Outflows of Resources</u>
Differences between expected and actual experience	\$0	\$54,236,001
Changes of assumptions	<u>(447,210,629)</u>	<u>0</u>
Total	(447,210,629)	54,236,001

Other amounts currently reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year ended June 30:	
2019	(\$98,243,657)
2020	(98,243,657)
2021	(98,243,657)
2022	(98,243,657)
2023	0
Thereafter*	0

In addition benefit payments made subsequent to the measurement date should be reported under deferred outflows of resources and recognized as a reduction of the total pension liability in the year ended June 30, 2019. This amount is not included above.

* Note that additional future deferred inflows and outflows of resources may impact these numbers.

Schedule of Deferred Inflows and Outflows of Resources

	Original Amount	Date Established	Original Recognition Period*	Amount Recognized in Expense for MYE 06/30/2018	Amount Recognized in Expense through 06/30/2018	Balance of Deferred Inflows 06/30/2018	Balance of Deferred Outflows 06/30/2018
Economic/demographic (gains) or losses	67,795,001	06/30/2018	5.0	<u>13,559,000</u> 13,559,000	<u>13,559,000</u> 13,559,000	<u>0</u> 0	<u>54,236,001</u> 54,236,001
Assumption changes or inputs	(559,013,286)	06/30/2018	5.0	<u>(111,802,657)</u> (111,802,657)	<u>(111,802,657)</u> (111,802,657)	<u>(447,210,629)</u> (447,210,629)	<u>0</u> 0

* Economic/demographic (gains)/losses and assumption changes or inputs are recognized over the average remaining service life for all active and inactive members.

Puerto Rico Teachers Retirement System

This work product was prepared solely for the Puerto Rico Teachers Retirement System ("PRTRS") for the purposes described herein and may not be appropriate to use for other purposes. Milliman and PRTRS do not intend to benefit and assume no duty or liability to other parties who receive this work. Milliman and PRTRS recommend that any third party recipient be aided by its own actuary or other qualified professional when reviewing the Milliman work product.

Milliman Financial Reporting Valuation

	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Deferred (Inflows)	Deferred Outflows	Net Investment (Inflows)/ Outflows	Net Deferrals	Net/Total Pension Liability plus Net Deferrals	Annual Expense
Balances as of June 30, 2017	(\$16,417,643,875)	\$516,966,000	(\$15,900,677,875)	(\$1,683,629,320)	\$2,188,237,530	\$17,118,056	\$521,726,266	(\$15,378,951,609)	
Transition to GASB 73 Reporting	23,125,210	(516,966,000)	(493,840,790)	1,683,629,320	(2,188,237,530)	(17,118,056)	(521,726,266)	(1,015,567,056)	
Balances as of July 1, 2017	(16,394,518,665)	0	(16,394,518,665)	0	0	0	0	(16,394,518,665)	
Service cost	(240,453,122)								240,453,122
Interest on total pension liability	(581,584,654)								581,584,654
Effect of plan changes	0								0
Effect of liability gains or losses	(67,795,001)				67,795,001		67,795,001		
Effect of assumption changes or inputs	559,013,286			(559,013,286)			(559,013,286)		
Benefit payments	786,093,102							786,093,102	
Recognition of liability gains or losses					(13,559,000)		(13,559,000)		13,559,000
Recognition of assumption changes or inputs				111,802,657			111,802,657		(111,802,657)
Annual expense								(723,794,119)	723,794,119
Balances as of June 30, 2018	(15,939,245,054)	n/a	n/a	(447,210,629)	54,236,001	n/a	(392,974,628)	(16,332,219,682)	