Universidad de Puerto Rico
Fideicomiso de Retiro
Junta de Retiro

RESOLUCIÓN 18 (2018-2019)
Plan Fiscal UPR 2019-2023; JCF (5 de junio de 2019)

La Junta de Retiro, en calidad de representante de los fideicomisarios del Fideicomiso de Retiro-UPR, en su reunión extraordinaria celebrada el viernes, 7 de junio de 2019, aprobó la siguiente Resolución:

Por cuanto A tenor con la Escritura Pública Número 58 'Confirmation and Acknowledgment of Trust', fechada 29 de junio de 2016, la Universidad de Puerto Rico ("UPR") y la Junta de Gobierno ("JG-UPR") en calidad de Fiduciaria del Retiro-UPR ratificaron la obligación legal de la UPR (como Patrono-Fideicomitente) de cumplir con la aportación patronal anual para garantizar el pago de las pensiones acordadas con los jubilados actuales y futuros.

Por cuanto La JG-UPR, en calidad de Fiduciaria del Fideicomiso del Sistema de Retiro UPR recibió el Reporte Actuarial, fechado el 22 de mayo de 2017, correspondiente al año 2016; el Reporte Actuarial, fechado el 3 de octubre 2018, correspondiente al año 2017 y el Estudio de Experiencia, fechado el 20 de diciembre 2018; los cuales son estudios preparados por los consultores actuariales Cavanaugh Macdonald, LLC, que establecen científicamente y de manera fidedigna las aportaciones patronales de la Fideicomitente UPR para velar por la sostenibilidad y la longevidad del patrimonio del Fideicomiso de Retiro-UPR.

Por cuanto La JG-UPR debe ejercer su responsabilidad fiduciaria requiriendo a la Fideicomitente-UPR satisfacer al Fideicomiso Retiro-UPR las aportaciones patronales estipuladas en los reportes por los consultores actuariales. Pese a lo anterior, la Fideicomitente-UPR continúa realizando aportaciones patronales inferiores a las advertidas por Cavanaugh Macdonald, conducta que incrementa exponencialmente su deuda actuarial con el Fideicomiso de Retiro-UPR.

Por cuanto La JG-UPR tiene la responsabilidad fiduciaria de preservar las finanzas y la perpetuidad del Fideicomiso de Retiro-UPR.

Por cuanto La JG-UPR a tenor con la Ley de Fideicomiso de Puerto Rico, Ley 219-2012, debe ejercer lealtad absoluta hacia los fideicomisarios con actuaciones que velen por sus mejores intereses, cumpliendo con su responsabilidad fiduciaria de procurar la mayor estabilidad económica y garantizar que la Fideicomitente-UPR cumpla como mínimo con el pago anual de la aportación patronal, actuarialmente atribuida por Cavanaugh Macdonald, al Fideicomiso de Retiro-UPR.

Por cuanto La Junta de Retiro es el único organismo oficial, representativo de los fideicomisarios, electo por los 19,200 participantes activos y pensionados del Fideicomiso de Retiro-UPR, con la función y deber ministerial de defender sus intereses en el Plan de Retiro de Beneficios Definidos vigente ("Plan de Retiro"), por ende, le corresponde proteger su sostenibilidad, financiación ("*funding*") y perpetuidad.

Por cuanto La Junta de Retiro continúa su cometido de analizar, estudiar y proponer a la JG-UPR acciones que fortalezcan el Fideicomiso de Retiro-UPR, procurando la consecución de los fines del mismo y el bienestar de los fideicomisarios.

Por cuanto **Las propuestas primordiales de la Junta de Retiro** a la JG-UPR consistentemente han recomendado:

1. adoptar la amortización cerrada a 30 años de la deuda actuarial con el Fideicomiso de Retiro-UPR
2. pagar al Fideicomiso de Retiro-UPR la aportación patronal puntualizadas científicamente por los consultores actuariales, véase **Anejo 1**;
3. modificar la política de congelación total de plazas vacantes por jubilación para que se reponga mínimamente 1 de cada 2 plazas vacantes;
4. implementar ajustes al Plan de Retiro para asegurar la estabilidad y longevidad del Fideicomiso de Retiro-UPR, véase **Anejo 1ª**; y
5. preservar el Plan de Retiro de Beneficios Definidos vigente.

Por cuanto El Plan de Retiro de Beneficios Definidos vigente es el ofrecimiento más atractivo que consideran los candidatos al momento de aceptar un empleo con la UPR, la cual precisa agenciar y atraer el personal más idóneo para prestar servicios educativos de excelencia a la comunidad puertorriqueña, contribuyendo así al logro de los fines académicos y administrativos de la UPR.

Por cuanto El Plan de Retiro de Beneficios Definidos vigente es la única garantía pactada con la UPR al momento del reclutamiento con que cuentan los empleados gubernamentales de la UPR para alcanzar una pensión vitalicia y digna para su vejez, después de dedicar sus años productivos al servicio de la UPR.

Por cuanto La **amortización cerrada a 30 años** de la **deuda actuarial** de la Fideicomitente-UPR con el Fideicomiso de Retiro-UPR, avalada y asesorada en los estudios del actuario Cavanaugh Macdonald, es el método de financiación **que protege y garantiza la solvencia y perpetuidad del Fideicomiso de Retiro-UPR.**

Por cuanto La Junta de Retiro, en múltiples ocasiones ha peticionado a la Presidencia de la Fideicomitente-UPR y a la JG-UPR enmendar la política de congelación total de plazas vacantes a consecuencia de la jubilación del personal, por su efecto nefasto en las finanzas del Fideicomiso Retiro UPR y la estabilidad institucional de la UPR, **efecto similar que tendrá la implantación del Plan Fiscal para la UPR 2019-2023 ("Plan Fiscal-UPR") certificado por la Junta de Control Fiscal** ("JCF") **el 5 de junio de 2016.**

Por cuanto El Plan Fiscal-UPR, versión del 5 de junio de 2019 de la JCF, **presenta la necesidad de reformar el Plan de Retiro vigente en la UPR, bajo la justificación de salvar las pensiones y garantizar el superávit en las finanzas de la UPR,** véase **Anejo 2**.

Por cuanto Plan Fiscal-UPR, versión del 5 de junio de 2019 de la JCF, infringe las estipulaciones de la Escritura del Fideicomiso de Retiro-UPR y las disposiciones de la Ley 219-2012.

Por cuanto Las propuestas incluidas en el Plan Fiscal-UPR versión del 5 de junio de 2019 de la JCF, para **Congelar el Plan de Retiro vigente en la UPR e implantar un Plan de Retiro de Contribución definida, no garantizarán la solvencia y perpetuidad del Fideicomiso de Retiro** según certificado por la firma de actuarios Cavanaugh Macdonald en su **estudio actuarial con fecha del 11 de enero de 2018**.

Por cuanto A la firma de actuarios Cavanaugh Macdonald se le encomendó un estudio actuarial, fechado el 11 de enero de 2018, para **medir el impacto real de los Escenarios solicitados por la JG-UPR para Cerrar y/o Congelar el Plan de Retiro vigente y Sustituirlo por un Plan de Retiro de Contribución Definida**; véase **Anejo 3**; demostrando que:

1. **incrementan la insolvencia y la provisión del efectivo en caja** del Fideicomiso Retiro UPR en un fútil intento de reducir el gasto operacional;
2. **reducen la razón de cobertura** (*funding ratio*) del Fideicomiso Retiro-UPR apoyando la amortización de la deuda actuarial de la UPR a 40 años; y
3. amortizar la deuda actuarial de la UPR mediante el método de financiación cerrada a 40 años causará que el Fideicomiso del Retiro-UPR se quede **insolvente en el año 2038 al <u>Cerrar</u>** el Plan de Retiro de Beneficios Definidos vigente o **en el año 2043 si lo <u>Congelan</u>**.

Por cuanto El estudio actuarial, del 11 de enero de 2018, además, **midió el impacto real de tres alternativas bajo el Escenario de Sustituir el Plan de Retiro de Beneficios Definido vigente por uno de Beneficios Reducidos**; demostrando que la amortización de la deuda actuarial de la UPR adoptando **el método de financiación cerrada a 30 años** bajo las **tres alternativas (pensión máxima de $2,000; $2,300 y $2,500 con 65 años de edad y 35 de servicios)** favorece la razón de cobertura que para el **2044 será 100%,** cancelando la deuda actuarial.

Por cuanto El referido estudio actuarial del 11 de enero de 2018, sobre los escenarios de **Cerrar y Congelar** el Plan de Retiro-UPR vigente y sustituirlo por un **Plan de Retiro de Contribución Definida**, **concluye** que:

1. el **Plan de Retiro de Beneficios Definidos vigente quedará insolvente** y la UPR deberá adoptar el método de pago de pensiones "*pay-as-you-go"*;
2. el plan de pago de pensiones "*pay-as-you-go"* es significativamente más costoso para la UPR que el Plan de Beneficios Definidos vigente; y
3. **reducir las aportaciones** de la UPR **al Fideicomiso del Retiro-UPR no es la solución** a largo plazo **para lograr la solvencia, la salud financiera y la continuidad operacional futura de la UPR**.

Por cuanto — Implantar las propuestas propiciadas en el Plan Fiscal-UPR, versión del 5 de junio de 2019 de la JCF, entiéndase el **Congelar el Plan de Retiro actual y reemplazarlo con el Plan de Retiro de Contribución Definida**, **ocasionará la erosión del patrimonio del Fideicomiso Retiro-UPR; provocará su insolvencia para el año 2045 e impulsará la adopción del método '*pay-as-you-go*'** para subsidiar la nómina millonaria de los pensionados.

Por cuanto — El Plan Fiscal-UPR, versión del 5 de junio de 2019 de la JCF**, no identifica las fuentes alternas de activos líquidos (efectivo) que empleará la Fideicomitente-UPR en el cumplimiento de su responsabilidad ineludible de sufragar la nómina anual de pensionados presentes de $200 millones y la proyectada para dentro de cinco años de $500 millones.**

Por Tanto — La Junta de Retiro, como representante legal de los Fideicomisarios y en su rol asesor de la Fiduciaria JG-UPR sobre los asuntos que impacten la liquidez, perpetuidad y solvencia del Fideicomiso Retiro-UPR aprobó:

1. **Defender el Plan de Retiro vigente** porque es **el único que garantiza** a los empleados gubernamentales de la UPR alcanzar **una pensión vitalicia y digna para su vejez,** después de dedicar sus años productivos al servicio de la UPR.
2. **Solicitar a JG-UPR** unirse a la Junta de Retiro para desarrollar **alternativas congruentes** con lo expresado por la firma de actuarios Cavanaugh Macdonald en su **informe del 11 de enero de 2018 que protegen la solvencia económica del Fideicomiso de Retiro-UPR y de la UPR.**
3. **Requerirle, nuevamente** a la JG-UPR que:
   - ✓ **adopte** la **amortización cerrada a 30 años** para el **saldo** de la **deuda actuarial vigente de la UPR con el Fideicomiso de Retiro-**UPR, como método de financiación que protege y garantiza su liquidez, perpetuidad y solvencia;
   - ✓ **le solicite** a la **UPR**:
     - ▪ **pagar** al Fideicomiso de Retiro-UPR las aportaciones patronales oficialmente estipuladas por los consultores en los reportes actuariales; y
     - ▪ **modificar** la política de congelación total de plazas vacantes por jubilación para que se reponga mínimamente 1 de cada 2 plazas vacantes.
   - ✓ **Emplazar** a la JG-UPR para que se **exprese por escrito en o antes del 30 de junio de 2019 sobre cuál será su posición oficial** sobre lo requerido por la JCF en el Plan Fiscal 2019-2023, versión del 5 de junio de 2019.

Se emite, hoy, 17 de junio de 2019, en las Oficinas del Sistema de Retiro de la Universidad de Puerto Rico, San Juan, Puerto Rico.

Eduardo Berríos Torres, Ed. D.
Presidente

Se acuerda enviar copia de esta resolución a todos los participantes del Fideicomiso de Retiro de UPR; a la Junta Universitaria y los Senados Académicos UPR, a las organizaciones sindicales y profesionales de la UPR; a la Junta de Gobierno de UPR; al Gobernador de Puerto Rico; a los Presidentes del Senado y Cámara de Representante de PR, a la Comisionada Residentes de PR y al Presidente del Comité de Recursos Naturales, Cámara de Representantes de los EU.

Anejo 1

Aportación Patronal aprobada por la Junta de Retiro
Pendientes de certificar por la Junta de Gobierno-UPR

Efectivo a 1 de julio de 2016

- **Estudio actuarial 2015**, el cual establece que la aportación patronal de la UPR es de **16.79%**.

Efectivo a 1 de julio de 2017

- **Estudio actuarial 2016**, el cual establece que la aportación patronal de la UPR es de **17.56%**.

Efectivo a 1 de julio de 2018

- **Estudio actuarial 2017**, el cual establece que la aportación patronal de la UPR es de **20.08%**.

Nota: El no realizar la aportación patronal que recomienda el Actuario: aumenta la deuda actuarial de la UPR con el Fideicomiso y provoca perdida en la cartera de inversiones del Fideicomiso.

La UPR se mantiene realizando una aportación patronal de un **14.57% desde 1-julio-2015**.

Anejo 1[a]

Ajustes recomendados por la Junta de Retiro al Plan de Retiro de Beneficios Definidos Fideicomiso de Retiro UPR
Efectivo a 1 de julio de 2015 ▪ Congelar el sueldo máximo cotizable en $69,556.44. ▪ Pensiones por incapacidad no ocupacional aumentando de 10 a 15 años de servicio acreditados del participante para cualificar y que el monto de la pensión sea el 90% de la pensión por servicio que le hubiera correspondido. ▪ Aumentar la edad de retiro de 55 a 58 años de edad para aquellos empleados que tengan menos de 25 años de servicio acreditados. ▪ Aumentar la aportación individual en 1% del sueldo mensual de los participantes activos que tengan menos de 25 años de servicios acreditados. No se considera para cálculo de pensión final medida para sostener y perpetuar el Fideicomiso. ▪ La aportación individual al Sistema de Retiro de los empleados nuevos será el 12% del sueldo mensual. **Efectivo a 1 de julio de 2017** ▪ Pensiones por incapacidad ocupacional aumentando de 10 a 15 años de servicio acreditados del participante para cualificar y que el monto de la pensión sea el 90% de la pensión por servicio que le hubiera correspondido.
Cambios en las premisas actuariales recomendados por la Junta de Retiro
Efectivo a 1 de julio de 2015 ▪ Rendimiento de activos (de 8% a 7.75%) ▪ Tasa de inflación (de 3.5% a 3%) ▪ Aumento en la nómina total (de 5% a 3%) ▪ Aumento en los salarios individuales (de 5% a 3.75%) ▪ Amortización de la deuda actuarial (cambia de método abierto a cerrado) **Efectivo a 1 de julio de 2017** ▪ Aumento en la nómina total (de 3% a 2.5%) **Efectivo a 1 de julio de 2018** ▪ Aumento en la nómina total (de 2.5% a 2%) **Efectivo a 1 de julio de 2019** ▪ Rendimiento de activos (de 7.75% a 6.75%) ▪ Tasa de inflación (de 3% a 2.5%) ▪ Aumento en la nómina total (de 2% a 1.5%) ▪ Aumento en los salarios individuales (de 3.75% a 2.75%) ▪ Amortización de la deuda actuarial (mantener cerrado a 30 años) **Efectivo a 1 de julio de 2020** ▪ Aumento en la nómina total (de 1.5% a 1%)

Anejo 2
Plan Fiscal-UPR 2019-23
JCF versión del 5 de junio de 2019

Fiscal Plan for the University of Puerto Rico

Enhancing Public Higher Education

Fiscal Years 2019 to 2024

As certified by the Financial Oversight and Management Board for Puerto Rico

June 5, 2019

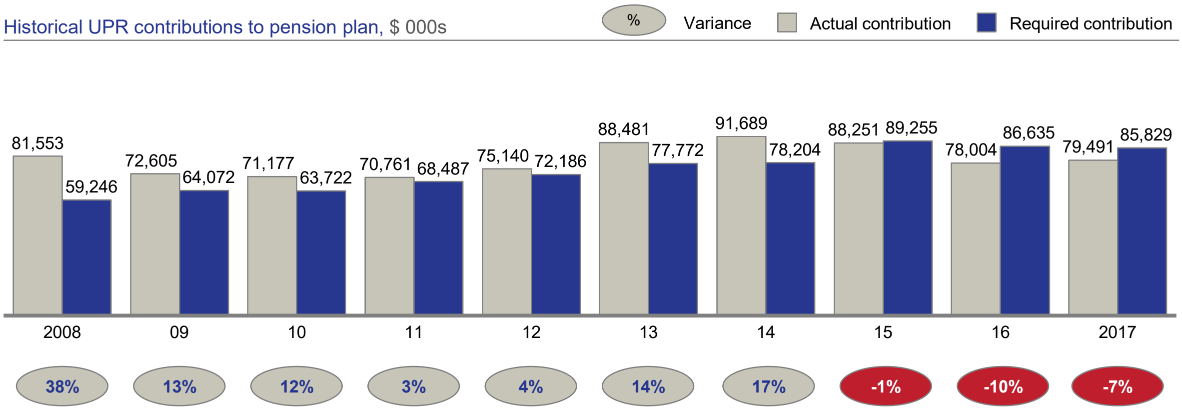
Table of Contents

CHAPTER 3. PENSION REFORM

3.1 Reforms to UPR Retirement System

PROMESA requires that the Commonwealth's pension systems, including UPR's, be adequately funded and responsibly managed. The UPR Retirement System, while better funded than many other public employee pension plans on the Island, still faces significant challenges. Latest estimates indicate the UPR pension plan is only 43% funded, a result of the University's historical and more recent decisions not to make the full actuarially required contributions to the plan.[23]

EXHIBIT 22: ACTUAL VS. REQUIRED HISTORICAL UPR CONTRIBUTIONS TO PENSION PLAN



SOURCE: 2018 audited financial statements

Furthermore, the UPR Retirement System recently commissioned an experience study[24] which indicated annual pension expenditure estimates included in the October 2018 Certified Fiscal Plan had to be significantly revised to account for several changes in actuarial assumptions:

- Updated census information to reflect shifting demographics
- Shift to 30-year amortization period from a 40-year amortization period based on GASB (Government Accounting Standards Board) best practice
- Shift to assumed rate of return of 6.75% from 7.75%[25]
- Updated payroll data

Based on recent actuarial analysis completed by the Oversight Board, it is apparent that the magnitude of the challenges facing the UPR Retirement System is greater than previously understood: **if UPR continues its current funding policy[26] its pension plan will be insolvent by 2031; making the actuarially required contribution without any reforms will ensure the plan remains solvent but will require UPR to find approximately $60 million more in annual savings than is presented in this Fiscal Plan**.

UPR must make the required contribution to its pension plan while also following a path to operating balance. UPR can achieve these dual objectives by instituting pension reforms, and thus reducing the annual university contribution, or by leaving the pension system unchanged and finding additional savings or revenues to offset this increase through other means (likely additional tuition increases, reductions in faculty, or campus closures). Three policy options are available to UPR:

- **Option 1 – Meet full updated baseline pension obligations**: Continue UPR's current defined benefit plan and return to making the full actuarially required contribution of roughly $160 million per year. To make this option sustainable and achieve a primary operating surplus (pre-debt service), UPR will need to find additional savings above what is presented in this

[23] Per latest estimates by Oversight Board's actuary

[24] Cavanaugh Macdonald 2013-2017 Experience Study

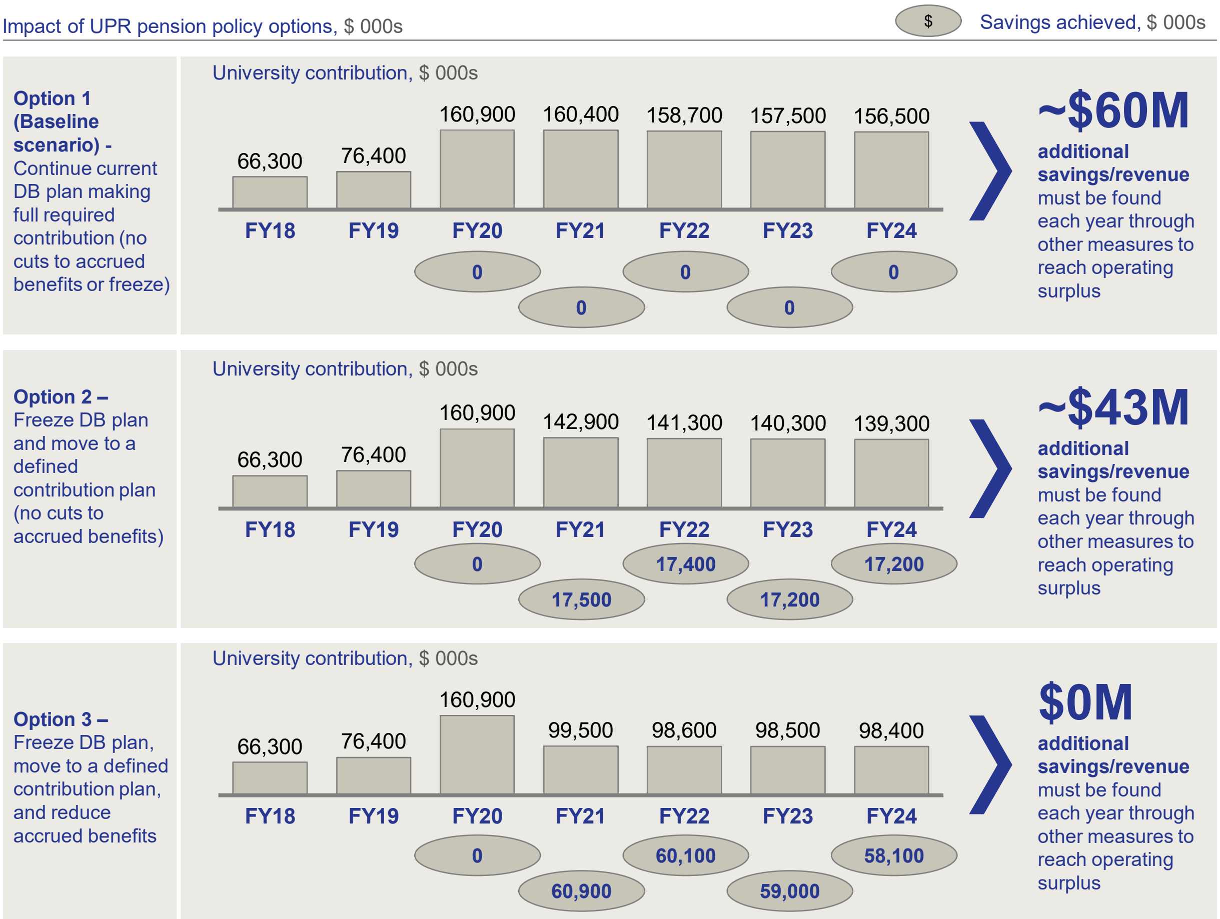
[25] Based on recommendation of retirement system actuary (per Cavanaugh Macdonald 2013-2017 Experience Study)

[26] Current funding policy of 14.57% of payroll

Fiscal Plan of approximately $60 million per year, likely through faculty reduction, significant consolidation, or tuition increases.

- **Option 2 – Freeze and move to DC plan; do not cut benefits:** Freeze UPR's current defined benefit plan and move to a defined contribution (DC) plan. Make no other changes to the pension plan (e.g., do not cut accrued benefits). To make this option sustainable and achieve primary operating surplus (pre-debt service), UPR will need to find additional savings above what is presented in this Fiscal Plan of approximately $43 million per year, again requiring faculty reduction, significant consolidation, or tuition increases.
- **Option 3 – Freeze and move to DC plan; cut accrued benefits:** Freeze UPR's current defined benefit plan and move to a defined contribution (DC) plan. Progressively reduce accrued benefits in a manner similar to ERS and TRS while accounting for the higher funding ratio of the UPR plan.[27] Eliminate $250 minimum benefit and $400 holiday bonus. *This option reduces pension contributions to a level that allows UPR to achieve primary balance by FY24 by implementing this Fiscal Plan, i.e., without additional savings or revenue measures not included in this Fiscal Plan. This is the option presented in this Fiscal Plan.*

EXHIBIT 23: PENSION REFORM OPTIONS



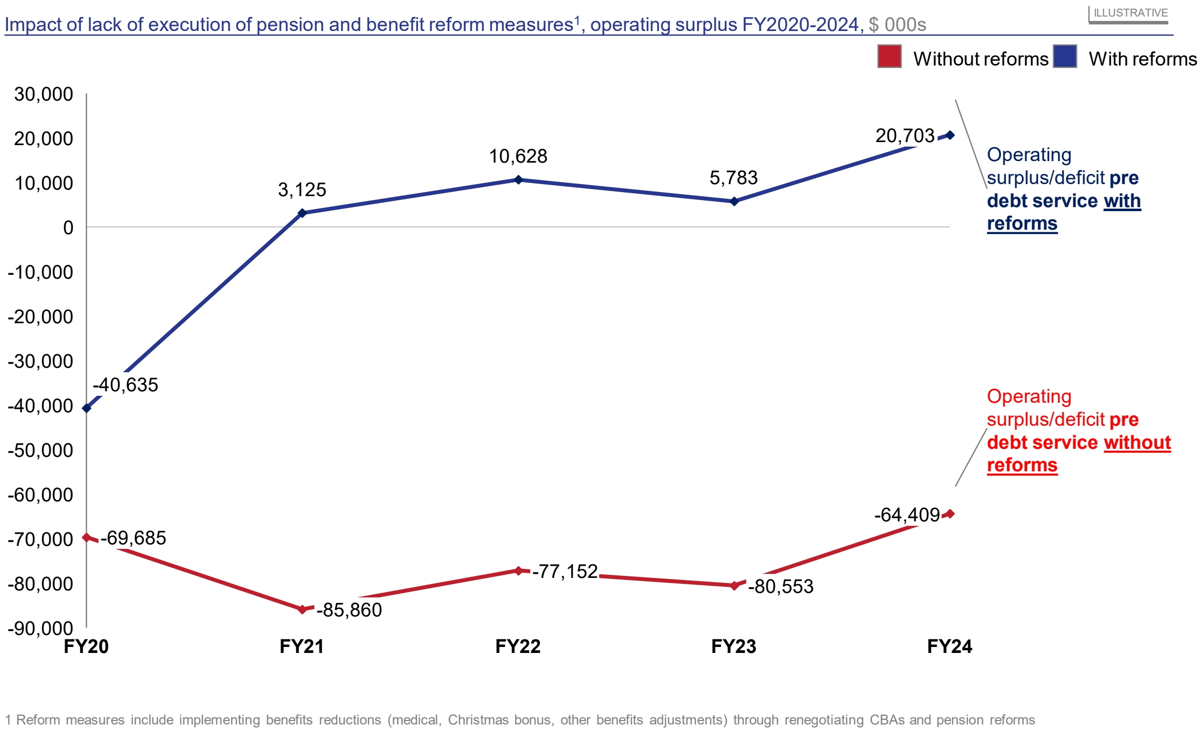
The Oversight Board strongly believes that Option 3 is the most responsible course of action for UPR. **Otherwise, UPR will have to find significant additional savings or revenues from areas that are critical to its core mission** (e.g., further tuition increases, campus closures, faculty reduction) in order to avoid operating at a deficit and maintain the solvency of its retirement system.

[27] Progressively reduce the unfunded portion of accrued benefits for recipients above a certain income threshold (combined Social Security and pension monthly benefit is greater than $1,000)

3.2 Financial position without pension and labor benefits reform

Aspects of two key measures included in this plan, pensions reform and labor benefit adjustments, may require Title III to be implemented. UPR could implement other aspects of these two measures voluntarily without Title III. If UPR fails to implement these voluntarily and does not enter Title III, it will no longer be able to maintain an operating surplus pre-debt service (Exhibit 24). Of course, UPR could also choose to find additional savings through other means rather than enact these critically needed pension reforms or benefit reductions. However, given the magnitude of savings driven by these two initiatives (almost $85 million per year during the period of FY21-24), it is highly unlikely UPR could do so without taking more drastic revenue and expense measures, e.g., significantly raising tuition even more, eliminating faculty positions, and/or closing campuses.

EXHIBIT 24: PRE-DEBT SERVICE OPERATING SURPLUS/DEFICIT WITHOUT PENSION AND LABOR BENEFITS REFORM



Anejo 3
Estudio actuarial (11 de enero 2018)
Escenarios Cerrar; Congelar y/o Sustituir el Plan de Retiro-UPR
Cavanaugh McDonald

Sistema de Retiro
Universidad de Puerto Rico
Junta de Retiro

RESOLUCIÓN #17 (2017-2018)
Resultado estudio actuarial enero 2018 (Cerrar; Congelar y/o Sustituir Plan Retiro vigente)

La Junta de Retiro del Sistema de Retiro de la Universidad de Puerto Rico ("Junta de Retiro") en su reunión ordinaria del 25 de mayo de 2018 aprobó la siguiente Resolución:

Por cuanto A tenor con la reglamentación de la Universidad de Puerto Rico (UPR) y la Sección 1.2 de la Escritura de Fideicomiso del Retiro UPR, del 29 de junio de 2016, la Junta de Retiro, es el único organismo oficial electo por los participantes activos y pensionados del Sistema de Retiro de la UPR (Retiro UPR). Además, tiene la función y el deber ministerial de defender y proteger la sostenibilidad, la financiación ("*funding*") y la perpetuidad del Fideicomiso del Retiro de la UPR.

Por Cuanto La Junta de Retiro fue informada el 17 de noviembre de 2017 que la Junta de Gobierno de la UPR (JG-UPR) solicitó un análisis actuarial para los siguientes escenarios: **(1) Cerrar** el Plan de Retiro de Beneficios Definidos actual y sustituirlo por un Plan de Retiro de Contribución Definida; **(2) Congelar** el Plan de Retiro de Beneficios Definidos actual y a partir de la fecha de congelación adoptar un Plan de Retiro de Contribución Definida; y **(3) Sustituir** el Plan de Retiro de Beneficios Definidos actual por un Plan de Retiro de Beneficios Definidos Reducidos.

Por Cuanto La Junta de Retiro aprobó la Resolución #8 el 17 de noviembre de 2017 (véase copia adjunta) en la cual presentó su rechazo y oposición a cualquier proyecto de enmienda, cambio o alteración al Plan de Pensiones de Beneficios Definidos del Retiro UPR y cualquier reglamentación aplicable al mismo que se intente establecer sin contar con su participación y aprobación.

Por Cuanto El 11 de enero de 2018 el actuario del Retiro UPR la firma Cavanaugh MacDonald presentó el resultado del estudio actuarial solicitado en noviembre 2017 por la JG-UPR para Cerrar; Congelar y/o Sustituir el Plan de Retiro vigente.

Por Cuanto El resultado del estudio actuarial le fue referido a la JG-UPR el 23 de enero de 2018 por la Directora del Sistema de Retiro quien a su vez solicitó autorización para compartirlo con la Junta de Retiro.

Por Cuanto La autorización a la Directora del Retiro UPR para compartir con la Junta de Retiro el resultado del estudio actuarial [enero 2018] presentado por la firma Cavanaugh MacDonald se recibió el 15 de mayo de 2018.

Por Cuanto El 16 de mayo de 2018, la Directora del Retiro UPR refirió copia del estudio actuarial 2018 a la Junta de Retiro**.**

Por tanto La Junta de Retiro aprobó divulgar a los participantes del Retiro UPR el resultado del estudio actuarial realizado por la firma Cavanaugh MacDonald sobre los referidos escenarios y que forme parte de esta resolución.

Resumen del Estudio Actuarial enero de 2018

A. El resultado actuarial de los **escenarios de Cerrar o Congelar** el Plan de Retiro de Beneficios Definido vigente y **Adoptar un Plan de Contribución Defin**ida valida que:

1. **amortizar la deuda actuarial de la UPR** mediante el **método de financiación cerrado a 30 años protege** y **garantiza** la **solvencia** y **perpetuidad** del Fideicomiso de Retiro UPR. Según el estudio actuarial, para el año **2044** estaría **100% "funded**".

El Estudio Actuarial de enero del 2018 confirma la recomendación del actuario del Retiro UPR en el **año 2014** de adoptar el método de **amortización cerrada a 30 años**, la cual fue recomendada a la JG-UPR por la Junta de Retiro mediante la Resolución del 24 octubre 2014. La Junta de Retiro ha insistido y reiterado este asunto ante la JG-UPR mediante la Resolución #6 del 2015; Resolución #23 del 2016 y en las Resoluciones #1 y #10 del 2017.

2. A**mortizar la deuda actuarial de la UPR** mediante el **método de financiación cerrado a 40 años** [política vigente bajo la Certificación Núm.146 (2014-15)] **causará** que el Fideicomiso del Retiro UPR se **quede insolvente** en el **año** 2038 **al Cerrar** el Plan de Retiro de Beneficios Definidos vigente o en el **año 2043** si lo **Congelan**.

B. El resultado actuarial del **escenario**: **Sustituir el Plan de Retiro de Beneficios Definido vigente** por **uno de Beneficios Reducidos** demuestra que:

1. Aunque aparenta reducir el gasto operacional del Retiro UPR a su vez incrementa la insolvencia **de fondos en caja**.

2. **Amortizar la deuda actuarial de la UPR a 40 años** [Certificación Núm. 146 (2014-15) vigente] **reducirá la razón de cobertura** del Fideicomiso de Retiro.

3. **Amortizar la deuda actuarial de la UPR** mediante el **método de financiación cerrada a 30 años** bajo las **tres alternativas** que contempla este escenario (**pensión máxima** de **$2,000**; **$2,300** y **$2,500** con **65 años de edad** y **35 de servicios**) favorece la razón de cobertura que para el 2044 será 100%, cancelando la deuda actuarial.

El Estudio Actuarial de enero 2018 concluye que:

1. De quedar el **Plan de Retiro de Beneficios Definidos vigente insolvente**, la UPR tendrá que adoptar un plan de pago de pensiones "*pay-as-you-go"*.

2. El plan de pago de pensiones *"pay-as-you-go"* es significativamente más costoso que el Plan de Retiro de Beneficios Definidos vigente.

3. **Reducir las aportaciones** de la UPR **al Fideicomiso del Retiro UPR no es la solución** a largo plazo para **lograr su solvencia**.

Se emite, hoy, 1 de junio de 2018, en las Oficinas del Sistema de Retiro de la Universidad de Puerto Rico, San Juan, Puerto Rico.

Eduardo Berríos Torres, Ed. D.
Presidente

Se acuerda enviar copia de esta resolución a todos los participantes del Sistema de Retiro de UPR; a los Miembros de la Junta Universitaria y los Senados Académicos de la UPR; a las organizaciones sindicales y profesionales de empleados activos y pensionados de la UPR; a la Junta de Gobierno UPR y a los medios de comunicación de Puerto Rico.

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

January 11, 2018

Ms. Maria del Carmen López Fuentes
Executive Director
University of Puerto Rico Retirement System
1019 Ponce de León Avenue
Rio Piedras, PR 00925

Subject: Projection Results

Dear Ms. Lopez Fuentes:

This letter will serve to document the results of the requested projections of employer contribution rates as both a percentage of payroll and in dollar amounts and the funded ratio of the System under a baseline scenario and the three scenarios listed below. The projections were performed using the June 30, 2016 valuation as a base, projecting active and retired memberships for each of the funds over a forty-year period assuming the active population decreased by 2% per year from June 30, 2018 through June 30, 2027. The projections were performed assuming the market return on assets was both 6.00% and 7.75% per year. The unfunded liability was amortized as a level percentage of pay assuming payroll growth of 3.00% per year over both a closed 30 year period beginning July 1, 2014 and a 40 year period beginning July 1, 2015 in accordance with Certification No. 146 adopted by the Governing Board of the University during the 2015 fiscal year. The scenarios are described below.

(1) Freeze current benefits of the System for all active members as of June 30, 2018. Current members and all future members will become members of a new defined contribution plan. We have assumed that all member contributions toward the defined benefit plan will be discontinued as of June 30, 2018 when the plan is frozen. Under the proposed defined contribution plan we have included two alternatives. Under the first one, the proposed defined contribution plan does not provide for an employer match of employee contributions. Under the second alternative, the defined contribution plan does provide for an employer match of 50% up to the first 2% of the member's contribution. Under the second alternative, we have assumed all members will become participants of the defined contribution plan and contribute 2% or higher of compensation to the defined contribution plan. It is important to note that under this scenario we have assumed that all the members who become participants of the defined contribution plan will continue to work for the University like they otherwise would have under the defined benefit plan and that in service distributions of the frozen accrued benefit payable from the defined benefit plan are not allowed.

(2) Freeze current benefits for all non-vested members of the System as of June 30, 2018. Current non-vested members and all future members will then become members of a new defined contribution plan. Current vested members will remain members of the existing defined benefit plan. The projected number of vested and non-vested members as of June 30, 2018 is 7,125 and 3,104 respectively. We have assumed that all member contributions toward the defined benefit plan will be discontinued for the non-vested members as of June 30, 2018 once their accrued benefit is frozen. Under the proposed defined contribution plan we have included two alternatives. Under the first one, the proposed defined contribution plan does not provide

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

for an employer match of employee contributions. Under the second alternative, the defined contribution plan does provide for an employer matching contribution of 50% up to the first 2% of the member's contribution percentage. Under the second alternative, we have assumed 100% of eligible members of the defined contribution plan will participate in the defined contribution plan and contribute at least 2% of compensation. It is important to note that under this scenario we have assumed that all the members who become participants of the defined contribution plan will continue to work for the University like they otherwise would have under the defined benefit plan and that in service distributions of the frozen accrued benefit payable from the defined benefit plan are not allowed.

(3) Create a new tier of benefits in the existing defined benefit plan for non-vested members. Under the proposed new tier the maximum benefit payable is $2,300 per month. The new tier is shown below:

Service retirement annuity payable:

- At age 65 after 35 years of service

Amount of service retirement annuity:

- Before age 65 – Benefits payable prior to age 65 are reduced on an actuarial equivalent basis to age 65
- Age 65 –1.50% of average compensation per year of service for member with 20 or fewer years. Percentage increased by 0.05% for each year in excess of 20 years up to a maximum of 1.95% of average compensation per year of service.
- Maximum annuity amount: $2,300 per month.
- Average compensation: the average for the highest-paid 72 months of service, excluding that portion of compensation in any year which is in excess of $69,557.

Member Contributions:

- 12.00% of compensation up to the applicable indexed maximum

In addition, we also show projection results under the proposed tier with a maximum monthly benefit of $2,000 and $2,500 per month.

It is important to note that under the first scenario listed above the System becomes insolvent under the 40 year amortization scenario of the unfunded actuarial accrued liability assuming both 7.75% and 6.00% assumed rates of return. The System is also projected to become insolvent under the second scenario assuming the 7.75% rate of return combined with the 40 year closed amortization of the unfunded actuarial accrued liability. It has been highlighted in the attached tables. Once the System becomes insolvent under these scenarios, we have assumed that the required employer contribution will equal to the pay-as-you-go cost net of required member defined benefit contributions. The pay-as-you-go cost is significantly higher than the prefunding cost. This is due to the fact that contributions to the System are reduced for members who become members of the defined contribution plan which significantly impacts the cash flow characteristics of the System.

Negative cash flow is when the benefit payments and administrative expenses exceed the contributions to the System. Under the baseline projections, the System has a negative cash flow that averages -6% under the 7.75% assumed rate of return and -4% under the 6.00% assumed rate of return. While the third scenario reduces overall cost of the System, it increases the negative cash flow of the System significantly under both the 7.75% and 6.00% assumed rate of return under the closed 40 year amortization of the unfunded actuarial accrued liability which reduces the funded ratio in comparison to the baseline scenarios. This demonstrates that the funded status of the System is in such a place that reducing contributions to the System may not be the long term solution to the System's funding issues.

Disclaimers, Caveats, and Limitations

The results shown in the numerical charts enclosed are based primarily on the June 30, 2016 valuation results, the actuarial assumptions used in the valuation, and the projections prepared by us. Significant items are noted below:

- The investment return in all future years is assumed to be 7.75% and 6.00% on a market value basis.
- All demographic assumptions regarding mortality, disability, retirement, salary increases, and termination of employment are assumed to hold true in the future.
- Changes in the plan design and resulting benefit amounts as a result of the proposed new tier may have an effect on future termination and retirement patterns. Whether, and how, retirement and termination of employment patterns will ultimately be impacted cannot be known at this time. Therefore, we have assumed that 100% of the new tier members will retire upon obtaining age 65 and 35 years of service or age 70 with 10 years of service.
- The number of active members covered in the future is assumed to decrease by 2% annually from June 30, 2018 through June 30, 2017. As active members leave covered employment, they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires.
- The funding methods, including the entry age normal cost method, the asset smoothing method, and the amortization method and period, remain unchanged over the projection period.
-

Projections are designed to identify anticipated trends rather than predicting some future state of events. The projections are based on the System's estimated financial status on June 30, 2016 and project future events using one set of assumptions out of a range of many possibilities. A different set of assumptions would lead to different results. The projections do not predict the System's financial condition or its ability to pay benefits in the future and do not provide any guarantee of future financial soundness of the System. Over time, a defined benefit plan's total cost will depend on a number of factors, including the amount of benefits paid, the number of people paid benefits, the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the time the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, results could be significantly better or significantly worse than indicated in the enclosed tables.

We certify that we are members of the American Academy of Actuaries and that we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

If you have any questions, please give us a call.

Sincerely,

Todd B. G

Todd B. Green ASA, FCA, MAAA
Principal and Consulting Actuary

Enc.

S:\2017\University of Puerto Rico\Correspondence\Projection Letter ver 2.docx

University of Puerto Rico Retirement System
Projected Contributions and Funded Ratio

Amortization of the Unfunded Actuarial Accrued Liability - Over 30 and 40 Years

2% Per Year Decrease in Covered Position for Fical Years 2018-2027

Actuarial Valuation as of June 30	2016	2017	2018	2023	2028	2033	2038	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
University Contribution Rate for Fiscal Year	2017	2018	2019	2024	2029	2034	2039	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
Baseline Valuation as of 6/30/2016																				
7.75% Discount Rate																				
30 Year Amortization of UAL	17.56%	18.05%	18.74%	23.16%	26.86%	27.89%	27.98%	27.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
40 Year Amortization of UAL	15.13%	15.54%	16.12%	19.84%	22.91%	23.71%	23.74%	23.32%	23.20%	23.07%	22.93%	22.79%	22.64%	22.47%	22.31%	22.13%	21.94%	21.73%	21.45%	0.00%
6% Discount Rate																				
30 Year Amortization of UAL	17.56%	18.05%	24.85%	29.66%	33.70%	34.55%	34.20%	32.59%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
40 Year Amortization of UAL	15.13%	18.30%	20.54%	24.29%	27.39%	27.94%	27.63%	26.85%	26.66%	26.45%	26.22%	25.99%	25.75%	25.49%	25.22%	24.92%	24.59%	24.20%	23.63%	0.00%
Scenario 1 - All Current Actives to DC Plan																				
7.75% Discount Rate																				
No University Match, 30 yr amort of UAL	17.56%	18.05%	21.15%	25.96%	30.09%	31.51%	31.83%	31.37%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
50% University Match, 30 yr amort of UAL			22.15%	26.96%	31.09%	32.51%	32.83%	32.37%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
No University Match, 40 yr amort of UAL	15.14%	15.54%	18.39%	22.49%	25.97%	27.15%	38.31%	27.84%	25.85%	23.93%	22.11%	20.35%	18.65%	17.02%	15.50%	14.07%	12.74%	11.51%	10.38%	9.34%
50% University Match, 40 yr amort of UAL			19.39%	23.49%	26.97%	28.15%	39.31%	28.84%	26.85%	24.93%	23.11%	21.35%	19.65%	18.02%	16.50%	15.07%	13.74%	12.51%	11.38%	10.34%
6% Discount Rate																				
No University Match, 30 yr amort of UAL	17.56%	18.05%	24.57%	29.95%	34.61%	36.14%	36.34%	35.25%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
50% University Match, 30 yr amort of UAL			25.57%	30.95%	35.61%	37.14%	37.34%	36.25%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
No University Match, 40 yr amort of UAL	15.14%	15.54%	20.11%	24.43%	28.15%	29.38%	38.31%	27.84%	25.85%	23.93%	22.11%	20.35%	18.65%	17.03%	15.50%	14.07%	12.74%	11.51%	10.38%	9.34%
50% University Match, 40 yr amort of UAL			21.11%	25.43%	29.15%	30.38%	39.31%	28.84%	26.85%	24.93%	23.11%	21.35%	19.65%	18.03%	16.50%	15.07%	13.74%	12.51%	11.38%	10.34%
Scenario 2 - Nonvested Employees Only to DC Plan																				
7.75% Discount Rate																				
No University Match, 30 yr amort of UAL	17.56%	18.05%	19.15%	24.00%	28.24%	29.92%	30.45%	30.01%	0.69%	0.69%	0.69%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
50% University Match, 30 yr amort of UAL			20.15%	25.00%	29.24%	30.92%	31.45%	31.01%	1.69%	1.69%	1.69%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
No University Match, 40 yr amort of UAL	15.14%	15.54%	16.72%	20.92%	24.58%	26.05%	26.53%	32.28%	30.16%	28.09%	26.09%	24.13%	22.23%	20.40%	18.66%	17.02%	15.49%	14.06%	12.73%	11.50%
50% University Match, 40 yr amort of UAL			17.72%	21.92%	25.58%	27.05%	27.53%	33.28%	31.16%	29.09%	27.09%	25.13%	23.23%	21.40%	19.66%	18.02%	16.49%	15.06%	13.73%	12.50%
6% Discount Rate																				
No University Match, 30 yr amort of UAL	17.56%	18.05%	28.60%	29.88%	29.14%	24.85%	18.88%	6.23%	0.72%	0.71%	0.71%	0.71%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
50% University Match, 30 yr amort of UAL			29.60%	30.88%	30.14%	25.85%	19.88%	7.23%	1.72%	1.71%	1.71%	1.71%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
No University Match, 40 yr amort of UAL	15.14%	15.54%	25.13%	26.31%	26.12%	23.42%	20.32%	17.36%	16.80%	16.25%	15.70%	15.15%	14.59%	14.03%	13.44%	12.81%	12.10%	11.19%	9.70%	0.70%
50% University Match, 40 yr amort of UAL			26.13%	27.31%	27.12%	24.42%	21.32%	18.36%	17.80%	17.25%	16.70%	16.15%	15.59%	15.03%	14.44%	13.81%	13.10%	12.19%	10.70%	1.70%
Scenario 3 - Nonvested Employees in New DB Plan																				
7.75% Discount Rate																				
$2,300 Max, 30 yr amort of UAL	17.56%	18.05%	18.04%	21.97%	25.27%	25.98%	25.91%	25.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
$2,000 Max, 30 yr amort of UAL	17.56%	18.05%	17.97%	21.87%	25.13%	25.80%	25.72%	25.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
$2,500 Max, 30 yr amort of UAL	17.56%	18.05%	18.07%	22.03%	25.35%	26.07%	26.01%	25.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
$2,300 Max, 40 yr amort of UAL	15.14%	15.54%	15.45%	18.69%	21.37%	21.84%	21.72%	21.32%	21.23%	21.14%	21.03%	20.91%	20.78%	20.64%	20.53%	20.37%	20.27%	20.10%	19.91%	0.00%
$2,000 Max, 40 yr amort of UAL	15.14%	15.54%	15.39%	18.59%	21.23%	21.67%	21.54%	21.14%	21.05%	20.96%	20.86%	20.75%	20.62%	20.49%	20.38%	20.23%	20.12%	19.97%	19.78%	0.00%
$2,500 Max, 40 yr amort of UAL	15.14%	15.54%	15.48%	18.75%	21.44%	21.93%	21.82%	21.42%	21.33%	21.24%	21.13%	21.01%	20.88%	20.73%	20.62%	20.46%	20.35%	20.18%	19.98%	0.00%
6% Discount Rate																				
$2,300 Max, 30 yr amort of UAL	17.56%	18.05%	23.84%	27.93%	31.36%	31.71%	31.13%	29.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
$2,000 Max, 30 yr amort of UAL	17.56%	18.05%	23.74%	27.77%	31.13%	31.43%	30.83%	29.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
$2,500 Max, 30 yr amort of UAL	17.56%	18.05%	23.90%	28.03%	31.49%	31.86%	31.30%	29.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
$2,300 Max, 40 yr amort of UAL	15.14%	15.54%	19.69%	22.76%	25.29%	25.36%	24.81%	24.09%	23.93%	23.78%	23.61%	23.42%	23.23%	23.02%	22.82%	22.58%	22.36%	22.04%	21.59%	0.00%
$2,000 Max, 40 yr amort of UAL	15.14%	15.54%	19.60%	22.60%	25.07%	25.09%	24.52%	23.80%	23.65%	23.51%	23.34%	23.16%	22.97%	22.77%	22.58%	22.35%	22.13%	21.83%	21.39%	0.00%
$2,500 Max, 40 yr amort of UAL	15.14%	15.54%	19.75%	22.85%	25.41%	25.51%	24.98%	24.25%	24.10%	23.94%	23.77%	23.58%	23.38%	23.17%	22.96%	22.72%	22.49%	22.17%	21.71%	0.00%

University of Puerto Rico Retirement System
Projected Contributions and Funded Ratio

Amortization of the Unfunded Actuarial Accrued Liability - Over 30 and 40 Years

2% Per Year Decrease in Covered Position for Fical Years 2018-2027

Estimated University Contribution for Fiscal Year ($ millions)	2017	2018	2019	2024	2029	2034	2039	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
Baseline Valuation as of 6/30/2016																				
7.75% Discount Rate																				
30 Year Amortization of UAL	$85.8	$86.6	$88.8	$105.6	$123.2	$141.8	$163.4	$187.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
40 Year Amortization of UAL	$74.0	$74.6	$76.4	$90.5	$105.1	$120.6	$138.6	$159.8	$164.5	$169.2	$174.2	$179.2	$184.5	$189.8	$195.3	$200.9	$206.6	$212.3	$217.4	$0.0
6% Discount Rate																				
30 Year Amortization of UAL	$85.8	$86.6	$117.7	$135.2	$154.5	$175.7	$199.7	$223.3	$0.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
40 Year Amortization of UAL	$74.0	$87.8	$97.3	$110.7	$125.6	$142.1	$161.3	$184.0	$188.9	$194.0	$199.1	$204.5	$209.9	$215.3	$220.8	$226.3	$231.6	$236.4	$239.3	$0.0
Scenario 1 - All Current Actives to DC Plan																				
7.75% Discount Rate																				
No University Match, 30 yr amort of UAL	$85.8	$86.6	$100.2	$118.4	$138.0	$160.2	$185.9	$215.0	$5.0	$5.1	$5.3	$5.5	$5.7	$5.9	$6.1	$6.4	$6.6	$6.8	$7.1	$7.4
50% University Match, 30 yr amort of UAL			$104.9	$122.9	$142.6	$165.3	$191.7	$221.8	$12.0	$12.5	$12.9	$13.4	$13.9	$14.4	$14.9	$15.4	$16.0	$16.6	$17.2	$17.9
No University Match, 40 yr amort of UAL	$74.0	$74.6	$87.1	$102.5	$119.1	$138.1	$223.7	$190.8	$183.2	$175.6	$167.9	$160.0	$151.9	$143.8	$135.7	$127.8	$120.0	$112.4	$105.1	$98.1
50% University Match, 40 yr amort of UAL			$91.9	$107.1	$123.7	$143.2	$229.5	$197.7	$190.3	$182.9	$175.5	$167.9	$160.1	$152.2	$144.5	$136.9	$129.4	$122.2	$115.3	$108.6
6% Discount Rate																				
No University Match, 30 yr amort of UAL	$85.8	$86.6	$116.4	$136.6	$158.7	$183.8	$212.2	$241.6	$5.0	$5.1	$5.3	$5.5	$5.7	$5.9	$6.1	$6.4	$6.6	$6.8	$7.1	$7.4
50% University Match, 30 yr amort of UAL			$121.1	$141.1	$163.3	$188.9	$218.0	$248.4	$12.0	$12.5	$12.9	$13.4	$13.9	$14.4	$14.9	$15.4	$16.0	$16.6	$17.2	$17.9
No University Match, 40 yr amort of UAL	$74.0	$74.6	$95.3	$111.4	$129.1	$149.4	$223.7	$190.8	$183.2	$175.6	$167.9	$160.0	$151.9	$143.8	$135.7	$127.8	$120.0	$112.4	$105.1	$98.1
50% University Match, 40 yr amort of UAL			$100.0	$116.0	$133.7	$154.5	$229.5	$197.7	$190.3	$182.9	$175.5	$167.9	$160.1	$152.2	$144.5	$136.9	$129.4	$122.2	$115.3	$108.6
Scenario 2 - Nonvested Employees Only to DC Plan																				
7.75% Discount Rate																				
No University Match, 30 yr amort of UAL	$85.8	$86.6	$90.7	$109.4	$129.5	$152.2	$177.8	$205.7	$4.9	$5.1	$5.3	$5.5	$5.7	$5.9	$6.1	$6.4	$6.6	$6.8	$7.1	$7.4
50% University Match, 30 yr amort of UAL			$95.4	$114.0	$134.1	$157.3	$183.6	$212.5	$12.0	$12.4	$12.9	$13.3	$13.8	$14.3	$14.9	$15.4	$16.0	$16.6	$17.2	$17.9
No University Match, 40 yr amort of UAL	$74.0	$74.6	$79.2	$95.4	$112.7	$132.5	$154.9	$221.2	$213.8	$206.1	$198.2	$189.8	$181.1	$172.3	$163.4	$154.6	$145.9	$137.3	$128.9	$120.8
50% University Match, 40 yr amort of UAL			$83.9	$99.9	$117.3	$137.6	$160.7	$228.1	$220.9	$213.4	$205.8	$197.7	$189.3	$180.7	$172.2	$163.7	$155.3	$147.1	$139.1	$131.4
6% Discount Rate																				
No University Match, 30 yr amort of UAL	$85.8	$86.6	$135.5	$136.2	$133.6	$126.4	$110.2	$42.7	$5.1	$5.2	$5.4	$5.5	$5.7	$5.9	$6.1	$6.4	$6.6	$6.8	$7.1	$7.4
50% University Match, 30 yr amort of UAL			$140.2	$140.8	$138.2	$131.5	$116.1	$49.6	$12.2	$12.6	$13.0	$13.4	$13.9	$14.4	$14.9	$15.4	$16.0	$16.6	$17.2	$17.9
No University Match, 40 yr amort of UAL	$74.0	$74.6	$119.0	$119.9	$119.8	$119.1	$118.6	$119.0	$119.1	$119.2	$119.2	$119.1	$118.9	$118.5	$117.7	$116.3	$113.9	$109.3	$98.3	$7.4
50% University Match, 40 yr amort of UAL			$123.8	$124.5	$124.4	$124.2	$124.5	$125.8	$126.2	$126.5	$126.8	$127.0	$127.1	$126.9	$126.5	$125.4	$123.3	$119.1	$108.4	$17.9
Scenario 3 - Nonvested Employees in New DB Plan																				
7.75% Discount Rate																				
$2,300 Max, 30 yr amort of UAL	$85.8	$86.6	$85.4	$100.2	$115.9	$132.1	$151.3	$173.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$2,000 Max, 30 yr amort of UAL	$85.8	$86.6	$85.1	$99.7	$115.3	$131.2	$150.2	$172.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$2,000 Max, 30 yr amort of UAL	$85.8	$86.6	$85.6	$100.5	$116.3	$132.6	$151.9	$174.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$2,300 Max, 40 yr amort of UAL	$74.0	$74.6	$73.2	$85.2	$98.0	$111.1	$126.8	$146.1	$150.5	$155.0	$159.7	$164.5	$169.4	$174.4	$179.8	$185.0	$190.9	$196.3	$201.7	$0.0
$2,000 Max, 40 yr amort of UAL	$74.0	$74.6	$72.9	$84.8	$97.4	$110.2	$125.8	$144.9	$149.2	$153.8	$158.4	$163.2	$168.1	$173.0	$178.4	$183.7	$189.5	$195.0	$200.4	$0.0
$2,500 Max, 40 yr amort of UAL	$74.0	$74.6	$73.3	$85.5	$98.3	$111.6	$127.4	$146.8	$151.2	$155.8	$160.5	$165.3	$170.1	$175.1	$180.6	$185.8	$191.6	$197.1	$202.4	$0.0
6% Discount Rate																				
$2,300 Max, 30 yr amort of UAL	$85.8	$86.6	$112.9	$127.3	$143.8	$161.3	$181.7	$203.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$2,000 Max, 30 yr amort of UAL	$85.8	$86.6	$112.5	$126.6	$142.8	$159.9	$180.0	$201.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$2,000 Max, 30 yr amort of UAL	$85.8	$86.6	$113.2	$127.8	$144.4	$162.1	$182.7	$204.6	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$2,300 Max, 40 yr amort of UAL	$74.0	$74.6	$93.3	$103.8	$116.0	$129.0	$144.9	$165.1	$169.7	$174.4	$179.3	$184.3	$189.3	$194.4	$199.8	$205.0	$210.5	$215.3	$218.7	$0.0
$2,000 Max, 40 yr amort of UAL	$74.0	$74.6	$92.8	$103.0	$115.0	$127.6	$143.2	$163.1	$167.7	$172.4	$177.2	$182.2	$187.2	$192.3	$197.7	$202.9	$208.4	$213.2	$216.7	$0.0
$2,500 Max, 40 yr amort of UAL	$74.0	$74.6	$93.5	$104.2	$116.5	$129.7	$145.8	$166.2	$170.8	$175.6	$180.5	$185.5	$190.5	$195.7	$201.1	$206.3	$211.8	$216.5	$219.9	$0.0

University of Puerto Rico Retirement System
Projected Contributions and Funded Ratio
Amortization of the Unfunded Actuarial Accrued Liability - Over 30 and 40 Years
2% Per Year Decrease in Covered Position for Fical Years 2018-2027

Funded Status for Fiscal Year	2016	2017	2018	2023	2028	2033	2038	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
Baseline Valuation as of 6/30/2016																				
7.75% Discount Rate																				
30 Year Amortization of UAL	47.82%	48.72%	48.66%	46.87%	46.95%	51.03%	63.13%	91.51%	100.03%	100.75%	101.56%	102.46%	103.47%	104.58%	105.80%	107.13%	108.58%	110.14%	111.83%	113.65%
40 Year Amortization of UAL	47.82%	48.29%	47.76%	42.79%	37.49%	32.33%	28.52%	30.57%	32.33%	34.69%	37.68%	41.36%	45.78%	50.97%	56.94%	63.75%	71.43%	80.02%	89.56%	100.07%
6% Discount Rate																				
30 Year Amortization of UAL	47.82%	48.72%	40.46%	40.20%	42.04%	48.35%	62.80%	91.98%	100.10%	100.17%	100.25%	100.34%	100.45%	100.58%	100.73%	100.90%	101.09%	101.30%	101.53%	101.78%
40 Year Amortization of UAL	47.82%	44.38%	40.11%	35.99%	31.73%	28.19%	26.84%	31.96%	34.31%	37.20%	40.65%	44.70%	49.37%	54.68%	60.62%	67.21%	74.46%	82.38%	90.96%	100.16%
Scenario 1 - All Current Actives to DC Plan																				
7.75% Discount Rate																				
30 yr amort of UAL	47.82%	48.72%	46.69%	41.70%	37.42%	36.10%	44.57%	84.21%	100.02%	100.11%	100.20%	100.31%	100.44%	100.60%	100.78%	100.99%	101.25%	101.56%	101.93%	102.37%
40 yr amort of UAL	47.82%	48.29%	45.80%	37.25%	26.27%	11.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6% Discount Rate																				
30 yr amort of UAL	47.82%	48.72%	38.34%	33.88%	30.40%	30.55%	41.46%	84.06%	100.15%	100.23%	100.33%	100.43%	100.55%	100.69%	100.86%	101.05%	101.28%	101.54%	101.86%	102.24%
40 yr amort of UAL	47.82%	48.29%	37.61%	28.80%	17.48%	2.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Scenario 2 - Nonvested Employees Only to DC Plan																				
7.75% Discount Rate																				
30 yr amort of UAL	47.82%	48.72%	48.59%	46.05%	44.61%	45.94%	54.89%	87.55%	100.03%	100.11%	100.20%	100.30%	100.42%	100.57%	100.74%	100.93%	101.16%	101.44%	101.78%	102.18%
40 yr amort of UAL	47.82%	48.29%	47.08%	41.23%	33.96%	24.40%	11.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6% Discount Rate																				
30 yr amort of UAL	47.82%	48.72%	41.03%	46.27%	52.81%	61.91%	75.85%	97.91%	101.80%	103.89%	106.30%	109.09%	112.36%	116.19%	120.70%	126.03%	132.36%	139.90%	148.92%	159.76%
40 yr amort of UAL	47.82%	48.29%	39.76%	41.42%	42.37%	42.39%	41.11%	40.17%	40.48%	41.13%	42.20%	43.82%	46.16%	49.41%	53.81%	59.60%	67.10%	76.62%	88.35%	101.84%
Scenario 3 - Nonvested Employees in New DB Plan																				
7.75% Discount Rate																				
$2,300 Max, 30 yr amort of UAL	47.82%	48.72%	48.89%	46.65%	45.84%	48.46%	59.07%	89.74%	100.03%	101.65%	103.54%	105.72%	108.23%	111.08%	114.32%	117.96%	122.03%	126.56%	131.56%	137.07%
$2,000 Max, 30 yr amort of UAL	47.82%	48.72%	48.91%	46.63%	45.74%	48.21%	58.62%	89.51%	100.03%	101.76%	103.79%	106.15%	108.88%	112.01%	115.58%	119.62%	124.16%	129.24%	134.89%	141.14%
$2,500 Max, 30 yr amort of UAL	47.82%	48.72%	48.88%	46.66%	45.90%	48.61%	59.32%	89.86%	100.03%	101.59%	103.39%	105.48%	107.87%	110.57%	113.63%	117.06%	120.88%	125.11%	129.77%	134.89%
$2,300 Max, 40 yr amort of UAL	47.82%	48.29%	47.99%	42.54%	36.17%	28.77%	20.62%	16.22%	16.75%	18.03%	20.15%	23.25%	27.46%	32.94%	39.84%	48.25%	58.35%	70.27%	84.13%	100.08%
$2,000 Max, 40 yr amort of UAL	47.82%	48.29%	48.01%	42.52%	36.05%	28.42%	19.75%	14.35%	14.65%	15.68%	17.58%	20.50%	24.58%	30.00%	36.94%	45.53%	55.98%	68.43%	83.08%	100.08%
$2,500 Max, 40 yr amort of UAL	47.82%	48.29%	47.98%	42.56%	36.24%	28.97%	21.10%	17.24%	17.90%	19.31%	21.55%	24.75%	29.04%	34.55%	41.42%	49.73%	59.65%	71.26%	84.70%	100.08%
6% Discount Rate																				
$2,300 Max, 30 yr amort of UAL	47.82%	48.72%	40.69%	39.81%	40.55%	45.19%	58.17%	90.13%	100.11%	101.12%	102.27%	103.60%	105.10%	106.79%	108.68%	110.78%	113.09%	115.63%	118.39%	121.39%
$2,000 Max, 30 yr amort of UAL	47.82%	48.72%	40.71%	39.77%	40.40%	44.84%	57.62%	89.88%	100.11%	101.25%	102.56%	104.07%	105.78%	107.73%	109.91%	112.35%	115.06%	118.04%	121.31%	124.86%
$2,500 Max, 30 yr amort of UAL	47.82%	48.72%	40.68%	39.83%	40.64%	45.38%	58.48%	90.27%	100.11%	101.04%	102.12%	103.34%	104.73%	106.28%	108.01%	109.93%	112.03%	114.33%	116.83%	119.53%
$2,300 Max, 40 yr amort of UAL	47.82%	48.29%	39.93%	35.14%	29.50%	23.27%	17.17%	16.02%	17.29%	19.30%	22.12%	25.87%	30.63%	36.53%	43.67%	52.09%	61.91%	73.18%	85.94%	100.20%
$2,000 Max, 40 yr amort of UAL	47.82%	48.29%	39.95%	35.10%	29.31%	22.79%	16.09%	13.89%	14.93%	16.71%	19.35%	22.95%	27.62%	33.51%	40.74%	49.39%	59.59%	71.42%	84.96%	100.21%
$2,500 Max, 40 yr amort of UAL	47.82%	48.29%	39.92%	35.17%	29.60%	23.54%	17.78%	17.19%	18.59%	20.72%	23.65%	27.48%	32.29%	38.19%	45.27%	53.56%	63.17%	74.13%	86.48%	100.19%