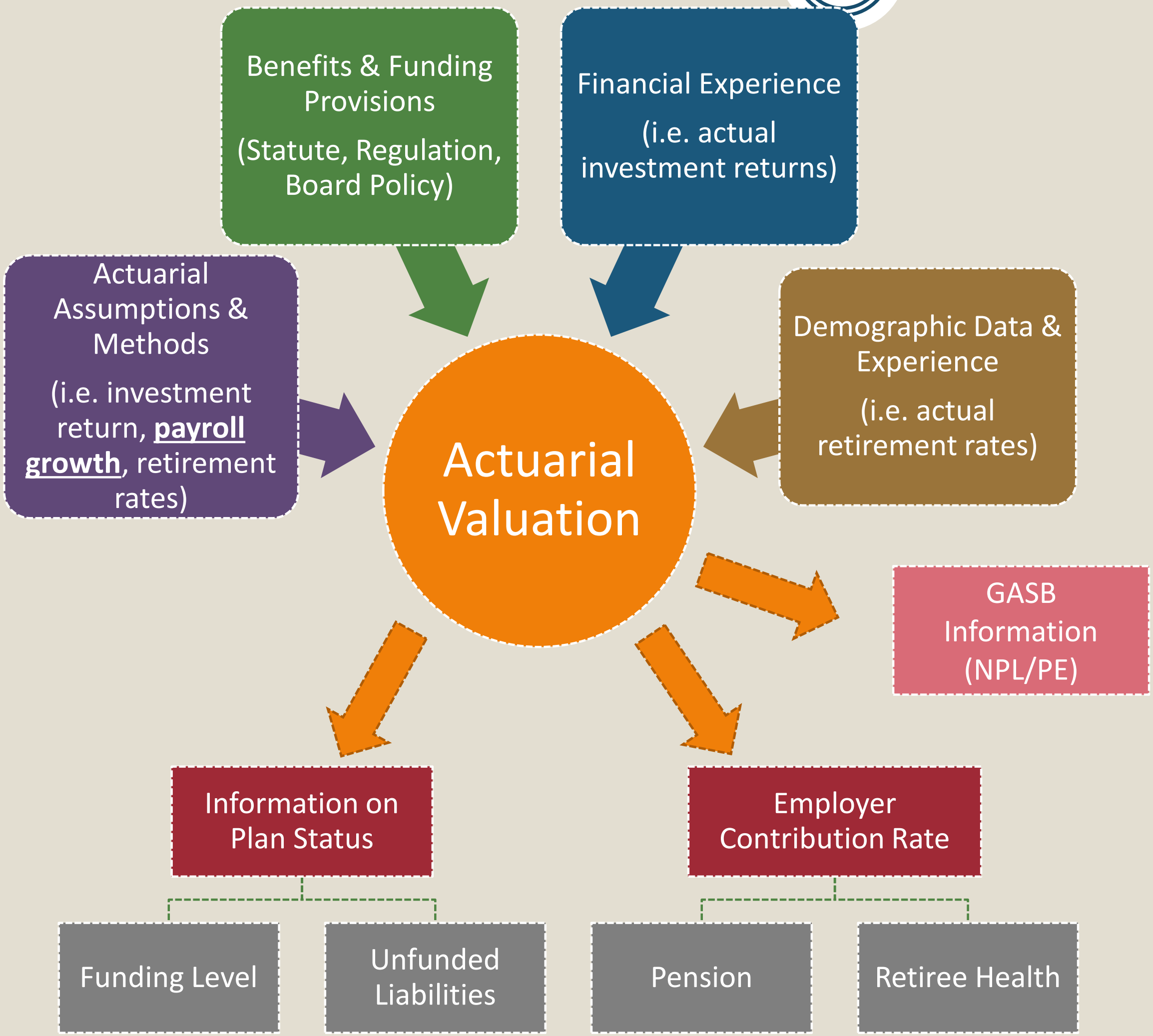
Financing the Unfunded Accrued Liability (UAL)

Public Pension Oversight Board
July 2020

ACTUARIAL DATA → *Background*



Experience Study: An actuarial review of assumptions against experience with recommendations for adjustments (conducted by the system's actuary). HB 238 passed in the 2016 RS requires the systems to perform an experience study at least once every 5 years and specifies reporting requirements.

Actuarial Audit: An secondary review by another actuary to review the current actuary's work. HB 238 passed in 2016 RS requires the PPOB to retain an actuary and perform an audit at least once every 5 years.

Asset/Liability Modeling Study: Typically performed following the experience study and evaluates various asset allocations against projected system liabilities with the ultimate goal of selecting a target asset allocation for the investment portfolio.

The Unfunded Liability → *A "Pension Mortgage"*

- ARC Calculation:
  - Total Cost of Plan = Normal Cost + Amortized UAL payment
  - i.e. -- A Home = Utilities/Maintenance + the Mortgage
- The UAL and Contributions impacted by many factors

	If FAVORABLE	IF UNFAVORABLE
Actual Experience i.e. Payroll growth, mortality, investment returns, funding	UAL ↓ Contributions ↓	UAL ↑ Contributions ↑
Assumption/Method Change i.e. Discount rate, Level $ vs. Level %	UAL ↓ Contributions ↓	UAL ↑ Contributions ↑

- How have recent trends across industry impacted a plans' "Pension Mortgage?"

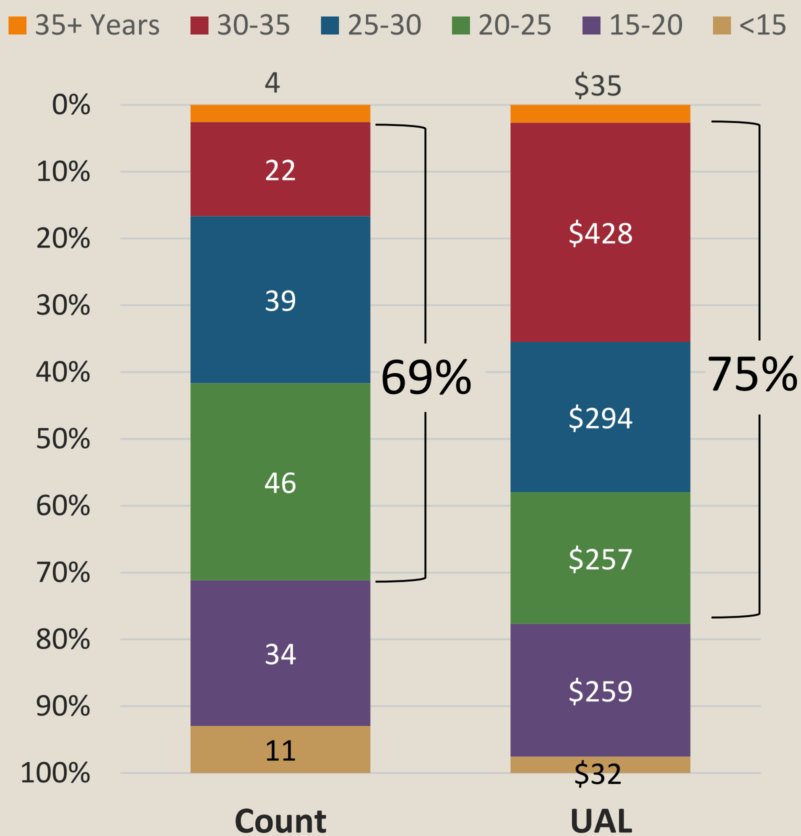
FINANCING THE UAL→ *Developing a Policy*

- Plans must develop policy, method of financing the UAL
- Key Components of Amortization Policy include:
  1. Amortization Period (15-, 20-, 30-year period)
  2. Closed or Open (is period fixed, variable, or rolling)
  3. Single or Separate Amortization Bases (by year, source, or both)
  4. Method (Level % of payroll or Level $)
- Other factors to consider:
  - Interest Rate (generally assumed rate of return)
  - Possibility of Negative Amortization (i.e. annual amortization payment < interest on existing UAL)
  - Statutory requirements (i.e. contribution rates, methods, etc.)

FINANCING THE UL→ 1 *Amortization Period*

- Historically, 30-Year periods
  - TRS and KRS utilize 30-year periods
  - Plans with > UAL tend to use longer periods
  - Many plans have reset, or restarted periods
- Society of Actuaries Study
  - Majority of plans amortizing over a 20-35 year period (75% of UAL)
  - 17% of plans amortizing > 30 years (35% of UAL)
  - 7% of plans amortizing < 15 years (2% of UAL)
- 20 Year becoming new 30 Year
  - Actuaries and Government Finance Officers Association (GFOA) now recommend shorter period

Amortization Period
by Count and Unfunded Liability
2016 Plan Valuation Data



[1] included 155 state and local government pension plans

SOURCE: U.S. Public Pension Plan Contribution Analysis, February 2019
Society of Actuaries - https://www.soa.org

FINANCING THE UL→ ❷ *Open/Close Period*

- Historically, Plans used Open Period
  - The period is reset each year. For example, under a 25-year open amortization period, the UAL is refinanced each year over a new 25-year period.
  - Both KRS (prior to 2007) and TRS (prior to 2014) utilized open 30-year amortization periods
- Most larger Plans have moved to a Closed period in more recently
  - 67% of plans according to 2019 NCPERS Public Retirement Study [1]
  - At least 36 of 50 reviewed by LRC Staff
  - Recommended by Conference of Consulting Actuaries, GFOA

Open amortization period
- pays down UAL more gradually
- helps control volatility in the contribution rate, **BUT**
- takes substantially longer to pay down the UAL.
- is more likely to produce negative amortization, at least when the period is 15 to 20 years or longer.

Closed amortization period
- pays down the UAL more rapidly
- limits negative amortization, **BUT**
- can result in more volatility in contribution rates as the period gets shorter

[1] included 155 state and local government pension plans

FINANCING THE UL→ ❸ *Single or Separate*

- Closed Amortization typically occurs in one of two forms:

Single "base" or "layer" that ends on specific date. Any increase or decrease in UAL during period is re-amortized over the remaining period in each valuation.

- Most plans utilized single base after moving to closed period
- But any significant change in UAL as period closes can > volatility

Separate "bases" or "layers" representing an increase or decrease in UAL from a given year or source are amortized individually along separate amortization periods. Annual payments for each base or layer are added together for total UAL payment.

- More recently, many plans have moved to this approach
- Avoids some of contribution rate volatility which can occur with single closed period by spreading cost more evenly over time
- Bases or layers may have different length of amortization periods
- It is more complicated to calculate
- Both TRS (since 2014) and KRS[1] (beginning with 2019) now utilize

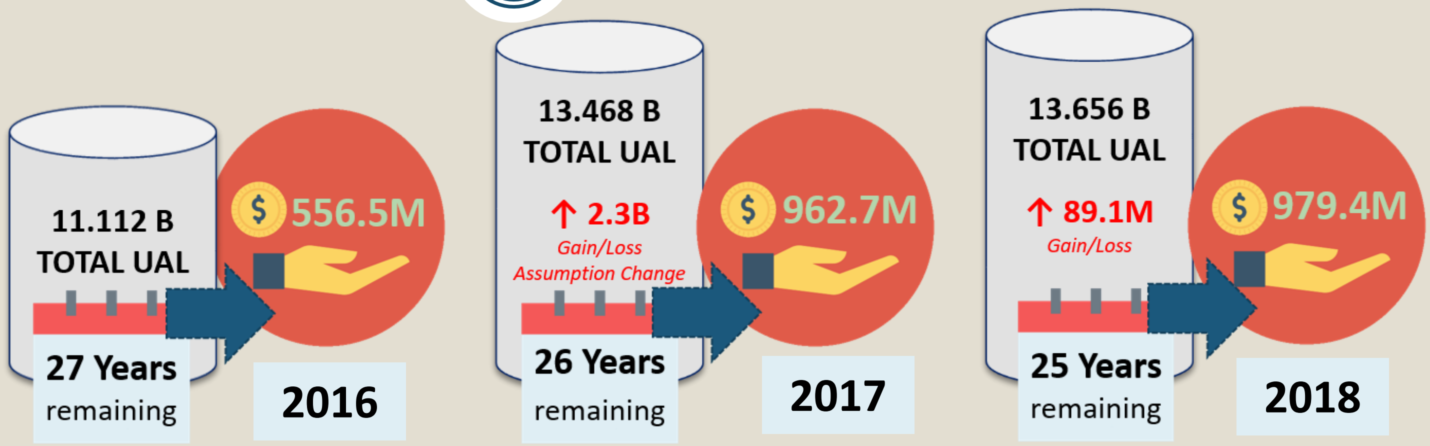
[1] With passage of SB249 during the 2020 Regular Session

SINGLE/SEPARATE BASES → *Examples*

KERS Pre-2020
Total UAL and UAL Annual Amortization Payment Calculation

**Source – 2016 - 2018 valuations*

SINGLE
AMORTIZATION BASE



Current TRS
Total UAL and UAL Annual Amortization Payment Calculation

** Source – TRS 2019 valuation*

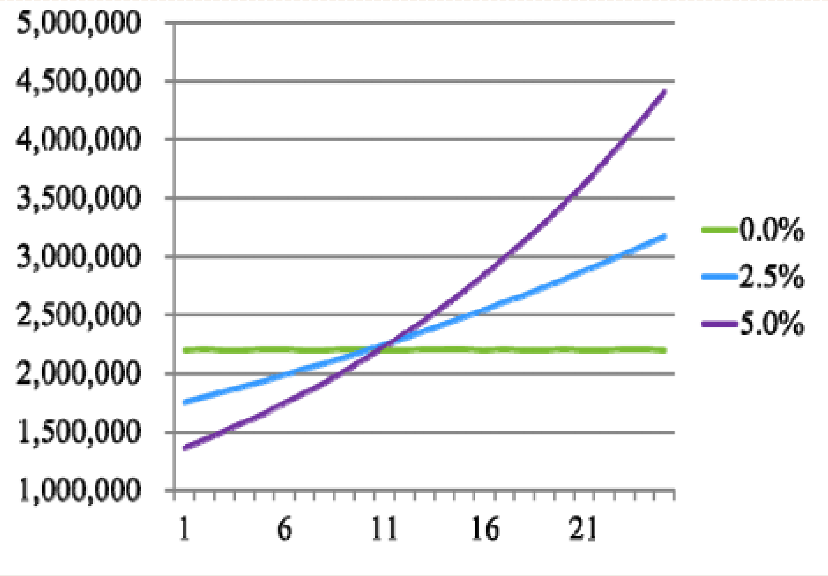
SEPERATE
AMORTIZATION BASES

BASE	UAL /AMORTIZATION PERIOD REMAINING *(Dollars in thousands)*		PAYMENT
LEGACY	$15,097,125	– 25 Years	$952,629
2015	(346,270)	– 16 Years	(29,421)
2016	337,703	– 17 Years	27,468
2017	(427,120)	– 18 Years	(33,370)
2018	(192,192)	– 19 Years	(14,465)
2019	53,306	– 20 Years	3,876
TOTAL	$14,522,877	– 25.4 Years	$906,717

FINANCING THE UL→ ❹Method

- **Level Percent of Payroll or Level Dollar**
  - Level % assumes fixed percent of a growing payroll, dollar amounts grow with each year of amortization period.
  - Level $ does not consider payroll growth, results in flat dollar amounts required each year of amortization period.
- Most Plans utilize Level % of Payroll
  - At least 37 of 50 state plans reviewed
  - Avg. Payroll Growth Assumption = 3.05%
  - 9 plans utilize Level $
- Kentucky plans:
  - KERS: Statute requires Level %, but 0% payroll growth assumption = Level $
  - CERS: Level %, 2.0% payroll growth
  - TRS: Level %, 3.5% payroll growth

Payroll Growth and Amortization Payments



SOURCE: Amortization Payments: A Major Source of Pension Underfunding that is Often Ignored, ***Jason L. Franken, Foster and Foster Actuaries***
www.ncpers.org/files/Conference%20Docs/Public%20Safety/2017/PPT/Jason%20Franken_Monday.pdf

FUNDING POLICIES→ *Summary*

Component	KRS	TRS	JFRS
Funding Policy	Primarily Statutory	Primarily board policy	Statutory/board policy
Actuarial Cost Method	Entry Age Normal Cost *(required by statute)*	Entry Age Normal Cost *(policy)*	Entry Age Normal Cost *(statute allows EANC or PUC)*
Asset Valuation Method	5 year smoothed market (statute)	5 year smoothed market (board policy)	5 year smoothed market (policy)
Amortization Method	Level % (statute) 0% payroll growth (policy)[1]	Level % (policy) 3.5% payroll growth (policy)	Assumed rate of return + 1% of unfunded liabilities (statute).
Closed or Open Period	Closed (statute) Open prior to 2007 (policy)	Closed (policy) Open prior to 2014 (policy)	Open
Single or Layered Approach	Separate Layers by Year Legacy UAL as of 2019: 30-year closed period Reset in 2019 (statute) Increase/Decrease in UAL Post 2019: 20-year closed	Separate Layers by Year Legacy UAL as of 2014: 30-year closed period Reset in 2014 (policy) Increase/Decrease in UAL Post 2014: 20-year closed	Single
Other		Goal: 100% funded in 30 years.	

[1] *CERS payroll growth assumption is 2.0%*

LAYERED APPROACH → *Examples*

- Tennessee: Legacy DB Plan modified method in 2014 *(Level $, Layered by Year)*[1]
  - UAL tiers by year being amortized over various periods not to exceed 20 years
  - Annual UAL gains/losses amortized as separate layers over period not to exceed 20 years
  - Periods may be shortened or extended from valuation to valuation to manage volatility of contribution rates but must be completely amortized in 20 years of initial creation
- Indiana: DB plans less than 100% Funded *(Level $, Layered by Year)* [2]
  - Annual UL gains/losses since 2016 amortized as separate layers over closed 20-year periods. Prior to 2016, layers were amortized over closed 30-year periods
  - If DB equals or exceeds 100% funded, amortization bases are consolidated and plan moves to 30-year open amortization period. Funding levels below 100% trigger 20-year closed
- Missouri: modified method in 2018 *(Level %, Layered by Year and Source)* [3]
  - Legacy UAL as of June 2018: amortized over closed 30-year period
  - Actuarial Gains/Losses & Assumption Changes: amortized over closed 30 years periods
  - Benefit changes: amortized separate over closed 25-year periods (required by statute)

[1] Legacy DB 2019 Actuarial Valuation [2] Indiana PERS Funding Policy [3] MOSERs MSEP 2019 Actuarial Valuation

LAYERED APPROACH → *Examples*

- Alaska: modified method in 2018 *(Level %, Layered by Year)* [1]
  - Moved to a single 25-year closed period in 2014, Board adopted layers in June 2018
  - Legacy UAL as of June 2018 amortized over remaining closed 21-year period.
  - Annual UL gains/losses amortized separately over closed 25-year periods (by statute)
- Kansas: modified method in Dec 2015 *(Level %, Layered by Year and Source)* [2]
  - Legacy UAL as of Dec 2015 remained on 40-year closed period created in 1993 (18 years)
  - Assumption Changes in 2016: amortized over closed 25-year period
  - Annual UL gains/Losses amortized separately over closed 20-year periods
- Colorado: modified method in 2018 *(Level %, Layered by Source)* [3]
  - Legacy UAL as of December 2017: reset to closed 30-year closed period
  - Annual gains/losses from experience amortized separately over closed 30-year period
  - Assumption Changes: amortized over closed 30-year period from valuation date
  - Benefit Changes: amortized over period determined by board, not to exceed 25 years

[1] Alaska PERS 2019 Actuarial Valuation [2] Kansas December 2018 Actuarial Valuation [3] Colorado PERA Defined Benefit Funding Policy

FINANCING THE UAL→ *Key Takeaways/Findings*

- The Trends--
  1. Amortization periods are shortening, but legacy liabilities generally amortized over 30-year windows
  2. Closed periods are becoming the norm
  3. More plans are moving to separate amortization bases, primarily by year
  4. Level % is still the norm, but there has been recent trickle of plans moving to Level $
- TRS and KRS have largely followed trends
- Board policy versus Statutory Requirement
  - KRS/JFRS plans largely operating by statutory language
  - TRS operating largely by Board policy/decision