

Lycoming County
Employees' Retirement
System
Actuarial Valuation as
of January 1, 2021

Charles B. Friedlander, F.S.A.

- Municipal Finance Partners, Inc.

 July 22, 2021

Municipal
Finance
Partners, Inc.



Agenda

2021 Actuarially Determined Employer Contribution (ADEC)	Fund Performance – Market v. Actuarial	Plan Membership
Actuarial Assumptions	Liabilities	GASB 67 & 68
A Discussion of Risk		Actuarial Equivalence

Municipal
Finance
Partners, Inc.



Charles B. Friedlander, F.S.A.

Consulting
Actuary

President & Chief
Actuary

Municipal
Finance Partners,
Inc.

Education

Experience

Areas of Expertise

- Municipal Pensions
- OPEB Benefits

*Municipal
Finance
Partners, Inc.*



3

What I Do

Prepare actuarial valuation reports, including Act 293 reporting forms

Provide information to auditors for County's financial statements

Prepare benefit calculations and election forms upon termination and retirement

Consulting

*Municipal
Finance
Partners, Inc.*



4

Funding Philosophy

Act 205 imposes funding requirements on all municipal pension plans, but not County plans

Despite these rules, plans can become underfunded (losses, benefit increases)

Without these rules, it can get even worse (see State pension plans, Illinois)

Concept of Intergenerational Equity: Each generation of taxpayers funds the services they receive, including pensions.

Municipal
Finance
Partners, Inc.



5

Disclaimers



Information in presentation is based on same plan provisions and actuarial assumptions and methods as 1/1/2020 actuarial valuation, except where noted, and census and trust information at 1/1/2021.



Please refer to 1/1/2020 actuarial valuation report for reference to these items and my qualifications to determine and present this information.

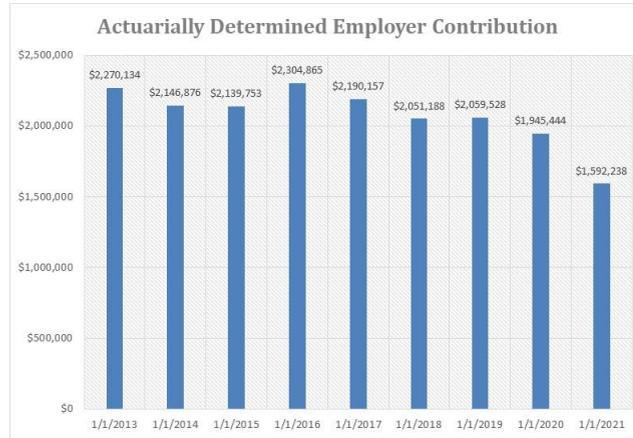
Municipal
Finance
Partners, Inc.



6

Actuarially Determined Employer Contribution (ADEC)

- ADEC decreased from \$1,945,444 for 2020 to \$1,592,238 for 2021



Municipal Finance Partners, Inc.



7

ADEC Calculation



Municipal Finance Partners, Inc.



8

Reasons for the ADEC

Investment return greater than expected (actuarial basis), \$5,739,893 gain (4.2% of Actuarial Value of Assets)

Experience Loss: \$1,225,682 (0.89% of Actuarial Accrued Liability)

\$653,447 Contribution Gain (Voluntary contributions; offset to experience gain/loss)

Municipal
Finance
Partners, Inc.



9

Experience Changes

\$1.58M Loss from Retiree elections

\$597,000 Gain from Salary increases < expected

\$637,937 Gain Retiree deaths > expected

\$156,000 Gain from Active Decrements > expected

Other minor offsetting gains and losses

Municipal
Finance
Partners, Inc.



10

Changes in Plan Membership



Municipal
Finance
Partners, Inc.



11

Asset Performance

- Fund Earned 15.27% on a Market Value basis.
- Market Value increased from \$134,591,490 at 12/31/2019 to \$150,661,400 at 12/31/2020.
- Actuarial Value is \$135,677,641.
- Return on Actuarial Value was 11.63%
- Actuarial smoothing method recognizing portions of 2016, 2017, 2019 and 2020 investment gains as well as loss in 2018.
- Actuarial Asset gain was \$5,739,893.

Municipal
Finance
Partners, Inc.



12

History of Fund Values



Municipal
Finance
Partners, Inc.



13

Asset Performance History

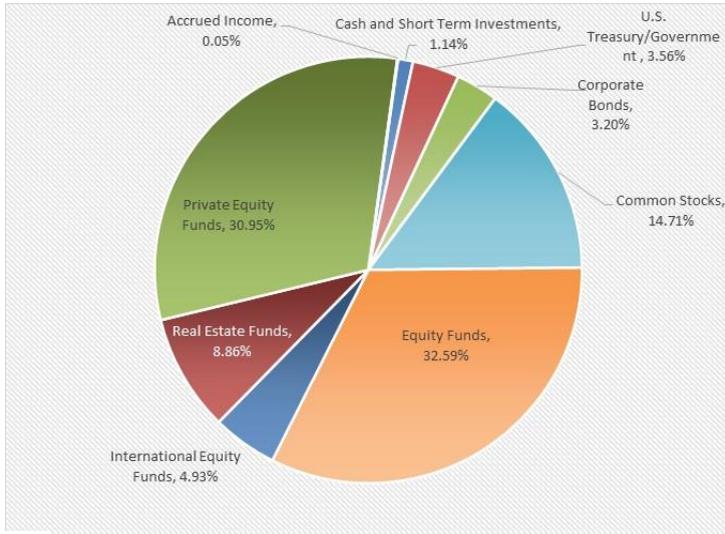


Municipal
Finance
Partners, Inc.



14

Fund Investment Allocation



Municipal Finance Partners, Inc.



15

Actuarial Present Value of Future Benefits

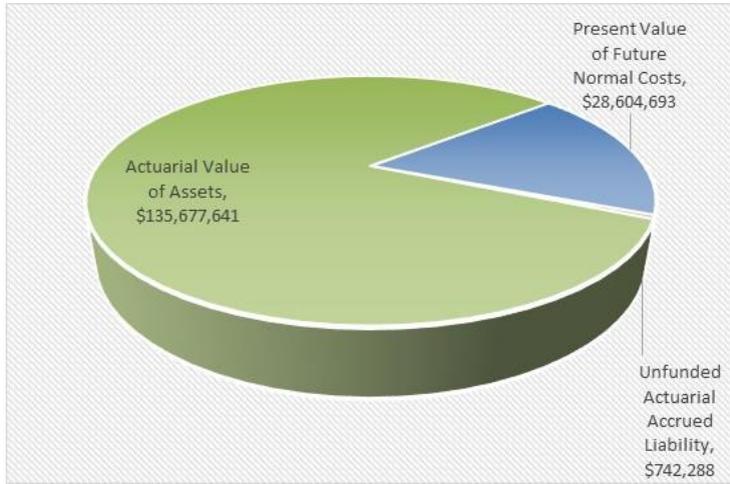


Municipal Finance Partners, Inc.



16

Actuarial Balance Sheet

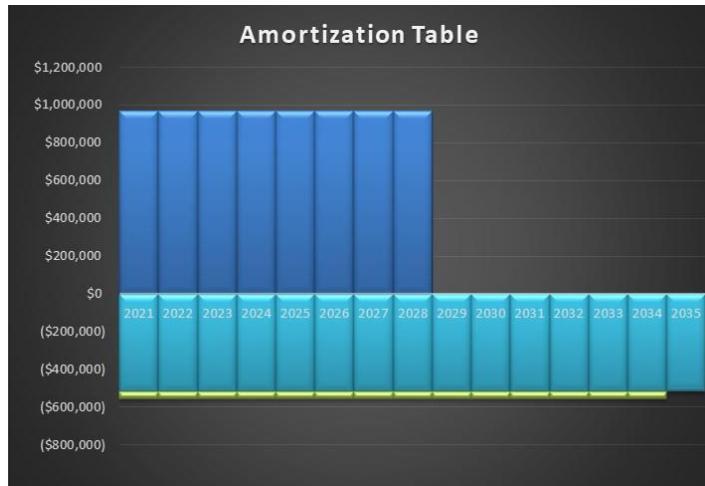


Municipal Finance Partners, Inc.



17

Amortization Table



Municipal Finance Partners, Inc.



18

Re-amortize?

- At 1/1/2021:
 - Unfunded liability is \$742,288
 - Amortization payment is \$413,368
 - This would effectively pay of the unfunded liability in two years
- If re-amortize over 10 years, amortization payment decreases to \$98,771 (\$314,596) decrease.
- 5 years: \$169,194 (\$244,274 decrease)

Municipal
Finance
Partners, Inc.



19

Assets v. Liabilities



Municipal
Finance
Partners, Inc.



20

Funding Percentage



Municipal
Finance
Partners, Inc.



21

Actuarial Assumptions and Methods

Interest Rate: 7.0%-
reviewing this (see
below)

Salary Scale: 4.0% per
year

Mortality: Pub-2010 ,
General Employees,
with full projection
(Scale MP-2019)

Turnover Table: T-4,
six-year select period

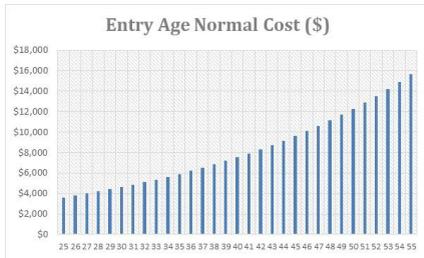
Accumulated Member
Deductions: Valued by
projecting balances to
expected distribution
date

Municipal
Finance
Partners, Inc.



22

Actuarial Cost Method

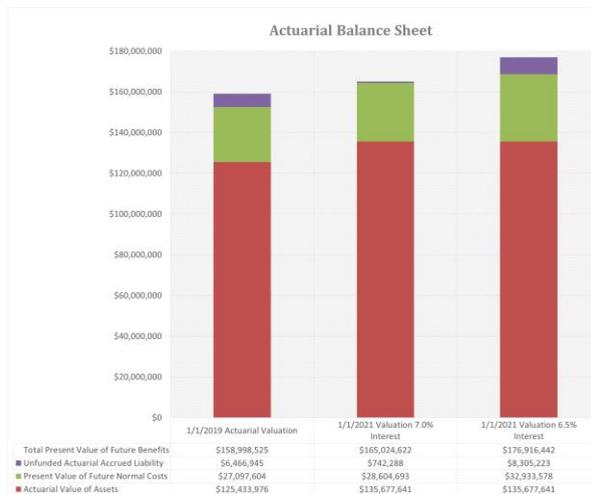


- Entry Age Normal Cost Actuarial Cost Method
 - Fund normal costs from hire date to retirement date as level percentage of payroll
 - Actuarial Accrued Liability is funding target, equal to present value of prior normal costs.
 - Amortization of changes in unfunded actuarial accrued liability.

Municipal Finance Partners, Inc.



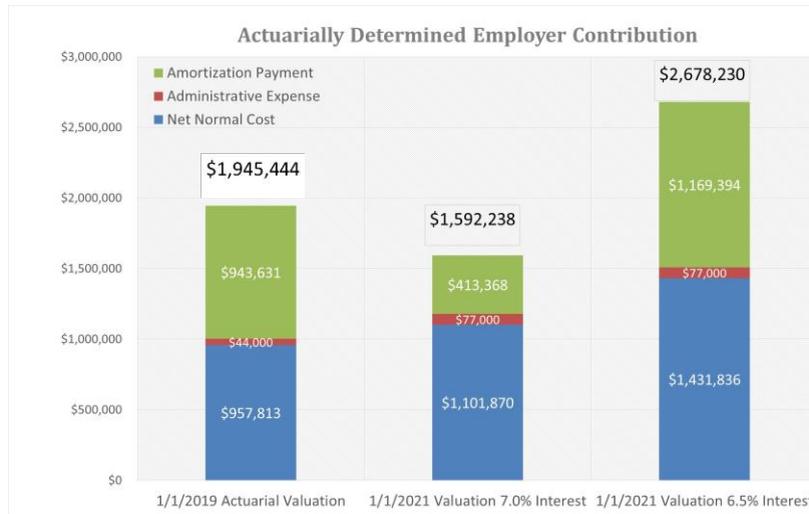
Impact of Valuation, Interest Rate



Municipal Finance Partners, Inc.



ADEC



Municipal
Finance
Partners, Inc.



25

GASB 67 & 68



Pension Expense was (\$28,153,301) in 2020, \$3,422,030 in 2019, \$4,822,476 in 2018, compared to \$1,238,407 for 2017 and \$3,623,533 for 2016 (no asset smoothing)



2020 – Impacted by dropping of future COLAs from liabilities



Net Pension Liability dropped from \$23,277,603 in 2016 to \$11,690,093 in 2017, increased to \$32,313,209 in 2018 and dropped to \$21,857,970 in 2019 and dropped significantly to \$(15,472,339) in 2020.



Net Deferred Outflows/(Inflows) of Resources ,went from \$3,624,508 (2016) to \$(7,383,912). (2017) to \$10,467,846 (2018) to (\$2,094,429) (2019) to (\$8,935,723) (2020)

Municipal
Finance
Partners, Inc.



26

A Discussion of Risk

Actuarial Standard of Practice No. 51 (ASOP 51) requires that we do more to discuss risk with our clients



Examples of risk:

Investment risk

Asset/liability mismatch risk

Interest rate risk

Longevity and other demographic risks

Contribution risk



Investment Risk

This is the potential that investment returns will differ from what we expect, and it is your largest risk.

We moderate this risk by using actuarial smoothing and amortizing gains and losses.

Still, we can see just from recent years the impact of investment risk on the ADEC.



Asset/Liability Mismatch Risk



This is the potential that changes in liabilities and assets do not match.



Pension promises are fixed-rate liabilities and behave like bonds.



Equity investments achieve larger returns as a “risk premium.”



This risk can be “defeased” at the cost of lower returns and higher contributions (can we afford to fund at 3-4%?)



Interest Rate Risk

As interest rates increase generally, bond yields increase

- Higher bond yields are good for new investments
- Higher interest rates lower value of existing fixed income investments.

What caused changes in interest rates?

- Inflation-likely to cause increase in stock prices, salaries
- Economic downturn: US Gov't bond prices increase due to flight to safety
- Lower discount rates increase liabilities; higher rates decrease liabilities



Longevity and Demographic Risk

- This is the potential that demographic experience will differ from what is expected.
 - We update mortality tables periodically to recognized increased longevity
 - We review experience of assumptions at each valuation
 - Experience studies should be performed periodically

Municipal
Finance
Partners, Inc.



31

Contribution Risk

This is the risk that contributions deviate from expected future contributions.

For municipal plans, there is no risk of large deviations; however, there will always be a small deviation in odd-numbered years due to MMO timing.

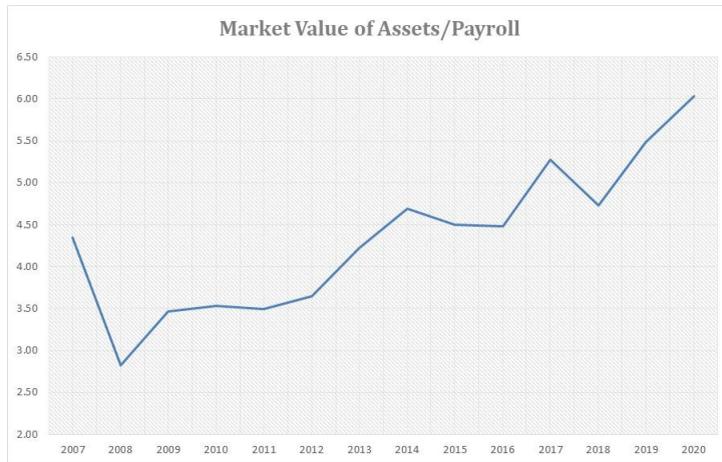
For County and State plans, this is what we call a *moral hazard*.

Municipal
Finance
Partners, Inc.



32

Maturity Measures

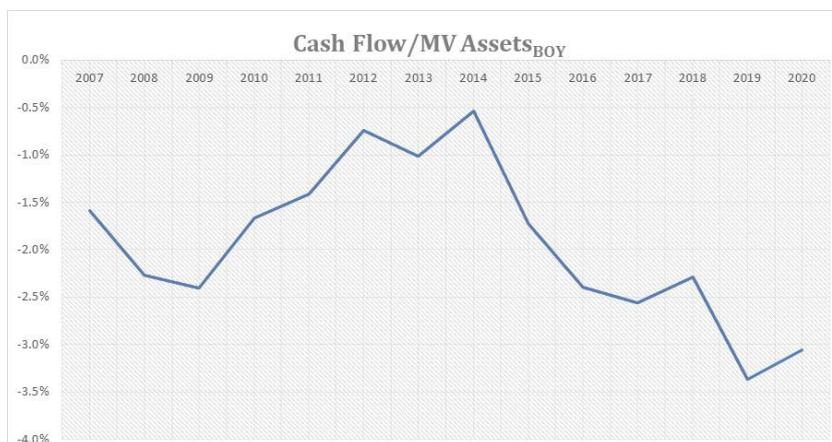


Municipal
Finance
Partners, Inc.



33

Maturity Measures (Continued)



Municipal
Finance
Partners, Inc.



34

Actuarial Equivalence

- These are the assumptions that are used to determine the optional forms of payment or early retirement pension for retiring members.
- Basis is GA1983 Mortality, 7% Interest Rate
 - Table assumes higher (male) mortality for participant and spouse.
 - Table does not consider mortality improvement over the last 38 years.

Municipal
Finance
Partners, Inc.



35

Forms of Benefit Payment

Option	Survivor Pension	Guaranteed Payments	Refund at Retirement
No	None	Accumulated deduct. at retirement, less benefits paid	None
One	None	Actuarial present value of pension at retirement, less benefits paid	None
Two	100% of Original Pension (prior to COLA)	Accumulated deduct. at retirement, less benefits paid	None
Three	50% of Original Pension (prior to COLA)	Accumulated deduct. at retirement, less benefits paid	None
Four (A)	None	None	Accum. deduct. at retirement
Four (B)	None	Actuarial present value of pension at retirement, less benefits paid	Accum. deduct. at retirement
Four (C)	100% of Original Pension (prior to COLA)	None	Accum. deduct. at retirement
Four (D)	50% of Original Pension (prior to COLA)	None	Accum. deduct. at retirement

Municipal
Finance
Partners, Inc.



36

Benefits of Tabular Factors

- The use of tabular factors allows ease of calculation. This was particularly important in the development of the actuarial profession, prior to modern technology (the “green paper spreadsheet days”)
- Except for rounding, the use of tabular factors for most calculations might not have a material impact.

*Municipal
Finance
Partners, Inc.*



37

Shortfalls of Tabular Factors

- In County Pension Plans, we use factors to convert from a No Option form of payment to Option One
 - This increases the guaranteed payments from the accumulated deductions at retirement to the entire present value at retirement.
 - The factor is based on age and therefore does not reflect the potential difference in the accumulated deductions (e.g., due to voluntary contributions). We are giving an extra three years of payments whether one already has two or five years guaranteed.

*Municipal
Finance
Partners, Inc.*



38

Potential Updates

1

Update to mortality table (PUB-2010)

2

Use of blended male/female rates

3

Use of actual assumptions to replace tabular factors

Municipal
Finance
Partners, Inc.



39

Impact of Changes

Longer expected lifespans for members will decrease the amount of monthly pension purchased under Options 1-3.

Longer expected lifespans for members will increase the lump sum death benefit amount.

Impact on other conversions will be mixed:

- Joint and survivor options (and Option One) reflect relative age of survivor and amount of accumulated deductions at retirement.
- Early retirement pensions will increase slightly.

Municipal
Finance
Partners, Inc.



40

Potential Secondary Impact

Surge of retirements ahead of change, depending upon awareness.

Option Four more popular

- Reduces plan longevity risk
- Reduces cost of COLAs to retirees

Reduced liabilities over long term due to decreased purchasing power of accumulated deductions (County no longer running a sale on annuities)

More work for actuary.

Municipal
Finance
Partners, Inc.



41

Recommended Course of Action

Actuarial study:

- Chose most appropriate mortality table
- Impact on sample participants
- Impact on plan liabilities

Implementation schedule

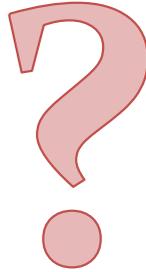
Communication to plan members, potential retirees

Municipal
Finance
Partners, Inc.



42

Questions



*Municipal
Finance
Partners, Inc.*

