

Chairman's Thoughts on POBs

Including Thoughts on a Simple Way Forward With the City

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September 2021 P&F Board Meeting

Framing the Discussion on POBs

- Where are we in space and time?
- What are we considering in this board meeting?
 - Themes
 - risk?
 - discount rate changes?
 - asset allocation optimization?
 - next steps?
 - Preliminary, cursory analysis
 - assumptions for use in a cursory model
 - Cheiron's, Verus', and Meketa's preliminary analysis
 - examples of how the City might use the output from our cursory model to help in their analysis of POBs

Where are We in Space and Time?

- POBs look **attractive** to both the City and to us and we have both been studying them
 - Attractive to the City because interest rates are low
 - Attractive to P&F because we aren't 100% funded (more money is good until we're near fully funded)
 - members of our board participated in the City's thoughtful POB task force last year
- The City is asking us a **reasonable**, prudent question...
 - *"If we give you money from a POB what might you do with it and how would that impact your (and our) economics?"*
- ...so let's respond in kind with a reasonable, prudent answer...
 - That clearly lays out our **evolving** thinking (alongside their evolving thinking)
 - That doesn't offer an **opinion** on whether we think the City should issue POBs or not
 - That factors in the City's earnest desire for **contribution relief** (alongside many other factors from all interested parties) but always stays true to our paramount fiduciary duty to the plan
 - That builds an approach which can **adapt** as the world around us changes in ways anticipated and unanticipated because *"the only constant in life is change"*
 - forecasts are never, ever, ever hit - sometimes better and sometimes worse
 - ...and sometimes due to us and sometimes due to something **external**
 - ...and sometimes due to performance and sometimes due to good or **bad luck**
 - ...and sometimes something we could have seen coming and sometimes something new and **unexpected**
- ...if we adopt the framework above then we should be able to work together with the City for our **mutual benefit** in a reasonable, prudent manner

Four Core Themes

- There's a lot to digest with POBs so let's start by working with the City to answer their **simple question** first before we answer our hard one later
 - *'Are POBs likely to make my (the City's) economics better?'* is a very different and much simpler question to answer than *'what is the best way for P&F to invest money (asset allocation) from a POB?'*
 - let's work with the City to see if POBs make sense before we figure out asset allocation
 - if there is *one* approach where POBs make sense then there are likely *many*
 - instead of trying to find the *best* approach, for now let's just see if we can find *an* approach that makes sense to both us and to the City
 - and share that approach and its economics with the City
 - ...then wait until the City does (or doesn't) decide to give us money and how much and on what terms before we go looking for the *best* approach for how to deploy the money
- Where's the **risk** in this?
 - The 'approach(es)' on the next few slides are based on models
 - ...and those models are based on historical returns and trends
 - ...but what if the future isn't like the past (which is how we got here in the first place)?
 - *"Past performance is no guarantee of future results"*
 - e.g. lowest in a century inflation over the past two decades
 - e.g. the longest in a century economic boom of the past decade
 - ...and liabilities may also be subject to ahistorical fluctuations

Four Core Themes (cont'd)

- There are three obvious, simple, generic investment approaches and they each *might* make sense and we've modelled how each of them would impact our (and the City's) basic economics if the City issues POBs:
 - Potential approach#1: **same** discount rate / same asset allocation with same volatility (Prabhu's noodling)
 - because the increased risk from a larger portfolio balances the decreased risk from a better-funded plan (2020 stellar returns + added \$ from POB) so keep everything the way it is
 - Potential approach#2: **same** discount rate / different asset allocation with higher volatility (Vince's noodling)
 - e.g. leave our existing fund as is but segregate the POB funds and invest them more heavily in risky equities because the time horizon is long (30 years) and equities have *always* done well over a long (30 year) time horizon (see slide 17 in the appendix)
 - Potential approach#3: **lower** discount rate / different asset allocation with lower volatility (Drew's noodling)
 - like Prabhu's above, but recognize that a recession must inevitably come so don't 'count our chickens' when it comes to 2020's stellar returns – but any change to discount rate would be slight
- We will undertake the difficult task of finding the **best** approach only after (if?) the City says that it plans to give us money and how much
 - Fine tune the strategies above?
 - timing of the issuing of the POBs?
 - ...other...?
 - ... or something different – maybe even out of the box thinking?
 - immunization strategies (Harvey's noodling)?
 - ...other...?

Key Inputs and Outputs for Our Model

- There are two key inputs to our model:
 - How much **money**, if any, will the City give P&F if they issue POBs?
 - size of our fund matters because risk changes with size
 - recall our discount rate is driven by our asset allocation which is driven by our thoughtful selection of tolerable volatility which is partially driven by our sensitivity to a drawdown which is based on our assessment of historical market shocks and the tolerable absolute \$ losses the system can sustain from a shock and that will grow (in absolute \$) if the size of our fund increases
 - How much **percent** if any, might we lower or raise our discount rate?
 - for a variety of reasons we are unlikely to change it more than +/- 0.25%
 - historic real return (60/40) is 4-5% and current inflation is running 2%
 - ...so a 6-7% actual return is reasonable based on past and recent history
 - S&P recommends 6.5% for public pensions (January 2020) – we're at 6.625%
- There is one key output that the City is concerned with:
 - Annual City **contribution**
 - which matters to the City but not to us
 - unless it becomes so large it threatens the host (the City)

Assumptions for the Remaining Slides

- Assume the future will be like the past
 - our forecasts will be – on average – better as often as worse
 - ...but note that the threat to POBs comes from *external, unlucky, unexpected* source(s) that cause an environment different than anything we've ever seen before
 - see slides 17 and 18 in this deck's appendix for a summary of history
- Assume volatility -> asset allocation -> discount rate
 - Same reference 'shock' as Verus has used in the past
 - 25% drawdown at 12% volatility
 - first proposed in a presentation from Verus to P&F offsite in May 2018
- Cheiron's analysis
 - 26.49% return for FYE2021 (stellar year incorporated into model)
 - POB credit is amortized over 15 years (for simplicity)
 - \$ contribution is level \$ per year over 15 years to get to 100% funded in 15 years (also for simplicity - breakout by year is in appendix)
- Assume the City doesn't start stockpiling reserves to repay the bond until some time into the future after the City's annual contributions start to significantly go down (~2032)
- (see individual slide(s) for specific assumptions about the POBs)

Per Cheiron's Actuarial Model & Verus 'Shock' (\$M)

*the numbers below are level 15-year level City contributions for simplicity of comparison**

Discount Rate

POB for P&F	Discount Rate		
	6 3/8% <i>'lower the DR'</i>	6 5/8% <i>'stay the course'</i>	6 7/8% <i>'more in equities'</i>
+\$0	\$153.1 \$302.7	\$131.7 \$284.4	\$110.5 \$266.3
+\$250M	\$126.7 \$280.6	\$104.9 \$261.9	\$83.2 \$243.5
+\$500M	\$100.3 \$258.5	\$78.1 \$239.4	\$56.0 \$220.7

* - the year-by-year 30 year forecast of City contributions by scenarios is in the appendix

Example of Use – Nominal Forecasting

- Reasonable assumptions for any POBs the City might issue are (we asked and they guided us in this direction):
 - P&F will get ~\$250M (City issues ~\$500-750M and we get ~40%)
 - The City
 - issue price: same as face value
 - coupon rate and period: 2.8% paid semi-annually
 - so they will pay \$7M per annum on the P&F coupon (2.8% of \$250M)
 - maturity date and face value at maturity: 30 years; matures at face value
 - will reserve to repay the \$250M bond only in later years (start ~2032)
- If we keep the current discount rate or only increase or decrease it slightly then City contributions decrease:
 - annual contribution (level) + coupon + reserves to repay:
 - no POB: $\$131.7M + \$0M + \$0M = \$131.7M$
 - POB lower discount rate: $\$126.7M + \$7M + \$0M^* = \$133.7M$ ($\Delta\$2M$)
 - POB same discount rate: $\$104.9M + \$7M + \$0M^* = \$111.9M$ ($\Delta\$20M$)
 - POB higher discount rate: $\$83.2 + \$7M + \$0M^* = \$90.2M$ ($\Delta\$41M$)

* - assume no reserves in early years by City to repay the bond

Example of Use – Economic ‘Shock’

- Continuing our example from the previous page, let's ask what happens if we get our reference economic ‘shock’
 - 25% drawdown (= vol of 12 per Verus)
- If we keep the current discount rate or only increase or decrease it slightly then City contributions decrease in the reference shock:
 - annual contribution (level) + coupon + reserves to repay:
 - no POB: $\$284.4\text{M} + \$0\text{M} + \$0\text{M} = \284.4M
 - POB lower discount rate: $\$280.6 + \$7\text{M} + \$0\text{M}^* = \287.6M ($\Delta\$3\text{M}$)
 - POB same discount rate: $\$261.9 + \$7\text{M} + \$0\text{M}^* = \268.9M ($\Delta\$15\text{M}$)
 - POB higher discount rate: $\$258.5 + \$7\text{M} + \$0\text{M}^* = \265.5M ($\Delta\$19\text{M}$)
- Note that the ~\$20M annual savings we got when we raised the discount rate by 0.25% on the previous slide vanishes in this ‘shock’ because adding POB \$\$\$ creates a bigger fund which creates a bigger ‘hole’ when the market goes down and a bigger hole needs to be paid back with bigger annual contributions

** - assume no reserves in early years by City to repay the bond*

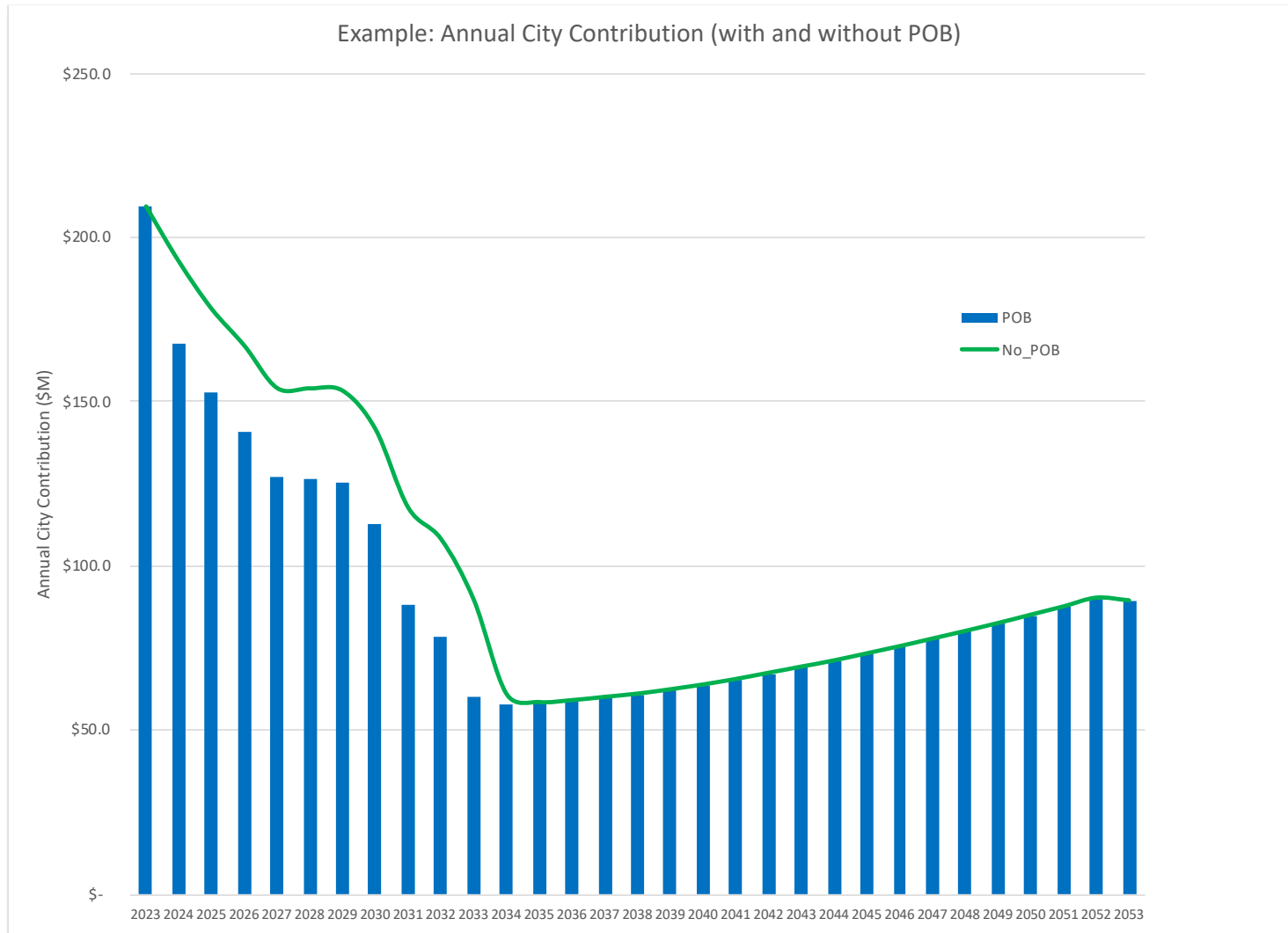
Example of Use: Pulling This All Together

- Forecast 30 year annual City contributions no POB
- ...add \$250M POB (lowers City annual contribution)
- ...add \$7M debt service (raises City annual 'contribution')
- ...add in repayment of bond in out years

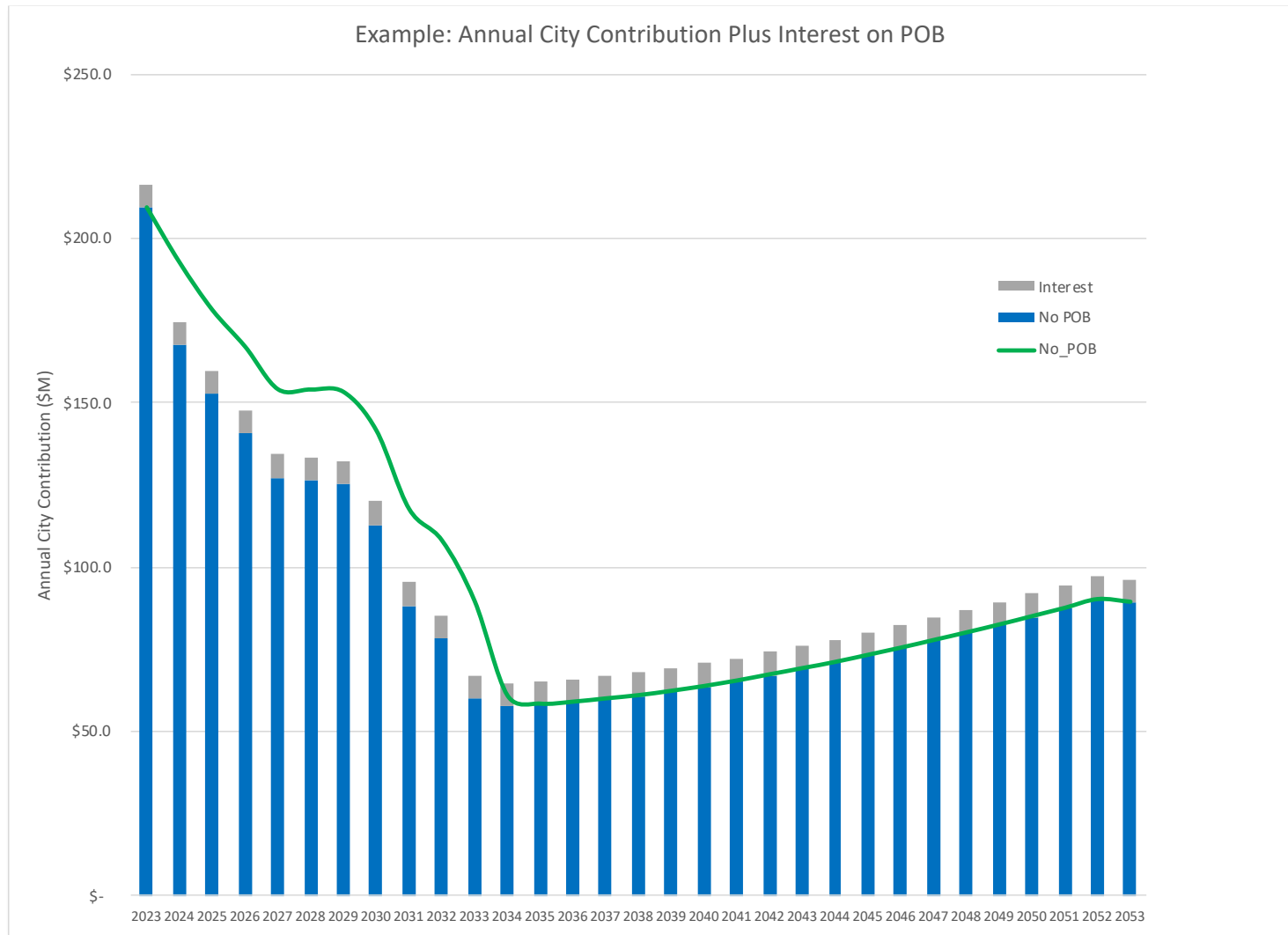
Example: City Contribution no POB (6.625%)



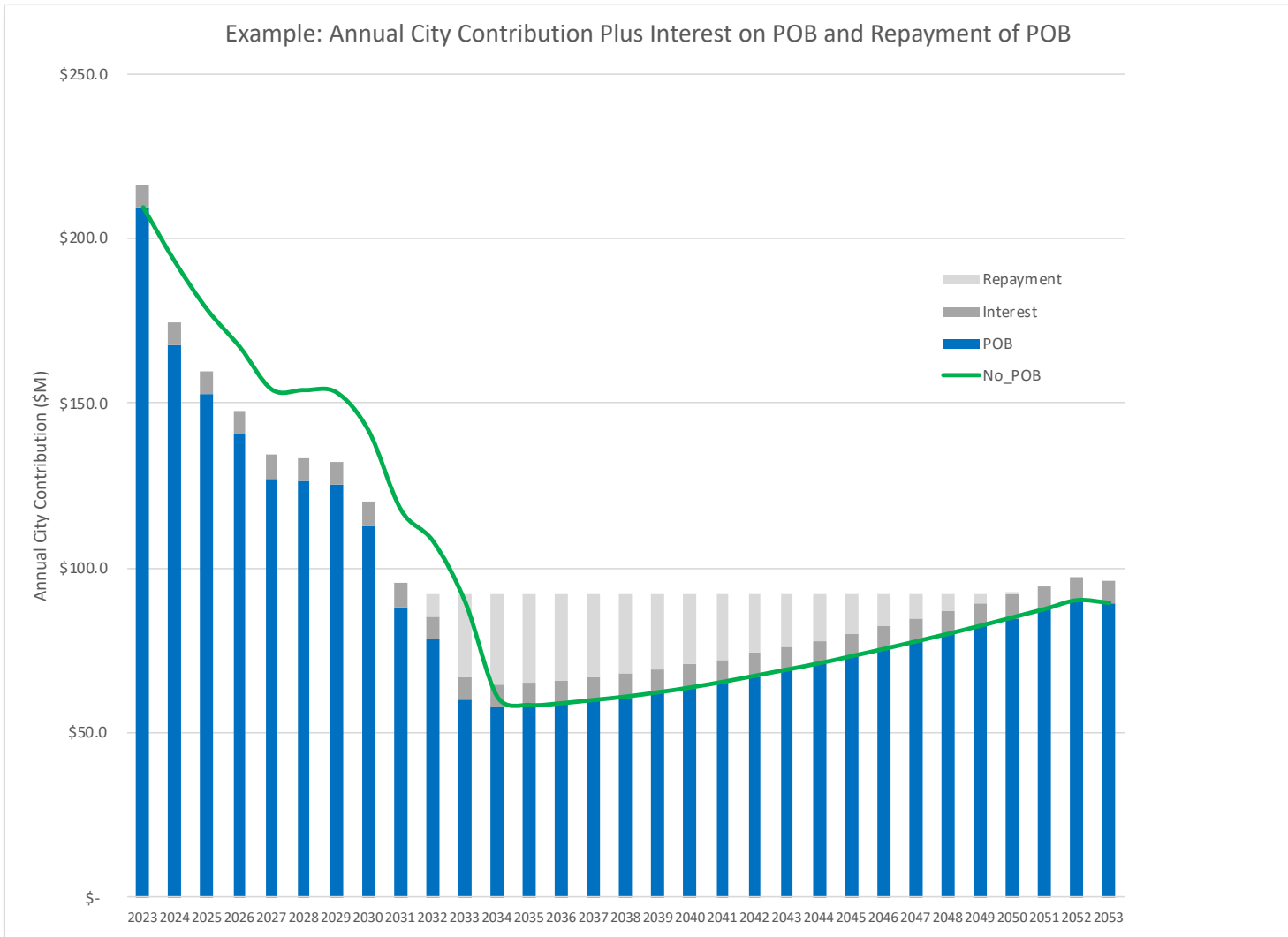
Example: City Contribution With \$250M POB



Example: Plus \$7M Annual Debt Service

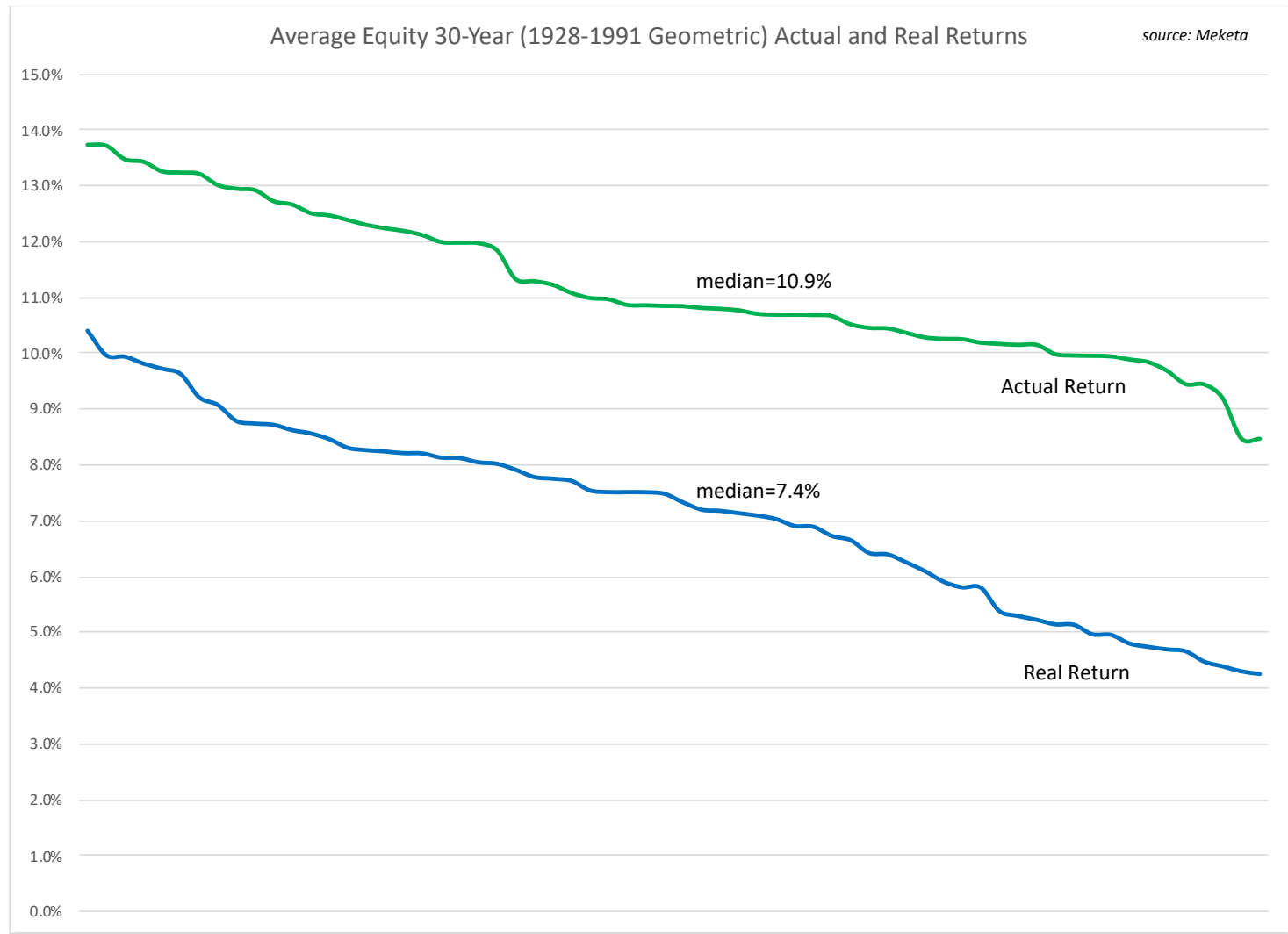


Example: Plus Reserve to Repay Bond

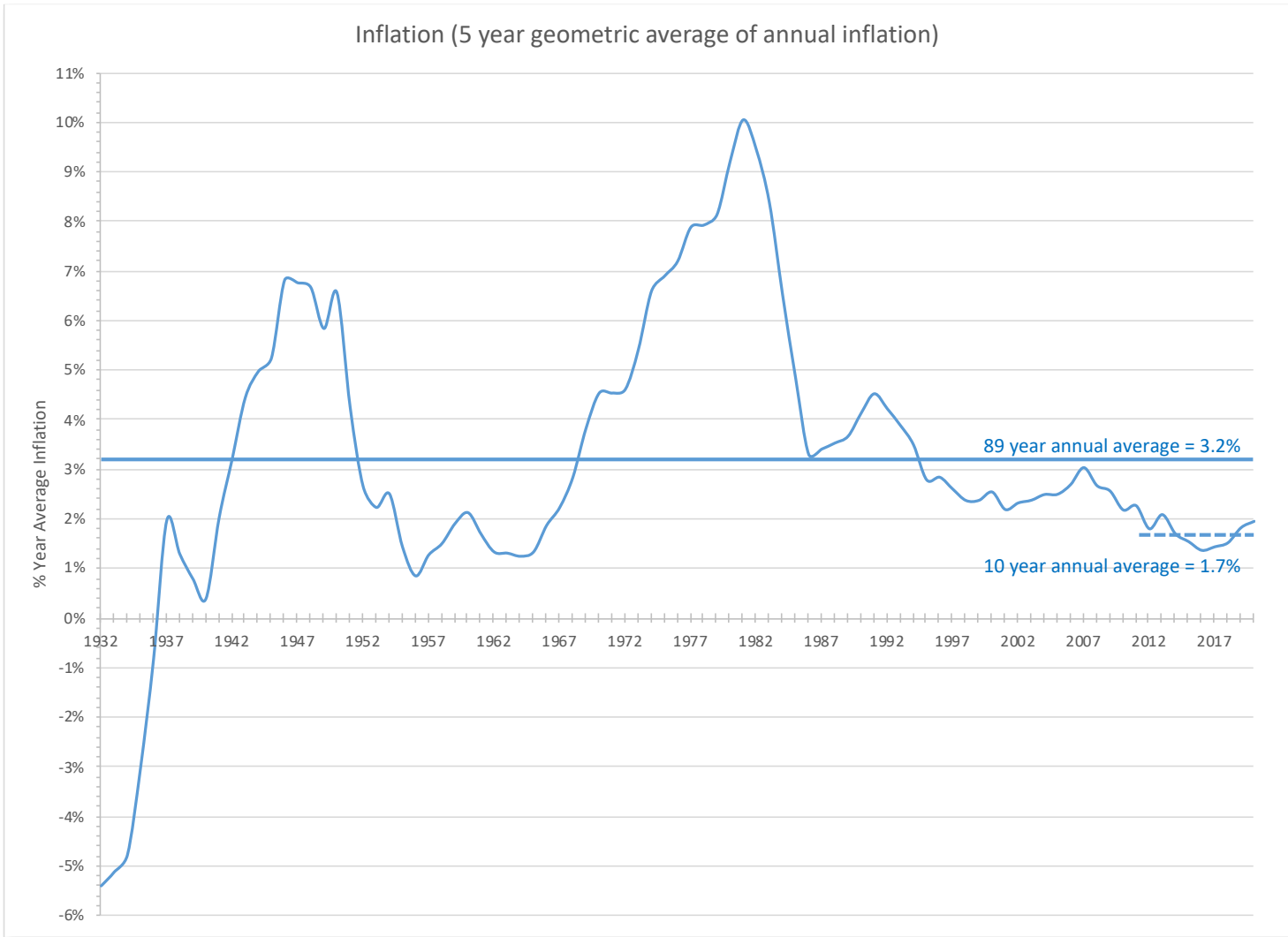


Appendix

‘Past Performance’ Is Good News for City



...But the Future Isn't Always Like the Past



Discount Rate Isn't Just a Number

- The discount rate has two primary faces
 - As an asset allocation **plan** for how to invest the pension fund
 - short term
 - how will we invest it next year (tweaks to asset allocation)?
 - long term
 - how conservative / aggressive should we be (trends to asset allocation)?
 - As a **forecast** for how that plan will do
 - short term (< 10 years)
 - what do our consultants forecast?
 - what are the micro trends in the market and global economy?
 - equities, bonds, other asset classes?
 - inflation?
 - long term (>20 years)
 - what do our consultants forecast?
 - what are the macro trends in the market and global economy?
 - equities, bonds, other asset classes?
 - inflation?

Cheiron's Model Actual City Contributions

Projected City Contributions (Excluding POB payments) Under Various POB Scenarios

Investment Returns = Discount Rate

FYE	6.375%			6.625%			6.875%		
	No POB	\$250 M POB	\$500 M POB	No POB	\$250 M POB	\$500 M POB	No POB	\$250 M POB	\$500 M POB
2023	\$ 225.5	\$ 225.5	\$ 225.5	\$ 209.4	\$ 209.4	\$ 209.4	\$ 193.2	\$ 193.2	\$ 193.2
2024	\$ 209.1	\$ 184.6	\$ 160.1	\$ 192.6	\$ 167.6	\$ 142.6	\$ 176.1	\$ 150.6	\$ 125.1
2025	\$ 195.1	\$ 170.0	\$ 144.9	\$ 178.2	\$ 152.6	\$ 127.0	\$ 161.3	\$ 135.3	\$ 109.2
2026	\$ 184.2	\$ 158.6	\$ 133.0	\$ 166.9	\$ 140.8	\$ 114.7	\$ 149.8	\$ 123.1	\$ 96.5
2027	\$ 171.7	\$ 145.5	\$ 119.3	\$ 154.0	\$ 127.3	\$ 100.6	\$ 136.5	\$ 109.2	\$ 82.0
2028	\$ 171.9	\$ 145.1	\$ 118.3	\$ 153.9	\$ 126.6	\$ 99.3	\$ 136.0	\$ 108.2	\$ 80.3
2029	\$ 171.5	\$ 144.1	\$ 116.7	\$ 153.2	\$ 125.3	\$ 97.3	\$ 134.9	\$ 106.4	\$ 77.9
2030	\$ 160.3	\$ 132.3	\$ 104.3	\$ 141.5	\$ 112.9	\$ 84.4	\$ 122.7	\$ 93.6	\$ 64.4
2031	\$ 137.0	\$ 108.4	\$ 79.7	\$ 117.6	\$ 88.4	\$ 59.4	\$ 98.0	\$ 68.2	\$ 53.5
2032	\$ 128.0	\$ 98.8	\$ 69.5	\$ 108.0	\$ 78.2	\$ 57.7	\$ 88.0	\$ 57.5	\$ 53.8
2033	\$ 110.2	\$ 80.2	\$ 62.0	\$ 89.5	\$ 59.8	\$ 58.0	\$ 68.7	\$ 54.1	\$ 54.1
2034	\$ 82.3	\$ 61.9	\$ 61.9	\$ 60.8	\$ 57.9	\$ 57.9	\$ 54.0	\$ 54.0	\$ 54.0
2035	\$ 73.9	\$ 62.4	\$ 62.4	\$ 58.3	\$ 58.3	\$ 58.3	\$ 54.4	\$ 54.4	\$ 54.4
2036	\$ 63.0	\$ 63.0	\$ 63.0	\$ 58.9	\$ 58.9	\$ 58.9	\$ 55.0	\$ 55.0	\$ 55.0
2037	\$ 64.0	\$ 64.0	\$ 64.0	\$ 59.9	\$ 59.9	\$ 59.9	\$ 55.9	\$ 55.9	\$ 55.9
2038	\$ 65.0	\$ 65.0	\$ 65.0	\$ 60.9	\$ 60.9	\$ 60.9	\$ 57.0	\$ 57.0	\$ 57.0
2039	\$ 66.3	\$ 66.3	\$ 66.3	\$ 62.2	\$ 62.2	\$ 62.2	\$ 58.3	\$ 58.3	\$ 58.3
2040	\$ 68.8	\$ 67.9	\$ 67.9	\$ 63.7	\$ 63.7	\$ 63.7	\$ 59.6	\$ 59.6	\$ 59.6
2041	\$ 77.0	\$ 69.6	\$ 69.6	\$ 65.4	\$ 65.4	\$ 65.4	\$ 61.3	\$ 61.3	\$ 61.3
2042	\$ 71.4	\$ 71.4	\$ 71.4	\$ 67.2	\$ 67.2	\$ 67.2	\$ 63.2	\$ 63.2	\$ 63.2
2043	\$ 73.4	\$ 73.4	\$ 73.4	\$ 69.1	\$ 69.1	\$ 69.1	\$ 65.0	\$ 65.0	\$ 65.0
2044	\$ 76.1	\$ 75.5	\$ 75.5	\$ 71.0	\$ 71.0	\$ 71.0	\$ 66.8	\$ 66.8	\$ 66.8
2045	\$ 77.7	\$ 77.7	\$ 77.7	\$ 73.2	\$ 73.2	\$ 73.2	\$ 68.9	\$ 68.9	\$ 68.9
2046	\$ 80.0	\$ 80.0	\$ 80.0	\$ 75.3	\$ 75.3	\$ 75.3	\$ 70.9	\$ 70.9	\$ 70.9
2047	\$ 82.5	\$ 82.5	\$ 82.5	\$ 77.6	\$ 77.6	\$ 77.6	\$ 73.1	\$ 73.1	\$ 73.1
2048	\$ 85.0	\$ 85.0	\$ 85.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 75.3	\$ 75.3	\$ 75.3
2049	\$ 87.5	\$ 87.5	\$ 87.5	\$ 82.4	\$ 82.4	\$ 82.4	\$ 77.6	\$ 77.6	\$ 77.6
2050	\$ 90.2	\$ 90.2	\$ 90.2	\$ 84.9	\$ 84.9	\$ 84.9	\$ 80.0	\$ 80.0	\$ 80.0
2051	\$ 92.9	\$ 92.9	\$ 92.9	\$ 87.5	\$ 87.5	\$ 87.5	\$ 82.3	\$ 82.3	\$ 82.3
2052	\$ 95.7	\$ 95.7	\$ 95.7	\$ 90.1	\$ 90.1	\$ 90.1	\$ 84.8	\$ 84.8	\$ 84.8
2053	\$ 95.1	\$ 95.1	\$ 95.1	\$ 89.3	\$ 89.3	\$ 89.3	\$ 83.9	\$ 83.9	\$ 83.9

Amounts in millions