Overview of
Pension Obligation Bonds

Retirement Stakeholder Solutions Working Group

April 13, 2020

Prepared by: City of San José Finance Department

Presentation Agenda

- Background
- City's Pension Plans
- Pension Obligation Bonds
- Literature Review

BACKGROUND

Prior Review of Pension Obligation Bonds

- Commencing in October 2007, with Mayor Reed's formation of the Budget Shortfall Advisory Group (BSAG) and, in March 2008, the City Manager formed the General Fund Structural Deficit Task Force to support the work of BSAG

- In November 2008, City Manager released report, "General Fund Structural Elimination Plan"[1] which included a summary of strategies identified by the Stakeholder Group formed in March 2008 to eliminate the General Fund Structural Deficit

[1] https://www.sanJoséca.gov/Home/ShowDocument?id=50585

Prior Review of Pension Obligation Bonds

- General Fund Structural Elimination Plan made several recommendations to reduce the City's pension costs in the context of budget balancing proposals:
  - ❖ Exploration of Pension Obligation Bonds (POBs) was a strategy the entire Stakeholder Group expressed interest in being pursued
  - ❖ Annual Prepayment of City's pension obligation was also a strategy the entire Stakeholder Group expressed interest in being pursued
  - ❖ City implemented recommendation and prepaid annual pension obligations from FY 2008-09 to FY 2018-19

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Prior Review of Pension Obligation Bonds

- In 2010, the Mayor's March Budget Message as approved by the City Council, direction given to the City Manager "*to analyze the benefits and drawbacks of issuing pension obligation bonds, and report to City Council during the budget process.*"

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Prior Review of Pension Obligation Bonds

- In May 2010, an Informational Memo was distributed to the City Council which concluded that:
  - ❖ POBs were not a viable tool under any scenario to address the 2010-2011 shortfall
  - ❖ General stock market conditions were not right, even if Council was willing to assume the risk of financial loss, especially given 6-12 month process for required court validation action
  - ❖ Significant caution provided on market-volatility risks of POBs, and potential financial losses to the City over the long term which existed even with optimistic assumptions
  - ❖ Further exploration needed to occur in the context of a comprehensive look at pension system cost mitigation, including who bears the cost of any potential losses

CITY'S PENSION PLANS

Federated

Police & Fire

Status of Pension Plan Funding in 2009

Pension Plan	Unfunded Accrued Liability (UAL)[1]	Funded Ratio [2]	UAL as % of Covered Payroll	Assumed Earnings Rate
Federated	$729.6 million	70.7%	226%	7.75%
Police & Fire	$393.9 million	86.7%	154%	8.00%

1. UAL as of June 30, 2009 valuation date.
2. Pension system only. Funded ratio (Actuarial Value of Assets) as of June 30, 2009.

Source: Comprehensive Annual Financial Report 2018-2019 San José Federated Employees' Retirement System and Comprehensive Annual Financial Report 2018-2019 San José Police & Fire Retirement Plan

Status of Pension Plan Funding in 2019

Pension Plan	Unfunded Actuarially Liability (UAL)[1]	Funded Ratio [2]	UAL as % of Covered Payroll	Assumed Earnings Rate
Federated	$1,972 million	53%	629%	6.75%
Police & Fire	$1,282 million	74%	544%	6.75%

1. UAL as of June 30, 2019 valuation date.
2. Pension system only. Funded ratio (Actuarial Value of Assets) as of June 30, 2019.

Source: City of San José Federated Employees' Retirement System Actuarial Valuation Report as of June 30, 2019, produced by Cheiron (December 2019) and City of San José Police & Fire Department Retirement Plan Actuarial Valuation Report as of June 30, 2019, produced by Cheiron (December 2019)

What Causes Changes In The Unfunded Actuarial Liability

- Changes in Benefit Levels
- Changes in Assumptions
  - Demographics
    - Age
    - Number of Employees
    - Retirement Age
    - Mortality Rates
  - Compensation Changes
  - Number of Retirees/Beneficiaries
- Investment Returns (gains and losses)

Federated System
Historical Earnings and Discount Rate

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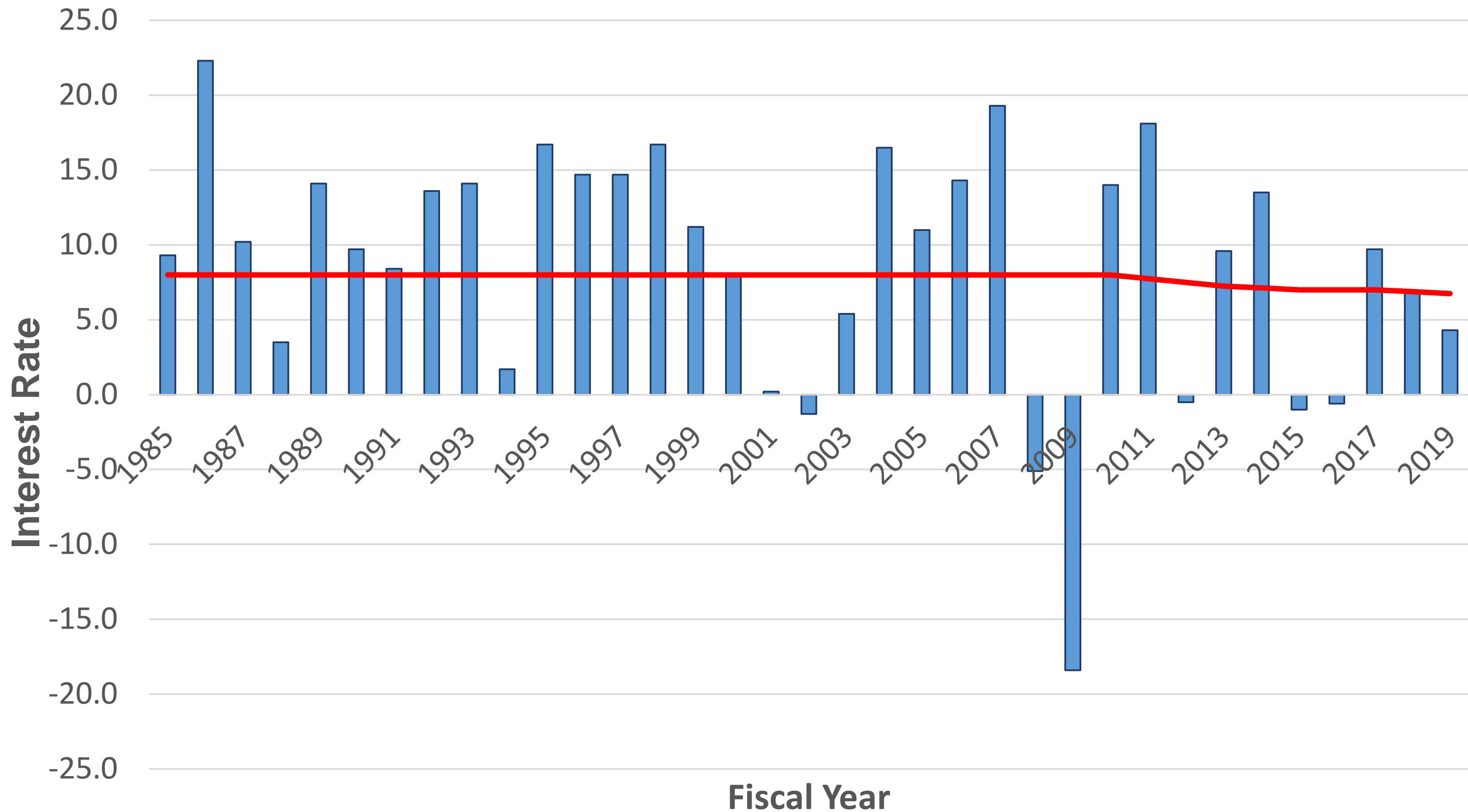
Police & Fire
Historical Earnings and Discount Rate



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Pension Obligation Bonds

Pension Obligation Bonds (POBs)

- What are POBs?
- How can POBs Save Money?
- Who is Issuing POBs?
- What are the Benefits Associated with POBs?
- What are the Risks Associated with POBs?
- What Strategies can be used to Mitigate Risks?

What are Pension Obligation Bonds?
The Mechanics of a POB Issue

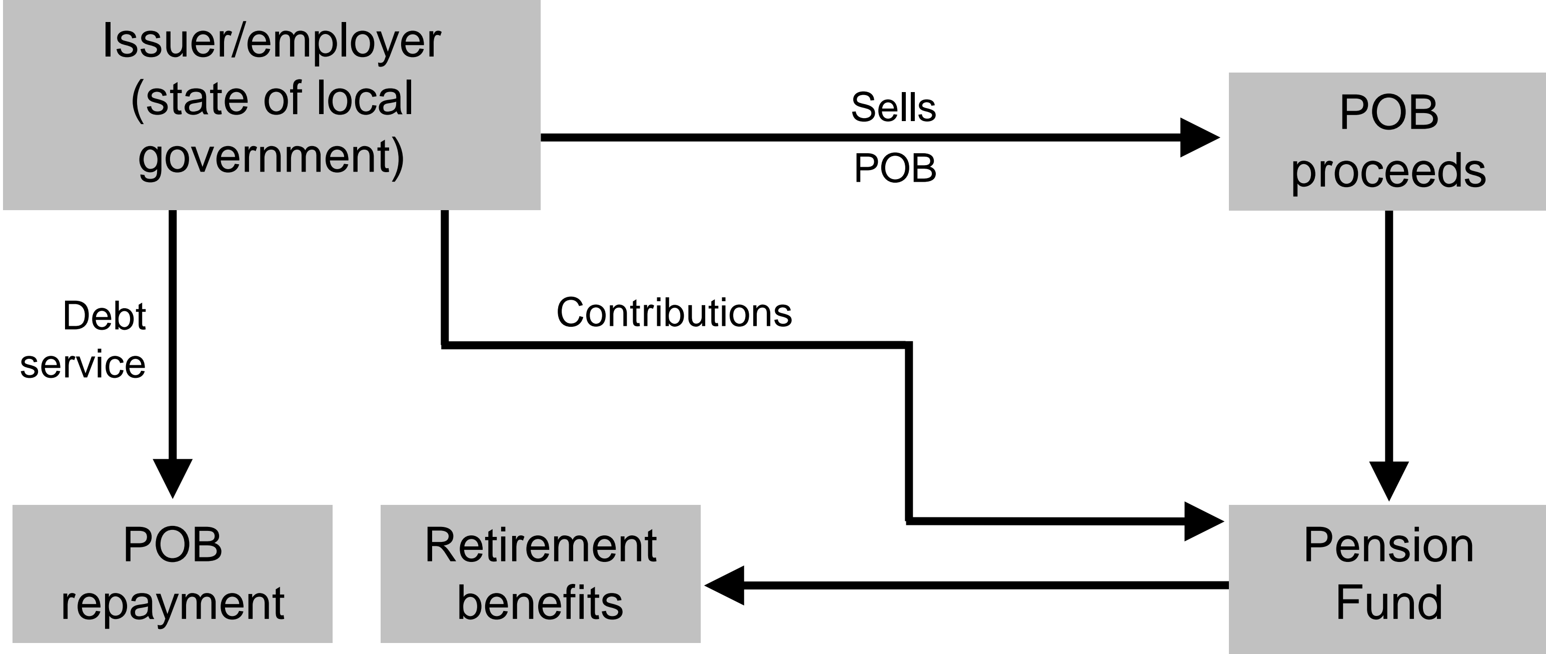

Diagram courtesy of Standard & Poor's.

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What are Pension Obligation Bonds? The Court Validation Process

- POBs fall under an exception to the constitutional debt limit because of a public agency's obligation to fund pension system payments.
- Bond counsel requires that POB documents are "validated" in Superior Court.
- Validation **does not** obligate the City to issue bonds, nor even to have agreed on a specific plan of finance.
- First step in the validation process is the preparation of bond documents. The documents can be prepared with maximum flexibility regarding bond structure and terms to position the City to move quickly if it decides to issue POBs at a future date.
- Validation action generally requires approximately 45-60 days from the date of filing, and an additional 30-day appeal period.

Who is Issuing Pension Obligation Bonds?

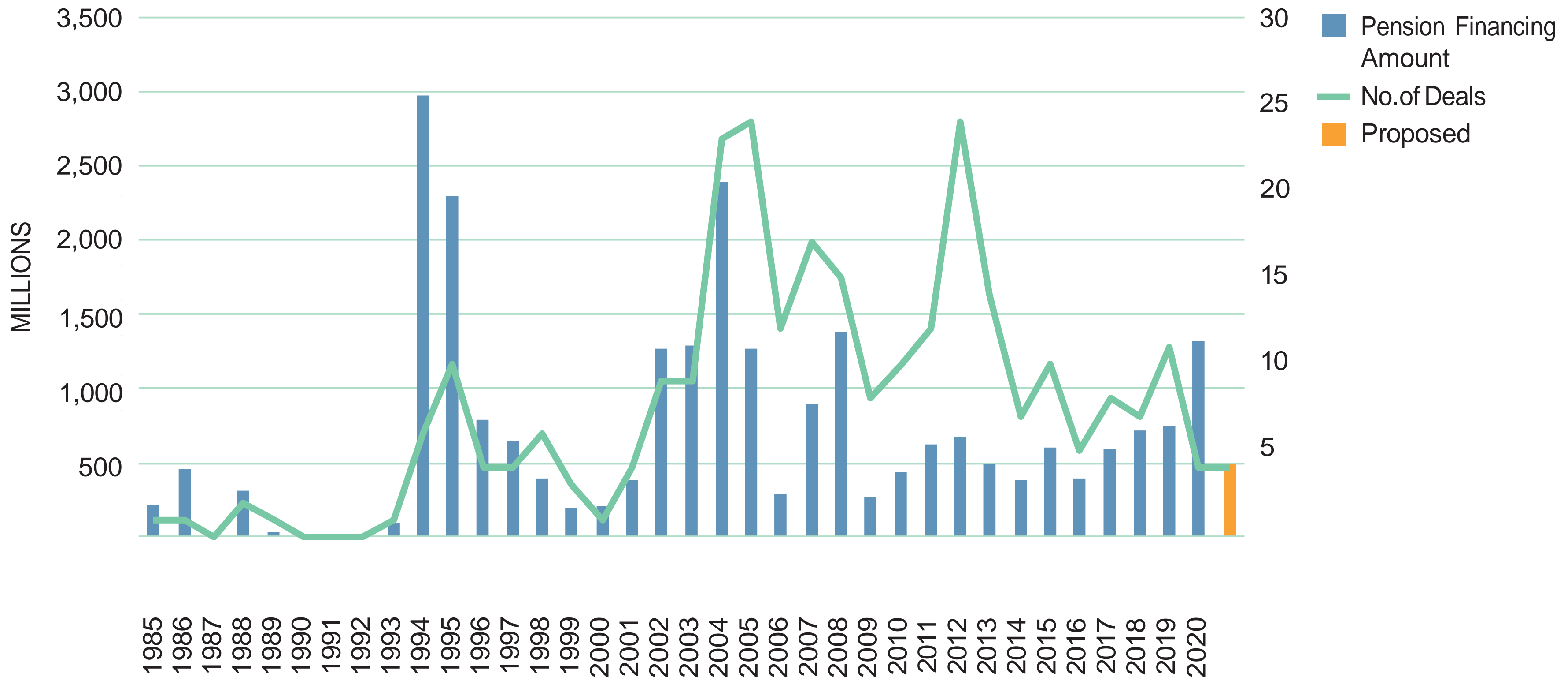
Over last ten years approximately $6.3 billion issued nationally; over half were California issuers ($3.3 billion)

- Range from low in 2014 of $180 million to high of $1.3 billion in 2017, of which $1 billion for City of Houston
- Approximately 10% of California issuance were refundings
- Two types of issuance:
  - ❖ Governments issuing POBs where a pension tax override is dedicated to paying down pension obligations, like City of Oakland
  - ❖ Governments issuing at lower taxable bond rate when compared to the pension plan's discount rate or "actuarial arbitrage"

California Local Government Turns to POBs

- Data from California Debt & Investment Advisory Commission (CDIAC): California local government has issued over $25 billion in POBs from 1985 to April 2020
  - $2.3 billion year-to-date issued in 2020 compared to $705 million in all of 2019
  - California cities issuing POBs in 2019 and 2020 included Pasadena, Ontario, Riverside, Pomona, San Bernardino, Larkspur, among others.

California POB and OPEB Issuance



Source: California Debt and Investment Advisory Commission, Debt Line, Vol 39, No. 5, May 2020, page 3, https://www.treasurer.ca.gov/cdiac/debtpubs/2020/202005.pdf

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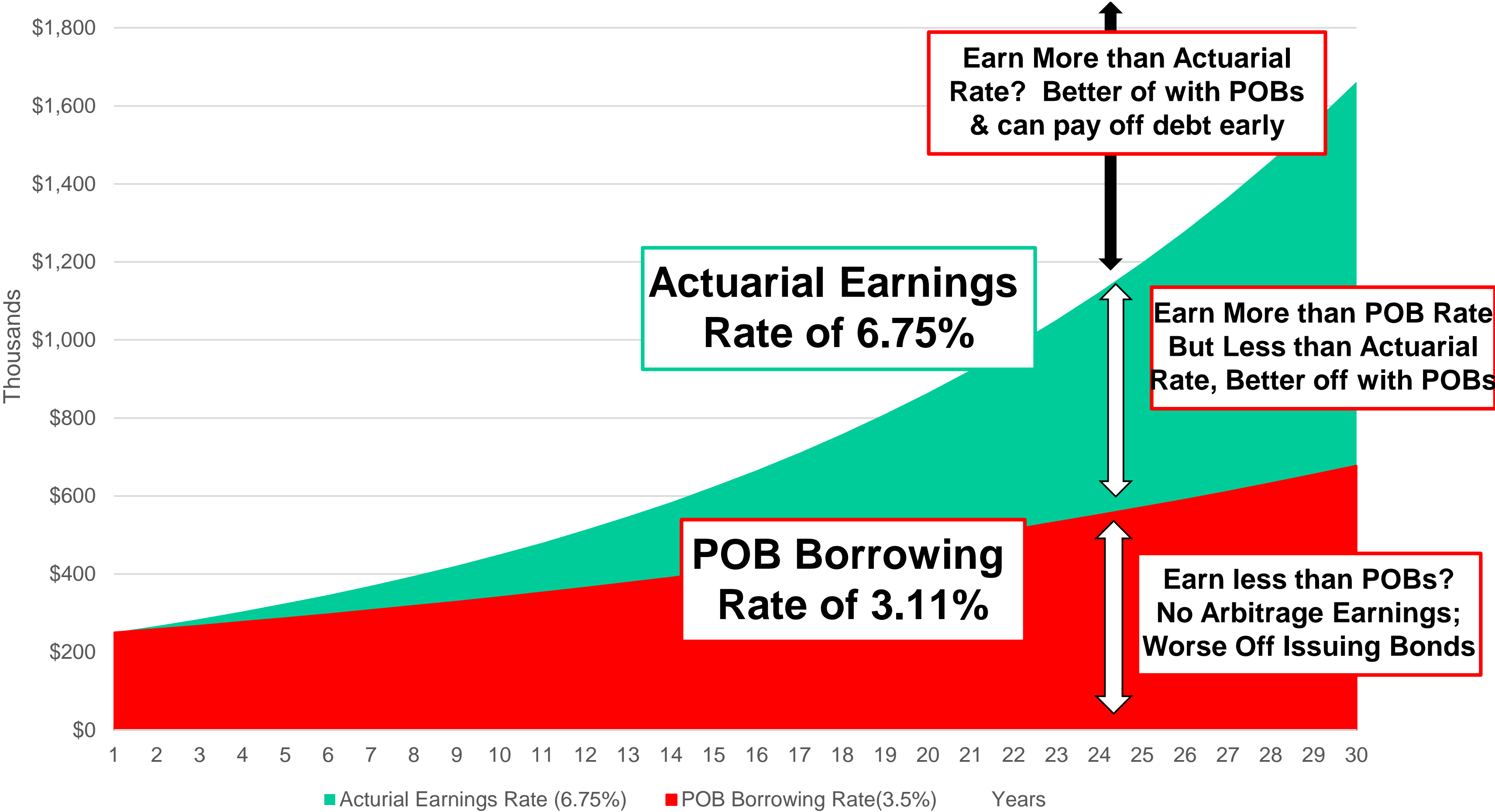
How Can POBs Save Money?

- Issued only when the borrowing costs of the bond issue is below the assumed earnings rate factored into the calculation of the UAL, producing cash flow or budgetary savings

- By issuing POBs, the City can replace the UAL (a higher cost obligation owed to the pension plans) with lower cost debt owed to bond holders, thereby producing savings.

The Economics of $250 Million of POBs



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How Can POBs Save Money?

Illustration: Potential savings assuming a $250 million POB issuance at alternative borrowing rates invested into the retirement system at alternative returns over the life of the bonds

Sample Scenarios *($ in millions)*		**POBs Borrowing Rate**		
		Current rate (3.11%)	**Current + 100 bps (4.12%)**	**Current +150 bps (4.63%)**
Average Actual Earnings Rate	**6.75%**	A: $6.6 PV: $118.4	A: $4.7 PV: $76.4	A: $3.6 PV: $57.9
	6.50%	A: $6.1 PV: $109.3	A: $4.1 PV: $68.3	A: $3.1 PV: $50.3
	6.25%	A: $5.6 PV: $100.3	A: $3.6 PV: $60.3	A: $2.6 PV: $42.7

[1] A = Average Annual Savings (in millions); PV = Present Value Savings (in millions)
[2] Market conditions as of February 27, 2020
[3] Present value calculated at respective true interest costs
[4] POB figures assume level annual dollar savings, $250 million funding of UAL, and 30-year term.

What are the Potential Benefits Associated with POBs?

- **Initial Reduction in UAL** with magnitude of reduction determined by percentage of UAL funded with POBs
- **Savings** achieved through lower debt service payments to bond holders compared to what the City would otherwise have been required to contribute to the pension plans in order to amortize the UAL.
- **Market timing** can have a positive impact on the long-term economics of a POB program. Investment gains above the bond yield early in the term of a POB program result in a pension system “surplus” that provides a cushion against future market declines.
- **Time Value of Money** POBs accelerate the investment of fund, thereby increasing the compounding of earnings.

What are the Potential Risks Associated with POBs?

- **Investment risk** is the principal risk -- if the pension plans earn less over the life of the bonds than the interest paid on the POBs, then the POB program becomes a net cost to the City.
- **Market timing** greatly impacts the long-term economics
  - ❖ POBs also result **lump sum investment** by pension system of amounts that otherwise would have been paid to and invested by the pension system over time.
  - ❖ **Investment losses** early in the life of a POB program would contribute to a new unfunded liability and could require many years of future gains in order to reach “breakeven.”

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What are the Other Risks Associated with POBs?

- **Over-funding:** If the City POBs are sized to eliminate the entire UAL, above market returns could create an actuarial "surplus" in the retirement system.
  - Possibly result in pressure to increase benefits.
- **Credit Risk**: S&P Global Ratings views POB issuance in environments of fiscal distress or as a mechanism for short-term budget relief as a negative credit factor[1]
- **Loss of Flexibility**. While actuarial assumptions can be changed over time, borrowing rates are set for 30 years unless refinanced (if interest rates decline).

[1] *Pension Obligation Bonds' Credit Impact On U.S. Local Government Issuers,* S&P Global Ratings, December 6, 2017

What Strategies can be used to Mitigate POB Risks?

- Issue less than 100% of the current estimate of the UAL.
  - Minimizes the lump sum amount invested at one time and avoids the pressures from a potentially over-funded system.
- Consider issuing multiple POBs over multiple years, assuming favorable market conditions.
  - Represents a form of “dollar cost averaging” to help mitigate market timing risks.
  - Timing issuances at key Market Cycles (during low equity market cycles and low interest rate environment)
- Mitigation of market/credit risks
  - Ensure adequate spread between borrowing rate and assumed earnings rate.
  - Avoid riskier bond structures, such as variable rate debt and interest rate swaps.
- Be Prepared to Issue POBs, when time is right
  - Prepare financing documents, establish minimum savings target and wait for favorable market conditions.

Conclusion

The full effect of issuing pension obligation bonds can only fully be tallied at final maturity of the bonds when actual investment performance of the retirement plan can be measured.

Literature Review

Government Finance Officers Association Pension Obligation Bond Advisory[1]

Recommends state and local governments do not issue POBs for following reasons:

- Invested POB proceeds may fail to earn more than interest rate owed over bond term thereby increasing overall liabilities
- Complex POB instruments carry considerable risk especially if derivative products are utilized
- Issuing taxable debt increases jurisdiction's bonded debt burden potentially using debt capacity that could be used for other purposes
- If POBs are structured with deferred principal amortization or repayment longer than actuarial amortization period overall borrowing costs will increase
- Rating agencies may not view as credit positive, especially if not part of more comprehensive plan to address pension funding shortfalls

[1]GFOA's Advisories identify specific policies and procedures necessary to minimize governments exposure to potential loss in connection with financial management activities (https://www.gfoa.org/print/3546

S&P Credit Considerations[1]

- Review of overall financing plan, including timing
- Some of the issues and circumstances S&P considers in the rating process include:
  - How will the financing affect current contributions?
  - Are the POBs being issued for budget relief?
  - Will any front-loading of savings lead to higher, unsustainable contribution rates in later years?
  - How have the laws and precedents for contributing affected funding progress, and how do they play into the POB strategy?
  - What are the funding goals and how will the POB affect these objectives

[1] *Pension Obligation Bonds' Credit Impact On U.S. Local Government Issuers,* S&P Global Ratings, December 6, 2017

"Pension Obligation Bonds May Soon Have Their Moment"[1]

- Scenario in which POB may make financial sense …
  - U.S. economy enters a recession and equities, cornerstone of public pension plans, will likely have slumped
  - Benchmark U.S. Treasury yields, already at near all-time lows, could head even closer to zero as investors seek safety

- Yes, it is market timing, and *"with prudent management – and under the right conditions – it's not so much a gamble as an automatic stabilizer.*"
  - Difference today is *"stark drop in nominal bond yields vs. the end of the last recession*"

- *"Lower-for-longer interest rates present a unique opportunity for government officials to dig out faster than before. Make no mistake – POBs are not a cure-all. But layered on top of required payments, they just might help defuse the ticking pension time bomb that seems destined to explode."*

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https://www.bloomberg.com/news/articles/2019-10-10/pension-obligation-bonds-may-soon-have-their-moment

Additional Research Materials

- Center for State & Local Government Excellence
  - Pension Obligation Bonds: Financial Crisis Exposes Risks, January 2010 (https://slge.org/resources/pension-obligation-bonds-financial-crisis-exposes-risks)
  - An Update on Pension Obligation Bonds, July 2014 (https://slge.org/resources/an-update-on-pension-obligation-bonds)

- Orrick
  - An Introduction to Pension Obligation Bonds and Other Post-Employment Benefits, Third Edition, September 26, 2006 (https://www.orrick.com/api/content/downloadattachment?id=720651b1-dbcf-456b-b71b-c199fd854d79)
  - Webinar: Recent Developments in Pension Obligation Bonds, August 2017 (https://www.orrick.com/en/Insights/2017/08/Webinar-Recent-Developments-in-Pension-Obligation-Bonds)

Additional Research Materials

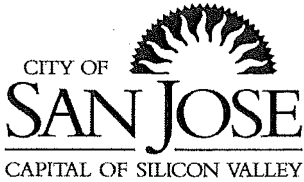
- Center for Retirement Research at Boston College
  - An Update on Pension Obligation Bonds, July 2014 (https://crr.bc.edu/wp-content/uploads/2014/07/slp_40.pdf)
  - Pension Obligation Bonds: Financial Crisis Exposes Risk, January 2010 (https://crr.bc.edu/wp-content/uploads/2010/01/SLP_9-508.pdf)

Information Memo

“Pension Obligation Bonds”
May 14, 2010

Distributed on:

MAY 14 2010
by City Manager's Office



Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Scott P. Johnson
Russell Crosby

SUBJECT: **Pension Obligation Bonds**

DATE: May 14, 2010

Approved [signature] Date 5/14/2010

INFORMATION

BACKGROUND

In the Mayor's March Budget Message, as approved by the City Council, the City Manager was directed to identify the potential benefits and drawbacks of Pension Obligation Bonds (POBs).

On May 10, 2010, the City Manager reported to the Council the conclusion of staff's analysis:

> We do not believe under any scenario that Pension Obligation Bonds are a viable tool to address the 2010-2011 shortfall.
>
> Even if the City Council wanted to assume the risk of financial loss from POBs, which can be considerable, the general stock market conditions are not right and a 6-12 month court validation action would have to be undertaken.
>
> We caution that it is imperative for Council to understand the market-volatility risks of POBs and potential financial losses to the City over the long term. These risks exist even with optimistic assumptions about the average spread between bond interest costs and pension plan earnings.
>
> Should Council wish to continue exploring POBs, any further exploration of POBs should occur in the context of a comprehensive look at pension system cost mitigation, including who bears the cost of any potential losses.

This memorandum elaborates on the analysis leading to the City Manager's May 10 statement.

ANALYSIS

What are Pension Obligation Bonds?

- Pension Obligation Bonds are taxable bonds that could be issued by the City and used to finance some or all of the City's Unfunded Actuarial Accrued Liability ("UAAL").
- Bond proceeds are deposited with the pension plans and invested, along with the plans' other assets, in a mix of long-term investments, such as equities and fixed income securities.
- For the portion of the UAAL that was paid through bond proceeds, instead of making contributions to the pension plans for this portion of the UAAL, the City would make debt service payments to bond holders. This replaces the portion of the employer retirement contribution rate due for payment of the UAAL which was paid off.
- Pension Obligation Bonds can be issued for the entire UAAL as of a particular date, or for a portion of it. The term can be for up to 30 years.
- The City would make two payments: the debt service payments to pay off the bond and contributions to the retirement system.

What is the Unfunded Actuarial Accrued Liability (UAAL)?

- The UAAL is the difference between the funds necessary to fund retiree benefits, as estimated by an actuary, and the actuarial value of the funds already committed to the pension plans to pay those benefits.
- The UAAL for pensions currently is a debt to the pension plans that the City (not employees) is entirely responsible for. This debt is paid/amortized over a period of time at an actuarially determined rate of interest.
- As of June 30, 2009 (most recent valuation), the City's UAAL for pensions is $1.1 billion. The amount of this liability will change over time, and is currently expected to increase.
- As of June 30, 2009 the UAAL for pensions on a market value basis was $2.1 billion. Since the pension plans recognize "smoothed" gains and losses over a five-year period, approximately $1 billion in losses were not recognized in calculating the UAAL as of June 30, 2009. Pension investment reports indicate that as of March 31, 2010 the market values of the pension assets have recovered by approximately $640 million due to the upswing in the financial markets since June 2009. However, approximately $200 million of that was needed to meet the actuarial assumption, so the $1 billion deferred loss at June 30, 2009 has been reduced by approximately $440 million.

Can POBs save cities money?

The theory of POBs is that a city could replace the higher-cost UAAL obligation owed to the pension plans with lower-cost debt owed to bond holders. Savings can result when, if over the life of the bonds, the borrowing costs on the bonds (bond interest rate) is below the actual rate of return earned by the pension plans (pension plan rate of return). The difference between the bond interest rate and the pension plan rate of return is called the "interest rate spread." POBs are a form of risk arbitrage: the government issuer borrows against its good (low-risk) credit rating and invests the proceeds through its pension plans in higher-risk, higher-return

investments. The intended result is that City's payments to bondholders are lower than what the City must otherwise contribute to the pension plans for the UAAL.

Illustration A. As an illustration of the theoretical savings, for each $100 million of POBs the City issued at a net average interest rate of 6% amortized over 30 years, if the pension plans earned an average net rate of return of 7% during the same 30-year period (an interest rate spread of 1%), then the *average annual savings* to the City would be approximately $500,000 per year over the 30-year term.

Illustration B. Alternatively, if the POBs were issued at an interest rate of 6% and the pension plans earned an average net rate of return of only 6% over the 30-year period (an interest rate spread of 0%), then the *average annual cost* to the City would be approximately $600,000.

However, as indicated below, cities considering POBs must understand that even if there appears to be annual budgetary savings in the early years, the POB could result in a net financial loss to the city over the longer term due to the market volatility of pension plan returns over time.

What potential risks of financial loss are associated with POBs?

Investment risk is the principal risk associated with a POB program. If the pension plan earns less than the pension system's Board-approved rate of return over the life of the bonds compared with the interest paid on the POBs, then the POB program becomes a net cost to the City.

A significant factor that must be understood is how market volatility—the timing and degree of market upturns and downturns—can affect the ultimate financial gains or losses of issuing a POB.

POBs can have a positive impact if market returns are favorable early in the term of the POB program; this results in additional pension system assets that provide a cushion against future market declines.

However, market volatility can also have a negative impact on the long-term economics of a POB program. Even if the spread between the expected return on pension plan assets and the POB yield is positive, *the volatility of returns on the investments funded with the bond proceeds can cause a drag on returns, leading to less favorable results than was originally expected.* Investment losses experienced early in the POB term may contribute to a new unfunded liability and could require more years of future gains to break-even. Even though short-term budgetary savings are possible, actual interest rate savings over the life of a POB are less certain, since earnings on the investments funded with the bond proceeds may be less than the bond payments in any given year. In addition, the factors on which the actuaries base their calculations in determining the UAAL may change over time.

Even with an attractive interest rate spread, the actual savings or loss of a POB issuance will be impacted by the volatility of the pension plan returns. For example, with Illustration A above (an interest rate spread of 1% between the expected 6% bond yield and 7% pension rate of return), risk analysis of market volatility indicates that there is a probability ratio for success of 60/40—

meaning, there is a 60% chance that a POB issuance would be a net financial benefit to the City and a 40% chance that it would be a net cost.

This same analytical model indicates that for every 0.25% change in the interest rate spread, the probability ratio changes by 4.5% (i.e., the chance that a POB issuance would result in a net benefit to the City increases or decreases by approximately 4.5%.) It is also important to note that within the 40% probability of failure are some very outlying scenarios that could be financially catastrophic for the City (i.e., that could cost the City in excess of $500 million over the 30-year period for a $100 million POB issuance).

Clearly, POBs should only be issued when the interest rate spread is expected to be sufficiently wide to mitigate potential risks associated with POB issuance. In addition, and equally important, the City must be comfortable with the potential for financial loss due to market volatility in the pension plan rate of return.

The following table summarizes the potential savings, costs and chances of success for the illustrations discussed in this briefing sheet.

Illustration	Net Return on Pension Assets	POB Interest Rate	Average Annual Savings/Cost over 30 Years	Average Probability of Success*
A	7%	6%	+$500,000	60%
B	6%	6%	-$600,000	40%

**Average Probability of Success* means the likelihood that the issuance of POBs will result in a net savings to the City over the entire 30-year life of the bonds. The complementary probability is the probability that the POBs will result in a net loss to the City over the entire 30-year life of the bonds.

Besides the risk of financial loss, what are other potential drawbacks of POB's?

- Issuance of debt to fund pension liability increases debt burden and may use up City debt capacity.
- Issuing pension obligation bonds converts a "soft" liability into a "hard" liability. Governments must make the debt service payments on the POBs regardless of retirement plan performance.
- Must recognize that additional unfunded liabilities could still exist in the future on account of plan experience and/or actuarial assumption or method changes. Government Accounting rules require that any unfunded pension liabilities to be disclosed annually in the government's annual audited financial reports.
- POBs make it more difficult to identify the full cost and systemic issues associated with the retirement plans. The POB debt responsibility becomes part of the City's debt portfolio and out of context from the cost of retirement plans.
- Issuance of POBs involves transaction costs similar to other financing instruments.

If market timing is important, how could a city know when the most opportune time is?

The most attractive time to issue POBs is during a recession or during the very early stages of a recovery, when stock/equity prices are depressed and when the predicted yield spread (between the pension plan's return on investments and the City's cost of borrowing) is at a comfortable range--at least a 1% to 2% spread.

The challenge is that it is very difficult to determine the most opportune market time. Government agencies can avail themselves of different tools and techniques to try to time the market. Agencies that issued POBs over the last ten years, when the market was expanding, failed to benefit from opportune market timing due to the significant market decline in 2008/09. They are now "under water" with their total debt service payments to date exceeding their pension returns to date on the POB-related investments.

To issue POBs, what is the first step?

Any city that wants to issue a POB will need to undertake a court validation process. The purpose of the court validation process is to establish that the City's obligation to pay the unfunded liability is a debt imposed by law, and comes within an exception to the State constitutional debt limitation. The validation process typically takes 6-12 months. The validation action does not obligate the City to issue POBs, but there are costs associated with the validation process. As with every debt issuance of the City, each issuance of POBs would require Council approval.

Besides POBs, what other strategies can cities use to decrease their UAAL?

The main options for cities to reduce their UAAL are to a) increase annual contributions, b) increase plan investment returns, and c) share the pension unfunded liability payments with employees.

Cities are also exploring other options to reduce the retirement costs such as redesign for lower benefits.

COORDINATION

This Memo has been coordinate with the City Attorney's Office and the City Manager's Office, including the Budget Office and Office of Employee Relations.

SCOTT P. JOHNSON
Finance Director

RUSSELL CROSBY
Director of Retirement Services