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Holding Government Accountable

The Impact of Moody's Proposed Changes
in Analyzing Government Pension Finances
Example - Six Independent County Pension Funds and Counties in California
John G Dickerson – 1/21/2013 (version 4.1)
One Page Abstract

On July 2, 2012 Moody's Investors Services published a "Request for Comment" titled *Adjustments to US State and Local Government Reported Pension Data.* Moody's is one of the nation's major "credit-rating agencies" for state and local governments. As such, while Moody's doesn't have authority to make governments change their financial statements or fund pensions differently, they do control how they analyze and report government credit-worthiness. Moody's has concluded that published government employee pension financial data greatly understates the credit risks created by unfunded pensions. Moody's proposed adjustments are likely to lead to reductions in credit ratings for many governments which could cause them to pay more interest expense and/or reduce access to credit and loans.

The main importance of Moody's proposals to concerned citizens is they strongly support the view that unfunded pensions put state and local government finances at great risk, much more than is reported to the people. They help explain how unfunded pensions produce much greater risk and by implication what to do about it.

Moody's adjustments would have two major impacts on most governments. First, Moody's states these adjustments would triple the amount of unfunded government pension debt across the US they would use to set credit rates. Second Moody's analysis will conclude that most governments are paying far less to their Pension Funds than they should.

Moody's would make four adjustments - two are very significant. First, pension debt would be adjusted using a high-grade long term corporate bond rate (5.5% for 2010-2011) instead of a Pension Fund's target rate of return (7.75% more or less). Second, government payments to Pension Funds would be adjusted to reflect the lower discount rate, the need to fully fund pensions by the time employees retire, and a 17 year level-dollar amortization of unfunded pensions.

I developed a financial model to project how Moody's adjustments would restate published government pension data. I applied the model to the 6 Bay Area – North Coast California counties that do not participate in CalPERS; they have independent County Pension Funds (Alameda, Contra Costa, Marin, Mendocino, San Mateo, and Sonoma). The model uses data from recent Actuarial Valuations. It produces four core restated values – total pension debt, unfunded pension debt, government normal yearly contributions, and government unfunded pension amortization payments.

These County Pension Funds reported total unfunded pension obligations were a little over $4 billion. Moody's adjustments would add about $6 billion which would reduce average reported pension funding ratios from 78% to 58%.

Under today's accounting rules governments don't report unfunded pensions as debt directly in their financial statements. (New government accounting rules will make them to do so in two years.) Moody's would include the restated $10.2 billion unfunded pension debt in its credit rating process. In addition these six counties reported Pension Obligation Bond (POB) debt as of June, 2011 of $1.7 billion. They borrowed that money to pay down earlier large unfunded pension deficits. Therefore total unfunded pension-created debt using Moody's adjustments would be close to $12 billion. All other reported debt (not including unfunded retiree healthcare and other post-employment benefits) was $2.8 billion. Thus Moody's adjustments would increase the total debt for these counties used in their credit rating analysis from the reported $4.5 billion to $14.6 billion – slightly more than triple.

These counties pay about $640 million to their Pension Funds. These adjustments would increase this to $1.4 billion - from 29% of payroll to 63%. Payments to Pension Funds and Pension Bonds today consume about half these counties independent property tax income. These adjustments show they should consume all county property tax income.

Moody's stated they would recalculate total debt for both state and local governments but would calculate what "prudent" government payments to pension funds should be only for states. I strongly urged Moody's to apply their "prudent payment" adjustments to local governments as well. Moody's has not yet announced their final decision.

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This version of this paper (4.1) has one significant change from previous versions. I had said that "Level Percent of Payroll Unfunded Pension Debt Amortization" always causes the debt to increase – it doesn't. I pay most attention to my county – Mendocino. Mendocino uses the longest amortization period (30 years as of 3 years ago) and its use of the Level Percent method definitely causes significant "negative amortization" – that is the debt increases during the first third or so of the years. I generalized that finding to all instances of Level Percent Amortization – but that's an error. Shorter periods don't do so. I apologize for this error – see "Unfunded Pension (UAAL) Amortization Payments" on page 9 for an explanation of Level Percent Amortization.

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Moody's Investors Services was not involved in the creation of this paper in any way beyond the publication of its "Request for Comment" described below. Moody's has not reviewed my model or these results – this paper is solely my responsibility. Moody's, of course, retains its rights to its document.

This is complex modeling of even more complex data. The Actuarial Valuations of the Pension Funds used for this report are complex – especially that for Contra Costa County (very – very complex!). I've tried to be careful – but if you see an error of fact or of analytical technique please let me know. I'll correct it and apologize if warranted.

However – although there may be a detail error here or there – it seems to me the scale of the changes that would be produced by Moody's proposed adjustments of government-reported pension financial data are so huge that the fundamental conclusions in this paper are valid.

Particular thanks go to Mike Sabin of Sunnyvale Pension Reform (http://www.sunnyvalepensionreform.com/) and Bob Bunnell of Marin County's Citizens for Sustainable Pension Plans (http://marincountypensions.com/) for their detailed review of my Moody's Predictor Model.

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Impact of Moody's Investor Service's
Proposed Changes in Analyzing Government Pension Data
Example - Six Independent County Pension Funds and Counties in California
John G Dickerson – 1/11/2013 (version 3.5)

I. INTRODUCTION

Moody's Investors Services and Standard and Poor's are the most powerful credit rating agencies in the US. They, along with Fitch, are considered the "Big Three Credit Rating Agencies".[1] On July 2, 2012 Moody's published a "Request for Comment" titled *Adjustments to US State and Local Government Reported Pension Data* (referred to herein as "Moody's Paper").[2] Moody's believes government reports about the finances of state and local government pension finances often significantly understate the financial risk of unfunded pension debt. They intend to modify government-reported pension financial data in analyzing credit-worthiness and setting credit ratings for state and local governments in the US.

Moody's doesn't expect significant changes in <u>state</u> credit ratings but the weakest state pension funding positions would be identified. Although they expect to reduce credit ratings <u>for local governments</u> whose adjusted debt is deemed excessive Moody's was still evaluating the extent of likely downgrades. [3] I applied these proposed adjustments to the six counties in the San Francisco Bay Area – California North Coast region that have their own independent County Pension Funds. The results are reported in this paper. The results of applying these adjustments to these six counties suggests that if Moody's takes its methods seriously there would be a significant number of local government downgrades that would reduce access to debt financing and/or increase the cost of borrowing.

Concerned citizens should understand Moody's reasoning in making these changes and take the dire warning inherent in what they propose seriously. Many state and local governments are putting their finances at great risk through deeply flawed financial management of their pensions, and their financial reports don't convey that essential fact.

II. MOODY'S FOUR ADJUSTMENTS OF GOVERNMENT CREDIT ANALYSIS

These are Moody's four proposed adjustments[4]:

1. Multiple-employer cost-sharing plan liabilities will be allocated to specific government employers based on proportionate shares of total plan contributions (Note – we don't examine this aspect in this paper; it's pretty simple.)

2. Accrued actuarial liabilities will be adjusted based on a high-grade long-term corporate bond index discount rate (5.5% for 2010 and 2011)

3. Asset smoothing will be replaced with reported market or fair value as of the actuarial reporting date

4. Annual pension contributions will be adjusted to reflect the foregoing changes as well as a common amortization period

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[1] *Big Three (Credit Rating Agencies)*, Wikipedia, http://en.wikipedia.org/wiki/Big_Three_(credit_rating_agencies), (downloaded 12/2/12)

[2] Moody's paper and other information about Moody's proposed adjustments are available at my website www.YourPublicMoney.com in the Data/Reports/Video section of the site.

[3] *Adjustments to US State and Local Government Reported Pension Data – Request for Comment*, Moody's Investors Service, July 2, 2012, page 2

[4] Moody's, ibid, page 1

A significant aspect of Moody's proposals is to attempt to make government pension financial data far more comparable. Governments and their Pension Funds are free to use assumptions that vary significantly from each other. Moody's believes these hugely divergent pension funding assumptions creates an analytical "Tower of Babel" that seriously compromises the ability to compare the financial impact of pensions on government finances. Moody's will eliminate un-standardized adjustments made by actuaries to the value of Pension Fund assets, attempt to standardize assumed investment rates of return, establish a common period in which pensions must be fully funded for current employees, and a common amortization period for unfunded pension debt.

The two major financial impacts of Moody's proposed adjustments would be[5]:

- **Unfunded Pension Debt:** Moody's projects these adjustments would nearly triple reported unfunded actuarial accrued liability ("UAAL") for the 50 states and local governments in their database to $2.2 trillion from $766 billion divided almost equally between state and local governments.
- **Recalculated "Reasonable" Employer Pension Fund Contributions**: Moody's adjustments increase 2010 state pension contributions to $128.8 billion, compared to the $36.6 billion states actually contributed. Moody's doesn't intend to restate local government payments (as described in Why Moody's Should Restate Payments by Local Governments – Not Just State Payments on page 7.)

III. FIRST MAJOR IMPACT - UNFUNDED PENSION DEBT

The calculation of unfunded pension debt is a three-step process described below:

$$
\begin{array}{lll}
A & & \text{Pension Fund Asset Value} \\
B & - & \text{Total Pension Liability} \\
\hline
C & = & \text{Overfunded or Unfunded Pension Liability}
\end{array}
$$

A. Pension Fund Asset Value

Actuaries produce financial analyses of Pension Funds in reports called "Actuarial Valuations"[6]. Moody's will not use the Pension Fund asset values used by Actuaries.

1. How Actuaries Calculate Pension Fund Asset Value

Actuaries almost always make one simple adjustment to the value of a Pension Fund's assets and often make a second adjustment as well. Actuaries start with the Market Value of Pension Fund Assets.

- **Smoothing:** Actuaries use a "smoothed" value of assets. "Smoothing" is a type of "moving average" that "slows down" changes in asset values to prevent chaotic one-year surges in government payments to Pension Funds caused by rapid decline in stock markets. The "smoothed" value of Pension Fund assets is called the "Actuarial Value of Assets", or "AVA". Smoothing is usually constrained by a "Corridor Limit" that prevents the smoothed value of assets from being more than a set percentage different from the actual market value. However, the difference rarely is greater than the corridor limit so it is not often used. There is considerable variation in how actuaries apply smoothing and the corridor limit.
- **"Actuarial Value of Assets" (AVA) v. "Valuation Value of Assets" (VVA)**: Most Valuations use the AVA, but some make a second adjustment. Pension Funds set aside "reserves" for various purposes some of which are not available to pay pensions. These are always only a very small part of the Pension Fund's assets. Some Actuaries deduct these "non-pension" reserves from the smoothed value of Pension Fund assets – the "AVA" – to produce the "Valuation Value of Assets", or "VVA". There isn't much difference between them.

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[5] Moody's, ibid, page 2

[6] For a "plain-language" description of pension math that explains many of the terms in this paper (such as "smoothing", "corridor limit", "UAAL", "Pension Obligation Bonds", etc.) see How Pension Funds Work (click to access) in the "Data/Reports/Video" section of my website.

2. Moody's Proposed Adjustment of Pension Fund Asset Values

It's simple – Moody's will use the Market Value of Pension Fund Assets, not the Actuarial or Valuation Value. This will result in greater volatility in Pension Fund asset values. It will also eliminate the considerable "artificial" variation in asset values that results from the wide range of allowable smoothing and corridor limit options used by actuaries. The table below shows the change in values for the six county Pension Funds. Pension Fund assets increased for three of these counties and decreased for three. The difference is driven by smoothing methods and timing of Actuarial Valuations. The average pension asset value declined by a little less than one percent but there was considerable variation.

Table 1 – Moody's Adjustment of Pension Fund Asset Value – Six CA Counties ($Millions)

Valuation Date	12/31/10	12/31/11	6/30/11	6/30/11	6/30/11	12/31/11	
		Contra			San		
	Alameda	Costa	Marin	Mendocino	Mateo	Sonoma	Total
Actuarial (or Valuation) Value	3,671	5,057	1,065	348	2,405	1,746	14,292
Market or Fair Value	4,015	4,708	1,088	355	2,317	1,599	14,083
Dollar Change	345	(349)	22	7	(88)	(147)	(209)
Percent Change	9%	-7%	2%	2%	-4%	-8%	-1%

B. Total Pension Liability

There are two steps. The first wouldn't be changed by Moody's – the second would be profoundly changed.

1. First - Estimate Future Pension Payments That Have Already Been Earned

The Pension Fund's Actuary estimates <u>the part of each future year's pension payments that have already been earned by employees in the past</u>. This is by far the most complicated process performed by Actuaries in Valuations. Thankfully – the result of this step is not the direct focus of Moody's proposed adjustments. These <u>estimates don't include the part of future pension payments employees will earn in the future</u>. A government's total pension liability is entirely created by work performed by its employees in the past. It is part of the cost of providing services in the past – not in the future. [7]

2. Calculate Net Present Value of Future Payments Already Earned

How much needs to be in the Pension Fund today so that future pension payments that have already been earned can be paid if all assumptions come true? In financial terms this is the total "Net Present Value" of each of those estimated payments in future years. The most important assumption is the expected annual rate of investment profits the Pension Fund will earn until those future payments are made. Actuaries assume one rate - Moody's will assume a lower rate.

a) Current Actuarial Calculation – Target Rate of Return is Discount Rate

Actuaries assume the Pension Fund will earn a "target investment rate of return" (often called an "interest rate"). This shows the assumed rate of investment return (profits) for the six counties in the San Francisco Bay Area – California North Coast that have their own County Pension Funds. These are fairly typical for government Pension Funds.

Table 2 – Assumed Investment Rate of Return (Discount Rate) – Six CA Counties

	Contra			San		
Alameda	Costa	Marin	Mendocino	Mateo	Sonoma	Average
7.90%	7.75%	7.50%	7.75%	7.75%	7.75%	7.73%

Actuaries use the assumed rate of return to estimate how much should be in the Pension Fund as of their Valuation. This is the "Actuarially Accrued Liability", or "AAL". It's their version of the Total Pension Liability. Moody's disagrees.

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[7] This is the most important concept people concerned about unfunded pension debt need to understand to know how the huge unfunded pension debt that grips state and local governments was created and what needs to change – regardless of what changes you wind up wanting to see. See How Pension Funds Work.

b) Moody's Adjustment – Target Rate of Return is High-Grade Corporate Bond Rate[8]

Moody's proposes to replace the Pension Fund's target rate of return with a "high-grade corporate bond index" which would have been 5.5% for 2010. They explain their reasoning:

> *Pension liabilities are widely acknowledged to be understated, and critics are particularly focused on the discount rate as the primary reason for the understatement.(See, for example, Alicia Munnell et al, "Valuing Liabilities in State and Local Plans," Center for Retirement Research at Boston College, June 2010; Joe Nation, "Pension Math: How California's Retirement Spending is Squeezing the State Budget," Stanford Institute for Economic Policy Research, December, 2011; and Robert Novy-Marx and Joshua Rauh, "Policy Options for State Pension Systems and Their Impact on Plan Liabilities," National Bureau of Economic Research, October 2010.)*
>
> *In public pension plans, the assumed rate of return on invested pension plan assets is identical to the discount rate that measures the present value of benefits accrued by current employees and retirees. Because plans (often guided by state legislation) develop their own investment rate-of-return assumptions, the discount rate accordingly varies across plans and often among plans within a state. Most public plans currently use discount rates—and assumed rates of return—in the range of 7.5% to 8.25%, which reflects some reductions made in recent years.*
>
> *We propose replacing the differing discount rates with a common rate based on a high-grade bond index because:*
>
> - *Investment return assumptions in use by public plans today are inconsistent with actual return experience over the past decade (when total returns on the S&P 500 index grew at about 4.1% annually) and today's low fixed-income yield environment. According to Wilshire Associates, public plans in the aggregate allocate roughly one-third of assets to fixed income …*
>
> - *A high-grade bond index is a reasonable proxy for government's cost of financing portions of its pension liability with additional bonded debt …*
>
> *For adjustments to 2010 and 2011 pension data, the proposed discount rate is 5.5%, which is based on Citibank's Pension Discount Curve. Based on high-quality (Aa or better) corporate bonds, this curve is duration-weighted by Citibank for purposes of creating a discount rate for a typical pension plan in the private sector. The 5.5% rate is a rounded average of the rates published for May, June, and July of 2010 and 2011. This proposed approach to the discount rate is similar to that used in the private sector, where Financial Accounting Standards Board (FASB) regulations require pension systems to discount assets at a rate consistent with the yield on high-quality corporate bonds. We propose to revisit the discount rate annually.*

Moody's doesn't have the complex projections made by Actuaries for each Pension Fund – they only have the final value reported as the "(Total) Actuarially Accrued Liability". Moody's therefore can't perform a recalculation based on the specific data – so they must come up with a "simplifying calculation" to estimate what the recalculated Net Present Value of the Total Pension Liability would be. They will take the reported "Actuarially Accrued Liability", project them forward for 13 years using the Pension Fund's target rate of return, then "discount" the resulting value back 13 years using the high-quality corporate bond rate which was 5.5% for 2010. Moody's states "a plan with a $10 billion reported AAL based on a discount rate of 8% would have an adjusted AAL of $13.56 billion, or 35.6% greater than reported".

This table shows the effect of this adjustment on the six Bay Area – North Coast counties:

Table 3 - Moody's Adjustment of Total Pension Liability – Six CA Counties ($Millions)

Valuation Date	12/31/10	12/31/11	6/30/11	6/30/11	6/30/11	12/31/11	
		Contra					
	Alameda	Costa	Marin	Mendocino	San Mateo	Sonoma	Total
Reported Total Pension Liability	4,737	6,445	1,436	473	3,247	2,076	18,413
Moody's Adjusted Total Pension Liability	6,345	8,479	1,833	622	4,272	2,732	24,283
Increased Total Pension Liability	1,609	2,034	397	149	1,025	655	5,870
Percent Increase	34%	32%	28%	32%	32%	32%	32%

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[8] Moody's, ibid, pages 5 - 6

C. Net Pension Liability – or Asset

The third step to determine unfunded pension debt is very simple. Total Pension Liability is subtracted from the value of Pension Fund Assets. This graph shows the proportional change in Net Pension Liability for these six counties. The table below shows the actuarial calculation and Moody's proposed adjustment. Moody's calculates the total value of State and Local Government Pension Liabilities in the nation will roughly triple as a result of this adjustment. The results for these six counties are somewhat less than triple.
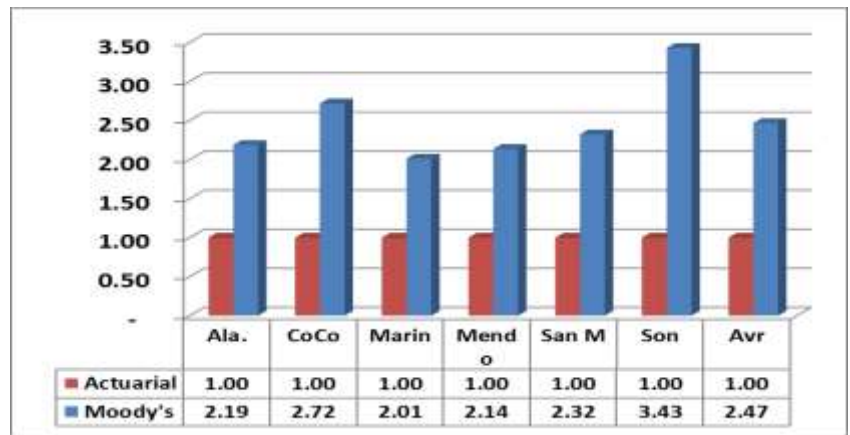

	Ala.	CoCo	Marin	Mendo	San M	Son	Avr
■ Actuarial	1.00	1.00	1.00	1.00	1.00	1.00	1.00
■ Moody's	2.19	2.72	2.01	2.14	2.32	3.43	2.47

Figure 1 – Proportional Change – Net Pension Liability

Table 4 - Moody's Adjustment of Net Pension Liability – Six CA Counties ($Millions)

	12/31/10 Alameda	12/31/11 Contra Costa	6/30/11 Marin	6/30/11 Mendocino	6/30/11 San Mateo	12/31/11 Sonoma	Total
Valuation Date							
ACTUARIAL CALCULATION OF UAAL							
Actuarial or Valuation Value of Assets	3,671	5,057	1,065	348	2,405	1,746	14,292
Actuarially Accrued Liability (AAL)	4,737	6,445	1,436	473	3,247	2,076	18,413
Unfunded Actuarially Accrued Liability (UAAL)	(1,066)	(1,387)	(371)	(125)	(842)	(330)	(4,121)
MOODY'S ADJUSTMENT							
Market Value of Assets	4,015	4,708	1,088	355	2,317	1,599	14,083
Total Pension Liability	6,345	8,479	1,833	622	4,272	2,732	24,283
Net Pension Liability	(2,330)	(3,771)	(745)	(267)	(1,954)	(1,133)	(10,200)
Increase in Unfunded Pension Liability[9]							
$	(1,264)	(2,383)	(375)	(142)	(1,112)	(803)	(6,079)
%	119%	172%	101%	114%	132%	243%	148%

D. Two Further Considerations

These are two other issues citizens need to consider related to those specifically discussed in the Moody's paper.

1. The Myth that "80% Funding is OK"

It's often said that so-called "experts" say a Pension Funding ratio of 80% is OK. That is a financially absurd assertion.[10] The long-term goal of Pension Funds should be to be 100% funded on average. Pension Funds will never be precisely 100% funded. At the top of stock market cycles the Fund should be around 125% funded. At the bottom – and only at the bottom – the Fund would be about 80% funded. If the long-term average is 80% then a very significant portion of pension expenses incurred by governments to provide services to the people in the past (increased by interest expense) is transferred to future generations. There is no other possible conclusion.

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[9] There's an interesting "twist" to the math of Moody's adjustments. The percentage change in asset values shown in Table 1 – Moody's Adjustment of Pension Fund Asset Value – Six CA Counties ($Millions) at first glance seems to be less than the percentage change in Table 3 - Moody's Adjustment of Total Pension Liability – Six CA Counties ($Millions). But the range of the percent change in asset values is much greater than that for Total Pension Liability. It's this greater range of change in asset values that drives the even greater spread in the percentage change in Net Pension Liability.

[10] For an outstanding explanation of the absurdity of this "myth" see *Pension Puffery: Here are 12 half-truths that deserve to be debunked in 2012, Governing Magazine online, Girard Miller, 1/5/12*

The table below shows the impact of Moody's adjustments on the "Funding Ratio" of the six Bay Area – North Coast County Pension Funds (Assets/Total Liabilities).

Table 5 – Pension Funding Ratios – Before and After Moody's Adjustments – Six CA Counties

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma
Reported by Actuary	78%	78%	74%	74%	74%	84%
As Adjusted by Moody's	63%	56%	59%	57%	54%	59%

Even using the fallacious "80% is OK" myth only Sonoma County was above that level. But after Moody's adjustments all six counties are very significantly below – an average of 58%. It can be properly argued that these ratios reflect conditions a couple of years after the bottom of the stock market cycle and funding "should be", say, around 90% (using the market value of assets). If so, these pension funding ratios are about 1/3 less than what they should be.

2. Pension Obligation Bonds Must Be Included in Total Unfunded Pension Debt

BUT - Net Pension Liabilities (or UAAL's) are not the only kind of unfunded pension-created debt. Many governments borrowed money to eliminate Pension deficits by selling "Pension Obligation Bonds" (POB). The Pension Fund got the money – the people through their government kept the debt. Pension Bonds are simply unfunded pensions restructured in the hopes of incurring a lower interest expense. But their source is exactly the same – unfunded pensions.

All too often government and retirement officials only report the Pension Fund's ratio as reported in Actuarial Valuations. Not only does that ignore the reasons given by Moody's as to why reported pension funding ratios significantly overstate the real funding position of most government Pension Funds, but it ignores unfunded pension debt in the form of Pension Bonds. It is one of the most obvious examples of how all too many government and retirement officials do not tell the important financial truths about unfunded pension debt to the people.

The outstanding balance of Pension Bonds must be added to Net Pension Liabilities to quantify the total debt created by unfunded pensions. And payments for Pension Bonds are part of total debt payments created by unfunded pensions.

This shows the balance owed on Pension Bonds for the six counties added to Moody's adjusted Net Pension Debt. The Total percentages are averages of the six percentages for the counties – not based on total dollars.

Table 6 – Impact of Pension Obligation Bonds on Net Pension Debt – Six CA Counties ($Millions)

Valuation Date	12/31/10	12/31/11	6/30/11	6/30/11	6/30/11	12/31/11	
	Alameda	Contra Costa	Marin	Mendo-cino	San Mateo	Sonoma	Total
Moody's Adjusted Net Pension Liability	(2,330)	(3,771)	(745)	(267)	(1,954)	(1,133)	(10,200)
Pension Obligation Bond Balance (June 30, 2011)	(447)	(516)	(111)	(83)	0	(515)	(1,673)
Total Unfunded Pension Created County Debt	(2,777)	(4,287)	(857)	(350)	(1,954)	(1,648)	(11,872)
Actuarially Reported Funding Ratio	78%	78%	74%	74%	74%	84%	77%
Moody's Adjusted Pension Funding Ratio	63%	56%	59%	57%	54%	59%	58%
Percent of Pension Funding Plan Requirements Achieved	56%	49%	53%	44%	54%	40%	49%

The impact of adding the balance of Pension Bonds to Moody's adjusted Net Pension Liability is profound. Sonoma County's Actuary reported the pension funding ratio was 84%. Moody's adjustments reduce that ratio to 59%. But the addition of Pension Bonds drops the ratio falls to 40%. The people of Sonoma County still owe 60% of what should be in the Pension Fund assuming Moody's is correct. Even if we use the actuarially calculated Pension Funding ratio and deduct the outstanding balance of Pension Bonds Sonoma County still owes more than 1/3 of what should be in the Fund.

It's extremely important to understand that Actuarial Valuations are in fact government pension funding plans (see "Normal Yearly Contributions" on page 7). Simply put – there should never be significant unfunded pension obligation (or at least never more than 20% of total obligations and then only at the bottom of stock market cycles) or Pension Bond debt. The existence of significant balances in either form of unfunded pension-created debt is on its face proof of the failure to achieve their self-proclaimed pension funding goals. On average, given Moody's adjustments, these six counties and their Pension Funds achieved only half their self-proclaimed pension funding goals.

IV. SECOND MAJOR IMPACT - GOVERNMENT PAYMENTS TO PENSION FUNDS

Debt wouldn't be so bad if it weren't for the annoying habit of creditors to expect to be paid. The creditors in this case are retirees who expect to get their pensions. But governments don't pay pensions directly to retirees. They make payments to independent Pension Funds. The Pension Funds are "fiduciaries" responsible to make sure that retirees get their pensions. Therefore the immediate creditor is the Pension Fund. Moody's proposes to make very significant adjustments to restate what governments should be paying to their Pension Funds. The more unfunded pension debt that develops the more a government's payments to eliminate that debt will rise. That in turn reduces government services, which erodes governments' core duty – to be government of the people, by the people, and for the people.

A. Two Main Types of Government Payments to Pension Funds

In general there are two types of payments governments make to their Pension Funds.

1. Normal Yearly Contributions

In general governments and their employees pay what's called the "Normal Annual Cost Contribution" to their Pension Fund each year. This is the amount the Pension Fund Actuary calculates is necessary so that if all their assumptions and projections for the next 60 years or so come true there will be enough money in the Pension Fund in the future to pay the part of future pension payments that will be earned that year. It's extremely important to realize that Pension Fund Actuarial Valuations are in fact pension funding plans based on the fundamental assumption that the only money that should ever have to be paid to a Pension Fund is the annual Normal Contribution.

2. Unfunded Pension Amortization Payments

If a significant Pension Fund deficit develops usually only the government must make additional payments to eliminate that deficit. Further, if such a significant deficit develops it is proof on its face that the government's basic pension funding plan has failed.

3. Other Payments

a) Pension Obligation Bonds are Unfunded Pension Debt Payments

Payments on Pension Bonds must be added to a government's payments to Pension Funds to understand the total impact on current and projected government spending of their pension benefits.

b) Other Types of Payments

Governments can make several other types of payments to Pension Funds such as reimbursement of administrative expenses and payments towards other types of benefits. But we won't consider those payments in this paper.

B. Why Moody's Should Restate Payments by Local Governments – Not Just State Payments

Moody's states "current disclosures allow us to propose making the adjustment only for states at this time." Moody's will do what it wants to do – but I disagree for 3 main reasons.

1. Many Local Governments are Larger than Many States

Los Angeles County's Total Pension Liability is $50 billion - larger than 30 states in the US. Many US local governments have larger pension liabilities than many states.

2. Availability of Data

The data Moody's needs are readily available for many local governments. Users of Moody's ratings will be better served by receiving more complete creditworthiness information about these entities than to have it not provided because the necessary data is unavailable for some other local governments.

3. The Threat to Owners of California Local Government Pension Obligation Bonds

The purchasers and insurers of California local government Pension Obligation Bonds are facing an extreme threat. The cities of San Bernardino and Stockton have filed for federal bankruptcy and propose to not pay most of the remaining balance of their Pension Bonds. If they sustain this threat other local governments are very likely to follow.

The municipal finance industry led investors in these bonds into an extremely dangerous political situation. The people of California have repeatedly voted to require their approval before governments enter into the levels of debt represented by Pension Bonds. But the municipal finance industry developed methods of issuing Pension Bonds to avoid the people's expressed demand to require a vote.[11] In this situation "moral hazard" properly refers to the industry's purposeful design of methods to avoid what they knew was the express will of the people to control their governments' debt. The industry placed the purchasers of these Bonds at far greater political risk than was disclosed. Even many conservatives, when they find out about how the industry purposefully side-stepped their repeated demand to submit debt of this kind to a vote, feel less morally obligated to pay these bonds.

Moody's did not reflect this significant political risk in its credit ratings when these bonds were originally issued. They should do so now and in the future. Moody's modifications of what government payments to their Pension Funds should be provide important additional information to properly evaluate investors' credit risks.

C. <u>Actuarially Calculated Payments to Pension Funds</u>

This is a general description of how Actuaries calculate the two main payments governments make to Pension Funds.

a) Normal Yearly Contribution

Actuaries calculate the "Normal Yearly Contribution" (aka "Normal Cost") to Pension Funds exactly as they do "Total Pension Liability" as described on page 3 above with only one difference.

In calculating Total Pension Liability – called "Actuarially Accrued (Pension) Liability" - they first project the part of future pension payments employees and retirees have already earned in the past. Second, they "discount" that by the Pension Fund's assumed target rate of return to come up with the amount that should be in the Pension Fund today.

When calculating the Normal Yearly Contribution instead of projecting the part of future pension payments that have already been earned the Actuary projects the amount that <u>will be earned</u> by employees in the upcoming year. That is "discounted" by the assumed rate of return to project how much money must be contributed to the Pension Fund next year so that pensions being earned next year can be paid. This is expressed as a percentage of each payroll for each class of employee rather than as a dollar amount, although a dollar estimation is included in Valuations. Then the Actuary allocates part of the Normal Cost to the government's employees and the rest is allocated to the government. Many governments pay a portion of the "Employee Share" – but that is rarely reported. It should be – but it isn't. This shows the allocation of the Normal Contribution between governments and their employees for the six Bay Area – North Coast counties with their own County Pension Funds as of the most recently available Actuarial Valuations.

Table 7 – Normal Yearly Pension Contribution – Six CA Counties

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma
County Share	10.8%	20.3%	10.9%	12.1%	11.3%	14.9%
Employee Share	9.3%	10.5%	10.1%	9.8%	10.3%	15.8%
Total Normal Contribution	20.1%	30.8%	21.0%	21.9%	21.6%	30.7%

Except for Contra Costa the portion of employee contributions actually paid by these counties is not shown in the Actuarial Valuations for these County Pension Funds.

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[11] See Appendix B – "California" in *An Introduction to Pension Obligation Bonds and Other Post-Employment Benefits – Third Edition (click to access)*, Roger L. Davis, Orrick Herrington & Sutcliffe, LLP, 2006. Also see "Pension Obligations Bonds" on page 21 of How Pension Funds Work.

b) Unfunded Pension (UAAL) Amortization Payments

The number of years a government plans to take to eliminate an Unfunded Actuarially Accrued (Pension) Liability (UAAL) is called the "amortization period". California county governments may take as long as 30 years to pay off a UAAL. The interest expense incurred is the same as the Pension Fund's target rate of return. There are two common methods used to calculate the amount of these UAAL Amortization Payments:

- **Level Dollar** – the same dollar amount is paid each pay period.
- **Level Percent of Payroll** – the same percent of each payroll is paid each pay period.

The "Level Dollar" method is basically the same as the traditional 30 year fixed interest rate & payment home mortgage except the number of years can be shorter. You borrow money to buy a house and pay it back by making equal payments every month for 30 years. Most of the early payments are interest but the last payments mostly reduce debt.

Under the "Level Percent of Payroll" method the Actuary first estimates how much the government's total payroll will be in each year of the amortization period <u>assuming</u> it will grow the same percent each year – usually projected at about four percent. Then the Actuary calculates a fixed percentage of each year's payroll the government needs to pay to eliminate the unfunded pension debt by the end of the amortization period. That fixed – or "level" percent of each future year's projected payroll is projected to be each future year's payment.

Those who advocate this method provide two arguments for why this is a good idea. First, although annual payments will grow as total payroll grows, at the same time the government will supposedly be earning more income because of increased taxes, fees and grants. So - this method is thought to even out the financial burden over time. Second, the normal yearly pension contributions are figured as a percentage of regular payroll each pay period. It's easy to tack on a set percentage for unfunded pensions - basically the same system.

But – there are several "catches" with Level Percent of Payroll.

(1) Level Percent of Payroll – Lower Payments in the Early Years – Much Higher Later

Assume:

- UAAL = $100 million
- Amortization period = 30 years
- Interest rate = average target rate of return for the 6 Bay Area – North Coast County Pension Funds (7.73%)
- One payment made at the beginning of each year[12]
- Every assumption and projection over the next 30 years works out perfectly

Level Dollar Amortization payments are $8,882,743 a year. This method is simple to calculate and understand.

For Level Percent of Payroll Amortization assume payroll is $75 million in the first year and will grow 4% a year in each of the next 30 years. If the government pays exactly 7.62146% of each of these payrolls through the next 30 years the UAAL will be eliminated. Payments start at $5.7 million and grow to $17.8 million 30 years from now. Both payroll and payments grow at a rate of 4% a year.

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[12] In an email exchange the author of Moody's paper indicated Moody's believes the "correct" method of calculating interest expense is "beginning of period" rather than "end of period". Also they are simplifying the amortization schedules by assuming annual payments. I and several other financial professionals don't understand the idea that "one payment per year" wouldn't incur interest expense in the first year. It would have to be made on the first day of the first year in order to have no interest expense – it would all go to reduce debt principal. Payments are generally made to Pension Funds when governments make payrolls or shortly thereafter. Government paydays are sometimes once a month, or twice a month, and sometimes every two weeks or 26 times a year. In any of these "real world" systems there would be at most only one payment for anywhere from a two-week to one-month period that doesn't accrue interest expense and then only if that payday occurs on the first day of the first fiscal year. However – since this is Moody's assumption the analysis in this paper uses that assumption – even though we don't think it's realistic.

By its nature governments pay a whole lot less for the first third (or so) of the amortization period using the Level Percent method than it would under the Level Dollar method.

I think the "real reason" many if not most government officials make the decision to use the Level Percent method is it makes things a whole lot easier for them. It allows them to pay less now at the cost of shoving much larger payments off into the future when they won't be in office. Someone else will have to deal with the problem.

As long as the amortization period is more than one year and the assumption is that payroll will grow the early payments will be less with Level Percent of Payroll compared to Level Dollar Amortization.
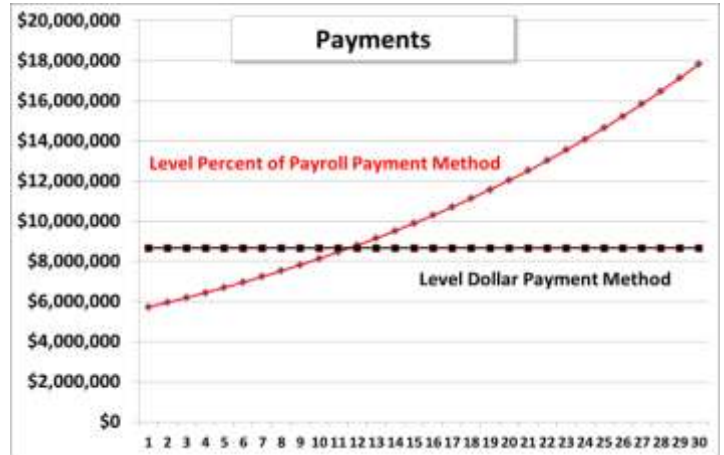
Figure 2 – Comparison of Payments - Level $ v. Level % Payroll Amortization

(2) Percent of Payroll & Negative Amortization

This graph shows the annual payments under the Level Percent of Payroll method and the annual interest expense given the 30 year amortization defined above. For the first 12 years the payments are less than the annual interest expense. This is called "negative amortization" – the unpaid interest actually increases the debt. The pink area is unpaid annual interest – the debt is actually increasing.

The bottom graph shows the balance of unfunded pensions over the entire 30 year amortization period. The payments for the first 12 years are less than the annual interest expense and so the balance of unfunded pension debt increases for the first 12 years. At that point if we assume payroll really did grow 4% a year and therefore payments also increased 4% a year, finally the payments "catch up" with interest expense. But over those 12 years unfunded pensions actually increased nearly $16.5 million making total debt $116.5 million in year 12 instead of the beginning debt of $100 million. It then takes another 8 years for the increasing payments to pay the accumulated unpaid interest balance over the first 12 years. Therefore the balance of unfunded pensions doesn't get back to its original $100 million until 20 years in the future.

The entire original balance of $100 million of unfunded pensions will be paid from 21 to 30 years from now. In this 30-year amortization today's government officials shoved their unfunded pensions off to an entirely new generation of citizens and officials.
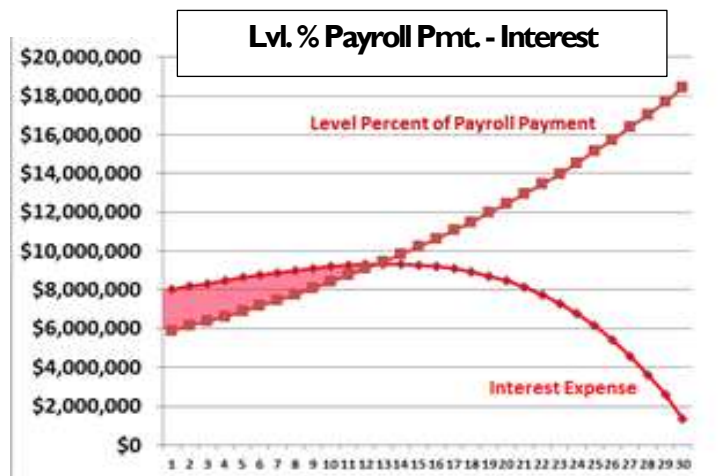
Figure 3 – Level % Payroll Creates Negative Amortization – Increases Debt

Now – Level Percent of Payroll Amortization doesn't always cause "negative amortization" – where interest expense is higher than payments for many years. It depends on the length of the amortization period.

The horizontal axis is the assumed rate of growth for payroll. The vertical axis is the number of years in the amortization period. The gray area from about 20 years or 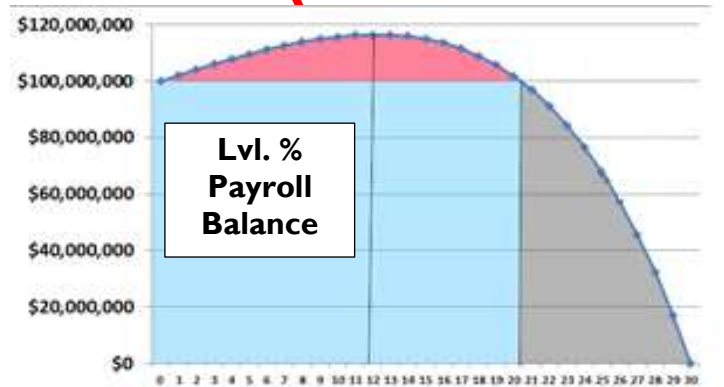so at 3.0% payroll growth down to about 18 years at 4.5% is a range of discount rates used from 7.5% to 8.0%. Above that zone negative amortization occurs in early years – below it there is no negative amortization.

For example, if payroll is assumed to grow 4.5% a year and the amortization period is about 17 years there is no negative amortization. If it's 18 years then negative amortization begins to occur. As more years are added to the amortization period above 18 years there are more years of negative amortization. In a 30 year amortization assuming 4.5% annual payroll growth there is negative amortization during the first 13 years. There's only 9 years or so of negative amortization if payroll is assumed to grow 3%/year.
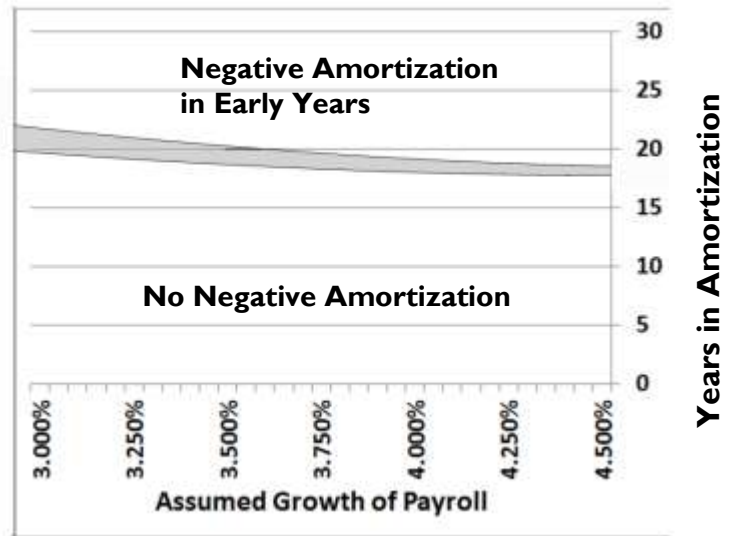
Figure 4 – Level Percent of Payroll Method – Variables That Cause Negative Amortization

The point is – Level Percent of Payroll Amortization for periods longer than 17 to 20 years (depending on the assumed annual growth of payroll and the discount rate) by its nature causes negative amortization – the debt actually increases.

(3) Interest Expense

However – Level Percent of Payroll Amortization <u>always</u> causes more interest expense and higher total payments over the full amortization period. This shows the result of the 30 year amortization model above:

	Principal	Interest	Total Payment
Level Percent of Payroll	100,000,000	220,586,755	320,586,755
Level Dollar	100,000,000	159,723,478	259,723,478
	0	60,863,277	60,863,277

Total interest expense is 38% more under Level Percent of Payroll if all other actuarial assumptions "come true".

If we assume a "no negative amortization" model of 18 year amortization, 4.0% annual payroll growth, and a 7.5% "interest rate" this is the result:

	Principal	Interest	Ttl Payment
Level Percent of Payroll	100,000,000	99,962,898	199,962,898
Level Dollar	100,000,000	85,452,124	185,452,124
	(0)	14,510,774	14,510,774

Total interest in this scenario is 17% more using Level Percent of Payroll v. Level Dollar Amortization.

D. Moody's Adjustments to Government Payments

These are county payments to Pension Funds projected in their Actuarial Valuations. We'll see how Moody's adjustments would change these payments. (These don't reflect County payments of part of employee contributions.)

Table 8 –County Payments to Pension Funds Projected by Actuaries – Six CA Counties ($ Millions)

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma	Total
Normal Contribution	69.4	130.6	19.2	7.8	51.4	33.6	312.0
UAAL Amortization	74.6	104.6	27.3	7.2	90.1	23.9	327.6
Total	143.9	235.2	46.5	14.9	141.5	57.5	639.6

Moody's delves into their proposed adjustments to these two government payments to Pension Funds[13].

> *Ideally, participating government employers make annual contributions to their pension plans that result in those plans becoming <u>fully funded over a reasonable time horizon</u> (emphasis added). We propose to adjust annual contributions to reflect the adjustments we have made to pension liabilities. We believe this adjustment would function as a more accurate indicator of fiscal burden. We would not intend it to be a prescriptive funding strategy. …*
>
> *…*
>
> *We will adjust the ENC (Employer Normal Cost) to reflect our common discount rate, and the amortization payment to reflect our adjusted unfunded liability, a common amortization period, and a level-dollar funding approach.*

1. "Fully Funded Over a Reasonable Time Horizon"

a) Intergenerational (or Inter-period) Equity

Who should pay for government employee pensions - people who receive their services, or the next generation?

Employees earn their pensions while they are still working for government – it's part of their compensation. Retirees <u>never</u> earn their pensions when they receive them. The payment of pensions in the future is the payment of a debt. Assuming they meet all the requirements to receive a pension, the day someone leaves a government's employment they have 100% earned all those future pension payments.

But there's a huge problem. We don't know how much a retiree's total pension payments will be when they retire. We can't be sure how much the true economic expense of that employee's pension was when he or she earned those future pension payments, nor do we know how much should be in the Pension Fund when they retire.

The Governmental Accounting Standards Board (GASB) establishes "Generally Accepted Accounting Principles" (GAAP) for state and federal governments. GASB describes "Inter-generational Equity" this way – "the current generation of citizens should not be able to shift the burden of paying for current-year services to future-year taxpayers. … financial reporting should help users assess whether current-year revenues are sufficient to pay for the services provided that year and whether future taxpayers will be required to assume burdens for services previously provided".[14] Moody's proposed adjustments are necessary in large part because current GASB accounting standards have not fulfilled this principle. GASB has allowed governments to report the pension expenses that created today's massive unfunded pension debt decades after employees earned those pensions. The public didn't see that "future taxpayers will be required to assume burdens for services previously provided".[15]

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[13] Moody's, ibid, page 8

[14] *Concepts Statement No. 1: Objectives of Financial Reporting*, Governmental Account Standards Board, No. 037, May 1987, page i

[15] GASB released new pension financial reporting standards in June 2012 that must be implemented by governments no later than their financial statements for fiscal years that begin after 6/15/14. These new standards will generally correct this glaring error in their current standards. I prepared several papers analyzing these new GASB standards. They are available at www.YourPublicMoney.com in the "Data/Reports/Videos" section.

b) Moody's To Use 17 Years as "Reasonable Time Horizon"

Moody's believes a "reasonable time frame for government payments to Pension Funds" is the remaining number of years current employees will continue to work for a government. Moody's will assume a standard 17 year remain service life for all governments. At that point the Pension Fund should be fully funded. The failure of governments to achieve this goal of "prudent" financial management imposed hundreds of billions of unfunded pension debt on future generations. They won't receive one minute of public services or one dime of public infrastructure for those massive payments. If government officials had been required to fully fund pensions by the time employees retired this unfair unfunded pension debt would not have been shoved onto future generations.

2. Normal Annual Cost Contribution Payments

In adjusting the normal yearly government contribution Moody's would project the normal cost forward for 17 years at the plan's reported discount rate, and then discount it back at 5.5%, after which employee contributions are deducted to determine the adjusted government yearly contribution. Using this approach, a reported normal cost payment of $100 million based on an 8% discount rate would grow to $149 million based on a 5.5% discount rate.

This adjustment is quite simple mathematically. This is only an approximation of what the normal contribution would be if Moody's were to use the Actuary's projections of the part of future pension payments estimated to be earned in the upcoming year. That data isn't available to Moody's and even if it were it would be a lot of work to process. This shows the effect of this proposed Moody's adjustment on the six Bay Area – North Coast counties:

Table 9 - Moody's Adjustment of Normal Contribution to Pension Fund – Six CA Counties ($Millions)

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma	Total
Defined by Actuary	69.4	130.6	19.2	7.8	51.4	33.6	312.0
Adjusted by Moody's	129.6	216.2	33.1	13.8	94.0	63.5	550.1
Increase	60.2	85.6	13.9	6.1	42.5	29.9	238.2
Percent Increase	87%	66%	72%	78%	83%	89%	79%

This adjustment increases the amount of the normal annual contribution Moody's believes these counties should be paying from 66% to about 90% - not quite double. This is a very significant increase – but not nearly as significant for many governments as the next payment adjustment.

3. Unfunded Pension Liability Amortization Payments

a) Moody's Unfunded Pension Liability Payment Adjustments

Moody's proposes to make two adjustments to government payments to eliminate unfunded pension debt.

- **17-Year Amortization:** Net Pension Liability Amortization periods will be limited to 17 years.
- **Level Payment – Not Level Percent of Payroll:** Moody's will use the Level Dollar method – not Level Percent of Payroll.

b) Moody's Most "Revealing" Adjustment

(1) Unfunded Pension Debt Payments Much Easier to Evaluate

This adjustment clearly exposes the deeply flawed financial management of many if not most public pension systems.

(a) Development of Unfunded Pensions – Complicated to Understand

The first management failure that causes significant unfunded pension debt is the failure to achieve pension funding requirements based solely on the Normal Annual Contribution. This can be extremely complex and hard to understand.

(b) Decision about How to Eliminate Unfunded Pensions – Simple to Understand

Governments are almost always solely responsible to pay additional money to eliminate Pension Fund deficits. There are only a handful of fairly simple variables involved. Moody's states a governments "approach to managing pension obligations … informs our view of management strength." The decisions governments and Pension Funds make about how to eliminate unfunded pension debts tells volumes about their "management strength".

(2) The Dominance and Perversity of Level Percent of Payroll Amortization

The Level Percent of Payroll method produces significantly higher interest expense and total payments over the entire amortization period (again – assuming all other actuarial assumptions come true). Level Percent of Payroll Amortization longer than 18 to 20 years also creates "negative amortization" in which the total debt actually increases for a number of years. I believe the main reason government officials choose to use Level Percent of Payroll is to make it easier while they are in office at the cost of shoving higher interest expense and often even greater debt onto the next generation. It's beyond the scope of this analysis to determine the prevalence of this method nationally. However, all six counties use this method. This table shows each county's assume yearly increase in payroll and therefore UAAL amortization payments and the number of years taken to amortize the UAAL.

Table 10 – Level Percent of Payroll Amortization – Six CA Counties

County	Yearly Increase	Number Of Years
Alameda	4.0%	Declining 22 Years
Contra Costa	4.25%	Each Year's UAAL over separate 18 years
Marin	3.5%	(See page 22)
Mendocino	4.0%	Declining 27 Years
San Mateo	4.0%	Each Year's UAAL over separate 15 years
Sonoma	4.25%	Each Year's UAAL over separate 20 Years

San Mateo's amortization isn't producing negative amortization because that county chose to eliminate unfunded pensions over an unusually short number of years – even less than Moody's standard 17-year amortization period. Contra Costa's amortization very likely also doesn't produce negative amortization – it's right on the line. Marin's amortization is rather complex as described in the attachment on page 22. Clearly the "extraordinary" loss that is being amortized over 30 years is producing significant negative amortization.

Mendocino (which began its amortization 3 years ago with a 30 year period) is significantly increasing its unfunded pension debt through negative amortization. Alameda and Sonoma are also producing negative amortization.

This sample of six counties is far too small to generalize about the broad behavior of state and local governments. But I think it's safe to say that the temptations of the Level Percent of Payroll amortization method are so great that many and probably most governments use that method thereby choosing to push much higher payments onto the future and in many cases increasing their unfunded pension debt.

Very few citizens realize their elected officials in my governments who are responsible to manage their local government finances have actually chosen methods to amortize unfunded pension debt that in fact significantly increases that debt. My experience is that when citizens realize this fact – regardless of their political ideology – they find it appalling.

c) The Math of Moody's Unfunded Pension Payment Adjustment

There's a major difference between Moody's changes to the Annual Normal Contribution and Net Pension Liability amortization payments. The actuarially defined Normal Contribution is the starting point for Moody's first adjustment, whereas the actuarially defined UAAL Amortization payment is completely replaced by new calculations.

(1) Start with Moody's Adjustment to Net Pension Liability

Moody's will have already adjusted the Net Pension Liability that needs to be eliminated. This summarizes the change in Net Pension Liability as shown in the larger table on page 5 in that section:

Table 11 – Reported UAAL & Moody's Adjusted Net Pension Liability – Six CA Counties ($Millions)

Valuation Date	12/31/10	12/31/11	6/30/11	6/30/11	6/30/11	12/31/11	
	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma	Total
Reported Unfunded Liability (UAAL)	(1,066)	(1,387)	(371)	(125)	(842)	(330)	(4,121)
Moody's Adjusted Net Pension Liability	(2,330)	(3,771)	(745)	(267)	(1,954)	(1,133)	(10,200)
Increase in Unfunded Pension Liability	(1,264)	(2,383)	(375)	(142)	(1,112)	(803)	(6,079)

Moody's adjusted Net Pension Liability averages about 2.5 times larger than the UAAL reported by these six counties. By itself this will significantly increase the amount Moody's considers a "prudent" unfunded pensions payment.

(2) New Amortization Schedule – 17 Years & Level Dollar Payments

Each year Moody's would construct a new 17 year Level Dollar schedule for its Adjusted Net Pension Liability.

d) The Effect of Moody's Adjustments on Net Pension Liability Payments

This table shows the astonishing impact of Moody's adjustments on these payments. If Moody's is correct these six counties – on average – should be paying nearly three times as much as they are to eliminate their Net Pension Liability. (Again – the total percentage increase is the average increase for the counties – not based on total dollars.)

Table 12 – Moody's Adjustment of Net Pension Liability (UAAL) Amortization Payments – Six CA Counties ($Millions)

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma	Total
Defined by Actuary	74.6	104.6	27.3	7.2	90.1	23.9	327.6
Adjusted by Moody's	203.3	329.0	65.0	23.3	170.5	98.8	889.9
Increase	128.7	224.4	37.7	16.1	80.4	74.9	562.2
	173%	215%	138%	223%	89%	314%	192%

4. Summary - Impact of Moody's Adjustments on Payments

a) Government Payments to Pension Funds

This graph shows the proportional change in County payments to Pension Funds. The first stack for each county is the amount projected in the Actuarial Valuations. They equal 1.0 (or 100%). The second is the Moody's adjusted payment. Green is the Normal Cost and pink-red is Unfunded Pension payments.

Other than San Mateo payments more than double using Moody's adjustments. Sonoma is pushing 3 times greater and Mendocino is 2.5 times greater.

The table shows the actuarial calculation and Moody's proposed adjustment. Total percent change is the average percentage for the 6 counties – it isn't "dollar-weighted" (not based on the total dollars.
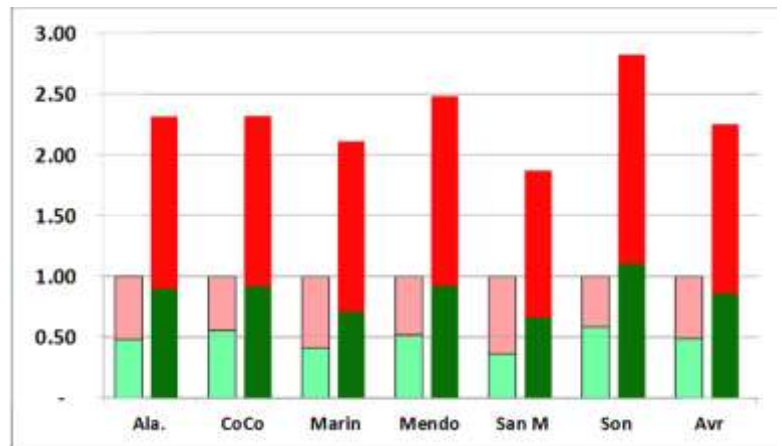
Figure 5 – Proportional Change – Payments to Pension Fund

Table 13 – County Payments to Pension Fund – Actuarial Valuations v. Moody's Adjustments ($Millions)

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma	Total
ACTUARIAL VALUATIONS							
Normal Contribution	69.4	130.6	19.2	7.8	51.4	33.6	312.0
UAAL Amortization	74.6	104.6	27.3	7.2	90.1	23.9	327.6
Total	143.9	235.2	46.5	14.9	141.5	57.5	639.6
MOODY'S ADJUSTMENTS							
Normal Contribution	129.6	216.2	33.1	13.8	94.0	63.5	550.1
Net Pension Liability Amortization	203.3	329.0	65.0	23.3	170.5	98.8	889.9
Total	332.9	545.2	98.1	37.1	264.4	162.3	1,440.0
DIFFERENCE							
DOLLAR							
Normal Contribution	60.2	85.6	13.9	6.1	42.5	29.9	238.2
Unfunded Pension Amortization	128.7	224.4	37.7	16.1	80.4	74.9	562.2
Total	188.9	310.0	51.6	22.1	122.9	104.8	800.4
PERCENT							
Normal Contribution	87%	66%	72%	78%	83%	89%	79%
Unfunded Pension Amortization	173%	215%	138%	223%	89%	314%	192%
Total	131%	132%	111%	148%	87%	182%	132%

All together these six counties were projected to pay about $312 million to their County Pension Funds as their Normal Contribution and a little more than that – about $328 million – as UAAL Amortization Payments. Total payments were projected to be about $640 million.

Moody's adjustments more than doubled those combined payments for all six counties to over $1.4 billion – 125% more than defined by the Actuaries. The adjustments increased total annual Normal Contributions 78%, but increased payments to eliminate the Net Pension Liability 172%.

San Mateo had the lowest increase. Even so Moody's adjustments suggest it should be paying nearly double (an 87% increase overall). San Mateo's comparatively short UAAL Amortization Period of 15 years for each year's UAAL produced much higher Actuarially-defined UAAL payments than the methods used by the other counties.

Moody's adjustments nearly tripled Sonoma County's payments – an increase of 182%.

b) Government Payments to Eliminate Unfunded Pension Debt

Pension Obligation Bonds are simply unfunded pension debt restructured into bonded debt in the hopes of obtaining a lower interest rate. Pension Bond payments must be added to Net Pension Liability amortization payments to see the total yearly "cost" to eliminate unfunded pensions. Once again Moody's adjustments double these payments.

Table 14 – County Payments to Eliminate Unfunded Pension-Created Debt ($Millions)

	Alameda	Contra Costa	Marin	Mendocino	San Mateo	Sonoma	Average/Total
Reported by Governments							
UAAL Amortization	74.5	104.6	27.3	7.2	90.1	23.9	327.6
Pension Bonds	41.3	73.6	6.6	7.9	-	48.0	177.2
Total	115.8	178.1	33.9	15.1	90.1	71.8	504.8
Modified by Moody's							
Net Pension Liability Amortization	203.3	329.0	65.0	23.3	170.5	98.8	889.9
Pension Bonds	41.3	73.6	6.6	7.9	-	47.9	177.2
Total	244.5	402.5	71.6	31.2	170.5	146.8	1,067.1

c) Impact on County Budget

Most of the money spent by local governments comes from the State and Federal governments. Local governments must "match" a portion of Federal and State funds out of their independent local revenue base which includes property and sales taxes. The more they divert their independent tax base to pay Pension Funds and Pension Bonds the less they have to match and the less they have to spend on locally-funded projects. The more these payments consume their local tax base the more local governments lose control of their budgets.

The table on the next page shows, first, the 6 counties' property tax income[16] compared to current payments to Pension Funds and Pension Bonds, and second, to the modified payments restated by Moody's. Total Percentages are averages of the percentages for each county – they aren't dollar weighted based on Total Dollars.

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[16] California counties collect all the property taxes paid within a county and then disburse significant amounts of the proceeds to other property tax supported agencies such as cities, school districts, and so on. The counties retain a set portion of the property taxes for themselves. The property tax values shown in this table are the amounts retained by the counties as their own revenue – not the total paid by property owners in the county.

Table 15 – County Property Tax Income and Payments to Pension Funds and for Pension Bonds ($Millions)

	Alameda	Contra	Marin	Mendocino	San Mateo	Sonoma	Total
County's Property Tax Income	399.7	400.7	181.7	41.1	356.0	210.7	1,589.9
Actuarially Defined							
Normal Contribution	69.4	130.6	19.2	7.8	51.4	33.6	312.0
UAAL Amortization	74.6	104.6	27.3	7.2	90.1	23.9	327.6
Total to Pension Fund	143.9	235.2	46.5	14.9	141.5	57.5	639.6
POB Pmts	41.3	73.5	6.6	7.9	0.0	47.9	177.2
Total	185.2	308.7	53.1	22.9	141.5	105.4	816.8
Percent of County Prop. Tax							
Normal Contribution	17%	33%	11%	19%	14%	16%	18%
UAAL Amortization	19%	26%	15%	17%	25%	11%	19%
Total to Pension Fund	36%	59%	26%	36%	40%	27%	37%
POB Pmts	10%	18%	4%	19%	0%	23%	12%
Total	46%	77%	29%	56%	40%	50%	50%
Moody's Adjustments							
Normal Contribution	129.6	216.2	33.1	13.8	94.0	63.5	550.1
Net Pension Liab.	203.3	329.0	65.0	23.3	170.5	98.8	889.9
Total to Pension Fund	332.9	545.2	98.1	37.1	264.4	162.3	1,440.0
POB Pmts	41.3	73.5	6.6	7.9	0.0	47.9	177.2
Total	374.1	618.7	104.7	45.0	264.4	210.3	1,617.2
Percent of County Prop. Tax							
Normal Contribution	32%	54%	18%	34%	26%	30%	32%
UAAL Amortization	51%	82%	36%	57%	48%	47%	53%
Total to Pension Fund	83%	136%	54%	90%	74%	77%	86%
POB Pmts	10%	18%	4%	19%	0%	23%	12%
Total	94%	154%	58%	109%	74%	100%	98%

These six counties retained nearly $1.6 billion of the property taxes paid in those counties as their own revenue. Their total actuarially defined payments to their County Pension Funds were nearly $640 million or 37% of this County property tax revenue. Payments on Pension Bonds were about $177 million which was 12% of total property tax income. Therefore total payments projected by Actuaries to County Pension Funds and Pension Bond payments were projected to be slightly less than $820 million, half of their property tax income.

Moody's adjustments make a huge difference. Total adjusted payments to Pension Funds jumped from 37% of County property tax income to 86% - well more than double. Then when Pension Bond payments are added in all these payments combined they consume almost all these counties' property tax income.

If Moody's is correct – that these are the payments necessary to prevent imposing significant unfair debt on the next generation and to prevent further deterioration of these counties' finances – then these counties should have already lost control over practically all their property tax income. The only reason they still retain control over some of their property tax income is they are not managing their pension benefit finances prudently – they are in effect choosing to force the next generation to pay huge unfunded pension debts.

V. MOODY'S ADJUSTMENTS & NEW GASB PENSION FINANCIAL REPORTING RULES

As discussed on page 12, The Governmental Accounting Standards Board (GASB) sets the basic rules for how state and local governments in the US must produce their financial reports. GASB released new pension financial reporting standards in June 2012 that must be implemented by governments no later than their financial statements for fiscal years that begin after 6/15/14. These reforms are going to hit governments like a ton of bricks.

There are some similarities and some differences between what GASB has done and what Moody's proposes to do. This is a brief comparison of the two.

A. Moody's and GASB's Different Roles and Authority

GASB establishes the rules by which state and local governments generally must report their finances to the public. Unlike GASB Moody's doesn't set rules for financial reporting. However, Moody's establishes how they analyze government financial data in their credit-rating process. Although GASB has announced major reforms in government pension financial reporting Moody's explicitly states they believe current GASB financial reporting rules allow governments to badly understate the financial risk posed by unfunded pension obligations.

B. Impacts on the "Balance Sheet" – Assets and Liabilities

1. Both Put Net Pension Liability on Balance Sheets

Both Moody's and GASB will put unfunded pension debt directly on government "Balance Sheets" (called "Statement of Net Assets"). However in just about all cases Moody's debt values will be substantially larger than GASB's. Governments that have a history of paying their Pension Funds the amounts they were supposed to as defined in "Actuarial Valuations"[17] will be allowed by GASB to use the Pension Fund's "target rate of return" as the discount rate (see "Current Actuarial Calculation – Target Rate of Return is Discount Rate" on page 3). In contrast Moody's will use a much lower rate (see "Moody's Adjustment – Target Rate of Return is High-Grade Corporate Bond Rate" on page 4). GASB will impose a lower rate only if the government has a history of not paying the Pension Fund what it's supposed to, but that rate will still be higher than the rate used by Moody's.

2. GASB Will Also "Write Off" Net Pension Assets Created by Pension Bonds

GASB will impose another very significant change on government Balance Sheets that isn't mentioned by Moody's. Under current GASB rules if a government pays its Pension Fund more than was required by the Pension Fund the government reports that "excess payment" as a "Net Pension Asset" on its Balance Sheet. Hundreds of local and state governments sold "Pension Obligation Bonds" in the past to eliminate large Pension Fund deficits in the hopes of securing a lower interest rate. When they conveyed the proceeds of those bonds to the Pension Fund they paid more than the unfunded pension amortization payment defined by the Actuary – and so those governments reported the amount above those amortization payments as an "asset". Net Pension Assets created by Pension Bonds are slowly "written off" over several decades by showing a small amount of additional Pension Expense each year. These "write-offs" are often quite close to the amounts being paid in those years on the Pension Bonds. This is how current government financial statements in effect tell us the payment of that bonded debt created itself.

That's absurd. The government simply transformed unfunded pensions into Pension Bonds. They exchanged one type of debt for another hoping to incur a lower interest expense. But they were allowed to show a Net Pension Asset that was almost as much as the value of their Pension Bond debt. In effect they took the past expenses that created the unfunded pension debt and "capitalized" them as an asset rather than reporting them as an expense. (They throw private sector types in jail for doing that.) They avoided reporting the hit on the government's "Net Worth" (Assets less Liabilities).

GASB's new rules will strip these "phony" assets out of government Balance Sheets. The combination of taking those assets out of Balance Sheets and putting unfunded pension debt onto the Balance Sheet (usually at the same value as calculated by the Actuary) will cause a huge negative shift on tens of thousands of government Balance Sheets.

C. Impacts on "Income Statements"

Governments produce a "Statement of Activities" that functions generally as an Income Statement (in private sector terms). Moody's proposed adjustments have no impact on these reports (see the next section). In contrast GASB's new rules will have a profound impact. In fact, although I believe putting the debt on the Balance Sheet (and removing the "fake" Net Pension Asset) is very important, I consider GASB's impact on Pension Expense to be even more so.

I've written several reports about GASB's new rules – and many others have as well (see the "Data/Reports/Video" section of www.YourPublicMoney.com). The changes regarding Pension Expense are fairly complex.

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[17] Actuarial Valuations are analyses of Pension Funds performed by Actuaries. Among other things the amounts governments are supposed to pay Pension Funds are defined in these Valuations. Actuaries allow 30 years amortizations of unfunded pension debt using the Level Percent of Payroll method.

In general terms GASB's new rules define the pension expense as the changes in Net Pension Liability. Most of the pension expense will result from changes that happen within each year, but some will be included in pension expense over several years.

GASB will impose two very important changes.

- Instead of allowing governments to report the pension expenses that cause unfunded pension debt over as many as 30 years governments will have to report them either immediately or over three or four years at most depending on the specific causes of the unfunded pensions.
- Instead of using one generic "pension expense" governments will report individual amounts for up to 11 different components of pension expense:
    - o "Service Cost" (the amount projected to be needed to fund pensions being earned each year)
    - o Interest on Total Pension Liability (using the "target rate of return")
    - o Change of Benefit Terms
    - o Differences between Actuarial Assumptions and What Really Happened ("expected v. actual experience)
    - o Changes of Actuarial Assumptions
    - o Benefit Payments (including refunds)
    - o Government Contributions
    - o Employee Contributions
    - o Pension Fund Net Investment Income
    - o Pension Fund Administrative Expenses
    - o Other

For the first time decision makers, creditors and the public will begin to see "what's going wrong" that causes so much unfunded pension debt. This detail will make it possible to direct attention to where the problems lie.

D. Impacts on Projected "Cash Flow"

Moody's adjustments to government payments to Pension Funds focus on Cash Flow. In contrast GASB doesn't address how governments fund their pension obligations – they focus on the <u>expense</u> – the cost of pensions incurred each year whether or not the government actually pays for them.

As discussed in this paper Moody's will value unfunded pension debt using a lower discount rate than used by Pension Fund Actuaries, so the debt will be significantly greater. Further Moody's will apply a standard 17-year Level Dollar amortization to all governments as a "standard" of prudent financial management.

As GASB says – they have no authority to tell governments how to pay for their pension obligations. They do have authority to tell them how they report the finances of those obligations.

VI. CONCLUSION – WHAT THIS SHOULD MEAN TO CONCERNED CITIZENS

The news today – 1/11/13 – is that Jerry Brown, Governor of California, has announced his proposed budget has a "surplus" after years of massive deficits. Many local governments across California are saying that while things are still tough, there seems to be improvement in their finances. That sounds like very good news – but is it "real"?

Let's say your twins head off to college and you give them a credit card. They start charging $2000 a month but only make the minimum payment of $100 a month. They tell you they are "only spending $100 a month" but don't tell you about the other $1900 they charged but didn't pay. One year later you finally look at the bill and you owe over $20,000!

Governments are essentially telling you the same thing about their pension costs. Their financial reporting and budgeting today for pension benefits is based on the assumption that their pension expense is what they pay to their Pension Funds. They don't add in how much they increased your debt.

What would Jerry Brown's budget and the financial prospects of hundreds of local California governments look like if Moody's proposed adjustments were applied? What if instead of using the "Level Percent of Payroll" unfunded pension debt amortization method over 20 to 30 years they were required to pay it off in equal payments over 17 years – the method Moody's implicitly holds out as a standard of "prudent financial management"?

Almost certainly Jerry Brown would be lamenting these "unfair and unnecessary" rules that force him to finance his employee's pensions by the time they retire – and that would probably blow his "balanced budget" sky-high. (By the way – I'm a life-long Democrat tormented by my belief that "one plus one equals two" is not a political statement.)

The only reason most government officials can tell you their budgets are balanced is because they don't have to tell you about the pension expenses that create their massive unfunded pension debt. They are imposing the obligation to pay much if not most of the pensions earned by their employees in the past on the next generation. Much of the true economic pension expenses they caused don't get reported until they are out of office.

Moody's believes current government financial reporting badly understates the financial risk created by government unfunded pension debt. They're right.

Moody's believes the rate of investment profits assumed by practically all local and state government Pension Funds is significantly too optimistic. They believe return assumptions should be more consistent with those used for private sector Pension Funds. Moody's believes the "true economic" state and local government unfunded pension debt is more like three times greater than the values those governments report today. That's generally consistent with the results of restating the Net Pension Liability of the six California counties analyzed for this report.

Given Moody's adjustments and including the balances of Pension Bonds just these six counties together owe a total of over $11.9 billion in unfunded pension-created debt. If Moody's is right they've only achieved about half their self-proclaimed pension funding requirements. By extension the debt for all local governments in California is massive.

Moody's adjustments indicate they believe that if these six counties were prudent they would be paying over $1.4 billion each year to their Pension Funds instead of less than half they are in fact paying. If Moody's is right and we include payments of Pension Obligation Bonds these counties should be paying all their property tax income on average. The only reason they are retaining any property tax income for other purposes is they are pushing hundreds of billions of unfair debt onto the backs of the next generation.

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It's often said that most people won't react to this crisis until the potholes on their street are intolerable, the parks where their children play become unsafe and run-down, the cops no longer investigate robberies – until government services are so debased that their lives are seriously impacted.

If we wait until that point to impose change on how governments manage the finances of their retirement benefits, and what those benefits are – we will be in a truly terrible mess. The damage at that point will be massive.

Concerned citizens should take Moody's (and GASB's) message to heart. The financial threat is far more dangerous than governments have told us. The longer we wait, the worse it will be.

Today's financial management of government pension benefits and how those benefits are structured are deeply flawed and in terrible need of major reform.

VII. ATTACHMENTS

A. Data Sources

Audited financial statements as of 6/30/2011 for these six counties were downloaded and analyzed.

In addition the most recent available Actuarial Valuations were downloaded in early fall, 2012. They are for these counties "County Employees Retirement Associations" – as in "Alameda County Employees Retirement Association".

	Date of Valuation	Actuary	Type of Fund	Other Employers	
				#	They are …
Alameda	12/31/10	Segal	Cost Sharing	3	County Medical Center, Courts, First 5, Other Districts
Contra Costa	12/31/11	Segal	Was Cost Sharing-Switched to Agent	4	County data separated from other governments (Others are Central CoCo Sanitary District, Moraga-Orinda Fire, San Ramon Valley Fire, Rodeo-Hercules Fire
Marin	6/30/11	EFI	Agent	2	County data separated (Others are Cities of San Rafael and Novato)
Mendocino	6/30/11	Segal	Cost Sharing	2	County Courts and Russian River Cemetery District
San Mateo	6/30/11	Milliman	Cost Sharing	1	Mosquito Vector Control District (very small)
Sonoma	12/31/11	Segal	Cost Sharing	2	County Courts, Valley of the Moon Fire

There are three kinds of Pension Funds that offer "guaranteed pension benefits" to state and local government employees"

Single Employer Funds – The Pension Fund is for only one government employer. Therefore all the financial balances and activity in the Pension Fund impact that one government.

Then there are two types of "Multi-Employer" Pension Funds in which the Pension Fund provides pension benefits to retirees of more than one governments.

Agent Funds – the Pension Fund maintains its books so that the obligations and balances of each employer government can be specifically identified. Therefore one government may have a lower relative level of unfunded pension obligation than another.

Cost-Sharing Funds – Balances are not maintained for individual governments. As a result unfunded pension obligations are shared among all participating governments even though some governments may have paid a higher portion of its obligations than others. Balances are allocated to individual governments based on the portion of that government's payments to the Pension Fund relative to all other governments' payments.

B. <u>Marin County Unfunded Pension Amortization</u>

The amortization of the unfunded actuarially accrued pension liability (UAAL) defined in the Actuarial Valuation for the Marin County Employees Retirement Association is rather complex. This is from that Valuation:

- *Changes in the payroll used to amortize the unfunded liability increased the cost as a percentage of payroll.*

  Under the level percentage of payroll amortization method that is currently part of the funding policy, the amortization payment is determined based on an assumption that total payroll will increase each year (by 3.5% under the assumptions in place as of the prior valuation). The amortization payment is recalculated each year, based on the unfunded liability determined as of the valuation date, and then divided by the current year projected payroll to compute the amortization amount as a percentage of pay.

  If – as was the case this year – pay does not increase by the projected salary growth assumed in the amortization calculation, the amortization payment will be larger as a percentage of pay, though the dollar amount is the same. This increased the employer contribution rate by 0.75% of pay.

- *A temporary rolling amortization period was implemented in the June 30th, 2009 valuation.*

  As part of the June 30th, 2009 valuation, the Board elected to amortize the unfunded actuarial accrued liability over 17 years as a level percentage of payroll, for all employers. A portion of the FY 2009 investment losses were deemed extraordinary, and the Board elected to amortize this amount over a fixed 30 year period.

  It was anticipated that the amortization period on the non-extraordinary portion of the unfunded liability would stay at the same level (17 years) for a period of five years, and then decrease by one year with each valuation until a period of 10 years is achieved. The impact of the temporary rolling amortization policy on this valuation was to reduce the current cost for the County and Special Districts by about 0.6% of pay.

One of the major challenges that make it very difficult for concerned citizens to understand what the drivers of their governments' increasing unfunded pension debt is the very complex financial math used by Actuaries. It's easy to get confused.