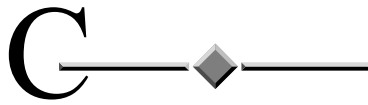

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Summary



Audit Highlights...

☑ *Several counties employ at least one of three investment strategies we consider too risky.*

☑ *These high-risk strategies include excessive concentrations of structured notes, overuse of reverse repurchase agreements, and holding too many long-term securities.*

☑ *Additionally, three counties utilized agents who are also custodians to make investments that are not required to be recorded in accounting records or disclosed to participants.*



ounty treasurers are responsible for the receipt and safekeeping of all funds belonging to their respective counties and any additional monies deposited by other participants in the counties' investment pools. However, we found that several county treasurers may employ risky investment strategies in their management of public funds. These strategies run counter to the counties' investment policies and the principles of prudent investing, namely safety, liquidity, and yield, in that order. We surveyed 57 county treasurers and found that several counties, including 7 of the 8 counties we visited, employ at least one of the three strategies that we believe can put public funds at risk. Such high-risk strategies include holding excessive concentrations of often volatile structured notes, excessively leveraging or borrowing against portfolios through reverse repurchase agreements, and investing significant proportions of portfolios in securities with long-term maturities. These strategies increase the affected portfolios' sensitivity to interest rate changes and reduce the ability of county treasurers to meet unanticipated cash needs. Also, they expose portfolio participants to increased risks.

Although the risky investment strategies we discuss in Chapter 1 were also used in Orange County, fortunately, none of these practices were taken to the extremes we found in that county. While we found that all counties we visited experienced unrealized losses to their portfolios as of March 31, 1995, these losses would not be realized unless the securities whose values had declined were sold prior to maturity. The eight treasurers from these counties stated that they had sufficient liquidity in their portfolios to preclude the sale of securities prior to maturity and, therefore, none believe that they will incur any actual losses.

Specifically, we found the following:

- Seven of eight counties we visited held concentrations of structured notes in excess of 30 percent of their respective portfolios as of March 31, 1995. Many structured notes are not actively traded and, therefore, are harder to accurately price and sell, are typically considered less easy to convert to cash, and are more sensitive to changes in interest rates that can decrease their market value;
- Four counties we reviewed leveraged their portfolios by more than 40 percent sometime during 1994, with one county leveraging its portfolio as much as 80 percent. Significant use of leverage dramatically magnifies the portfolio's exposure to risk; and

- Six of the eight counties we reviewed managed portfolios of investments with maturities averaging 2.5 years or more during 1994. The average maturity for one county's investments was an astounding 27.9 years. When most of a portfolio is made up of securities with long maturities, the portfolio is much more sensitive to interest rate changes, and the treasurer's ability to meet unforeseen cash demands is more limited.

According to our investment experts, employing these investment strategies can be inappropriate for short-term investment pools like those used by the counties because they do not emphasize safety and liquidity over yield and expose the portfolios and their participants to increased risks.

Furthermore, some counties are using agents, who in many cases also act as the securities custodians for the same counties, to execute securities lending and/or reverse repurchase transactions on behalf of the counties. Agents acting on behalf of three counties we reviewed performed hundreds of millions of dollars worth of securities lending and reverse repurchase transactions that current regulations and guidelines fail to address. Therefore, these transactions are not reported to oversight agencies and pool participants, were not reflected in the counties' financial statements or clearly disclosed in footnotes, and were not considered by the counties when determining compliance with pertinent investment laws and county policies.

In addition, we found the following:

- The investment pools of the three counties that delegate their investment authority to agents bear all the risk if investment losses occur, while the agents share between 30 and 50 percent of any profits. In one county these rates were not competitively bid; and
- Two of the three agent agreements we reviewed allowed the agents to buy and sell securities with their affiliates. This allowance raises questions about ethical and prudent investments.

Recommendations

To improve the investment practices of local governments, we recommend that the Legislature amend the California Government Code. A few of our key recommendations are to:

- Require written investment policies for all local governing bodies to ensure that safety and liquidity are paramount to yield;
- Limit the use of reverse repurchase agreements to 20 percent of the portfolio and only for specified purposes;
- Establish and define a prudent person rule for local investment officers;
- Limit the use of derivatives or other structured investment instruments and prohibit those that put principal at risk. None of these instruments are to be purchased with borrowed or leveraged funds. Further, the derivatives or structured investments purchased should be openly traded in the secondary market on a recognized exchange. Any investments in these instruments should be limited to no more than 5 percent of the portfolio;

- Competitively bid separately for lending agent and custodial services, and ensure that all county investment activity by agents or the county are properly recorded and disclosed to interested parties; and
- Require investment reports, at least quarterly, to the governing body and investment participants.

To manage county investment portfolios using the basic principles of prudent investment practices, we recommend that the treasurers of the counties that employ any of the high-risk strategies do the following:

- Avoid the use of these risky strategies in the future;
- Prudently divest themselves of structured notes that add risk to their respective portfolios;
- Limit future purchases of structured notes that increase risk to the portfolio (as measured by a duration analysis) to no more than 5 percent of all investments;
- Confine the use of leverage in their respective portfolios to 20 percent or less; and
- Prudently restructure their respective portfolios to reach an average maturity of no more than 2.4 years.

Further, those county treasurers who participate in a security lending program should do the following:

- Include agent transactions in statutory limitations and compliance reviews;
- Report on the security lending program in the counties' annual financial reports and in reports to boards of supervisors and pool participants;
- Competitively bid for lending agent and custodian services; and
- Preclude agents from dealing with their affiliates.

Agency Comments

Because the counties believe we used Morningstar Mutual Funds as the basis for concluding that their respective portfolios were too risky, they disagreed with many of the findings and recommendations contained in our report. Specifically, the counties disagreed with our characterization of the counties' use of structured notes and the average length of maturity for their respective portfolios. Individual counties also raised other concerns relating to the tone and content of the report. Since we did not conclude on the counties' investment practices based on the Morningstar data as they assert, we have responded to these and other concerns raised by counties after each county's response.

Introduction

Each of California's 58 counties has a county treasurer who is responsible for investing funds for the county and other entities, such as school districts and special districts that participate in the county's investment pool. The California Government Code specifies the types of financial instruments treasurers may invest in. Fifty-seven county treasurers reported managing investments totaling \$29.4 billion as of June 30, 1994.¹ In addition, they reported an average yield of 4.47 percent and an average maturity of 1.4 years for their investments.

Treasurer's Responsibilities

According to the California Government Code, Section 27000, the county treasurer is responsible for receiving and keeping safe all monies belonging to the county and all other monies directed by law to be paid into the treasury. The code generally requires that the county treasurer hold all monies of the county and the school districts. Also, other public agencies, such as cities and certain special districts, can voluntarily deposit their monies into the county's treasury.

Furthermore, Section 27100.1 of the code specifies a trust relationship exists between the treasurer and public entities or public officials who are acting in a fiduciary capacity when they deposit funds into the county treasury. As the trustee, the treasurer should make investments with care, skill, prudence, and diligence.

Most counties have investment policies stating that investments should be made following the fundamental principles of safety, liquidity, and yield—in that order. While the county treasurers have a trust responsibility to the investment pool participants, the California Government Code, Sections 53601 and 53635, allows county treasurers great latitude in their investment practices. Specifically, the law allows the purchase of securities such as the following:

- U.S. Treasury notes and bonds;
- Bonds and notes of any local agency within California;
- Bankers' acceptances—bills of exchange or time drafts, drawn on and accepted by a commercial bank, that are eligible for purchase by the Federal Reserve System;
- Prime quality commercial paper—a debt security with a maximum maturity of 180 days;
- Negotiable certificates of deposit;

¹We reported on Orange County's investment practices in our report entitled *Orange County: Treasurer's Investment Strategy Was Excessively Risky and Violated the Public Trust*.

- Repurchase and reverse repurchase agreements; and
- Mortgage-backed securities, which include government agency securities, such as Federal Home Loan Bank (FHLB), Federal National Mortgage Association (FNMA), other U.S. government agency issues, and miscellaneous mortgage-backed securities.

Finally, the California Government Code, Section 53684(b), requires county treasurers to apportion quarterly to the local agencies or districts any interest earned from the investment of funds. The interest earned should be in an amount proportionate to the average daily balance of the amounts the local agencies or districts deposit.

Size, Yield, and Average Maturity of the Counties' Investment Portfolios

The 57 county treasurers managed a total of approximately \$29.4 billion in investment funds as of June 30, 1994. The net investments at their purchased cost (book value) ranged from a low in Sierra County of \$6.7 million to a high in Los Angeles County of \$6.9 billion. Appendix B presents selected comparative financial data of the 57 county investment portfolios. The data includes the book and market values of each portfolio, the average annual yield, average portfolio maturity, average percentage of structured notes of each portfolio, and average percentage of portfolio leveraged. We classified the counties' portfolios into the following four categories based on the amount of investments being managed as of June 30, 1994:

Table 1

Percentage of Statewide Investment Portfolio Based on County Portfolio Size

Size of Portfolio	Number of Counties	Percentage of Total Counties ^a	Percentage of Statewide Portfolio
Small - under \$100 million	24	42%	3%
Medium - \$101 million to \$500 million	19	33	14
Large - \$501 million to \$1 billion	6	11	16
Very Large - more than \$1 billion	8	14	67
Total	57	100%	100%

^a Excluding Orange County.

The average yields (rate of earnings returned to participants from their deposits) during calendar year 1994 ranged from a low in San Mateo County of 3.07 percent to a high in Colusa County of 7.32 percent. The average yield was 4.47 percent for all 57 counties. (See Appendix B for more details.)

The average portfolio's maturity (the average length of time securities need to be held before they mature) was 1.38 years. Twenty-seven of the counties reported average maturities of less than one year. Four counties (Colusa, Lassen, Placer, and San Diego) had average maturities of more than three years. (See Appendix B for more details.)

Participants in the Counties' Investment Pools

As shown in Table 2, we compiled the counties' data on the types of entities participating in the counties' investment pools. Approximately 56 percent of the funds on deposit in the county pools during 1994 represented funds under the control of the various county boards of supervisors. Approximately 30 percent of the funds represented deposits by school districts. State law requires school districts to deposit their funds in the county treasury unless the school board declares funds to be excess funds, in which case funds can be invested outside the county treasury. Approximately 5 percent of the funds represented deposits by special districts, such as cemetery districts, that are required to deposit their funds in the county treasury. An additional 5 percent of the funds represented deposits by special districts, such as fire districts, that may appoint a treasurer other than the county treasurer. Other public agencies, such as cities, community college districts, and various other entities that do not report to the county board of supervisors, voluntarily deposit their funds in the county pools and comprise approximately 4 percent of the pools. (For additional detail, refer to Appendix C.)

Table 2

Number and Types of Participants Depositing Funds in County Pools

	Number of Participants	Percentage of Total Participants
County controlled funds	N/A	56%
School districts	1,034	30
Involuntary special districts	1,474	5
Voluntary special districts	923	5
Various other voluntary participants	582	4
		100%

Scope and Methodology

The California Legislature requested the Bureau of State Audits to determine the prevalence of risky borrowings and investment practices for 57 of the 58 counties within California. This request followed Orange County's December 1994 bankruptcy filing, which occurred as a result of risky investment practices by the Orange County treasurer. We excluded Orange County from our review of California's counties as a whole because we separately audited its investment practices. We issued our report, *Orange County: Treasurer's Investment Strategy Was Excessively Risky and Violated the Public Trust* on March 28, 1995.

We surveyed the other 57 counties to identify various investment practices and to obtain other pertinent information. Furthermore, we visited 8 counties (Colusa, Monterey, Placer, Sacramento, San Bernardino, San Diego, Solano, and Sonoma) based on our preliminary assessment of survey information on the risk and diversity of each county's investment portfolio. During the audit, we reviewed the following for the eight counties:

- The investment strategies of the eight county treasurers;
- The degree of risk in the portfolios and an analysis of the treasurers' investments;
- The counties' internal control structures and investment disclosure policies as they relate to the counties' investment practices; and
- The treasurers' trust responsibilities to act for the benefit of the counties and other pool participants, including allocating interest income and treating all participants consistently.

To assist us in evaluating the investment strategies of the eight selected counties, we engaged the services of an investment consulting firm—Analysis Group, Inc. These investment experts performed a review of the counties' investment strategies as of September 30, 1994, and March 31, 1995, including an assessment of the degree of investment risk in the portfolios and an analysis of the eight counties' investments.

Also, we reviewed the eight counties' records to determine whether the treasurers' or county auditor-controllers' staff used appropriate methods to allocate interest earnings to participants. Appendix A provides the results of this review.

Finally, we mailed two questionnaires about local government investment practices to 57 counties, excluding Orange County, to compile comparative investment-related information for these counties. When necessary, we followed up on these questionnaires to ensure complete information from the county treasurers. Appendices B and C provide selected comparative information for the 57 counties.

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Chapter 1

Some County Treasurers Assume More Risk Than Appropriate for Short-Term Local Government Investment Pools

Chapter Summary

County treasurers are responsible for prudently managing public funds in their custody. According to a survey we conducted of 57 county treasurers, several provided indications that they may employ, to some degree, at least one of the three investment strategies we consider risky for short-term portfolios. These strategies included purchasing large concentrations of structured notes, excessively leveraging or borrowing against their portfolios, and investing significant proportions of their county portfolios in longer-term securities, all in an effort to achieve greater returns. Seven of eight counties we visited used one or more of these investment strategies in a manner inconsistent with their investment practices, thus exposing their portfolios to additional risk.

Although the risky investment strategies we discuss in this chapter were also used in Orange County, fortunately, none of these practices were taken to the extremes we found in that county. While we found that all counties we visited experienced unrealized losses to their portfolios as of March 31, 1995, these losses would not be realized unless the securities whose values had declined were sold prior to maturity. The eight treasurers from these counties stated that they had sufficient liquidity in their portfolios to preclude the sale of securities prior to maturity and, therefore, none believe that they will incur any actual losses.

Basic Principles of Prudent Investment Practices

When funds are invested on behalf of public entities, the fundamental principles are safety, liquidity, and yield—in that order. Safety, the preservation of investment capital, is the foremost objective. To ensure the preservation of capital, the investor should restrict the investments to high-quality, low-risk securities purchased from reputable dealers. Liquidity, the second priority, is the ability to readily convert investments to cash to meet the spending needs of the investment pool participants. To ensure liquidity, investments should be limited to short-term securities that are actively traded in a secondary market. A secondary market is one in which there are sufficient buyers and sellers, so that a particular asset can be readily converted to cash. In addition, more liquid investments typically have a smaller spread between the price offered by the buyer and the price asked by the seller. Yield, the return on investments, is the third priority. It should not become a consideration until the basic requirements of safety and liquidity have been met.

Some Counties Are Using Risky Investment Strategies

As part of our survey, we requested that each of the 57 counties send us a copy of its respective investment policy in effect for calendar year 1994. Twenty-two counties indicated they had



Some county treasurers are using investment strategies that do not seem to follow their stated policies.



changed their policies in, or after, December 1994. Most counties' investment policies included the fundamental principles of safety, liquidity, and yield in the same order of priority as described earlier. Using the results of our survey of 57 county treasurers, we selected eight counties for review (Colusa, Monterey, Placer, Sacramento, San Bernardino, San Diego, Solano, and Sonoma). Based on our survey and review of eight counties, some county treasurers are using investment strategies that do not seem to follow their stated policies. The results indicate that several counties employ one

or more of the following strategies:

- **Investments in Structured Notes**—27 county treasurers indicated they invested a proportion of their portfolios in structured notes during 1994. Depending upon the type of structured notes, holding concentrations of these notes could add risk to the portfolio. Most structured notes are derivative securities, in which the interest rate as well as other features vary over the life of the debt. Derivative securities are securities whose value is based on, or derived from, some underlying asset, reference rate, or index. Structured notes are typically less liquid than fixed rate notes because of their custom design. The custom design can also make them more sensitive to changes in interest rates than fixed rate notes. These conditions can make structured notes more difficult to price and reduce their value in the secondary market. Further, depending on the make up of the structured notes, some may add increased risk to the portfolio;
- **Using Reverse Repurchases for Leverage**—5 county treasurers reported borrowing, termed leverage, against more than 20 percent of their respective portfolios. Significant use of leverage can dramatically increase the portfolio's exposure to risk; and
- **Holding Investments With Lengthy Maturities**—10 county treasurers reported that their portfolios had average weighted maturities during 1994 of greater than 2.4 years. Holding large concentrations of long-term securities increases the portfolio's sensitivity to interest rate changes and may reduce the investment fund's ability to meet unanticipated cash needs.

Comparative Investment Strategies

To evaluate the investment strategies used in county portfolios, our investment experts compared the investment policies of the eight counties we selected for review to the investment strategies used by portfolios with similar objectives and constraints. In attempting to identify comparable portfolios, our experts initially reviewed over 2,800 fixed income mutual funds tracked by *Morningstar Mutual Funds* including extremely short-term money market funds and various categories of bond funds operated by mutual fund companies. These bond funds ranged from those with investment criteria requiring high-quality, short-term investments to those funds allowing investments in low-quality, long-term securities. Our investment experts determined

that high-quality, short-term bond funds were the most comparable to local investment portfolios for the following reasons.

First, these bond funds require high-quality investments similar to those prescribed by the California Government Code as appropriate for investment by county treasurers. Second, these bond funds limit the length of maturity for investments just as the Code limits the length of maturity for investments made by county treasurers. County treasurers may be granted specific approval by their respective board of supervisors to invest in longer term securities. Third, although these bond funds are comprised of voluntary depositors, the funds are able to forecast their anticipated cash flows much like county treasurers, allowing the bond funds to invest a portion of their portfolios in securities with maturities greater than one year. For example, while the maturity of these bond funds made up of voluntary depositors averages 2.4 years, the average portfolio maturity reported by the 57 county treasurers we surveyed was significantly shorter at 1.4 years, even though the majority of the funds deposited with county treasuries cannot be withdrawn and invested elsewhere.

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Comparing high-quality, short-term bond funds to county investment portfolios is reasonable and not overly conservative.



Furthermore, our investment experts believe that the average maturities of these bond funds are not overly short in providing comparative investment criteria to county portfolios. Counties return a dollar for every dollar deposited when needed by pool participants to pay operating costs, unlike these bond funds that return the proportionate market value of the deposits in the fund when a depositor requests a withdrawal. Therefore, bond funds have more flexibility to invest in longer term securities than do county portfolios. Based on all these factors, we feel that the selection of high-quality, short-term bond funds as a comparison group to county investment portfolios is reasonable and not

overly conservative.

Of the more than 2,800 mutual funds tracked by *Morningstar Mutual Funds*, 252 met the criteria for the comparison group of high-quality, short-term bond funds. Thirty-three of these funds voluntarily reported data concerning the average percentages of structured notes held by the funds. Twenty-nine of the 33 funds (88 percent) reported holding no structured notes at all. The remaining 4 funds reported holding concentrations of structured notes ranging from one percent to 10.5 percent for an overall average of 5.9 percent. In addition, 36 funds voluntarily provided data regarding duration (a measurement of a fund's sensitivity to changes in interest rates) which averaged 1.8. Finally, all 252 funds reported on the maturities for their respective funds which averaged 2.4 years. All data reported by the comparison group bond funds covered the period from October 14, 1994, through March 17, 1995.

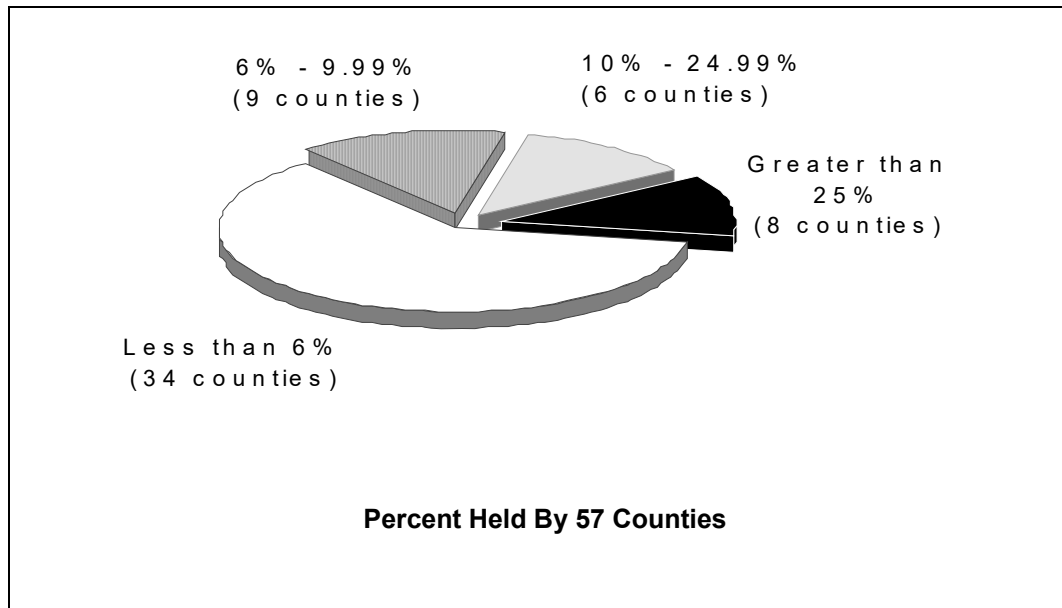
Investments In Structured Notes

As stated above, our investment experts identified portfolios with investment styles and objectives comparable to local government short-term pools. Using this data, our experts determined that portfolios with comparable investment styles and objectives to the county portfolios held average concentrations of structured notes equal to approximately 5.9 percent of the respective portfolios. Depending on the type of structured notes held, holding concentrations of structured notes in excess of 5.9 percent may signal an increased risk that the portfolios are more sensitive to interest rate changes than similar portfolios holding smaller

proportions of such notes. Of the 27 counties who reported holding structured notes in their portfolios, we selected 7 for further review. The 7 counties we reviewed had portfolios containing from 33 percent to 72 percent of structured notes as of March 31, 1995. Figure 1 shows the average percentage of structured notes held during 1994 by the 57 counties we surveyed.

Figure 1

Structured Securities Held by Counties



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Depending upon the composition of the structured notes, they may significantly increase or decrease the overall risk in the investment portfolio.

Structured notes are investments that are generally derivative securities in which the interest rate, as well as other features, varies over the life of the debt. Derivative securities are financial instruments whose value is based on, or derived from, some underlying asset, reference rate, or index. Structured notes are “structured” with specific features to fit the needs and preferences of particular investors and, depending upon the note’s composition, may significantly increase or decrease the overall risk in the investor’s portfolio. For example, structured notes can be designed to reflect the investor’s opinion on the future course of interest rates, or other financial variables. In other words, structured notes allow an investor to make a “bet” on future financial events. For example, if an investor believes interest rates

will fall, a structured note called an inverse floater can be designed so that the return on the investment would rise if interest rates fell. If, however, the investor’s expectation is wrong and interest rates rise instead of fall, the value of the investment and the return on the investment will decrease. Other structured notes can be tied to move in the same direction as interest rates or other underlying indices. Typically, these floating rate notes are less volatile than inverse floaters. Because structured notes can be designed to have any level of risk, they can significantly increase or even decrease risk to a portfolio resulting from interest rate changes.

As stated in the Introduction, the California Government Code, Sections 53601 and 53635, allows local government investment officers great latitude in their investment practices. Specifically, the law allows the purchase of such securities as U.S. Treasury notes and bonds, bankers' acceptances, prime quality commercial paper, reverse repurchase agreements, and mortgage-backed securities. The inherent risks associated with these investments range from low-risk U.S. Treasury securities to high-risk notes structured from allowable securities.

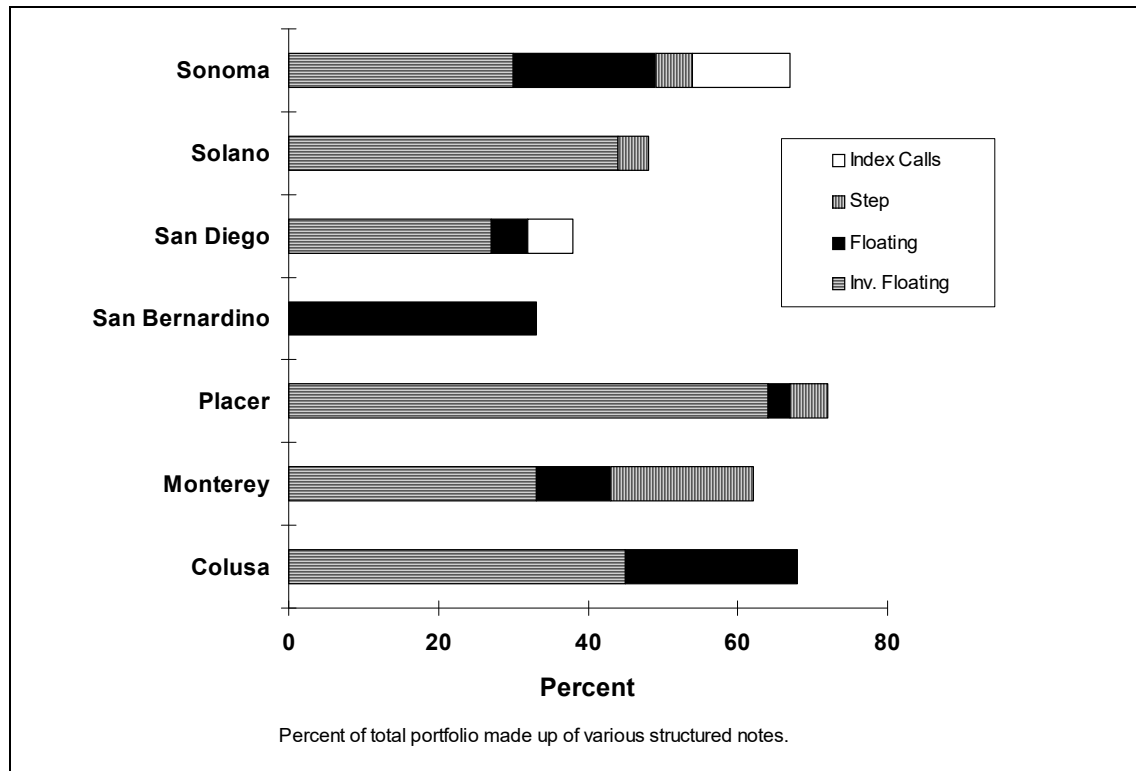
One way to classify securities is according to the structure of the note's coupon payment. A coupon is the periodic interest payment made to the holder of the note during the life of the security. The predominant issuers of structured notes include the Student Loan Marketing Association (SLMA), the Federal Home Loan Bank (FHLB), the Federal Farm Credit Bank (FFCB), the Federal Home Loan Mortgage Corporation (FHLMC), the Federal National Mortgage Association (FNMA), corporate issuers, and issuers of foreign and domestic negotiable CDs. Our investment experts analyzed the portfolios of the eight counties we reviewed, and identified the following coupon structure categories of notes held in the portfolios:

- **Fixed rate notes:** These have a fixed coupon payment for the life, or term, of the security.
- **Floating rate notes:** These have coupon payments that rise and fall as a particular interest rate index increases or decreases.
- **Inverse floating rate notes:** These have a portion of their coupon payment that falls as interest rates rise, including notes whose principal payments fall as interest rates rise.
- **Step notes:** These have coupon rates that either increase (step up) or decrease (step down), depending on the type of step note.
- **Indexed call notes:** These are notes where the redemption period is dependent on some index (also called trigger notes).

After their analysis, our investment experts stated that the strategy used by six of seven counties holding high proportions of thinly traded structured notes in their respective portfolios can substantially increase the sensitivity to changes in the interest rates and may impair liquidity. Figure 2 illustrates the types and percentages of structured notes held as of March 31, 1995 by the seven counties we reviewed.

Figure 2

***Types and Percentages of Structured
Notes Held by Counties We Reviewed
As of March 31, 1995***



In Colusa County, for example, an analysis of the coupon structure of the portfolio indicates that it is comprised of nonstructured fixed rate notes (30 percent), structured floating rate notes (22 percent), and structured inverse floating rate notes (48 percent). In fact, the majority of the county's portfolio (70 percent) is comprised of thinly traded structured floating notes as of March 31, 1995. Thinly traded notes are those not actively traded in a secondary market.

Our investment experts also calculated the duration for each county. Duration is a quantitative measure of a portfolio's sensitivity to a one percent interest rate change. A portfolio that does not put principal at risk as interest rates fluctuate, like a passbook savings account, has a duration of essentially zero.

However, as investments are made in longer term securities, and structured notes are added to a portfolio, the portfolio duration increases to reflect increased sensitivity to interest rate changes. According to our investment experts, the average duration comparable for short-term local investment pools is 1.8. However, the duration for Colusa County's portfolio was much higher, measuring 22 as of March 31, 1995, excluding the effect of leverage. This high duration of 22 means that if interest rates were to increase by one percent on March 31, 1995, the market value of Colusa County's portfolio would decrease by approximately \$4.3 million on a portfolio

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As investments are made in longer term securities and volatile structured notes, a portfolio's sensitivity to interest rate changes increases.

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market value of \$19.4 million. Compared to the duration of 2.7 computed on the portion of its portfolio invested in nonstructured, fixed rate notes, Colusa's structured notes with a duration of 30.3 were more than 11 times as risky. In other words, Colusa County's structured notes were 11 times as risky as its fixed rate notes in terms of interest rate risk. Interest rate risk, sometimes called market risk, is the risk that the value of a fixed income security will change with changes in interest rates. In general, the market value of a fixed income security will move

in the opposite direction of a change in interest rates. For example, if interest rates rise, the market value of a fixed income security will fall. This decline in market value would be realized as a loss only if the security had to be sold before it matured. If the security is held to maturity it will pay its full face value.

Placer County is another example of a county holding excessive concentrations of structured notes. Almost three quarters (72 percent) of Placer County's portfolio was comprised of structured notes as of March 31, 1995. The proportion of inverse floaters was 52 percent of the portfolio as of September 30, 1994. Six months later, inverse floaters represented 64 percent of the portfolio. However, the proportional increase in inverse floaters was caused by a decrease in the overall size of Placer County's portfolio. According to our investment experts, investing in such high concentrations of inverse floaters indicates the treasurer expects interest rates to fall, yet the investment exposes the portfolio to the risk that they may rise. For example, Placer County's portfolio duration as of March 31, 1995, was 3.4. A portfolio duration of 3.4 would cause a decline of approximately \$12.2 million in the market value of Placer's \$357.7 million portfolio, excluding any leverage effect, if interest rates increased by one percent on March 31, 1995. Further, the duration of 4.2 on Placer County's structured notes was 3.5 times higher than the duration computed for its nonstructured fixed rate notes of 1.2, meaning that the interest rate risk for its structured notes was 3.5 times higher than its risk for nonstructured fixed rate notes.

In contrast, San Bernardino County invested over 30 percent² of its portfolio in structured



One county's investment of over 30 percent in structured floating notes actually decreased the overall risk to the portfolio.

In contrast, investments in inverse floaters by two counties exposed their portfolios to significant interest rate risk.



floating notes as a hedge against rising interest rates. Floating notes with interest rates that float are beneficial when interest rates climb since the coupon rate would increase as the underlying interest rate index rose. However, if rates decline, the market value of the floating notes do not increase as much as comparable fixed rate notes.

The risk related to structured notes is dependent upon the features embedded in the notes and lengths of maturity of the instruments. In reviewing the portfolios of Colusa, Placer, and San Bernardino counties, we found that the risk as illustrated by duration varied widely between the types of structured notes. For example, the high risk of inverse floaters is demonstrated by the 4.5 duration computed for Placer's holdings of these notes at March 31, 1995, and, to a more significant extent, Colusa's investment of 48 percent of its portfolio in inverse floaters at March 31, 1995, with a huge 42.0 duration as of that date.

Therefore, when used in concert with a portfolio's other investments, structured notes can either reduce or increase the sensitivity of a portfolio to changes in interest rates. For example, the duration computed by our investment experts as of March 31, 1995, for San Bernardino County's floating rate notes of .7 was less than the duration of its nonstructured fixed rate notes of 1.7. Therefore, the combination of these investments resulted in San Bernardino's reasonable overall portfolio duration of only 1.4. Although Placer County used fixed rate and a small proportion of structured floating rate notes to reduce the risk of its high concentration of inverse floaters, the

²Approximately 10 percent of the county's portfolio represents its investments in mutual funds that are comprised of floating rate notes.

4.2 duration for its structured notes is in our opinion too high, with its structured notes 3.5 times riskier than its fixed rate notes. Furthermore, in Colusa County it is clear that its selection of floating rate notes with a duration of 5.0 significantly heightened, rather than decreased, the interest rate sensitivity of its portfolio.

Overuse of Reverse Repurchases for Leverage

Five of the counties we surveyed reported leveraging their investment portfolios through the use of reverse repurchase agreements (reverse repos) in excess of 20 percent. We visited four of the five and found they reported leverage ranging from 28.6 percent to 43.8 percent during 1994. The Government Finance Officers Association (GFOA), the State Treasurer’s Office, *Standard & Poor’s*, and the State Taskforce on Local and State Investment Practices, all recommend that portfolios containing public funds should limit leverage (borrowing) to a small percentage of the portfolio (for example, 10 to 20 percent). While county treasurers are not required to follow the recommendations of any of these groups, we think a 20 percent limitation on leveraging is appropriate for local government investment funds.



Most investment authorities agree that leveraging should be limited to no more than 20 percent of the portfolio.

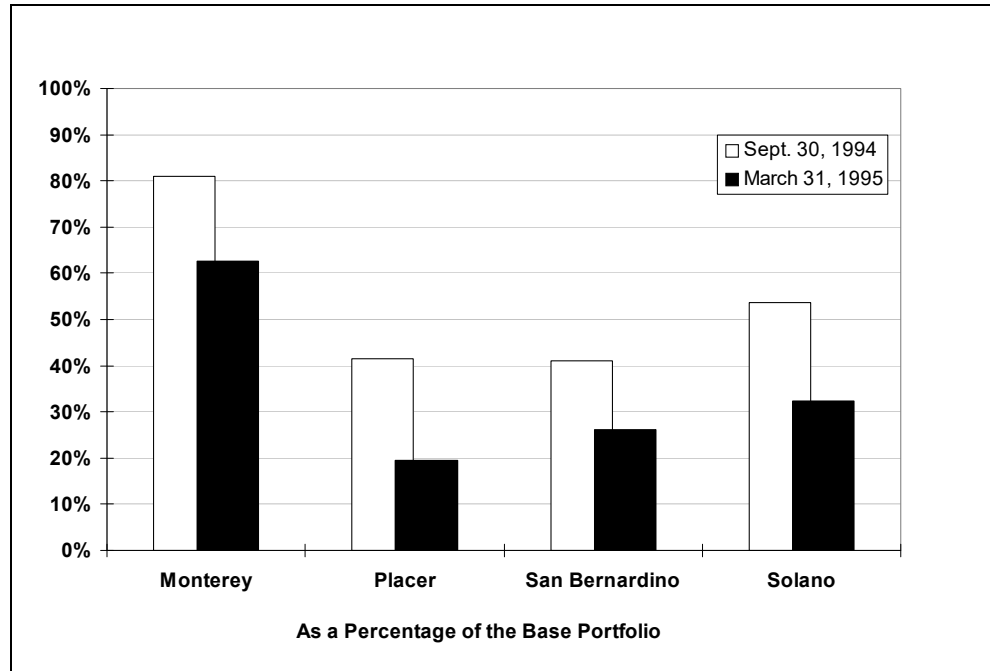
Investment in reverse repos can increase the yield to a portfolio, although not without assuming additional risk associated with these agreements. In a reverse repo, the owner of a security, such as a county, “borrows” by selling the security to an investment broker with an agreement to repurchase it a short time later. In effect, the security held by the broker is collateral for a loan. In a reverse repo transaction, the county agrees to pay a stipulated rate of interest to the broker as the cost of borrowing the money. The county receives short-term cash from the broker, without permanently relinquishing ownership of the underlying security. The county can then reinvest the cash received, leveraging the original principal by, in effect, investing the same money twice. If the spread (that is, the earnings on the investment minus the cost of the borrowing) is positive, the reverse repo provides additional income to the county. The greater the spread, the higher the yield to the portfolio.

The use of reverse repos is more risky when a county uses the proceeds to purchase securities having variable interest rates that fluctuate in ways that do not match the ways the rates on the reverse repo agreements fluctuate, the cash receipts from maturing securities are unequal to the amounts of the reverse repos, or maturity dates do not match the termination dates of the reverse repo agreements. Such arrangements add to the risk normally associated with reverse repos.

Figure 3 indicates those counties we reviewed that leveraged their portfolios by more than 20 percent during 1994, and the figure also shows the degree of leverage as of September 30, 1994, and March 31, 1995.

Figure 3
Percentage of Leverage Through Reverse Repurchases

Of the four counties we reviewed that used reverse repos in excess of 20 percent, all failed to match the maturity dates of the securities purchased with borrowed funds to the settlement dates of the respective reverse repos. In other words, all four counties were buying long-term securities with short-term borrowing.



◆
Of the four counties we reviewed, none matched the maturity dates of the securities purchased with borrowed funds to the settlement dates of the respective reverse repos.

When counties do not match the maturity dates of securities purchased with borrowed funds to the settlement dates of the underlying reverse repos, the risk to the counties' portfolios increases. For example, reverse repo borrowing rates are usually guaranteed only for short periods (for example, 180 days or less). When the return rate of the security purchased using the borrowed funds is for much longer (for example, two to four years), the county must continually borrow at the then current interest rates until the purchased security matures. Increases in short-term interest rates translate into higher reverse repo borrowing costs, thus reducing, or even eliminating, the spread between the borrowing costs and investment returns.



◆
One county initially matched maturity dates on its reverse repos, but began buying investments with longer maturities to achieve higher yields.

Solano County reported that an average of 40 percent of its portfolio was leveraged through reverse repos during calendar year 1994. The maturity dates of the securities purchased with borrowed funds extended two to five years while the settlement dates of the related reverse repos were for 30 to 180 days. The assistant treasurer stated that initially the maturity dates of the securities purchased with borrowed funds did match the settlement dates of the related reverse repos. However, the county later began buying longer term securities with short-term borrowings to take advantage of the higher rate of return available on longer term investments. As interest rates began rising, the county made a concerted effort to reduce the amount of leverage within the portfolio.

Between September 30, 1994, and March 31, 1995, reverse repos were reduced from 54 percent to 32 percent of the portfolio.

Our investment experts computed an effective duration for Solano County as of March 31, 1995, of 3.6 compared to the portfolio duration on that date of 2.7. Portfolio duration measures the effect that the average maturity and the structure of the securities have on the portfolio. Effective duration adjusts for the effect that leverage has on the portfolio. Therefore, using the effective duration of 3.6, Solano County would incur a market loss of approximately \$9.1 million on the market value of its base portfolio of \$254 million if interest rates were to increase by one percent on March 31, 1995.

According to the assistant treasurer, Solano County has been rolling over, or renewing, a portion of the remaining reverse repos it has rather than selling off the securities purchased with borrowed funds and ending the agreements on the settlement dates. This is because under prevailing market conditions, the county expects to lose less money by continuing to borrow and pay the related costs than it would by selling at a loss all the securities purchased with the borrowed funds. Solano's assistant treasurer stated that the portfolio currently has sufficient liquidity to keep rolling over these reverse repos and to continue to meet the county's cash-flow needs.



The county's own consultant concluded that, as interest rates rose, the costs associated with borrowing exceeded the earnings on the securities purchased.


In February 1995, Solano County hired an independent investment consulting firm to analyze the county's portfolio. The consultant's report warned that leverage from reverse repos exposed the county's portfolio to increased market risk. Specifically, the consultant stated that by matching 30-day to 180-day reverse repos against securities maturing in two to five years, the county exposed the portfolio to the risk that security values would fluctuate based on changes in the level of interest rates. Furthermore, Solano's consultant stated that most of the securities purchased with the borrowed funds had interest rates that behave differently than the interest rates associated with the underlying reverse repos. The consultant concluded that, as

short-term interest rates rose, the overall cost of borrowing rose. As a result, those costs associated with borrowing money to purchase securities exceeded what the county was earning on those securities. Solano's consultant estimated that for every percentage point increase in interest rates, the county's annual net borrowing costs for its reverse repos would increase by \$1.26 million.

One County Uses a Line of Credit for Reverse Repurchases

One county uses a different method for leveraging with reverse repos; however, the risk to the county is the same as for counties using "traditional" reverse repos. In response to our initial survey, the treasurer of Monterey County reported that the county was not engaged in traditional reverse repos. Instead, according to the treasurer, he has an informal arrangement with a broker, in which the broker extends the county an unsecured line of credit to provide the funds necessary to purchase a security. According to this informal arrangement, the purchased security is used as collateral for the loan; in effect, the security is reversed against itself. Further, future interest payments on the purchased security are intended to provide sufficient funds to cover the cost of interest charged on the line of credit and provide interest revenue to the county.


We disagree with one county's contention that using a line of credit does not expose its base portfolio to loss.

Monterey County's treasurer maintains that by reversing a security against itself, there is no risk to the county's other securities that were not purchased with borrowed funds (base portfolio). Although no portion of the base portfolio is initially pledged as collateral for the reverse repos described above, we disagree with the premise that the base portfolio could never be impaired. If the market value of the securities serving as collateral decline, the county would have to make up any shortfall using available liquidity or, if sufficient liquidity was not available, would need to sell or pledge some of the base

portfolio's securities.

According to the treasurer, until mid-1994, Monterey County had used both traditional and single-security reverse repos and pledged some of the base portfolio's assets as collateral for the traditional reverse repos. In mid-1994, the treasurer began using single-security reverse repos exclusively and began accounting for the transactions in a separate portfolio. A short time later, he began buying down the county's traditional reverse repos and incorporating the securities into the base portfolio. As of September 30, 1994, the par value of the county's base portfolio was \$317.5 million while its total portfolio stood at \$574.6 million. This 81 percent difference results from investments purchased with borrowed money: either proceeds from traditional reverse repos or from money available from the line of credit. By March 31, 1995, no portion of the base portfolio provided collateral for borrowed funds; however, the total portfolio of \$549.8 million was 63 percent larger than the county's base portfolio of \$337.9 million, the difference representing securities purchased with borrowed funds. According to our investment experts, the portfolio duration for Monterey County as of March 31, 1995, was 2.4 while its effective duration was 3.9 for the same date, the increase indicating the effect of leverage on the portfolio. Using the effective duration of 3.9, Monterey County would suffer a loss of approximately \$12.2 million on the market value of its base portfolio if interest rates were to increase by one percent on March 31, 1995.

Collateral Calls Can Add to Risk

An added risk associated with reverse repos, particularly when the county is borrowing short and buying long, is the exposure of the portfolio to an increased risk of collateral calls. Collateral calls result when the assets pledged to secure a loan decline in value. When a broker lends money on a reverse repo, the broker requires collateral in excess of the amount loaned to protect the broker's interests. If the market value of the collateral declines, the broker will require the borrower to provide additional assets to restore the collateral to its original level. Collateral calls can place untimely and significant demands on a portfolio by draining its available liquidity or by requiring the premature liquidation of other assets. Ten of the 57 counties surveyed, including 5 of the 8 we visited (San Diego, San Bernardino, Placer, Sonoma, and Solano counties) reported receiving collateral calls from lenders during calendar year 1994. None of the 10 counties who reported receiving collateral calls indicated they suffered any loss to the principal in the base portfolio as a result of these calls. However, a collateral call requires that these treasurers either pledge additional portfolio assets as collateral or contribute additional cash to the dealer.

Lengthy Investment Maturities Can Increase Interest Rate Risk

Ten county treasurers reported investing a significant proportion of their respective portfolios in long-term securities during 1994, thus increasing their average weighted maturities to greater than 2.4 years. We reviewed six of these ten counties. Long-term interest rates are typically higher than short-term interest rates because a security with a longer maturity has greater interest rate risk, therefore, the rate of return increases with the length of maturity to compensate investors for this added risk. High concentrations of long-term securities can limit the investment options available for some counties. This limitation occurs when long-term securities with fixed coupon payments are purchased when interest rates are low and subsequently interest rates rise, as was the case during 1994. During such a period of rising rates, the sale of these long-term securities before their maturity would result in losses to the counties' portfolios.

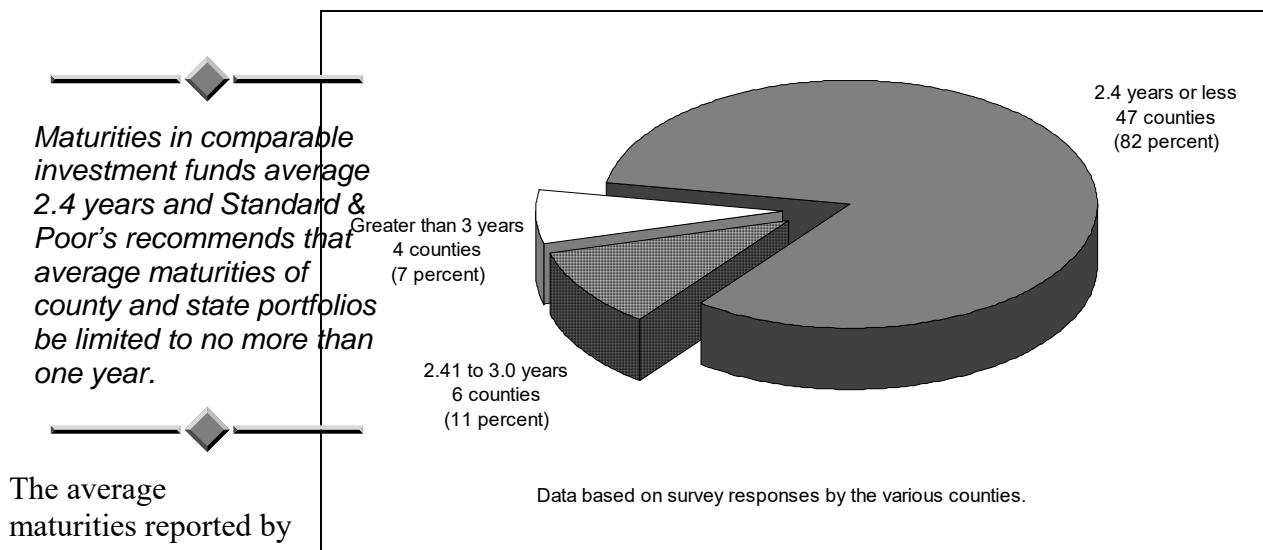
High concentrations of long-term securities limit investment options and may cause losses if treasurers must sell to meet cash demands.

In selecting longer term securities for investment, the county accepts an increased risk (called market risk) that prevailing interest rates may rise. Typically, in that event, the market value of the long-term security declines below its original purchase price. This decline would be realized as a loss by the investor if the security were sold before its maturity. If held to maturity, the investment will return, or pay, its face value. Because of the potential losses associated with selling securities before their maturity, a county treasurer may be unable to restructure the portfolio to meet unanticipated demands for cash by investment pool participants.

Figure 4 shows the average number of years it will take for the securities in the 57 counties' portfolios to mature.

Figure 4

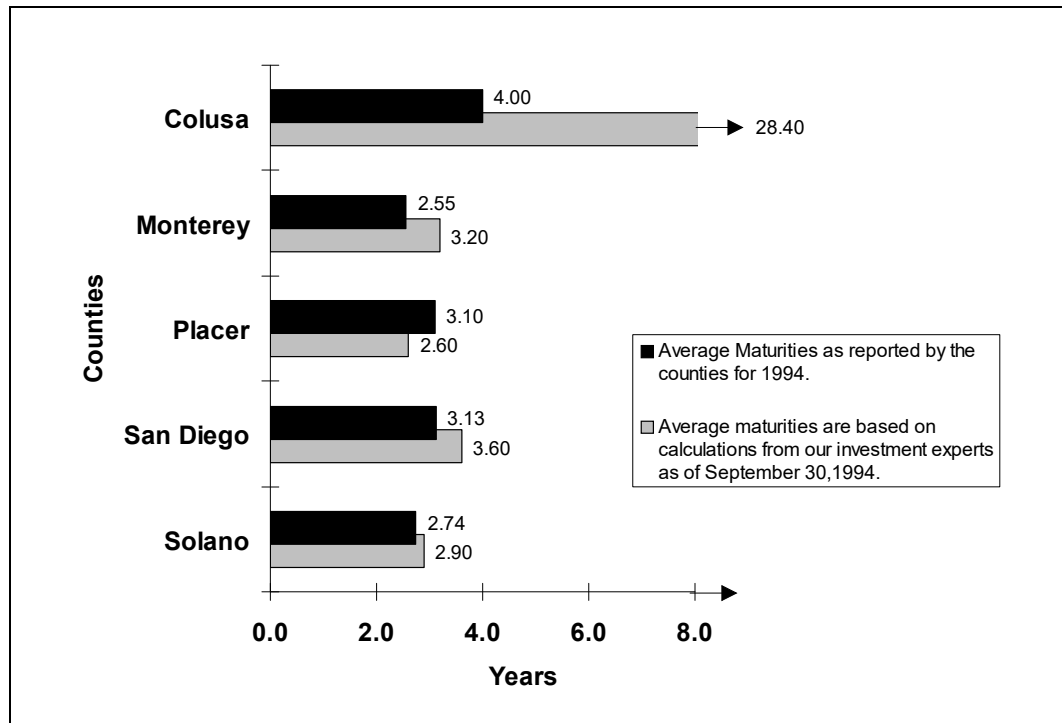
Average Years to Maturity for 57 County Portfolios



the 54³ counties managing their own investment portfolios during calendar year 1994 ranged from 30 days to 4 years. The average maturity for a portfolio is the average length of time a portfolio's securities need to be held before they mature. According to our investment experts, funds with comparable investment objectives to those of county treasurers' portfolios maintain portfolios where the average maturity for securities held is 2.4 years. Furthermore, *Standard & Poor's* recommends that the average maturity of county and state investment pools not exceed one year. Figure 5 shows the average portfolio maturities during 1994 of more than 2.4 years for counties that we reviewed.

Figure 5

Counties We Reviewed With Average Portfolio Maturities of Over 2.4 Years During 1994



Our review found that substantial investments in long-term securities significantly increased the risk for two of the portfolios. For example, the Colusa County board of supervisors approved the treasurer's request to purchase investments with maturities longer than the five years provided by law so as to increase the yield on investments, resulting in Colusa County investing

in high concentrations of securities with long maturities. This strategy limited the county treasurer's ability to restructure the portfolio to provide additional cash without potentially realizing a significant loss as of March 31, 1995.

Holding large concentrations of long-term securities is more volatile than holding short-term investments in an environment of

changing interest rates.

The average maturity of the Colusa County portfolio was, according to our investment experts, 27.9 years as of March

³Three counties placed their funds in the Local Agency Investment Fund where investments can be withdrawn on demand.

1995, more than 11 times the average maturity appropriate for a portfolio with Colusa County's stated investment policy. According to our investment experts, the market value of the portfolio has decreased to \$19.4 million as of March 31, 1995, compared to the book value of the portfolio of \$24.3 million. Because of the long maturities and resulting higher duration of its securities, the Colusa County portfolio is more volatile in an environment of changing interest rates than portfolios with shorter maturities. Holding large concentrations of securities with long maturities was a major cause of the portfolio's sensitivity to interest rate changes and its decline in market value as interest rates rose.

In another example, San Diego's average maturity reached a high of 3.6 years during 1994. In San Diego's case, the rising interest rate market of late 1994 made the long maturity of the county's portfolio problematic. The market value of many of the county's investments declined below their original purchase price. To increase liquidity, the county sold securities before their maturity and suffered a \$7.9 million net loss to the portfolio.

High-Risk Investment Strategies Can Result in Losses or Other Problems

The purchase of excessive concentrations of thinly traded structured securities, extensive leveraging, and lengthy investment maturities is inconsistent with the basic investment principles of safety, liquidity, and yield, and exposes the portfolios of local governments to an inappropriate degree of risk. When an investment portfolio is managed in such a manner, the investments are extremely sensitive to interest rate fluctuations, may not be readily converted to cash, and may ultimately lose value.

As shown in Table 3, our investment experts performed an in-depth analysis of the eight counties' portfolios as of March 31, 1995. For each portfolio, they determined types of structured investments, extent of leverage, and sensitivity to interest rate fluctuations (duration).

As previously discussed, duration is a quantitative measure of a portfolio's sensitivity to a one percent interest rate change. The effective duration combines the impact on the portfolio of structured notes and the length of maturity, adjusted for leverage. According to our investment experts, the duration for a comparable short-term, high-quality portfolio is 1.8. Our investment experts computed an effective duration for all eight counties in our sample as of March 31, 1995, and found that for six of the eight, the effective duration exceeded 1.8. They found that Colusa County's effective duration was 24.2. This duration means that, for every one percent increase in interest rates, the market value of the base portfolio declines by 24.2 percent, or \$4.2 million on a \$17.2 million base. In Placer County's case, the effective duration was 4.1, which translates into a \$12.1 million decline in the market value of the \$296 million base portfolio if interest rates increase one percent.

Table 3

Effective Durations for the Investment Portfolios of Eight Counties

	A	B	C	D	E	F	G	
County	Date	Nonstructured Fixed Rate Note Duration	Nonstructured Fixed Rate Notes as a Percentage of Total Portfolio	Structured Note Duration	Structured Notes as a Percentage of Total Portfolio	Total Portfolio Duration	Leverage Factor	Effective Duration of Base Portfolio
Colusa	3/31/95	2.7	30%	30.3	70%	22.0	1.10	24.2
Monterey	3/31/95	1.4	38	3.0	62	2.4	1.63	3.9
Placer	3/31/95	1.2	28	4.2	72	3.4	1.20	4.1
Sacramento	3/31/95	1.7	95	0.4	5	1.6	1.00	1.6
San Bernardino	3/31/95	1.7	67	0.7	33	1.4	1.26	1.7
San Diego	3/31/95	2.2	62	3.5	38	2.7	1.00	2.7
Solano	3/31/95	0.9	53	4.7	47	2.7	1.32	3.6
Sonoma	3/31/95	1.2	32	2.3	68	1.9	1.09	2.1

Note: **E** = (A x B) + (C x D)
F = Gross Portfolio ÷ Base Portfolio
G = E x F

Many of the Investments Are Not Liquid

Purchasing investments that are not actively traded places the portfolio in a risky position because thinly traded securities are more difficult to convert to cash.

Purchasing structured securities and other investments that are not actively traded also places a portfolio in a more risky position because these securities often cannot be easily converted to cash to meet the needs of pool participants without incurring significant losses. To enhance liquidity, investments should be limited to securities that are actively traded in a secondary market. A secondary market is one in which there are sufficient buyers and sellers so that a particular asset can be readily converted to cash. In addition, more liquid investments typically have a smaller spread between the price offered by the buyer and the price asked by the seller. Liquidity levels over time must enable the funds to meet forecasted cash requirements, as well as provide immediate access to cash needed for unexpected disbursements.

Our investment experts estimated the market value of each portfolio using a securities information service for actively traded securities and a pricing model for thinly traded securities. They found that seven of the eight counties held significant amounts of securities that were thinly traded (not actively traded on the secondary market with a maturity greater than one year), and, therefore, may not be readily convertible to cash.

As shown in Figure 6, 85 percent of Colusa County’s portfolio as of March 31, 1995, was comprised of thinly traded securities. Furthermore, both Placer and San Diego Counties’ portfolios contained more than 60 percent of securities considered thinly traded.

Lack of liquidity can be a problem when the cash needs of participants or external demands such as collateral calls exceed the immediate ability of the portfolio to convert its securities to cash. For example, in Orange County, the demands of the investment brokers for additional collateral

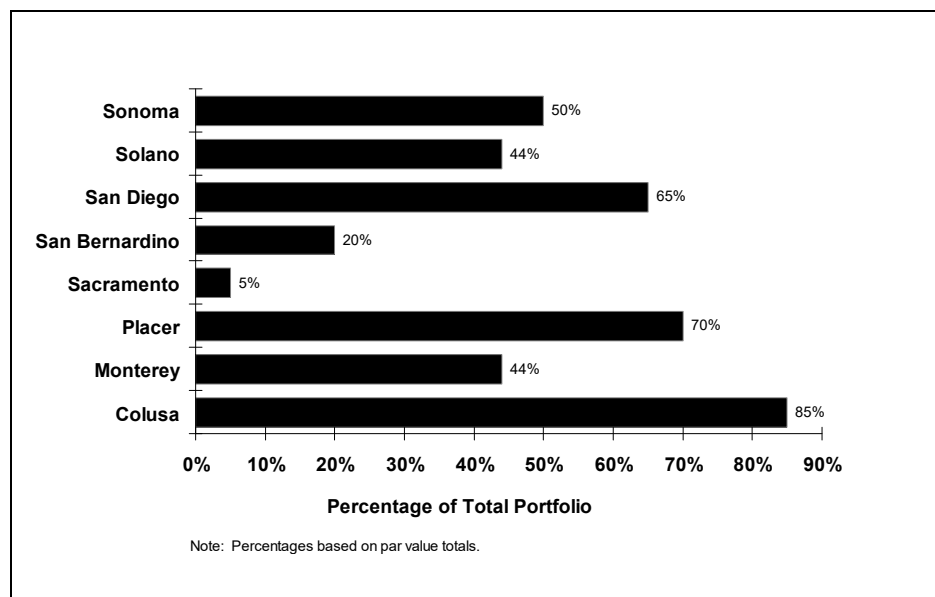
exceeded the portfolio's ability to meet those needs. As a result, the county was forced to file bankruptcy.

—◆—
Unexpected cash demands have forced some counties to experience losses to meet participants' needs.
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Cash demands have been experienced by other counties to varying degrees, forcing them to experience losses to meet those needs. Fortunately, none to date has been as dramatic as in Orange County. However, in San Mateo County, the withdrawal of voluntary participants from the pool caused the county to prematurely sell securities for approximately \$6 million less than cost to meet their demands, resulting in reduced earnings to the pool for two quarters. **Figure 6**
Thinly Traded Notes Maturing in

**More Than One Year
 for County Investment Portfolios
 March 31, 1995**

Moreover, as of September 30, 1994, only 21.6 percent of the market value of San Diego County's portfolio would have matured in less than one year. The county imposed a restricted set of withdrawal rules in December 1994 when voluntary participants, who represented 38 percent of deposits, expressed concern about



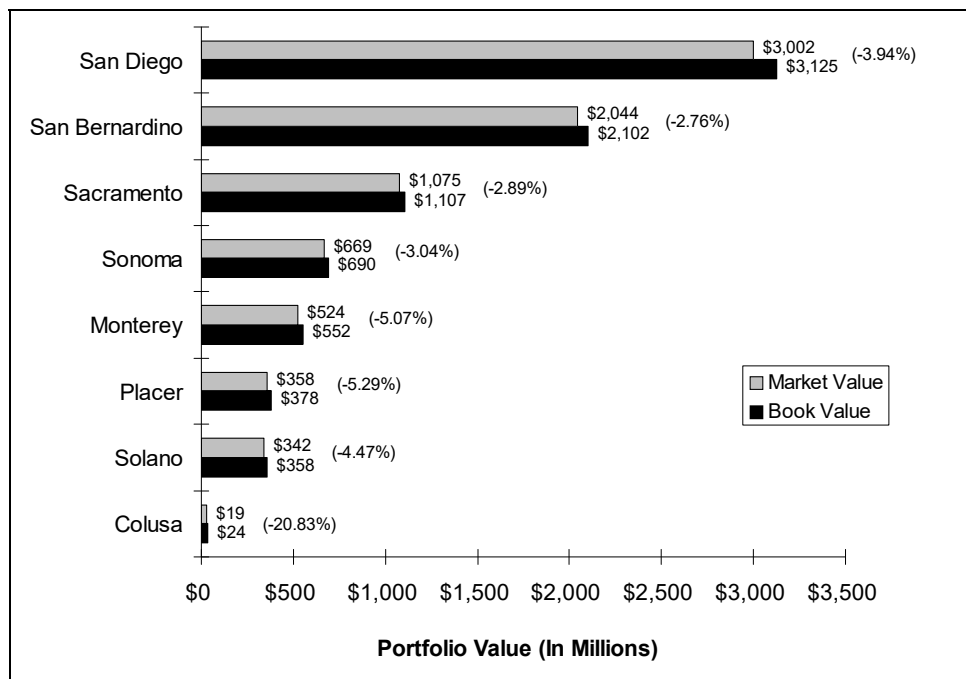
the viability of the pool and when they would be able to withdraw their funds. Thereafter, the county implemented a plan, with the concurrence of its oversight committee, for a phased withdrawal of voluntary participants through June 1998, thus averting the premature liquidation of assets.

Portfolios Have Experienced Unrealized Losses

As Figure 7 shows, all eight counties we reviewed have experienced unrealized losses ranging from \$4.8 million to \$123 million as of March 31, 1995. Unrealized losses are the difference between the book value and market value of a security and do not become realized unless the security is sold.

The eight treasurers from these counties stated that they had sufficient liquidity in their portfolios to preclude the sale of securities prior to maturity and, therefore, none believe that they will incur any actual losses.

Figure 7
Counties Experiencing Unrealized Losses
March 31, 1995



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Chapter 2

Current Regulations and Guidelines Fail To Address Investments Made By Agents

Chapter Summary

Six of the 57 counties we surveyed responded that they use agents, many also acting as security custodians, to execute securities lending or repurchase agreement transactions. We reviewed the securities lending and repurchase activities of three of these counties. These agents make investments on behalf of the counties by negotiating securities lending or repurchase agreements and purchasing various other securities with the proceeds. When these agents' transactions are in effect, certain characteristics of ownership pass from the county.

Currently, there are no laws, regulations, guidelines, or standards requiring county treasurers to record these transactions in their accounting records or to inform their pool participants or boards of supervisors regarding securities lending or repurchase transactions conducted by agents. Additionally, the California Government Code does not address securities lending or repurchase transactions conducted by agents by either authorizing such agent activities or by setting investment criteria relating to these activities. Therefore, they are considered "off-book" investments.

Three counties we reviewed used agents to execute securities lending and repurchase transactions. These counties' investment pools bear all the market risk of investments transacted by agents while the profits are shared with the agents for services that, in one case, was not competitively bid. Finally, at two of the counties we reviewed, agents were allowed to transact investment business with their affiliates.

As a result of investing in this manner, counties have no assurance that state investment controls are being met, local investment participants and legislative bodies lack information about the actual composition or risk in the investment portfolio, and potential conflicts of interest are created when transactions are allowed with affiliates.

Agents Convert County Securities to Cash or Other Investments

In 6 of the 57 counties in the State, the counties use an agent to execute some securities transactions. These agents execute investment transactions after being delegated the authority to do so by the counties. Three of the 8 counties we reviewed (Sacramento, San Diego, and Sonoma) use agents to execute securities transactions. Each county's agreement is a securities lending and/or repurchase agreement. However, regardless of the title of the agreements entered into by the three counties, we found that the economic substance of the transactions resulting from the agreements was similar. Namely, the counties are using agents to convert county securities to cash, which the agents reinvest, or to trade the securities for different ones and a lending fee. We will refer to all of these transactions as securities lending.

Regardless of the title, under these agreements, counties are using agents to convert securities to cash for reinvestment.

Securities lending, when an agent is used, involves three parties: the county, an agent for the county such as a bank or other financial institution, and a counterparty (borrower). The agent loans these securities to a borrower on behalf of the county. The borrower secures the loan with either cash or securities equal to 100 percent of the market value of the securities borrowed plus a margin of 2 percent. As a result, the borrower has use of the borrowed securities. When securities are pledged as collateral for a loan, this is a "true" securities lending transaction. In this

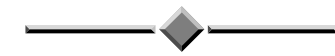
instance, the borrower pays a negotiated fee based on the value of the security borrowed and the loan term. Thus, the return on the loan is a lending fee. The lending fee is split between the county and agent in a predetermined ratio.

When the collateral pledged by the borrower is cash rather than another security, the transaction has a second phase. This second phase is economically equivalent to a reverse repurchase transaction from the county's perspective since the county's agent reinvests the cash by purchasing another security. Also, a specified rate of interest is paid to the borrower of the security for the cash collateral provided to the county; the interest paid is the "rebate." So, to offset the rebate, the cash is reinvested and the difference between the interest payments on the purchased security and the rebate is the return on the loan transaction. Any return generated is split on a predetermined ratio between the agent and the county.

Agents attempt to generate a return through one of three methods. First, they can lend a security with a short maturity and invest in a security with a longer maturity and higher interest rate. Second, they can lend a security with a high credit rating and invest in a security with a lower credit rating and, typically, a higher interest rate. Third, agents can lend securities that are in high demand and either receive a high loan premium from the borrower or pay the borrower a lower rebate rate.

There are some common features to a securities lending transaction regardless of the type of collateral pledged. The agent assesses the market value of the loaned security daily and requires additional collateral if the collateral's market value falls below the market value of the loaned security. The county generally bears the risk of any loss of principal from investing cash collateral. The opposite is also true—collateral is returned to the borrower if its market value increases above the market value of the loaned security.

Typically, a lending agreement can call for the transaction to be terminated at either a predetermined date or at the county's discretion. However, while the transaction is in effect, certain characteristics of ownership pass from the county to the borrower. While counties enter into lending transactions to earn additional income, borrowers (for example, broker-dealers and financial institutions) enter into lending agreements for several reasons. For example, the



In a lending agreement, certain characteristics of security ownership pass from the county to the borrower.



borrower can use the security for delivery to cover a short sale (i.e., the broker sold a security without owning it), to meet a contractual obligation to purchase a certain security for a specific buyer, or to pledge the security as collateral for another transaction. While the lending agreement is in effect, the counties do not maintain these characteristics of ownership over the securities they have loaned. However, since they have the contractual right to receive identical, but not the same, securities at the end of their loans, the counties continue to benefit from any increase in the securities' market value or bear any loss from a decrease in market value. Also, although counties no longer

receive interest payments directly from debt issuers, borrowers who hold the securities are contractually obligated to pass any interest payments they receive to the counties during the loan term.

As noted above, counties commonly enter into securities lending transactions to earn additional income on their portfolios. However, as with most types of investments, there are risks involved. For example, there is credit risk because the borrower may go out of business and be unable to return the security to the county. In addition, there is market risk. The county has an obligation to return cash collateral in the amount received. If the market value of the reinvestment falls below the amount of the cash collateral that was pledged by the borrower, the county is responsible for making up the difference to meet its obligation to return cash collateral in the amount received.

Agent Transactions Are "Off-Book"

During our review of the three counties noted previously, we found that the transactions conducted by agents were all "off-book." At each of the three counties we reviewed that use agents, the county treasurers all receive monthly reports from their agents summarizing the counties' lending or repurchase positions. Sacramento, Sonoma, and San Diego counties receive similar monthly information providing daily transaction and lending and reinvesting activity. The securities lending reports include data about the securities on loan, the borrowers, loan amounts, types of collateral pledged, and a description of the reinvestments made on the county's behalf including the rates of return. However, none of these transactions are ever recorded in the financial records of the counties, and are thus "off-book." Partially because these transactions are "off-book," they are not treated the same as other county transactions. For



Although counties receive information from agents on security lending transactions, they are not required to disclose this information in periodic reports or in financial records.



example, we found that the securities lending activities are not disclosed in the periodic reports to boards of supervisors or pool participants. Also, although the counties recognize the importance of the quality of the reinvestments made with the collateral received for a securities loan, they do not incorporate the reinvestment in compliance reviews of their investment portfolios.

Various factors contribute to securities lending transactions being “off-book”. For example, there are no current requirements for county treasurers to inform pool participants of securities lending transactions. Also, since the California Government Code does not specifically authorize securities lending, it also does not specifically state how these transactions relate to requirements stated in the code. In addition, there is no currently applicable standard for reporting on securities lending transactions issued by the Governmental Accounting Standards Board related to external financial reports.

Boards of Supervisors and Pool Participants are not Periodically Informed of Securities Lending Activity

County treasurers are not currently required to periodically inform their board of supervisors or pool participants of the investment activities of the investment pool or of their lending agent. However, many county treasurers do report to their board or pool participants regarding investment activities and yields. Although the Sacramento, San Diego, and Sonoma county treasurers prepared these periodic reports, the reports we reviewed did not discuss securities lending. For example, the reports did not disclose that some securities in the portfolio had been loaned, that other securities with different maturities or credit qualities may be held as collateral backing pool deposits rather than the loaned securities, or clearly identify the earnings resulting from lending transactions. The extent of securities lending at the three counties was significant; as shown in Figure 8, at September 30, 1994, the three counties had loaned from 23 percent to 59 percent of their respective portfolios. Therefore, the periodic reports do not contain complete data on the investment activities of the counties’ pools.

Agent Transactions Could Avoid Statutory Limitations and are Excluded From Compliance Reviews

In our March 1995 report entitled, *Orange County: Treasurer’s Investment Strategy Was*



On the surface, a portfolio could appear to comply with statutory provisions; however, with off-book transactions, any such limitations could be circumvented.

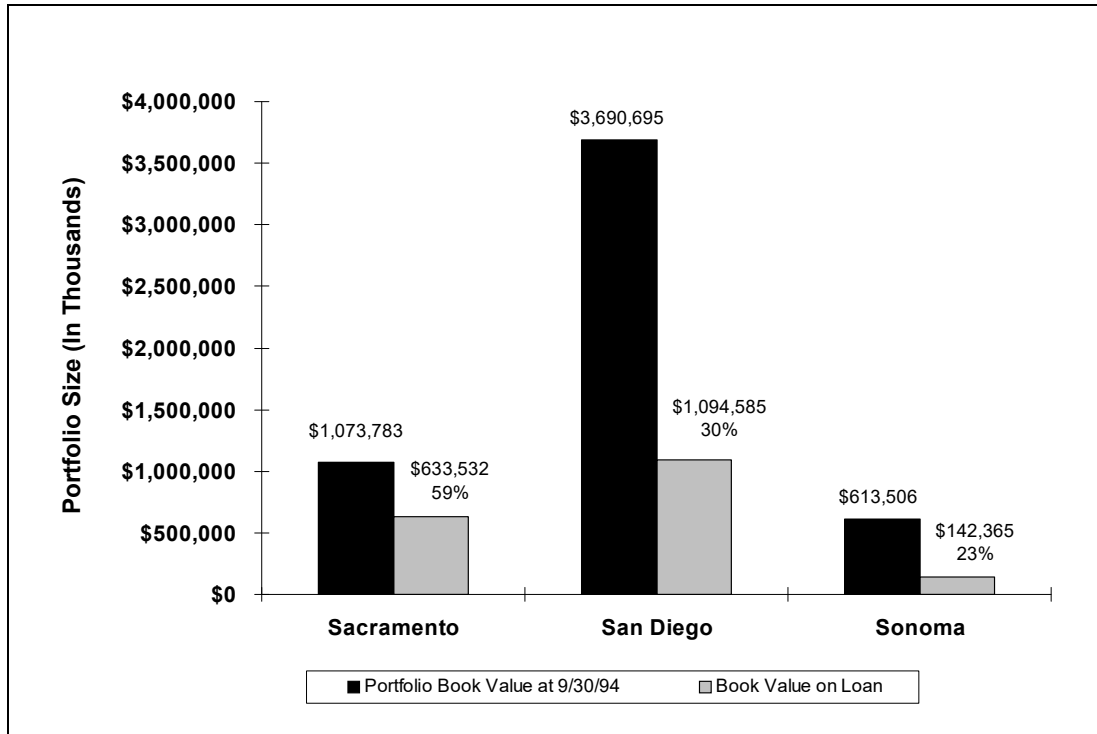


Excessively Risky and Violated the Public Trust, the Bureau of State Audits recommended a statutory 20 percent limitation on reverse repurchase agreements, and limiting to 5 percent of this amount, investment for yield enhancement. Legislation is also pending that will restrict reverse repurchase agreements and impose other constraints on investment activities. However, counties could inappropriately avoid future investment limitations when employing agents to conduct off-book investments. On the surface, under current disclosure practices, a portfolio could appear to comply with statutory provisions; however, because agent transactions are not reflected in portfolios, any such limitations could easily be circumvented

without detection. Consequently, under these circumstances, statutory limitations are meaningless.

Figure 8

**Size of County Portfolios and Amounts
and Percentages Loaned by Agents
September 30, 1994**



The California Government Code, Sections 53600 et. seq., directs the investment activities of county treasurers. Intending to minimize portfolio risk, the code establishes the allowed types of investments, the holding concentrations, the maximum maturities, and the credit requirements of securities issuers. Since the code does not specifically authorize securities lending, it also does not specifically state how securities lending transactions relate to requirements stated in the code. However, it does authorize counties to engage in repurchase and reverse repurchase transactions. At the eight counties we visited, we found that they actively review their portfolio holdings for compliance with statutory regulations. Further, the three counties we reviewed that use securities lending agreements recognize the importance of the quality of the reinvestment and incorporated limitations similar to those in the code in their securities lending agreements. Each agreement specified the types of investment instruments allowed for reinvestment and imposed credit qualifications for the securities issuers. These specifications are important; if the borrower does not return the borrowed security at the end of the loan, the reinvestment may replace the loaned security. However, none of the compliance reviews conducted at the three counties we reviewed—Sacramento, San Diego, and Sonoma—included security holdings resulting from the investment activities of the counties’ agents. As a result, if the majority of reinvestments holdings are in medium-term commercial paper and the county also invested in a significant amount of commercial paper, the county could be unknowingly backing pool deposits with a larger percentage of commercial paper holdings than is allowed by law.

Securities Lending Transactions Are Not Required To Be Fully Disclosed in Financial Statements

The Government Accounting Standards Board (GASB) has set standards for governmental financial reporting and disclosure. Currently, GASB Statement No. 3, entitled “Deposits with Financial Institutions, Investments (including Repurchase Agreements), and Reverse Repurchase Agreements,” requires footnote disclosure in financial statements related to investments.

However, neither governmental accounting standards nor State law or regulations address



One county had up to 58 percent of its portfolio on loan throughout 1994; neither its internal financial records nor its reports were required to disclose this activity.



accounting and financial reporting for securities transactions conducted by an agent, and, therefore, no required financial statement disclosure for agents’ transactions is required. All transactions made by agents are “off the books”. While the security is loaned, a county’s agent is holding a security unrelated to the one placed in its custody. However, the county’s balance sheet continues to reflect the original security placed in custody, not the one currently held by the agent. For example, personnel from Sacramento County’s treasury stated that up to 58 percent of the county’s pooled investment portfolio was on loan throughout 1994; however, neither the county’s internal financial reports nor its Comprehensive Annual Financial Report reflect this activity. In the Sonoma County’s

Comprehensive Annual Financial Report, the county discloses the amount of securities on loan at year end and a description of the securities lending program. However, the county is not required to and it does not disclose the amount or the nature of the securities the agent purchased with the proceeds from the securities that were loaned.

GASB Statement No. 3 poses an additional consideration related to custodial credit risk classification. This statement classifies securities in three custodial credit risk classifications as follows: (1) securities insured or registered or held by the entity or its agent in the entity’s name; (2) uninsured and unregistered with securities held by the counterparty’s trust department or agent in the entity’s name; and (3) uninsured and unregistered, with securities held by the counterparty, or by its trust department or agent but not in the entity’s name. Except for Sonoma County, which did not classify securities that were loaned, the footnote classification as of June 30, 1994, in the most recently issued annual financial reports for the counties we reviewed, reflected the custodial credit risk classification of the original security investment. The risk classifications were generally 1, the safest classification available. However, as in the case of San Diego County, with an average of 34 percent of its total portfolio on loan, the classification disclosed in the financial statements may not represent the true nature of the custodial risk at the report date. Although San Diego County’s financial statement disclosures may comply with currently applicable requirements, the true custodial credit risk classification of the county’s investments are likely to be category 2 or 3 since the securities may not be in the county’s name and the custodian may be acting as the agent for, or be affiliated with, the counterparty.

Counties' Investment Pools Bear Entire Market Risk, Agents Share in Profit

We found that at all three of the counties we reviewed that deal with agents, the counties' investment pools, not the agents, bear all the losses due to market risk. For example, agreements for Sonoma and San Diego counties specifically state that "All Approved Investments are for the account and risk of Customer. To the extent of any deficiency in the



In Lending Agreements, counties are solely liable . . . the county's risk exposure is called market risk.



amount of Collateral available for return to (a borrower) due to losses on Approved Investments or otherwise, Customer shall deliver to Bank . . . funds in an amount equal to such deficiency. Bank may, but is not obligated to, pay any such deficiency . . . and all such payments shall constitute loans . . . to Customer" This passage means that the county, as a party to the agreement, must return the total collateral held by its agent to the borrower at the conclusion of the agreement. If the value of the collateral invested by the agent falls below the amount owed to the borrower, the difference must be contributed by the

county to meet the obligation. The county's risk exposure is called market risk. The counties are solely liable to provide the funds needed to meet their collateral obligations to borrowers.

On the other hand, we found that the agreements allow the agents to share in all the profits resulting from lending fees or the difference between the interest payments received on the reinvestments and the rebates paid on the loaned securities. In the three counties' agreements we reviewed, the agents earn between 30 and 50 percent of the net profits from the activities of investing the counties' securities. As a case in point, Sacramento County's agent has full lending access to the county's portfolio and receives 30 percent of the proceeds of the lending transactions. In 1994, Sacramento County earned approximately \$878,000 from its securities lending activities; we calculated the agent's share of the profits to be approximately \$375,000, excluding any fees and commissions the agent may have earned.

All Counties Are Not Competitively Bidding for Agent Services

Each of the counties we reviewed use their custodian as their agent. A reason counties cite for



It is more in a custodian's interest to act as both custodian and agent.



using their custodians as agents is to eliminate or reduce custodial fees. Also, because loss due to market risk is borne solely by the county, it is more in a custodian's interest to act as both custodian and agent. To illustrate, Sacramento County's investment personnel, who manage a portfolio of roughly \$1.1 billion, estimate custodial fees would cost the county \$140,000 annually. By allowing its custodian to also act as its agent, Sacramento County was able to negotiate an annual maximum custodial fee of \$40,000.

When describing their securities lending activities to us, the three counties did not state that they competitively bid for the services of a securities lending agent separate from their custodial services. However, Sacramento and San Diego counties did competitively bid for combined securities lending and custodial services. An agent engaging in securities lending acts very

much like an investment manager. The agent is responsible for negotiating loan terms, evaluating the credit quality of the borrowers, and developing and executing a strategy for investing collateral. The fee paid to the agent should be based on the agent's proven ability to perform in these areas. As a result, by not competitively bidding for the services of securities lending agents, one of the counties cannot demonstrate that its agent's share of the profits is not greater than it needs to be. For example, Sacramento and San Diego counties, who did competitively bid for their securities lending services, pay their agents 30 and 40 percent, respectively, of the net profits from lending, yet Sonoma, who did not competitively bid its securities lending services, pays its agent 50 percent.

Additional Risks to Counties Are Not Explicitly Covered In Contracts With Agents

Counties add an additional aspect of risk when using agents because the counties effectively relinquish control over their portfolios. In the lending agreement with Sacramento County and its agent, the agent has access to 100 percent of the county's portfolio for lending purposes. Sonoma County's agreement does not address this topic directly but states ". . . (c)ustomer hereby appoints Bank as its agent to lend Securities in the Custody Account" This statement implies total access. When agents have the ability to invest on the counties' behalf and have total access to the counties' portfolios, agents may hinder the counties' abilities to sell specific securities.

For example, if a county treasurer decides to sell certain securities to take advantage of favorable market conditions, the securities may be out on loan and not immediately retrievable. The counties we reviewed that engaged in securities lending through agents informed us that securities would be and have been returned upon request. Sonoma County's agreement states that securities will be returned "as soon as practicable" after receipt by the bank of written instructions from the county. Sacramento County's lending agreement provides for the return of securities on the same day, or the next, depending upon the time of day the request is made. The three agreements we reviewed did provide the counties protection in a number of ways; however, the agreements did not specifically protect the counties in the event they were unable to complete the sale of a security because their agents were unable to deliver a security on the day it was needed.

Agents Dealing With Affiliates

—◆—
Agents for two counties have the sole discretion to deal with affiliates and to pay them the commissions and fees the agent deems appropriate.

May Create Conflict of Interest

The use of an agent who invests with affiliates may create an actual or potential conflict of interest. In the agreements for San Diego and Sonoma counties that we reviewed, the agent was allowed to invest with affiliates; that is, in the course of investing, the borrowers can be affiliated with the county's agent. Moreover, the agreements authorize the agent to pay customary fees and commissions on these activities. The authorized dealing with affiliates raises ethical and prudent investment issues.

While we did not audit the activities of the agents and, therefore, have no information suggesting an actual conflict of interest, dealing with affiliates, nevertheless, gives agents the opportunity to earn income on all sides of the investment transaction. Therefore, an unscrupulous agent could be encouraged to “churn” the county’s portfolio to generate revenue primarily from commissions and fees rather than from investment proceeds that are shared with the county or from investments that increase county yield while minimizing county risk. Furthermore, the ability to deal with affiliates provides the agent the opportunity to steer business to an affiliate that otherwise might not have been competitive enough to win the business on its own. Moreover, the counties’ agreements state that dealings with affiliates are at the sole discretion of the agent and that commissions, fees, or amounts paid for securities are as the agent deems appropriate. However, the agreements do state that in these transactions, affiliates will be treated no differently than if they were unaffiliated parties. While this provision offers some protection, it still would not preclude the churning of accounts or steering of business to an affiliate.

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Chapter 3

Recommendations

During our audit of the investment practices of county treasurers, we encountered some of the same risky investment strategies found during our earlier audit of Orange County, namely, overinvesting in structured notes, excessive leveraging of portfolios, and investing in large quantities of long-term securities. Therefore, it seems appropriate to reiterate for legislative consideration the same recommendations made to Orange County.

The Legislature should amend the California Government Code related to local government investment practices to do the following:

- Require written investment policies for all local entities investing public funds that are approved and adopted by their local governing body. These policies should ensure that safety and liquidity are paramount to yield;
- Limit the use of reverse repurchase agreements to no more than 20 percent of the total portfolio, primarily to meet immediate or unexpected cash flow requirements, and not for reinvestment. In no case should the use of reverse repurchase agreements or other types of borrowing for yield enhancement or risk arbitrage exceed more than 5 percent of the portfolio. Further, multiple levels of borrowing should be prohibited;
- Establish and define a prudent person rule for the local investment officer. The prudent person rule should detail the fiduciary responsibilities vested in the investment officer and establish an expected level of expertise;
- Limit the use of derivatives or other structured investment instruments and prohibit those that put principal at risk. None of these instruments are to be purchased with borrowed or leveraged funds. Further, the derivatives or structured investments purchased should be openly traded in the secondary market on a recognized exchange. Any investments in these instruments should be limited to no more than 5 percent of the portfolio;
- Require that investment officers consider purchasing securities receiving a favorable volatility rating from a nationally recognized credit rating agency, whenever possible. These ratings provide important information about an investment by assessing risk over a wide range of conditions, including the effect of interest rates, prepayments, credit, spread, liquidity, and currency fluctuations;
- Impose limitations on the average length of maturity for local government investment portfolios to meet cash flow requirements and liabilities;
- Require competitive bidding or pricing for all investments purchased and mandate that the investment officer maintain a history of the competitive bidding and selection;

- Mandate investment reports at least quarterly to the governing body and investment pool participants that include detail of the inventory and transactions during the period, weighted average maturity, current market value, duration or other similar interest rate sensitivity analyses, and yield calculation of the portfolio; and
- Prohibit the issuance of taxable or nontaxable debt for the purpose of investing the proceeds in an investment pool or purchasing an investment security for speculation or risk arbitrage.

The Legislature should also amend the California Government Code related to local government investment practices to do the following:

- Limit the average maturities of securities held in county portfolios for short-term, operating, and surplus cash investments to 2.4 years or less;
- Competitively bid separately for lending agent and custodial services, and ensure that all county investment activity by agents or the county are properly recorded and disclosed to interested parties;
- Require counties to maintain sufficient liquidity to match the average amount deposited by voluntary participants of the investment pool and to meet the cash flow needs of their involuntary members; and
- In limiting the use of derivatives or other structured investments to no more than 5 percent of the portfolio, the prohibition should be on those structured notes that increase risk to the portfolio as measured by a derivative analysis.

We recommend that the county treasurers employing high-risk strategies do the following:

- Avoid the use of these risky strategies in the future;
- Prudently divest themselves of structured notes that add risk to their respective portfolios;
- Limit future purchases of structured notes that increase risk to the portfolio (as measured by a duration analysis) to no more than 5 percent of all investments;
- Confine the use of leverage in their respective portfolios to 20 percent or less; and
- Prudently restructure their respective portfolios to reach an average maturity of no more than 2.4 years.

Further, those county treasurers who participate in a security lending program should do the following:

- Include agent transactions in statutory limitations and compliance reviews;
- Report on the security lending program in the counties' annual financial reports and in reports to boards of supervisors and pool participants;

- Competitively bid separately for lending agent and custodian services; and
- Preclude agents from dealing with their affiliates.

In addition, to comply with State law, the specific treasurers listed below should do the following:

- The Colusa County treasurer should follow the law in allocating all interest earnings to pool participants and not retain a portion of interest to offset declines in the market values of securities in the portfolio; and
- The Sacramento treasurer should allocate interest earnings to all pool participants on a quarterly basis and recoup the overallocation made to one pool participant and reallocate the amount to all participants in accordance with the law.

We conducted this review under the authority vested in the state auditor by Section 8543 et seq., of the California Government Code and according to generally accepted governmental auditing standards. We limited our review to those areas specified in the audit scope of this report.

Respectfully submitted,

KURT R. SJOBERG
State Auditor

Date: June 13, 1995

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Appendix A

Interest Allocations That Deviate From Government Code Requirements

The treasury offices of Colusa and Sacramento counties did not allocate interest to pool participants in compliance with the California Government Code, Section 53684(b). Specifically, the code requires county treasurers to apportion quarterly any interest from the investment of funds in an amount proportionate to the average daily balance of the amounts deposited. Our review disclosed the following:

Colusa

Colusa County apportions interest to pool participants quarterly. However, the treasurer is not allocating the total interest earnings received. Instead, the treasurer considers some earnings as a return of principal and adjusts the book value of the securities to more closely reflect current market value, thus attempting to minimize any loss in the portfolio. This activity reduces the total interest to be apportioned to pool participants. For the quarter ended September 30, 1994, the treasurer reclassified approximately \$46,000 of the interest earned rather than apportioning it to the 47 pool participants.

Sacramento

Sacramento County's policy is to apportion interest to pool participants annually rather than quarterly as required. Specifically, all agencies and districts, except the Coroner's Office and the agencies included in the Local Agency Investment Trust (LAIT), receive interest earnings annually at the end of the fiscal year. The Coroner's Office and LAIT receive interest quarterly because their agreements with the county require the quarterly apportionment of interest in compliance with the California Government Code.

In addition, the auditor-controller's office overallocated \$16,720 of the total \$60,930,277 in distributed interest earnings to the Cable Commission, to the detriment of the remaining pool participants. Specifically, a portion of the Cable Commission's monies were invested and earned interest in a separate portfolio. However, the average daily balance for the separate investment was inappropriately included in the average daily balance for the treasurer's portfolio. As a result, the average daily balance and the interest apportioned to the Cable Commission was overstated.

Appendix B

Selected Comparable Financial Data of County Investment Portfolios for 1994

	County	Book Value of Net Investment June 30, 1994	Market Value of Net Investment June 30, 1994	Annual Yield Based on Quarterly Apportionment s	Average Portfolio Maturity in Years	Average Percentage of Portfolio in Structured Securities	Average Percentag e of Portfolio Leveraged (Leverage Ratio)
1	Alameda	\$ 1,281,983,000	\$ 1,281,983,000	B 4.03%	1.97	6.00%	0.50%
2	Alpine	7,609,367	7,609,367	4.42	0.00		
					D		
3	Amador	33,276,700	32,874,685	3.08	0.52		
					E		
4	Butte	120,282,401	120,110,254	5.03	1.33		
5	Calaveras	44,293,194	44,114,210	4.15	0.85		2.28
					F		
6	Colusa	18,183,913	16,692,000	A 7.32	4.00	30.00	20.00
7	Contra Costa	863,489,000	862,601,000	4.59	0.70	15.53	9.99
8	Del Norte	16,701,089	16,701,089	B 5.05	0.62		
9	El Dorado	127,460,476	127,537,126	3.17	0.37		
10	Fresno	949,853,299	932,933,452	4.63	0.71		
11	Glenn	19,002,239	19,002,239	B 4.21	1.70		
12	Humboldt	108,448,227	106,670,452	6.17	2.05		
13	Imperial	128,818,319	128,736,302	5.01	2.87	20.00	H
14	Inyo	27,263,956	27,199,183	3.98	0.25		
15	Kern	836,379,000	833,108,000	4.41	1.03	6.50	4.00
16	Kings	92,667,921	91,118,434	4.48	1.13	7.77	8.50
17	Lake	57,258,578	57,124,023	3.50	0.31	6.00	
18	Lassen	29,436,794	28,560,714	4.23	3.54		

19	Los Angeles	6,917,014,000		6,867,705,000		4.33	F 0.78	8.28	3.00
20	Madera	96,000,000	A	96,000,000	A	3.62	1.72		4.00
21	Marin	206,408,248		206,259,248		4.05	0.43		
22	Mariposa	15,124,475		14,650,088		4.34	2.88		
23	Mendocino	37,217,822		37,417,422		3.99	0.45	6.00	
24	Merced	184,408,808	A	184,408,808	A	3.42	0.47	7.00	19.00
25	Modoc	12,490,514		12,490,514		3.16	E 0.00		
26	Mono	16,124,055		16,124,055	B	4.07	D 0.00		
27	Monterey	327,340,078	A	317,545,613	A	5.37	D 2.55	22.00	43.80
28	Napa	130,180,096		130,302,827		4.37	1.83	9.80	
29	Nevada	77,570,955	C	75,288,647	C	5.85	0.55		
30	Placer	342,350,326		320,648,964		6.77	3.10	52.00	37.26
31	Plumas	35,975,169		35,076,230		4.34	1.53		
32	Riverside	1,079,220,000		1,046,282,000		3.72	2.62	1.20	2.90
33	Sacramento	1,720,212,000		1,720,212,000	B	5.02	2.48		1.00
34	San Benito	14,884,071	A	14,884,071	A	4.01	.27 - .36	10.00	
35	San Bernardino	1,680,436,000		1,638,434,000		5.05	2.13	30.33	G 28.60
36	San Diego	3,289,275,000		3,289,275,000		5.18	3.13	34.50	1.45
37	San Francisco	2,211,797,845		2,207,506,010		5.55	2.09		
38	San Joaquin	311,413,000		311,321,000		3.92	0.08		
39	San Luis Obispo	253,681,265		253,221,123		3.99	0.38		
40	San Mateo	630,967,380		612,215,400		3.07	1.75		12.00
41	Santa Barbara	378,756,238		379,790,208		4.68	0.99		
42	Santa Clara	1,579,328,000		1,570,085,000		4.33	0.92	3.77	

**Appendix B Table
continued**

	County	Book Value of Net Investment June 30, 1994	Market Value of Net Investment June 30, 1994	Annual Yield Based on Quarterly Apportionments	Average Portfolio Maturity in Years	Average Percentage of Portfolio in Structured Securities	Average Percentage of Portfolio Leveraged (Leverage Ratio)
43	Santa Cruz	217,417,047	218,454,686	4.18	0.51	0.65	
44	Shasta	116,362,415	116,153,302	3.99	0.52		
45	Sierra	6,690,317	6,647,941	5.72	1.75		
46	Siskiyou	34,989,887	34,103,934	4.24	1.78		
47	Solano	230,544,291	221,902,156	5.85	2.74	32.30	40.00
48	Sonoma	819,755,719	815,106,175	5.46	2.33	61.00	13.50
49	Stanislaus	323,350,079	318,848,606	4.54	1.92		
50	Sutter	56,506,171	56,084,391	4.47	1.69	11.70	
51	Tehama	36,075,242	34,751,572	4.47	2.20	31.00	20.00
52	Trinity	21,823,266	21,689,100	4.08	0.28	8.50	
53	Tulare	305,936,291	302,943,628	4.27	2.00	1.00	10.00
54	Tuolumne	35,491,556	35,462,368	4.08	0.26		
55	Ventura	671,072,188	665,640,032	4.18	0.49		
56	Yolo	110,781,506	109,944,710	3.17	0.55	10.00	
57	Yuba	107,868,361	105,413,913	4.63	2.35	16.80	25.00
	Total Average	\$29,405,247,154	\$29,154,965,272	4.47%	1.38	16.65%	14.61%

Legend:

- A** Audited financial statements were not yet available; thus, if an estimate was not provided, we used book value for market value.
- B** Market values for the treasurer's investment pool cannot be identified from the financial statements; thus, we used book value for market value.
- C** Book and market values as of December 31, 1994.
- D** Investment funds are kept in the State of California Local Agency Investment Fund (LAIF) where investments can be withdrawn daily or on demand.
- E** The portfolio maturity as of December 1994.
- F** The portfolio maturity as of June 30, 1994.
- G** As of September 30, 1994, based on our investment experts' analysis because the county did not provide us an average for the year.
- H** County originally reported 28 percent and later amended its response to 4.75 percent. We audited this figure and found that the percentage of structured notes on June 30, 1994, and September 30, 1994, was approximately 22 percent and 19 percent, respectively.

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Appendix C

**Counties' Investment Pool Participants
by Type and Average Percentage of the Pool**

	County	Number of School Districts	Average Percentage of Pool	Number of Community College Districts	Average Percentage of Pool	Number of Cities	Average Percentage of Pool	Number of Special Districts Required To Use County Treasury	Average Percentage of Pool	Number of Special Districts Allowed To Choose Treasury	Average Percentage of Pool
1	Alameda	18	50.00% A	3	N/A	0	N/A A	10	N/A A	1	N/A A
2	Alpine	1	35.00	0	0.00%	0	0.00%	3	2.00%	1	0.07%
3	Amador	1	9.00	0	0.00	0	0.00	8	6.00	9	4.00
4	Butte	16	40.00	1	1.00	5	0.00	13	8.00	18	2.00
5	Calaveras	3	23.58	0	0.00	0	0.00	17	3.44	10	4.42
6	Colusa	6	33.18	1	3.08	2	0.26	38	22.72	34	22.74
7	Contra Costa	18	18.80	1	2.50	0	0.00	3	0.02	11	16.20
8	Del Norte	1	31.00	0	0.00	0	0.00	4	6.00	11	11.00
9	El Dorado	15	29.52	3	0.82	2	0.79	105	9.51	14	2.58
10	Fresno	48	35.00	4	0.40	0	0.00	75	8.40	22	2.80
11	Glenn	10	32.90	0	0.00	0	0.00	7	2.50	26	17.80
12	Humboldt	34	41.30	2	5.06	7	1.75	2	0.06	18	3.91
13	Imperial	10	40.00 B	1	N/A	0	0.00	16	3.00	0	0.00
14	Inyo	7	12.00	1	1.00	1	1.00	6	1.00	0	0.00
15	Kern	46	37.37	3	1.42	0	0.00	20	2.72	10	1.17
16	Kings	14	48.80	0	0.00	0	0.00	28	6.04	20	9.47
17	Lake	7	17.00	0	0.00	0	0.00	35	15.00	0	0.00
18	Lassen	11	46.00	1	4.00	0	0.00	4	1.00	21	2.00
19	Los Angeles	79	33.00	13	1.00	30	2.00	142	4.20	35	23.00
20	Madera	10	10.00	2	0.00	2	0.00	3	1.00	5	1.00
21	Marin	19	25.00	1	2.00	0	0.00	71	7.00	20	15.00
22	Mariposa	1	11.25	0	0.00	0	0.00	0	0.00	0	0.00
23	Mendocino	16	31.92	1	2.04	0	0.00	12	0.86	0	0.00
24	Merced	22	17.28	1	1.00	0	0.00	22	3.00	52	3.00
25	Modoc	4	49.50	0	0.00	0	0.00	10	0.02	17	0.01
26	Mono	2	17.00	0	0.00	1	0.00	2	0.00	16	16.00
27	Monterey	27	49.40 B	2	N/A	0	0.00	20	3.70	22	6.20
28	Napa	8	24.30	1	2.12	0	0.00	17	21.97	1	2.39
29	Nevada	10	41.20	1	0.02	3	2.75	N/P	N/P	N/P	N/P
30	Placer	19	39.00	1	3.20	2	2.10	8	0.93	16	0.53
31	Plumas	1	19.00	1	1.55	0	0.00	8	1.66	37	7.08
32	Riverside	23	27.90	4	1.10	0	0.00	74	2.40	94	12.63
33	Sacramento	17	18.20	1	0.40	2	0.06	13	17.30	53	4.50
34	San Benito	11	58.75	0	0.00	0	0.00	N/P	N/P	N/P	N/P
35	San Bernardino	41	31.89	4	1.23	2	4.29	6	0.13	9	0.08
36	San Diego	43	23.30	5	2.50	15	7.60	49	1.63	22	14.80

Appendix C Table continued

	County	Number of School Districts	Average Percentage of Pool	Number of Community College Districts	Average Percentage of Pool	Number of Cities	Average Percentage of Pool	Number of Special Districts Required To Use County Treasury	Average Percentage of Pool	Number of Special Districts Allowed To Choose Treasury	Average Percentage of Pool
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	County	Districts	of Pool	Districts	of Pool	Cities	of Pool	Treasury	of Pool	Treasury	of Pool
37	San Francisco	1	10.43	1	0.46	1	N/A	0	0.00	0	0.00
38	San Joaquin	26	34.00	2	2.00	7	0.20	124	N/P	99	N/P
39	San Luis Obispo	13	30.00	1	1.00	0	0.00	16	4.00	0	0.00
40	San Mateo	26	24.00	1	1.50	21	1.00	33	8.00	N/P	N/P
41	Santa Barbara	24	15.30	2	1.51	0	0.00	45	12.15	5	2.85
42	Santa Clara	35	30.60	4	3.38	0	0.00	9	2.20	18	9.30
43	Santa Cruz	14	26.60	1	1.72	4	1.61	3	0.04	12	3.22
44	Shasta	27	52.00 B	2	N/A	3	0.00	11	5.00 C	22	N/A C
					B						
45	Sierra	1	23.60	0	0.00	0	0.00	3	1.20	4	0.60
46	Siskiyou	29	2.73	1	0.15	0	0.00	27	2.45	1	0.05
47	Solano	6	23.00	1	1.00	0	0.00	9	2.34	12	0.01
48	Sonoma	42	26.97	1	3.46	8	9.14	4	18.76	16	1.99
49	Stanislaus	29	34.00	1	5.00	0	0.00	59	2.00	35	4.00
50	Sutter	12	28.10	0	0.00	0	0.00	33	15.80	4	1.80
51	Tehama	19	31.00	0	0.00	3	1.00	15	14.00	9	3.00
52	Trinity	13	52.00	0	0.00	0	0.00	2	0.09	4	0.60
53	Tulare	44	43.00	1	1.00	0	0.00	110	23.00	5	6.62
54	Tuolumne	13	10.28	0	0.00	0	0.00	30	2.86	6	0.00
55	Ventura	27	30.00 B	3	N/A	0	0.00	31	20.00	12	10.00
					B						
56	Yolo	8	31.47	3	2.59	4	15.72	49	7.26	17	1.87
57	Yuba	6	16.50	1	7.80	0	0.00	10	4.60	17	5.50
	Total	1,034		85		125		1,474		923	
	Average		29.54%		1.23%		0.90		5.42%		4.52%

Legend

- A** The percentage under school districts includes community colleges, cities, and special districts.
- B** The percentage under school districts also includes community colleges.
- C** The percentage of participants for special districts apply to both voluntary and mandatory districts.
- N/A Not applicable.
- N/P Not provided.

Comments

Comments of the California State Auditor on the Response from the County of Colusa

T

o provide clarity and perspective, we are commenting on the County of Colusa's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① The treasurer's contention is incorrect. He was contacted by telephone, and in writing by the audit principal, and was visited by our in-charge auditor to discuss our comments.

② The report to the board of supervisors we received was dated January 30, 1995, not December 16, 1994. In this report, the treasurer states how he is presently repositioning his portfolio. However, our recommendations focus on both current and future investment activities since our report presents data related to the portfolio for two recent points in time and has relevance to future investment decisions by the treasurer.

③ The duration calculation measures the interest rate sensitivity for a point in time—March 31, 1995. Thus, the effect of increases in interest rates during previous periods is irrelevant.

④ Unlike the seven other county treasurers we visited, the Colusa treasurer was unable to provide us with sheets stating the terms of the notes he had purchased. As a result, we used the confirmation sheets for his transactions. The weighted average maturity is not an appropriate measure for the average life of mortgage-backed securities. It is simply the average years

to maturity weighted by the par value of the security. Duration is the appropriate measure to estimate the average life of the portfolio and interest rate risk. In order to estimate the duration (number of years to receive the present value of the bond's cash flow), our experts applied assumptions regarding the prepayment features of the mortgage-backed securities. To adjust duration for prepayments on mortgage-backed securities, our investment experts used the PSA Standard Prepayment Model. The PSA Model was developed by the Public Securities Association, an organization that represents dealers in mortgage-backed securities. The PSA Model is widely recognized in the investment community as an appropriate method for adjusting duration for securities with prepayment features. In addition, the county's computed effective duration of 24.2 at March 31, 1995, supports the contention that the average maturity is very long. Finally, our investment experts had a brokerage firm independently compute Colusa's effective duration for several of the county's investments and the results paralleled our investment experts' computation.

Our investment experts ⑤ stated that Colusa County's portfolio was not hedged as of the two dates analyzed.

Regardless of the issuer, ⑥ 85 percent of Colusa County's portfolio consists of securities with maturities greater than one year that are not actively traded on a secondary market. This was the largest percentage of the eight counties we reviewed.

Whatever the ⑦ rationalization, the method does not comply with the allocation method prescribed by state law.

We do not recommend or ⑧ suggest a maturity equal to a passbook savings account.

Comments

Comments of the California State Auditor on the Response from the County of Monterey

T

o provide clarity and perspective, we are commenting on the County of Monterey's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① If the county's funds are not intended for short-term withdrawal to meet operational needs, they should not be in the short-term investment pool. As is done in some other counties, they should be separately invested or invested in a pool for longer term investors.

② The county is incorrect that we used mutual fund data to conclude that any county's portfolio is at risk. The use of the mutual fund data was to acquire relevant information from portfolios with similar objectives and constraints in order to have a reasonable, but not overly conservative, comparison group. These included investing in short-term high-quality investments and the ability to invest in a variety of financial instruments. We recognize that these mutual funds are not exactly the same as the county pools; however, these differences are not significant considering how the data was used, considering the results of our survey of the other counties, and considering the analysis and recommendations made by consultants hired by various counties.

③ While participation in mutual funds is voluntary, the cash flow of these funds are predictable. For example, the Investment Company Institute (ICI) publishes a report on trends of mutual fund activity. ICI reports that the flexible bond portfolio (a short-term bond fund investment category) had historical annual redemptions at approximately 20 percent of the fund's total assets. With a 20 redemption rate, 80 percent of the fund's assets are available for investment in longer securities. Thus, short-term mutual funds with entirely voluntary participation do not necessarily behave like that of money market funds which make investment decisions based on having virtually 100 percent of the portfolio liquid at all times.

We do not conclude that Monterey County was imprudent in its investment practices. Our report clearly indicates that the county's portfolio is not highly leveraged, nor is its average maturity extremely long. However, as shown on page 25, it has invested in structured notes with a duration of 2.3, which increased the interest rate sensitivity of its portfolio above that of its fixed rate note duration of 1.2. However, the effective duration was the third lowest of the eight counties we reviewed and the effective duration of 2.1 was only slightly higher than our comparison group's duration of 1.8.

Our report focused on the ⑤ investment strategies used by Monterey County; thus, we did not address the techniques that the county did not employ.

The mutual fund data ⑥ indicated that the average percentage of structured securities was 5.9 percent for those funds reporting structured securities. However, we did not judge county portfolios using this percentage as the criteria. Rather, we recognized, as stated on page 15, that all structured securities are not the same and that some structured securities such as certain floaters can reduce portfolio risk when changes in interest rates occur. Thus, we clearly contrasted San Bernardino's use of structured securities which reduced portfolio risk with those of other counties whose structured notes actually increased portfolio risk. Also, our recommendation does not limit the use of structured securities to 5.9 percent based on the use of the mutual fund data. Rather, we conclude and recommend that the use of structured securities *that increase market risk* to the portfolio should be limited to 5 percent of the portfolio. Increased market risk should be measured by a duration analysis. Although the county criticizes our use of certain mutual funds, it does not provide any justification for investing in structured notes that increase risk to the portfolio in excess of 5 percent. Thus, the county has not established why our conclusion and recommendation is in error.

Our recommendations to ⑦ the Legislature are intended to assist in deliberating these and other pending bills.

We did not conclude that ⑧ the county's portfolio was because it exceeded 5.9 percent. Our conclusion is based on the fact that the county held 62 percent of its portfolio in structured notes, which included 33 percent in volatile inverse floaters. The duration of these structured notes was 3.0, more than twice the duration of the county's fixed rate notes.

We do not imply that ⑨ inverse floaters decrease perilously as interest rates rise. However, in Placer County's case, our investment experts determined that the county's inverse floaters, with a duration of 4.5 at March 31, 1995, contained 3.75 times the interest rate or market risk that its nonstructured fixed rate notes did on that date, with a duration of 1.2. In addition, our investment experts analyzed Monterey County's portfolio as of September 30, 1994, and March 31, 1995, to determine if the diversification of the county's investments across alternative rate structures could provide a hedge against interest rate fluctuations. Their analysis indicated that there is little evidence that Monterey County hedged its portfolio against interest rate risk on the two dates examined.

○ The county's assertion ¹⁰ that we have mischaracterized some securities as thinly traded is incorrect. Our experts attempted to value individual securities held in portfolios and were unable to readily obtain a market price for many because they are not actively traded on secondary markets and are thus thinly traded. Furthermore, independent CPAs' statements in some county audit reports support our position. Similarly, they were unable to accurately value certain government securities, negotiable certificates of deposit, and corporate notes because the determination of the value of these investments involves subjective judgment and can be determined only by negotiation between the parties in a sales transaction.

Moreover, simply being able to convert a bond to cash does not necessarily indicate that it is free of liquidity risk. The degree of liquidity risk also is contingent upon the ability to obtain a reasonable price

when attempting to sell a security. Because the market for thinly traded securities is limited to the small number of brokers contacted by the seller, they are subject to greater variation in the bid-ask spread; namely, at what price can a bond be readily converted to cash. If, however, there is a large spread between the bid-ask prices, then the bond is said to be less liquid (even though it can be converted to cash).

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Comments

Comments of the California State Auditor on the Response from the County of Placer

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o provide clarity and perspective, we are commenting on the County of Placer's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① Because of legal restrictions related to confidentiality, counties did not receive data related to other counties.

② The county received a copy of the first draft of our report on May 22, 1995, and provided its initial response to us on May 26, 1995. Therefore, Placer County had our first draft a full two weeks before receiving our second draft. The county then had over two days to review the changes that were made and to revise its original response if the county so chose.

③ As stated on page 44, the audit was performed in accordance with governmental auditing standards. As the report refers to Placer County, the facts remain indisputable. The Placer County portfolio contains 64 percent in derivatives known as inverse floaters whose coupon payments are reduced if interest rates rise. Whether this is called betting, prognostication, or speculation—no one knows with any certainty the future of interest rates.

conducted in accordance ④ Our audit was confined to the scope outlined on pages 4 and 5, and with governmental auditing standards.

We held an exit ⑤ conference with Placer County on May 24, 1995, at which time we discussed every issue in the report relating to the county and any conclusions we reached.

The county is incorrect ⑥ that we used mutual fund data to conclude that any county's portfolio is at risk. The use of the mutual fund data was to acquire relevant information from portfolios with similar objectives and constraints in order to have a reasonable, but not overly conservative, comparison group. These similarities included investing in short-term high-quality investments and the ability to invest in a variety of financial instruments. We recognize that these mutual funds are not exactly the same as the county pools; however, these differences are not significant considering how the data was used, considering the results of our survey of the other counties, and considering the analyses and recommendations made by consultants hired by various counties.

While participation in ⑦ mutual funds is voluntary, the cash flow requirements of these funds are predictable. For example, the Investment Company Institute (ICI) publishes a report on trends of mutual fund activity. The ICI reports that the flexible bond portfolio (a short-term bond fund investment category) had historical annual redemptions of approximately 20 percent of the fund's assets. With a 20 percent redemption rate, 80 percent of the fund's assets are available for investments in longer term securities. Therefore, short-term mutual funds with entirely voluntary participation do not

necessarily behave like money market funds, which make investment decisions based on having virtually 100 percent of the portfolio liquid at all times.

The mutual fund data ⑧ indicated that the average years to maturity for the securities in the comparison portfolios was 2.4 years. The county does not believe that the cash flow requirements of these mutual funds are similar to those of a county, and thus the figure is not relevant to county portfolios. Our analysis of years to maturity was not performed based entirely on the data from the mutual fund companies. It also considered, as displayed in Appendix B, that the average years to maturity reported by 57 counties was 1.4 years. In addition, as displayed on page 21, only 10 of 57 counties exceeded average maturities of 2.4 years during 1994. Furthermore, as stated on page 22, *Standard & Poor's* recommends that the average maturity of county and state investment pools not exceed one year. Thus, our conclusion, based in part on the data from the mutual funds that the average maturity of county investment pools should not exceed 2.4 years, is reasonable, not overly conservative, and would, in fact, only impact 10 of 57 counties during 1994. Moreover, the county has not established why there is a need for a county's short-term investment pool to have an average maturity exceeding 2.4 years.

The mutual fund data ⑨ indicated that the average percentage of structured securities was 5.9 percent for those funds reporting structured securities. However, we did not judge county portfolios using this percentage as the criterion. Rather, we recognized, as stated on page 15, that all structured securities are not the same and that some structured securities, such as certain floaters, can reduce portfolio risk when changes in interest rates occur. Thus, we clearly contrasted San Bernardino's use of structured securities, which reduced portfolio risk with those of other counties whose structured notes actually increased portfolio risk. Also, our recommendation does not limit the use of structured securities to 5.9 percent based on the use of the mutual fund data. Rather, we conclude and recommend that the use of structured securities *that increase market risk* to the portfolio should be limited to 5 percent of the portfolio. Increased market risk should be measured by a duration analysis. Although the county criticizes our use of certain mutual funds, it does not provide any justification for investing in structured notes that increase risk to the portfolio in excess of 5 percent. Thus, the county has not established why our conclusion and recommendation are in error.

As stated on page 14 of ⑩ our report, 72 percent of Placer County's portfolio was comprised of structured notes as of March 31, 1995. Furthermore, as shown on page 124, a Certified Public Accounting firm hired by the county stated that as of December 31, 1994, approximately 60 percent of the county's portfolio was comprised of derivative securities.

○ We do not imply that all 11 inverse floaters decrease perilously as interest rates rise. However, in Placer County's case, our investment experts determined that the county's inverse floaters, with a duration of 4.5 at March 31, 1995, contained 3.75 times the interest rate or market risk that its nonstructured fixed rate notes did on that date, with a duration of 1.2. In addition, our investment experts analyzed Placer County's portfolio as of September 30, 1994, and March 31, 1995, to determine if the diversification of the county's investments across alternative rate structures could provide a hedge against interest rate fluctuations. Their analysis indicated that there is little evidence that Placer County hedged its portfolio against interest rate risk on the two dates examined.

○ The county's assertion 12 that we have mischaracterized some securities as thinly traded is incorrect. Our experts attempted to value individual securities held in portfolios and were unable to readily obtain a market price for many because they are not actively traded on secondary markets and are thus thinly traded. Furthermore, independent CPAs' statements in some county audit reports support our position. Similarly, they were unable to accurately value certain government securities, negotiable certificates of deposit, and

corporate notes because the determination of the value of these investments involves subjective judgment and can be determined only by negotiation between the parties in a sales transaction.

Moreover, simply being able to convert a bond to cash does not necessarily indicate that it is free of liquidity risk. The degree of liquidity risk also is contingent upon the ability to obtain a reasonable price when attempting to sell a security. Because the market for thinly traded securities is limited to the small number of brokers contacted by the seller, the securities are subject to greater variation in the bid-ask spread; namely, at what price can a bond be readily converted to cash. If the sell price (ask) is close to the buy price (bid), the bond is said to be liquid. If, however, there is a large spread between the bid-ask prices, then the bond is said to be less liquid (even though it can be converted to cash).

- We believe our ¹³ description of the potential risk associated with collateral calls is accurate.
- If the county's funds are ¹⁴ not intended for short-term withdrawal to meet operational needs, they should not be in the short-term investment pool. As is done in some other counties, they should be separately invested or invested in a pool for longer term investors.
- Orange County's ¹⁵ investments were liquidated at substantial discounts (up to 25 percent), thus creating a very active market that would not necessarily have materialized had the securities been offered at their recorded book values.

Comments

Comments of the California State Auditor on the Response from the County of Sacramento

T

o provide clarity and perspective, we are commenting on the County of Sacramento's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① The county is incorrect that we used mutual fund data to conclude that any county's portfolio is at risk. The use of the mutual fund data was to acquire relevant information from portfolios with similar objectives and constraints in order to have a reasonable, but not overly conservative, comparison group. These similarities included investing in short-term high-quality investments and the ability to invest in a variety of financial instruments. We recognize that these mutual funds are not exactly the same as the county pools; however, these differences are not significant considering how the data was used, considering the results of our survey of the other counties, and considering the analyses and recommendations made by consultants hired by various counties.

② The Government Accounting Standards Board has issued Statement 28, which will change security lending disclosures for audits of periods

ended after December 1995.

Whatever the ③ rationalization, the method does not comply with the allocation method prescribed by State law.

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Comments

Comments of the California State Auditor on the Response from the County of San Bernardino

T

o provide clarity and perspective, we are commenting on the County of San Bernardino's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① During the week of May 22, 1995, when each county had its draft copy of the report, we met with or spoke with representatives of each county. In the case of San Bernardino, the treasurer was out of town, so we spoke with the chief investment officer about his concerns regarding the report. When the county received its second draft of the report, we again contacted the county. At this time, we contacted the chief investment officer who relayed the county's continuing concerns.

② We modified the text of the report. For clarity, on page 15, we footnote that the structured notes contain these mutual fund investments.

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Comments

Comments of the California State Auditor on the Response from the County of San Diego

T

o provide clarity and perspective, we are commenting on the County of San Diego's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① The county was provided a copy of all sections of the report that were applicable to it. Because of legal restrictions related to confidentiality, individual counties did not receive data related to other counties.

② The county received a copy of the first draft of the report on May 22, 1995, and provided its initial response to us on May 26, 1995. Thus, it had the first draft for two weeks before it received the second draft. It then had over two days to review the changes that were made and to revise its original response if it so chose.

③ The county is incorrect that we used mutual fund data to conclude that any county's portfolio is at risk. The use of the mutual fund data was to acquire relevant information from portfolios with similar objectives and constraints in order to have a reasonable, but not overly conservative, comparison group. These similarities included investing in short-term high-quality investments and the ability to invest in a variety of financial instruments. We recognize that these mutual funds are not exactly the same as the county pools; however, these differences are not significant considering

how the data was used, considering the results of our survey of the other counties, and considering the analyses and recommendations made by consultants hired by various counties.

The mutual fund data indicated that the average percentage of structured securities was 5.9 percent for those funds reporting structured securities. However, we did not judge county portfolios using this percentage as the criterion. Rather, we recognized, as stated on page 15, that all structured securities are not the same and that some structured securities, such as certain floaters, can reduce portfolio risk when changes in interest rates occur. Thus, we clearly contrasted San Bernardino's use of structured securities, which reduced portfolio risk, with those of other counties whose structured notes actually increased portfolio risk. Also, our recommendation does not limit the use of structured securities to 5.9 percent based on the use of the mutual fund data. Rather, we conclude and recommend that the use of structured securities *that increase market risk* to the portfolio should be limited to 5 percent of the portfolio. Increased market risk should be measured by a duration analysis. Although the county criticizes our use of certain mutual funds, it does not provide any justification for investing in structured notes that increase risk to the portfolio in excess of 5 percent. Thus, the county has not established why our conclusion and recommendation is in error

The mutual fund data indicated that the average years to maturity for the securities in the comparison portfolios was 2.4 years. The county does not believe that the cash flow requirements of these mutual funds are similar to those of a county and thus the figure is not relevant to county portfolios. Our analysis of years to maturity was not performed based entirely on the data from the mutual fund companies. It also considered, as displayed in Appendix B, that the average years to maturity reported by 57 counties was 1.4 years. In addition, as displayed on page 21, only 10 of 57 counties exceeded average maturities of 2.4 years during 1994. Furthermore, as stated on page 22, *Standard & Poor's* recommends that the average maturity of county and state investment pools not exceed one year. Thus, our conclusion, based in part on the data from the mutual funds that the average maturity of county investment pools should not exceed 2.4 years, is reasonable, not overly conservative, and would have, in fact, only impacted 10 of 57 counties during 1994. Moreover, the county has not established why there is a need for a county's short-term investment pool to have an average maturity exceeding 2.4 years.

The mutual fund data indicated that the average duration, a calculation measuring the sensitivity to interest rates, for the comparison portfolios was 1.8. Although the county disagrees with the use of our comparison group, it is interesting to note that a consultant hired by San Bernardino County performed a sensitivity analysis for the county and used the Merrill Lynch 1-4.99 year Government Index as a comparison even though it reflects only government bonds and not other investments purchased by county treasurers as our comparison group includes. Also, a consultant hired by San Diego County recommended a duration of only 1.0. Although we present an analysis of duration in our report, we do not recommend that the duration of county portfolios be limited to any specific amount.

While participation in mutual funds is voluntary, the cash flow requirements of these funds are predictable. For example, the Investment Company Institute (ICI) publishes a report on trends of mutual fund activity. ICI reports that the flexible bond portfolio (a short-term bond fund investment category) had historical annual redemptions at approximately 20 percent of the fund's total assets. With a 20 redemption rate, 80 percent of the fund's assets are available for investment in longer term securities. Thus, short-term mutual funds with entirely voluntary participation do not necessarily behave like that of money market funds which make investment decisions based on having virtually 100 percent of the portfolio liquid at all times.

④

The percentage of structured notes stated in our report is correct. The county's figures agree to a summary sheet provided to us. However, the county's summary sheet excluded certain securities contained in its portfolio. Specifically, the summary sheet excludes nine structured notes totaling \$328 million.

The county's assertion ⑤ that we have mischaracterized some securities as thinly traded is incorrect. Our experts attempted to value individual securities held in portfolios and were unable to readily obtain a market price for many because they are not actively traded on secondary markets and are thus thinly traded. Furthermore, independent CPAs' statements in some county audit reports support our position. Similarly, they were unable to accurately value certain government securities, negotiable certificates of deposit, and corporate notes because the determination of the value of these investments involves subjective judgment and can be determined only by negotiation between the parties in a sales transaction.

Moreover, simply being able to convert a bond to cash does not necessarily indicate that it is free of liquidity risk. The degree of liquidity risk also is contingent upon the ability to obtain a reasonable price when attempting to sell a security. Because the market for thinly traded securities is limited to the small number of brokers contacted by the seller, the securities are subject to greater variation in the bid-ask spread; namely, at what price can a bond be readily converted to cash. If the sell price (ask) is close to the buy price

(bid), the bond is said to be liquid. If, however, there is a large spread between the bid-ask prices, then the bond is said to be less liquid (even though it can be converted to cash).

Report modified. See ⑥ page 37.

If the county's funds are ⑦ not intended for short-term withdrawal to meet operational needs, they should not be in the short-term investment pool. As is done in some other counties, they should be separately invested or invested in a pool for longer term investors.

The issue raised in our ⑧ report is that the county's contract does not specifically indemnify the county if the agent is unable to deliver the security. While the county appears to believe that industry practice is sufficient protection, we believe explicit indemnification in the contract is warranted and should not be objectionable to agents if it merely explicitly states industry practice.

Comments

Comments of the California State Auditor on the Response from the County of Solano

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o provide clarity and perspective, we are commenting on the County of Solano's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① Our report never suggests that the treasurer intended to put taxpayer dollars at risk. Rather, similar to the report by the county's own consultant, our report recommends that the treasurer reduce risk in the county portfolio.

② The county is incorrect that we used mutual fund data to conclude that any county's portfolio is at risk. The use of the mutual fund data was to acquire relevant information from portfolios with similar objectives and constraints in order to have a reasonable, but not overly conservative, comparison group. These similarities included investing in short-term high-quality investments and the ability to invest in a variety of financial instruments. We recognize that these mutual funds are not exactly the same as the county pools; however, these differences are not significant considering how the data was used, considering the results of our survey of the other counties, and considering the analysis and recommendations made by consultants hired by various counties.

③ While participation in mutual funds is voluntary, the cash flow requirements of these funds are predictable. For example, the Investment Company Institute (ICI) publishes a report on trends of mutual fund activity. ICI reports that the flexible bond portfolio (a short-term bond fund investment category) had historical annual redemptions at approximately 20 percent of the fund's total assets. With a 20 percent redemption rate, 80 percent of the fund's assets are available for investment in longer term securities. Thus, short-term mutual funds with entirely voluntary

participation do not necessarily behave like that of money market funds which make investment decisions based on having virtually 100 percent of the portfolio liquid at all times.

The mutual fund data indicated that the average percentage of structured securities was 5.9 percent for those funds reporting structured securities. However, we did not judge county portfolios using this percentage as the criterion. Rather, we recognized, as stated on page 15, that all structured securities are not the same and that some structured securities, such as certain floaters, can reduce portfolio risk when changes in interest rates occur. Thus, we clearly contrasted San Bernardino's use of structured securities which reduced portfolio risk with those of other counties whose structured notes actually increased portfolio risk. Also, our recommendation does not limit the use of structured securities to 5.9 percent based on the use of the mutual fund data. Rather, we conclude and recommend that the use of structured securities *that increase market risk* to the portfolio should be limited to 5 percent of the portfolio. Increased market risk should be measured by a duration analysis. Although the county criticizes our use of certain mutual funds, it does not provide any justification for investing in structured notes that increase risk to the portfolio in excess of 5 percent. Thus, the county has not established why our conclusion and recommendation are in error.

The mutual fund data indicated that the average years to maturity for the securities in the comparison portfolios was 2.4 years. The county does not believe that the cash flow requirements of these mutual funds are similar to those of a county and thus the figure is not relevant to county portfolios. Our analysis of years to maturity was not performed based entirely on the data from the mutual fund companies. It also considered, as displayed in Appendix B, that the average years to maturity reported by 57 counties was 1.4 years. In addition, as displayed on page 21, only 10 of 57 counties exceeded average maturities of 2.4 years during 1994. Furthermore, as stated on page 22, *Standard & Poor's* recommends that the average maturity of county and state investment pools not exceed one year. Thus, our conclusion, based in part on the data from the mutual funds that the average maturity of county investment pools should not exceed 2.4 years, is reasonable, not overly conservative, and would, in fact, only impact 10 of 57 counties during 1994. Moreover, the county has not established why there is a need for a county's short-term investment pool to have an average maturity exceeding 2.4 years.

The county's assertion ⑤ that we have mischaracterized some securities as thinly traded is incorrect. Our experts attempted to value individual securities held in portfolios and were unable to readily obtain a market price for many because they are not actively traded on secondary markets and are thus thinly traded. Furthermore, independent CPAs' statements in some county audit reports support our position. Similarly, they were unable to accurately value certain government securities, negotiable certificates of deposit, and corporate notes because the determination of the value of these investments involves subjective judgment and can be determined only by negotiation between the parties in a sales transaction.

Moreover, simply being able to convert a bond to cash does not necessarily indicate that it is free of liquidity risk. The degree of liquidity risk also is contingent upon the ability to obtain a reasonable price when attempting to sell a security. Because the market for thinly traded securities is limited to the small number of brokers contacted by the seller, the securities are subject to greater variation in the bid-ask spread; namely, at what price can a bond be readily converted to cash. If the sell price (ask) is close to the buy price (bid), the bond is said to be liquid. If, however, there is a large spread between the bid-ask prices, then the bond is said to be less liquid (even though it can be converted to cash).

We are pleased that the ⑥ Solano County treasurer is following the recommendations even though he disagrees with the basis for the recommendations.

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Comments

Comments of the California State Auditor on the Response from the County of Sonoma

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o provide clarity and perspective, we are commenting on the County of Sonoma's response to our audit report. The numbers correspond to the numbers we have placed in the response.

① We do not conclude that Sonoma County was imprudent in its investment practices. Our report clearly indicates that the county's portfolio is not highly leveraged, nor is its average maturity extremely long. However, as shown on page 24, it has invested in structured notes with a duration of 2.3, which increased the interest rate sensitivity of its portfolio above that of its fixed rate note duration of 1.2. However, the effective duration was the third lowest of the eight counties we reviewed and the effective duration of 2.1 was only slightly higher than our comparison group's duration of 1.8.

② On page 15 of our report, we differentiate between the low-risk floating notes and other structured notes. Also, our recommendation is to limit investments in structured notes *that increase the risk* in the portfolio. Therefore, it is not intended to limit certain floating rate notes that have very low durations, and thus do not increase the portfolio's risk.

③ While participation in mutual funds is voluntary, the cash flow requirements of these funds are predictable. For example, the Investment Company Institute (ICI) publishes a report on trends of mutual fund activity. ICI reports that the flexible bond portfolio (a short-term bond fund investment category) had historical annual redemptions at approximately 20 percent of the fund's total assets. With a 20 percent redemption rate, 80 percent of the fund's assets are available for investment in longer term securities. Thus, short-term mutual funds with entirely voluntary participation do not necessarily behave like that of money market funds, which make investment decisions based on having virtually 100 percent of the portfolio liquid at all times.

The county is incorrect ④ that we used mutual fund data to conclude that any county's portfolio is at risk. The use of the mutual fund data was to acquire relevant information from portfolios with similar objectives and constraints in order to have a reasonable, but not overly conservative, comparison group. These similarities included investing in short-term high-quality investments and the ability to invest in a variety of financial instruments. We recognize that these mutual funds are not exactly the same as the county pools; however, these differences are not significant considering how the data was used, considering the results of our survey of the other counties, and considering the analysis and recommendations made by consultants hired by various counties.

The mutual fund data indicated that the average percentage of structured securities was 5.9 percent for those funds reporting structured securities. However, we did not judge county portfolios using this percentage as the criterion. Rather, we recognized, as stated on page 15, that all structured securities are not the same and that some structured securities, such as certain floaters, can reduce portfolio risk when changes in interest rates occur. Thus, we clearly contrasted San Bernardino's use of structured securities, which reduced portfolio risk, with those of other counties whose structured notes actually increased portfolio risk. Also, our recommendation does not limit the use of structured securities to 5.9 percent based on the use of the mutual fund data. Rather, we conclude and recommend that the use of structured securities *that increase market risk* to the portfolio should be limited to 5 percent of the portfolio. Increased market risk should be measured by a duration analysis. Although the county criticizes our use of certain mutual funds, it does not provide any justification for investing in structured notes that increase risk to the portfolio in excess of 5 percent. Thus, the county has not established why our conclusion and recommendation are in error.

The mutual fund data indicated that the average years to maturity for the securities in the comparison portfolios was 2.4 years. The county does not believe that the cash flow requirements of these mutual funds are similar to those of a county, and thus the figure is not relevant to county portfolios. Our analysis of years to maturity was not performed based entirely on the data from the mutual fund companies. It also considered, as displayed in Appendix B, that the average years to maturity reported by 57 counties was 1.4 years. In addition, as displayed on page 21, only 10 of 57 counties exceeded average maturities of 2.4 years during 1994. Furthermore, as stated on page 22, *Standard & Poor's* recommends that the average maturity of county and state investment pools not exceed one year. Thus, our conclusion, based in part on the data from the mutual funds that the average maturity of county investment pools should not exceed 2.4 years, is reasonable, not overly conservative, and would, in fact, only impact 10 of 57 counties during 1994. Moreover, the county has not established why there is a need for a county's short-term investment pool to have an average maturity exceeding 2.4 years.

The mutual fund data indicated that the average duration, a calculation measuring the sensitivity to interest rates, for the comparison portfolios was 1.8. Although the county disagrees with the use of our comparison group, it is interesting to note that a consultant hired by San Bernardino County performed a sensitivity analysis for the county and used the Merrill Lynch 1-4.99 year Government Index as a comparison even though it reflects only government bonds and not other investments purchased by county treasurers as our comparison group includes. Also, a consultant hired by San Diego County recommended a duration of only 1.0. Although we present an analysis of duration in our report, we do not recommend that the duration of county portfolios be limited to any specific amount.

The county's assertion ⑤ that we have mischaracterized some securities as thinly traded is incorrect. Our experts attempted to value individual securities held in portfolios and were unable to readily obtain a market price for many because they are not actively traded on secondary markets and are thus thinly traded. Furthermore, independent CPAs' statements in some county audit reports support our position. Similarly, they were unable to accurately value certain government securities, negotiable certificates of deposit, and corporate notes because the determination of the value of

these investments involves subjective judgment and can be determined only by negotiation between the parties in a sales transaction.

Moreover, simply being able to convert a bond to cash does not necessarily indicate that it is free of liquidity risk. The degree of liquidity risk also is contingent upon the ability to obtain a reasonable price when attempting to sell a security. Because the market for thinly traded securities is limited to the small number of brokers contacted by the seller, the securities are subject to greater variation in the bid-ask spread; namely, at what price can a bond be readily converted to cash. If the sell price (ask) is close to the buy price (bid), the bond is said to be liquid. If, however, there is a large spread between the bid-ask prices, then the bond is said to be less liquid (even though it can be converted to cash).