TEACHERS' RETIREMENT BOARD

INVESTMENT COMMITTEE

SUBJECT: Fixed Income – Report on High Yield Bonds ITEM NUMBER: 9

ATTACHMENT(S): 2

ACTION: _____ DATE OF MEETING: November 3, 1999

INFORMATION: X

PRESENTER(S): Ms. Cunningham
Mr. Shantic
PCA, Mr. Emkin

EXECUTIVE SUMMARY

During the series of Asset Allocation Workshops recently completed by the Investment Committee in August of this year, it was suggested that further exploration of the diversification and return enhancement benefits of its fixed income exposure be reviewed. One way to further diversification goals and add incremental return to the System through its fixed income holdings may be through the addition of High Yield Bonds. High Yield Bonds are those bonds rated below investment grade (i.e., bonds rated below Baa3/BBB-), as recognized by the two major rating agencies: Moody's and Standard and Poor's. The universe of High Yield Bonds includes bonds rated anywhere from Ba1/BB+, to as low as C/D, meaning highly speculative as to whether the bond will pay either principal or interest, or a defaulted security. Currently there is no allocation to High Yield Bonds within the fixed income assets managed at CalSTRS.

The asset allocation that was adopted in September 1999, included an allocation to domestic fixed income of 26%. The allocation of bonds within the approximately $26 billion Fixed Income Portfolio at September 30, 1999, included $9.0 billion in Treasury and Agency securities, $7.5 billion in Mortgage-Backed Securities (MBS), and $7.3 billion in investment grade Corporate Bond securities. Of this allocation, at least $16.5 billion, representing 70% of the Fixed Income Portfolio, are either government guaranteed or are rated AAA in credit quality.

As a result, one of the 1999/00 goals and objectives established for the Investment Branch is to explore, evaluate and present the inclusion of High Yield Bonds in CalSTRS' Fixed Income Portfolio. This presentation is a first step in that process.

Attachment 1 provides an historic review of High Yield Bonds, along with the role they play in the fixed income markets. Some of the considerations for investing in High Yield Bonds can be narrowed down to a few key areas. Of particular importance are the size and structure of the market within which High Yield Bonds trade, and whether the market composition lends itself to the participation of a fund the size of CalSTRS. Investing in High Yield Bonds should enhance the Fixed Income Portfolio return, relative to what is available from the domestic investment grade fixed income alternatives. In addition to the return enhancement potential of High Yield Bonds, the analysis would not be complete without addressing the default rate risks associated with this asset class, resulting in a discussion of the risk-adjusted returns. Finally, High Yield Bonds, combined with the domestic investment grade fixed income alternatives, should

provide diversification benefits in the form of improved risk-adjusted performance, as compared to the current portfolio.

Attachment 2 represents a sensitivity analysis conducted by Pension Consulting Alliance (PCA) in order to quantify the impact on CalSTRS' Fixed Income Portfolio from including High Yield Bonds. This analysis includes the risk/return expectations of High Yield Bonds as compared to the domestic investment grade fixed income securities currently represented in CalSTRS' Fixed Income Portfolio, along with correlation estimates. Also included is a peer group comparison, in order to gain a perspective on how similar funds utilize High Yield Bonds within their portfolios.

CONCLUSIONS

Research conducted up to this point has been broad in scope and has demonstrated that there is the potential for High Yield Bonds to add value to the CalSTRS domestic Fixed Income Portfolio. Further research of a more focused nature would address more specific issues regarding the role of High Yield Bonds for CalSTRS. As a result, PCA and staff propose conducting further analysis in the following areas for the Investment Committee's consideration and direction.

1. The style of management – Should it be strategic or opportunistic in nature,

2. The management decision – Should it be managed internally, externally, or a combination, and

3. The performance benchmark selection – What might an appropriate performance benchmark be?

THE ROLE OF HIGH YIELD BONDS IN A DIVERSIFIED FIXED INCOME PORTFOLIO

BACKGROUND

On a biannual basis, the Investment Committee of the California State Teachers' Retirement System (CalSTRS, System) engages in a series of Asset Allocation Workshops designed to review the overall asset allocation process and current asset allocation policy. At the Committee's direction, a set of constraints within which to model CalSTRS' updated investment allocation policy is developed by the Investment Committee's consultant, Pension Consulting Alliance (PCA). The desired result of the asset allocation process is to create an efficient frontier of portfolios with expected returns that exceed the actuarial earnings assumption, with the ultimate goal of developing a final portfolio that meets the System's financial goals.

During the series of Asset Allocation Workshops recently completed by the Investment Committee in August of this year, it was suggested that further exploration of the diversification and return enhancement benefits of its fixed income exposure be reviewed. One way to further diversification goals and add incremental return to the System through its fixed income holdings may be through the addition of High Yield Bonds. High Yield Bonds are those bonds rated below investment grade (i.e., bonds rated below Baa3/BBB-), as recognized by the two major rating agencies: Moody's and Standard and Poor's. Therefore, the universe of High Yield Bonds includes bonds rated anywhere from Ba1/BB+, to as low as C/D, meaning highly speculative as to whether the bond will pay either principal or interest, or a defaulted security. Currently there is no allocation to High Yield Bonds within the fixed income assets managed at CalSTRS.

The asset allocation policy that was adopted in September 1999 included an allocation to domestic fixed income of 26%. The allocation of bonds within the approximately $26 billion Fixed Income Portfolio at September 30, 1999, included $9.0 billion in Treasury and Agency securities, $7.5 billion in Mortgage-Backed Securities (MBS), and $7.3 billion in investment grade Corporate Bond securities. Of this allocation, at least $16.5 billion, representing 70% of the Fixed Income Portfolio, are either government-guaranteed or are rated AAA in credit quality.

As a result, one of the 1999/00 goals and objectives established for the Investment Branch is to explore, evaluate and present the inclusion of High Yield Bonds in CalSTRS' Fixed Income Portfolio. This presentation is a first step in that process, and includes an historic review of High Yield Bonds along with the role they play in the fixed income markets.

A BRIEF HISTORY OF HIGH YIELD BONDS

The High Yield Bond market can be divided into two eras: The pre-1980 High Yield Bond market and the post-1980 High Yield Bond market. The pre-1980 High Yield Bond market consisted of non-investment grade companies looking to issue debt to finance growth or acquisitions that generally had to go to the private placement market in order to receive consideration for financing. There was a limited universe of buyers of private placement debt and an even more limited secondary market for these securities. Pension funds and insurance companies essentially controlled this private placement market. These early buyers of private placement High Yield Bonds were normally specialized units that were staffed by professionals who were very knowledgeable about the limited market that existed at the time. As a result, these companies held the upper hand over borrowers when it came time to negotiate the terms of the debt covenants and indentures. This negotiation process was time consuming and tedious, and did not provide borrowers with the flexibility available to investment grade companies.

The post-1980 High Yield Bond market saw the development and rapid expansion of stock and investment grade bond markets. These markets did not, however, address the needs of smaller entrepreneurial companies in search of quick and cheap financing, or assist those individuals and corporations that sought to unlock what were perceived to be the hidden values of investment grade companies to their stockholders. Through a combination of borrowers looking for lenders, a renewed interest in financial markets and, therefore, financial engineering, and an explosion of entrepreneurial companies perceived to be on the "cutting edge" of technology, the High Yield Bond market began to expand. The prime underwriter in this High Yield Bond market was the investment-banking firm Drexel Burnham Lambert.

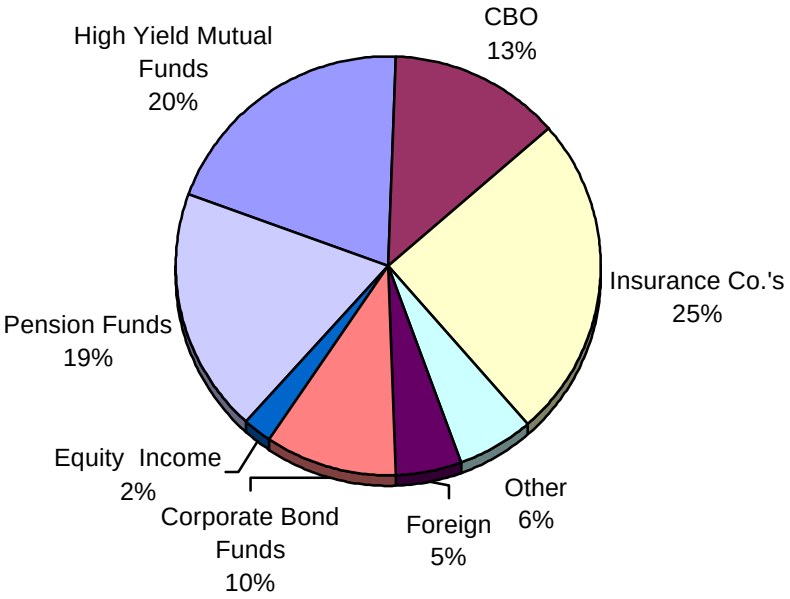
THE ROLE OF HIGH YIELD BONDS

Within the current High Yield Bond market, there are essentially three types of issuers: First, there are those issuers that are referred to as "fallen angels," or companies that have dropped below investment grade that still need to raise debt capital in order to finance their operations. Secondly, there are issuers that cannot get traditional bank financing or other types of secured or unsecured lending, such as growth companies that are too highly leveraged or too small. Finally, there are companies that are looking to make acquisitions in order to fund a buyout of the present stockholders.

The buyers of High Yield Bonds have expanded beyond the traditional insurance companies and pension funds to include Mutual Funds and Corporate Bond Funds.

High Yield Bond Market Ownership

$468 Billion as of December 1998



Source: Chase Securities, 1998

As the chart above illustrates, High Yield Bond market investors have broadened to include Mutual Funds (20%), Pension Funds (19%), Collateralized Bond Obligations (CBO's) (13%), and Corporate Bond Funds (10%). Insurance companies, however, continue to be a major participant in the High Yield Bond market with a 25% market share. Nevertheless, due to their growth and the reliance of the general public on the professional money management made available by them, Mutual Funds have become dominant players in the High Yield Bond market in terms of new issuance purchases and market liquidity in recent years. Therefore, while the chart may demonstrate that insurance companies represent 25% of the High Yield Bond market, Mutual Fund companies and other large participants are increasingly impacting much of the control and day-to-day liquidity in the market place.

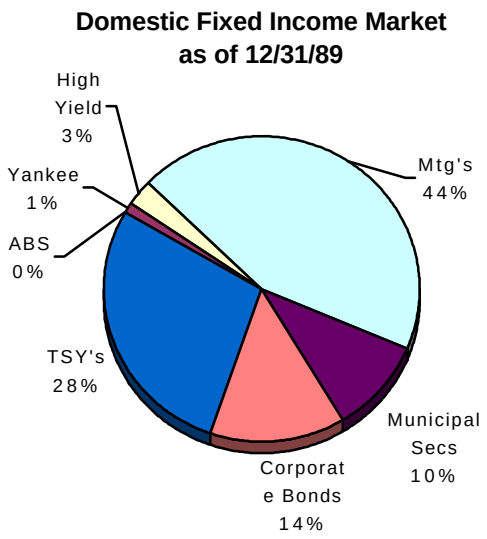
The rationale for the consideration of High Yield Bond investing can be narrowed down to a few key areas. Of particular importance are the size and structure of the market within which High Yield Bonds trade and whether the market composition lends itself to the participation of a pension fund the size of CalSTRS. Also, investing in High Yield Bonds should enhance the fixed income portfolio return, relative to what is available from the domestic investment grade fixed income alternatives. In addition to the return enhancement potential of High Yield Bonds, the analysis would not be complete without addressing the default rate risks associated with this asset class, resulting in a discussion of the risk-adjusted returns. Finally, High Yield Bonds, combined with the domestic

investment grade fixed income alternatives, should provide diversification benefits in the form of improved risk-adjusted performance, as compared to the current portfolio.

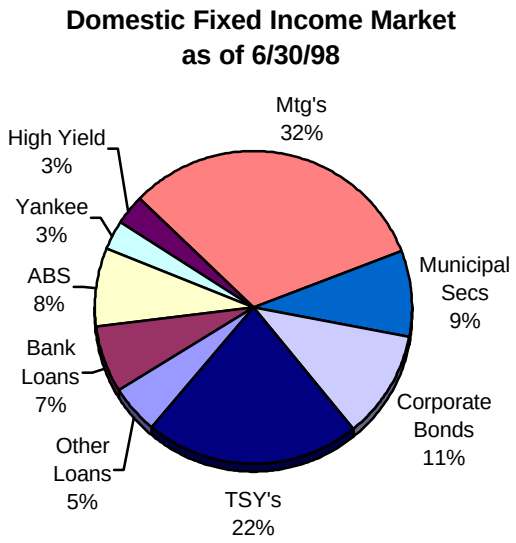
Size and Structure of the Domestic Fixed Income Market

Fixed income market trends over the last 10 years reflect a doubling of the domestic fixed income market from a total size of $8.0 trillion in December 1989 to almost $16 trillion by June 1998.

Fixed Income Market Trends



$8 Trillion



$15.6 Trillion

Source: PCA, Lehman, Frank Russell, CSFB

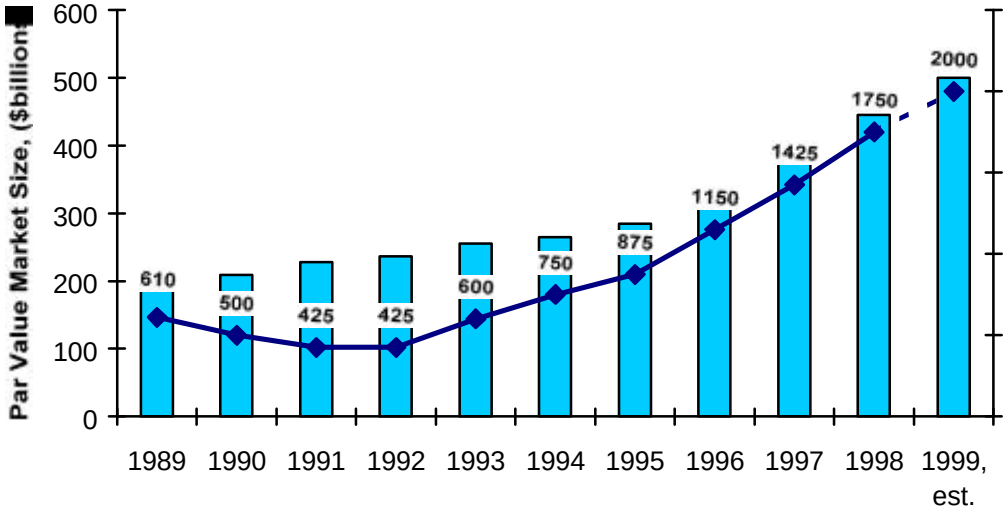
While the market for High Yield Bonds held steady at 3% of the total domestic fixed income market, the Treasury market shrunk in percentage terms from a 28% market share in 1989, to 22% in 1998. Corporate Bonds fell from a 14% market share in 1989, to 11% in 1998, and Mortgage-Backed Securities fell from a 44% market share to 32% in 1998. Therefore, on an absolute dollar basis, the High Yield Bond market grew from approximately $240 billion in 1989 to $468 billion in 1998--an average compound annual growth rate of nearly 8%.

Issuance Trends of the High Yield Bond Market

Between 1989 and 1998, the High Yield Bond market grew from a total of approximately 610 issuers, to 1750, for an annual average increase of just over 14%. The years of 1990-1992 saw a decline in issuance and the number of issuers coming to market, primarily brought about by the collapse of Drexel, Burnham, a general concern about the

overutilization of leverage in the financial system, and the inability of a larger number of companies to operate under a highly leveraged business model. However, the market recovered in 1993, as other investment banking firms saw the opportunities available in the High Yield market. Also, favorable economic conditions continued to prevail, as interest rates declined and stock prices continued to rise.

Size and Issuer Trends of High Yield Bond Market
1989-1999



Source: Donaldson, Lufkin, & Jenrette, 1998

The High Yield Market is expected to reach a size of approximately $500 billion by the end of this year, as the High Yield market continues in its expansion in both the number of issuers coming to market and in total market size.

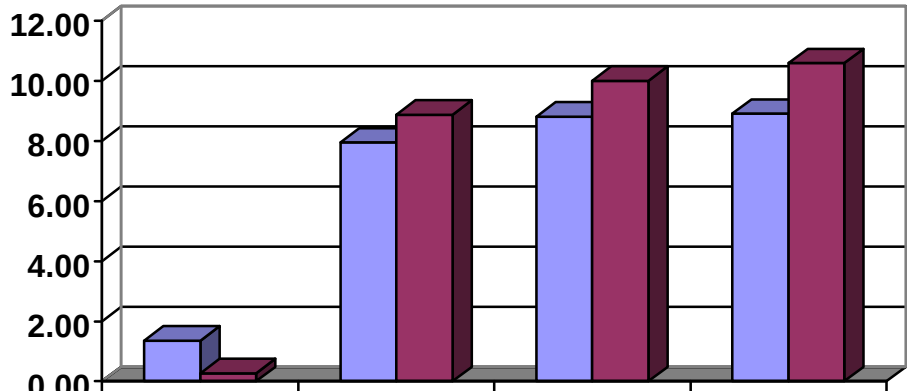
Enhanced Rates of Return

The second rationale for investing in the High Yield Bond market is the opportunity to earn excess returns, as compared to the domestic investment grade fixed income returns currently available to CalSTRS. In the analysis that follows, the returns associated with the High Yield Bond market, as represented by the Salomon Brothers High Yield Market Index (High Yield Market Index), is compared to the Salomon Brothers Large Pension Fund Index (LPF Index) over one, three, five and ten year periods, ending June 30, 1999. The LPF Index is the domestic long-term fixed income performance benchmark currently

being used by CalSTRS. The Salomon Brothers High Yield Market Index includes all High Yield Bonds one year and longer in maturity, excluding distressed and defaulted securities.

Performance Analysis

For the Periods Ending June 30, 1999



	1 Year	3 Year	5Year	10 Year
LPF Index	1.35	7.94	8.81	8.90
High Yield Market	0.27	8.87	10.00	10.58

Data: Salomon Smith Barney

The data demonstrates that, with the exception of the past 12 months, the High Yield Market Index has outperformed the returns generated by the LPF Index. Over the last fiscal year, High Yield Bond returns were sluggish, underperforming the LPF Index by 108 basis points. Over a 3, 5 and 10-year time frame, however, the Salomon High Yield Market Index outperformed the returns of the LPF Index by 93, 119 and 168 basis points, respectively. Therefore, we can conclude that High Yield Bonds have provided incremental returns over domestic investment grade fixed income portfolios over the long term. The next phase of this research shall address the risks associated with these incremental returns.

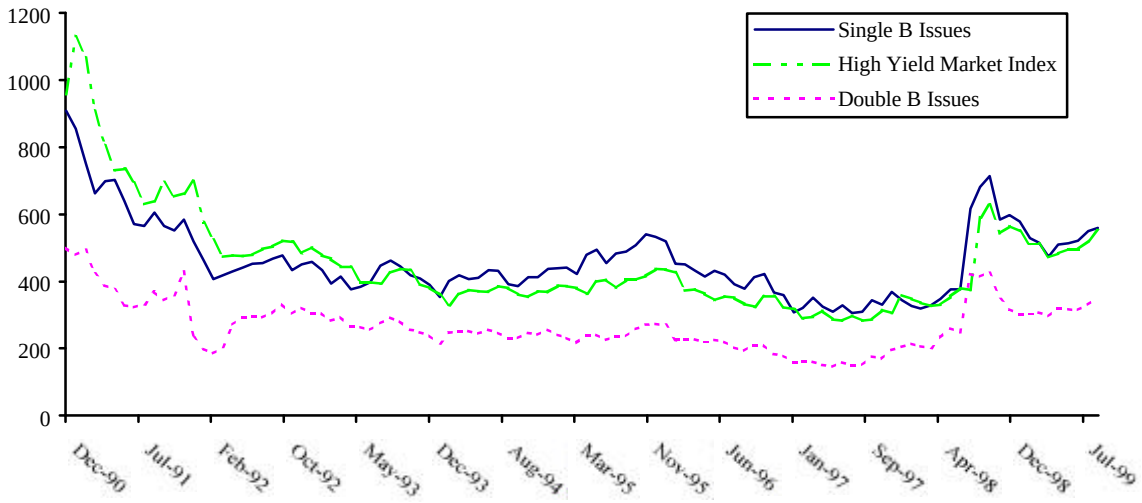
Default Rate

There have been numerous studies which review the default rate of the High Yield Bond market, using any number of measures and definitions, as well as academic and statistical reviews. Default in the High Yield Bond market is generally defined as any missed or delayed disbursement of interest and or principal, bankruptcy, receivership, or distressed exchange. It should be noted: bonds in the High Yield market default at a higher rate than do investment grade bonds. This is a function of the category. High Yield Bonds are inherently more risky from the standpoint of corporate quality, due to the fact that their

balance sheets and earnings streams are not comparable to investment grade companies. In other words, more credit risk involves a higher interest rate to investors in order to compensate for credit risk that the buyer is assuming. As a result, investors demand a higher than average coupon in the market place to compensate them for this level of risk. The following chart provides perspective on how this compensation for the risk associated with High Yield Bonds has varied over the past nine years, by illustrating the spread between High Yield Bonds, as compared to comparable U.S. Treasury securities.

High Yield Bond Market Spreads

Monthly Data: Dec-90 through Sep-99



Source: Salomon Smith Barney

SPREAD SUMMARY STATISTICS vs. COMPARABLE TSY'S
(*As shown in diagram above*)

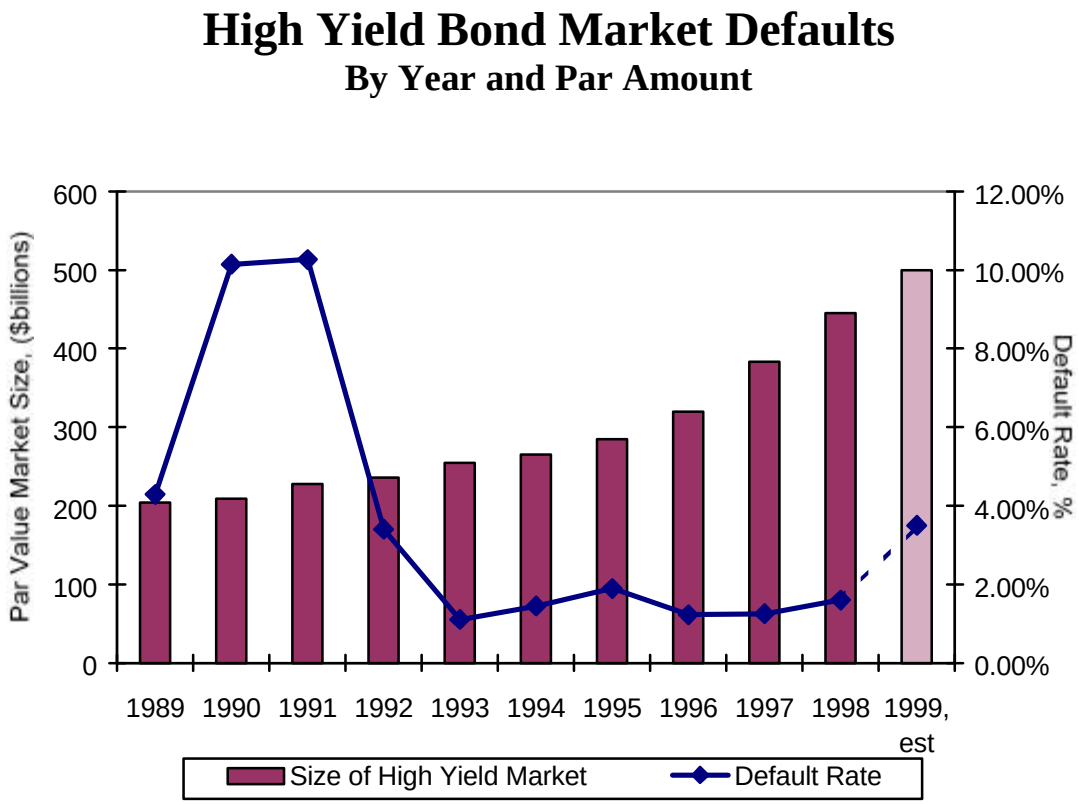
	Average	High	Low	Latest
Double B Issues	268	500	145	313
Single B Issues	463	908	306	519
High Yield Market Index	458	1,130	282	497

As shown above, the spread history between the High Yield Market Index and comparable U.S. Treasury securities has ranged from a low of 282 basis points in 1997, to more than 1100 basis points in late 1990. As a comparison, the spread history over the same time frame is shown for both single B and double B issues.

In addition, it should be noted that a bond default does not usually result in a total loss to the bondholder. Bondholders have more senior claims to corporate assets than do stockholders, and in a liquidation and reorganization are recognized by that seniority and are compensated appropriately. The recovery rate, or the market value of a High Yield Bond subsequent to default, will vary, based on a bond's seniority in the debt structure of

the company. As an example, the recovery rate for a defaulted High Yield Bond can range from 59 cents on the dollar for senior secured bonds, to 32 cents for subordinated issues, to 21 cents for discounted issues. Using a sample of 777 bonds defaulting from 1978 to 1997, the average recovery rate, based on the price of the bonds just after a default, was $40.55 on an equivalent face of value of $100.

The following chart overlays the rate of defaults in the High Yield Bond market with the par value market size, for each of the past ten years:



Source: Edmond F. Altman, Stern School of Business, NYU

The table demonstrates that between 1989 and 1998, High Yield Bond defaults ranged from a low of 1.11% in 1993 to a high of 10.27% in 1992. The weighted-average annual default rate over the entire 1989 – 1998 period was 3.08%. For the 1996 – 1998 period (i.e., 3 years) the weighted-average annual default rate was 1.40%, while for the five-year

period 1994 – 1998 the default rate was 1.48%. Default rates for 1999 are expected to increase to between 3% and 4%.

Judging from this data, High Yield Bonds do experience higher potential levels of default than investment grade bonds. However, as demonstrated earlier, investors are compensated through higher coupon payments from borrowers, as well as a more senior position than equity in a company's capital structure that insures a return of some principal to the investor.

Risk-Adjusted Returns

It has been shown that High Yield Bonds have generated incremental returns over domestic investment grade fixed income portfolios over longer periods of time. However, bonds in the high yield market also default at a higher rate than do investment grade bonds. This return/risk relationship must be quantified before an assessment and comparison can be made.

The Sharpe ratio serves as one such measure of risk-adjusted returns, in that it relates the average excess return of the asset to the risk of that asset over the same time period. A higher Sharpe ratio indicates that investors have been rewarded for taking extra risk by earning an extra return. The following table presents the Sharpe ratios for the LPF Index and the High Yield Market Index over the past 1, 3, 5 and 10 year periods.

Risk/Return Analysis
For Periods Ending 6/30/99

	LPF Index	High Yield Mkt Index
1 Yr. Total Return	1.35	.27
Standard Deviation	5.38	9.61
Sharpe Ratio	**.25**	**.03**
3 Yr. Total Return	7.94	8.87
Standard Deviation	5.20	6.08
Sharpe Ratio	**1.53**	**1.48**
5 Yr. Total Return	8.81	10.00
Standard Deviation	5.63	5.17
Sharpe Ratio	**1.56**	**1.93**
10 Yr. Total Return	8.90	10.58
Standard Deviation	5.60	6.46
Sharpe Ratio	**1.59**	**1.64**

Data: Provided by Salomon Smith Barney

Over the past 1 and 3 year time periods, the LPF Index, representing investment grade quality bonds, provided higher risk-adjusted returns than the High Yield Market Index, as measured by the Sharpe ratio. Over the past 5 and 10-year periods, however, the High Yield Market Index outperformed the LPF Index on a risk-adjusted basis, implying that investors have been rewarded, over a longer time horizon, for holding High Yield Bonds.

Diversification

The final rationale for expanding the universe of domestic fixed income to include High Yield Bonds lies in the potential to benefit from diversification. Diversification of assets assures us that the investment of funds in a wide variety of assets limits the exposure to the risk of any particular asset classes. Specifically, the return generated by High Yield Bonds has been less correlated with other segments of the bond market than those segments have been correlated with each other. Another corollary of diversification is based upon the tenet that diversification should increase expected return per unit of risk taken. This initial review of High Yield Bonds demonstrates that they do indeed provide a higher rate of return per unit of risk over longer time periods than investment grade fixed income assets (as indicated by the Sharpe ratio), thereby producing a desirable effect on the Fixed Income Portfolio.

Attachment 2 represents a sensitivity analysis, conducted by PCA in order to quantify the impact on CalSTRS' Fixed Income Portfolio by including High Yield Bonds. This analysis will include the risk/return expectations of the aggregate investment grade Fixed Income Portfolio and High Yield Bonds, along with correlation estimates. Also included will be a peer group comparison, in order to gain a perspective on how similar funds utilize High Yield Bonds within their portfolios.

Attachment 2
Investment Committee – Item 9
November 3, 1999

PENSION CONSULTING ALLIANCE, INC.

A Return/Risk Sensitivity Analysis of High Yield Bonds

October, 1999

by Pension Consulting Alliance, Inc.

Neil A. Rue, CFA
Allan R. Emkin

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PENSION CONSULTING ALLIANCE, INC.

A Return/Risk Sensitivity Analysis of High Yield Bonds

Table of Contents

Section	Page
Introduction	3
Assumptions and Expectations	3
Correlation Estimate	4
Adding High Yield Bonds to the Domestic Fixed Income Portfolio	4
Implications for Fixed-Income Policy	5
Public Pension Fund Comparisons	5

A Return/Risk Sensitivity Analysis of High Yield Bonds

Introduction

Quantifying the risk/reward characteristics of incorporating high yield fixed-income into the CalSTRS domestic bond portfolio is the purpose of this report. PCA conducted a sensitivity analysis of adding high yield fixed income to CalSTRS' fixed income portfolio. PCA used the same tools and methodology in this review as with the asset allocation study for the Total Portfolio.

Assumptions and Expectations for the Major Bond Segments

As with the Total Portfolio asset allocation study, certain key assumptions are required to test the impact of including high yield bonds within the overall bond portfolio. These assumptions include projections for the high yield component of the bond market and the broader bond market (see table below).

Return and Risk Expectations—Major Bond Sectors and Bond Asset Class

Asset Class	Expected Return	Expected Risk
High Yield Bonds	7.00	15.0
Aggregate Bonds (based on LPF)*	5.33	12.0

*Domestic bond expectations shifted to better reflect STRS domestic bond portfolio. STRS manages against the Salomon Large Pension Fund bond index, which has a longer maturity and higher yield than other investment grade fixed-income benchmarks.

The return and risk expectations above reflect the underlying segments utilized within the CalSTRS domestic bond portfolio, keeping in mind certain considerations:

- Assumptions for the Aggregate Bond market match more closely the characteristics of STRS' actual aggregate domestic bond portfolio. These characteristics reflect a slightly longer average maturity and higher exposure to interest rate volatility. Such characteristics are also evident in CalSTRS' domestic fixed income benchmark, the Salomon Large Pension Fund (LPF) Index.

- The expected return for the High Yield bond segment is higher than the broader bond market, reflecting relatively higher risk. High yield bonds typically contain covenants that pass through a portion of a company's equity return and risk, causing them to behave more like equity instruments than

other bonds. The expected return premium over a portfolio of investment grade bonds (Aggregate Bonds) is approximately 1.7% per year. This gap is consistent with the historical results presented earlier.

Correlation Estimate

With the exception of high yield bonds, all the major segments of the bond market (Governments, Mortgages, and Corporates) are very highly correlated to one another. All have correlations with one another of at least 0.90. The High Yield Bond correlation with the broad bond market is also high (at least 0.50), but is significantly lower than the other segments. As a result, within the bond asset class itself, high yield bonds will also prove attractive because they are a good diversifier. For the purpose of this analysis, PCA used a correlation of 0.65 between High Yield bonds and the broader bond market (Aggregate Bonds).[1]

Adding High Yield Bonds to the Domestic Fixed Income Portfolio

Using these new return, risk, and correlation assumptions, PCA tested how mixes of domestic bonds and high yield bonds altered the risk and return characteristics of an otherwise broadly diversified investment grade bond portfolio (represented by Aggregate Bonds). To begin this analysis, PCA began by allowing high yield bonds to substitute directly for a portion of the overall CalSTRS fixed income portfolio (Aggregate Bonds). PCA set a maximum constraint on high yield bonds of 5% of total CalSTRS fixed income assets.[2]

The optimal mix versus the current bond portfolio (Aggregate Bonds) appears below.

Mixes Using Two Classes: Total Bonds and High Yield

Asset Class	Current Policy	Optimal Mix
High Yield	0	5
Aggregate Bonds (based on LPF)	100	95
Expected Return (in %)	5.33	5.41
Expected Risk (Holding period SD) (in %)	3.86	3.82

1 Historically, the correlation of annual returns since 1985, between the Merrill Lynch High Yield Index and the Salomon Large Pension Fund Index has been 0.67.

2 The 5% figure is consistent with current market proportions as measured by the Lehman Universal Index, a broad-based fixed income index that incorporates high yield bonds.

The table above indicates that adding high yield bonds to the domestic fixed income portfolio had modest positive impact on the return-risk profile of the domestic fixed income portfolio. The expected average annual return rose by eight basis points while risk declined slightly.[3]

In a broader context, an allocation to high yield within the domestic fixed income portfolio should have very modest impact on the broader CalSTRS Total Portfolio. First, a 5% allocation to high yield bonds within the domestic fixed income portfolio translates into a maximum allocation of 1% at the Total Portfolio level. Second, the return and risk characteristics of high yield bonds do not differ enough from those characteristics of the other bond segments and asset classes to impact risk-adjusted overall performance materially. As a result, at the Total Portfolio level, the overall expected return might rise by one-to-three basis points per year with no significant impact on overall risk.

Implications for Fixed-Income Policy

This analysis indicates that there is the potential for high yield bonds to add modest incremental value to the domestic fixed income portfolio. The above study operates under one very important assumption: that the segment portfolios are passive and static in nature. At the margin, there may prove to be opportunities where certain active/tactical approaches within the high yield segment can incremental add value. The above analysis should not and does not depend on executing such strategies, but rather focuses on whether risk-adjusted returns might improve through exposure to a certain type of asset class. Clearly, if certain tactical investment approaches within the high yield bond segment can exhibit consistent added value, they may be able to add some incremental risk-adjusted value over a long investment horizon.

Public Pension Fund Comparisons

In order to gain a perspective of how similar funds utilize high yield fixed income within their portfolios, PCA prepared the following chart that compares CalSTRS peers' allocations (if any) and whether these allocations are managed internally or externally. Where the table shows that a fund has an allocation to high yield bonds, it is important to note that the data isolates only those funds with dedicated high yield mandates. If a specific plan sponsor has allowed for some high yield exposure through its core fixed income portfolios, it is not being

[3] While the risk-adjusted return improvement was positive, its relatively small size indicates that it may not prove to be statistically significant, particularly when assessed against the costs of implementing a dedicated high yield program.

highlighted in these numbers. This being the case, the data in the table understates the true allocation to high yield instruments.

CalSTRS Peers' Allocations to High Yield versus Domestic Bonds (by Mandate)

Sponsor	$ in High Yld Amount	Total $ in Domestic Bonds	% of Domestic Bonds	Internal/External
Wisc SIB	3,177	14,425	22.0%	Internal
LA CERA	1,154	7,156	16.1%	External
New York City ERS	1,368	10,708	12.8%	External
Colorado PERA	192	2,576	7.4%	Internal
Maryland Ret. & Pens.	254	7,544	3.4%	External
Penn Schools	45	7,992	0.6%	External
Texas Teachers RS	79	25,591	0.3%	Internal
Virginia RS	-	8,330	0.0%	-
Oregon PERF	-	7,370	0.0%	-
New Jersey DI	-	19,202	0.0%	-
New York Teachers	-	12,382	0.0%	-
New York Common RF	-	38,496	0.0%	-
CalPERS	-	36,320	0.0%	-
Median % of those with Dedicated High Yield Program			7.4%	

Source: IFE, oldest data as of 3/31/99. High yield includes a variety of mandates such as: private placement programs, distressed fixed-income, and convertible mandates.

This table reveals, first of all, that approximately one-half of CalSTRS peers do not have focused high yield programs. Of those that have programs, the median amount within a domestic fixed-income portfolio invested in high yield is 7.4%. Also, of the seven plan sponsors indicating exposure to dedicated high yield mandates, three are internally-managed and four rely on external expertise. Interestingly, the largest high yield mandate is managed internally. Finally, all high yield programs are actively-managed, reflecting a value-added approach to investing in the sector.