CDIAC 2008
ESTABLISHING BENCHMARKS TO MEET INVESTMENT POLICY OBJECTIVES

Presenter:

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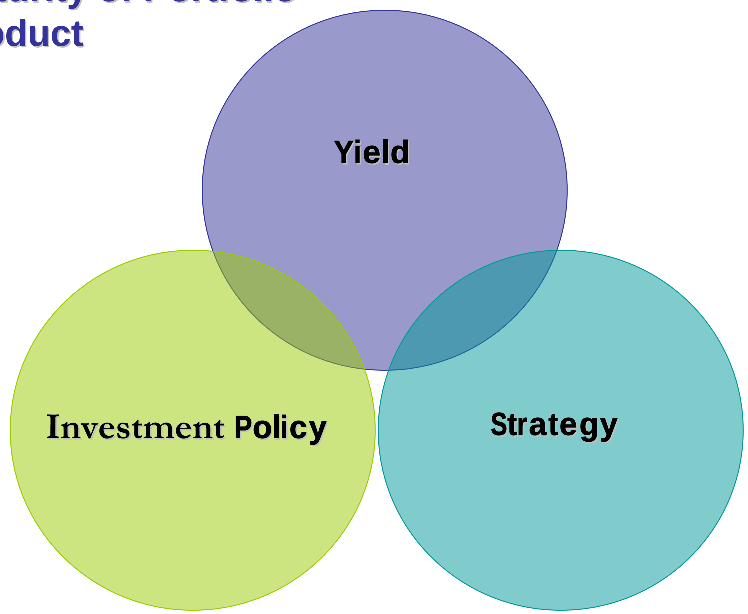
BEST PRACTICE PROCESS
2008 and Beyond

BEST PRACTICE BENCHMARK		
LIQUIDITY	SAFETY	RETURN
Requirements **Maintenance**	**Diversification** **Quality**	**Market Return** **BookYield**

Encompassing Portfolio Management Tools – Developing a Process

Effect:
*** Purchase date**
*** Maturity of Portfolio**
*** Product**



Process:
*** Control Risk**
*** Manage Return**
*** Accountability**
*** Strategy**

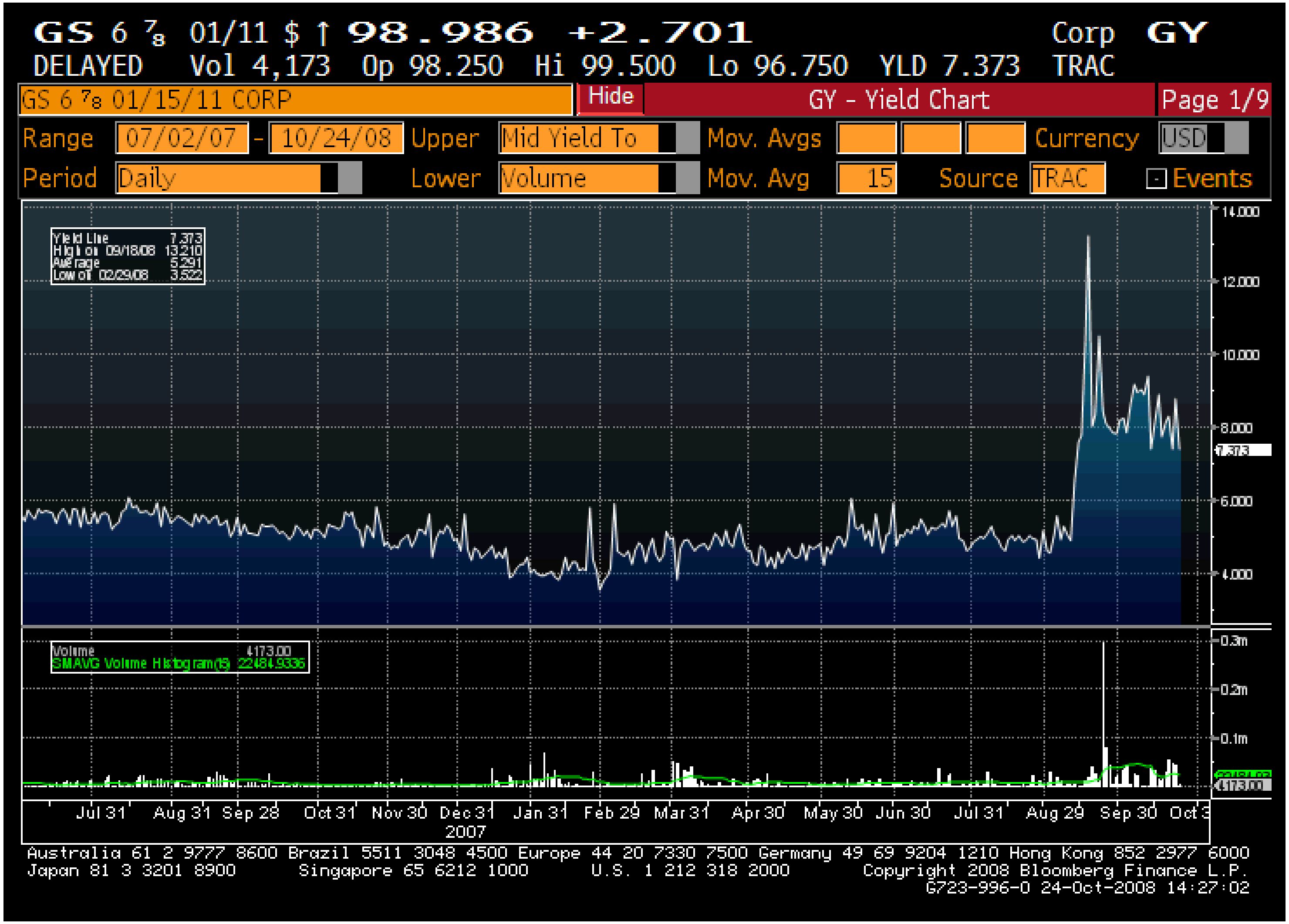
Framework:
*** Maturity**
*** Asset Allocation**
*** Broker Relationships**
*** Define Goals**

Reality 2008 –
Public Fund Cash Management Process

Investment Policy	Political and Internal Environment	Risk	Return
Safety Liquidity Market Rate of Return	Board Investment Committee Staff Turnover Resources (Experience, time, software, etc.)	Safety Liquidity Cash-Flow Mark to Market Political	Book Yield & Accrual Performance (Mark to Market) Optimizing the Growth of Funds

TREASURY YIELDS

YIELD CHANGE ON CORPORATE BONDS



Best Practice Considerations Incorporate Policy Objectives

FIRST PRIORITY

- SAFETY **= Asset Allocation & Diversification**
- LIQUIDITY **= Cash Flow & Liquidity Needs**

SECOND PRIORITY

- RETURN **= Market Risk Exposure, Duration**

Safety: Asset Allocation and Diversification

- Credit Risk: The risk associated with the failure of a security to pay.

- Interest Rate Risk: The risk of change in market value when rates rise. (Utilize duration to manage risk)

Liquidity: Address adequate liquidity

- Review cash flows
- Analyze historical balances to determine minimum liquidity balances.
- Manage to excess liquidity. Keep in mind that historical returns show that excess liquidity has a cost.

Return: Achieve market rates of return

- Review pool returns
- Review maturity sectors
- Review asset classes
- Review Risk

Question: Does it benefit your entity to invest outside of the pool to diversify returns?

Discussion today - How benchmarks can be utilized to incorporate the policy objectives

- Creates guidelines for liquidity, safety and return
- Provides accountability to the decisions
- Provides for the ability to communicate clearly within your organization
- Each benchmark is specific to the profile of your organization in regards to safety, liquidity and return

What is a benchmark?

A standard used as a comparison or measure.

Define the following benchmarks for your portfolio:

- Liquidity Benchmark
- Safety Benchmark
- Return Benchmark

The Utilization of a Benchmark as Part of that Process

Why use benchmarks?

- Use to measure and compare actual to targets
- Compare performance

More importantly:

- Guides your decision making
- More accountable to decisions
- Supports your plan

Addressing Liquidity- Benchmark

- What amount of cash do you need to have on hand or keep under six months in maturity.

- Pull up historical cash balances for the last 3 years.

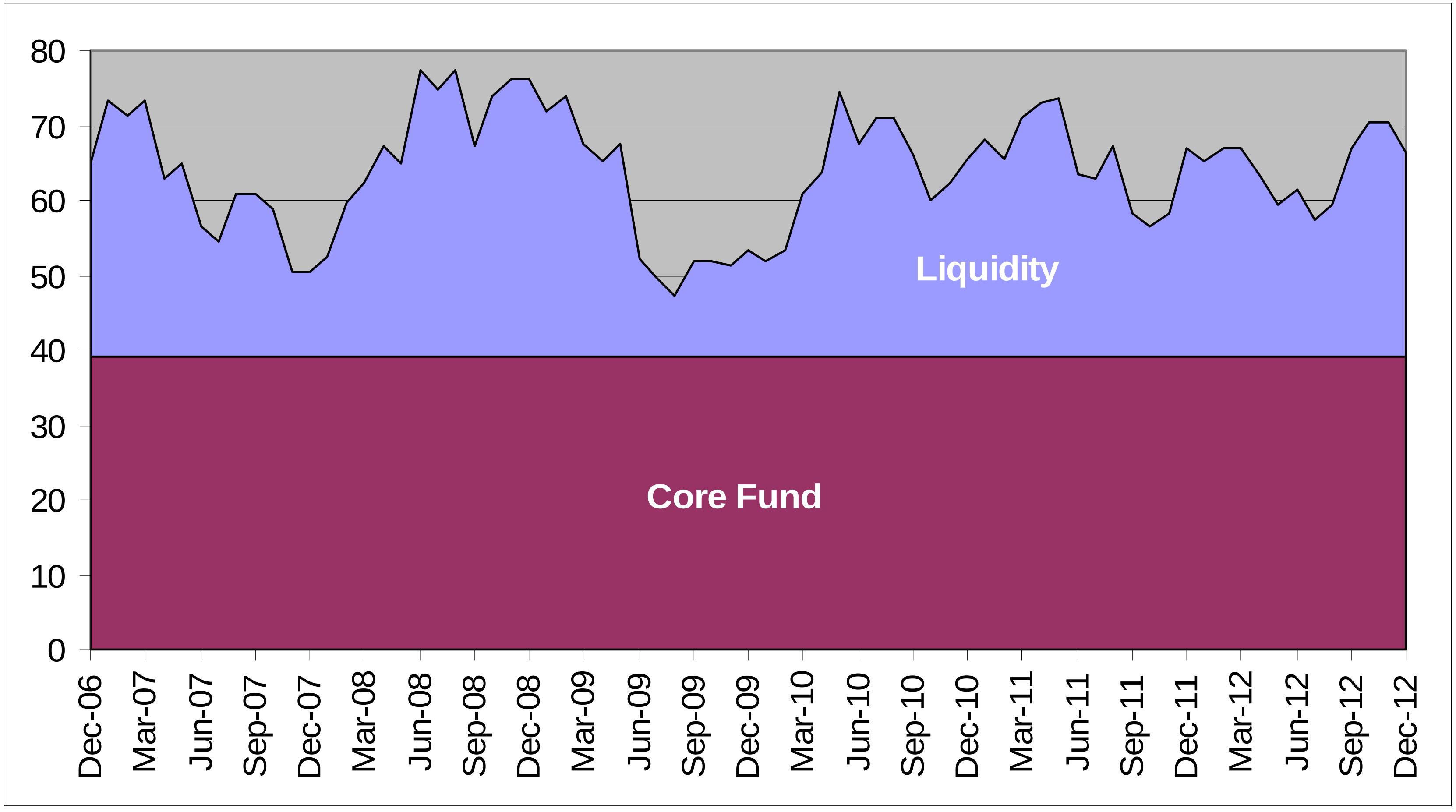
- Liquidity fund must stay in short instruments such as the State pool, CD’s and Money Market Instruments, typically under six months.

Reviewing historical cash flow

TARGET CORE FUND APPROACH

DAVIDSON FIXED INCOME MANAGEMENT CORE FUND DETERMINANTS				
36 month history				
Historical fund balances				
Determine core fund and let liquidity float…				
High Balance Past 36 months		$75,246,000.00		
Low Balance Past 36 months		$52,400,352.00		
Average Balance		$63,823,176.00		
CORE FUND	75%	$39,300,264.00		
LIQUIDIITY FUND		Low	Average	High
		$13,100,088.00	$24,522,912.00	$35,945,736.00
LARGEST NET CASH FLOW MONTH PAST 36 Months		$ (5,593,919.66)		

Liquidity versus Core



Benchmark #1- Liquidity

Liquidity Ranges are developed as the benchmark to manage expectations.

Minimum Value: $13,000,000

Average Value: $24,000,000

Maximum Value: $36,000,000

If liquidity balances are outside of these ranges then cash flows should be checked

Addressing Safety- Benchmark

- Which allowable securities present credit risk to your entity?
    - In this current market, probably all of them:

        Treasury
        Agency
        Bank Deposits
        Commercial Paper
        Corporate Bonds
        Municipal Bonds

- Diversification is the key tool to manage this… but what should your diversification targets look like?

Addressing Safety

- The policy should constrain your portfolio to the maximum level of credit risk that your entity is willing to in any one issuer.
- Just because you are allowed to buy it by state statue doesn’t mean that your entity has to have that in the policy
- Know what your are investing in and how it impacts the credit quality of your portfolio.
- Establish the diversification guideline based on normal circumstances in the marketplace. Your practice will vary depending on market conditions.

Benchmark # 2 - Safety

ISSUER		POLICY	BENCHMARK PRACTICE	CURRNET HOLDINGS	CURRENT STRATEGY
US Treasury		100%	5%	7%	Overweight
US Agency Securities		100%	40%	55%	Overweight
	FHLB	50%	30%	24%	Overweight
	FHLMC	50%	20%	8%	Underweight
	FNMA	50%	20%	7%	Underweight
	FFCB	50%	30%	16%	Overweight
	Other GSE's	10%	0%		
Bank Deposits and CD's		25%	10%	5%	Underweight
Commercial Paper		25%	10%	5%	Underweight
Bankers Acceptance		25%	0%		
Repurchase Agreements		10%	0%		
Corporate Bonds		30%	15%	8%	Underweight
Mortgages		20%	0%		
State Investment Pool		100%	20%	20%	Neutral

STRUCTURE TYPE	POLICY	BENCHMARK PRACTICE	CURRENT
Non - Callable	N/A	70%	68%
Callable	N/A	30%	32%

Addressing Return Expectations

- Should a priority be returns since it is an objective?
- Do you have a responsibility to achieve market rates of return?
- How do you determine the appropriate return goals…

    Is your neighbor? Is it the pool? Can you use your own benchmark?

- What should you use to measure?

Liquidity component will earn short money rates but how you invest the core fund matters…..

Returns
Benefits of Diversified Maturity Structure

- **Assumptions**
  - **Current Portfolio Size:** $100,000,000
    - Liquid Portion (25%) $25,000,000
    - Core Portion (75%) $75,000,000
      - Blended Portfolio Duration: 0.90 years
  - **Historical Average Rates for last 10 years**

    Liquid: 4% Core: 4.5%
  - **Benchmark**

    US Treasury 0-3 year Duration: 1.2 yrs

12 Months Earnings Due to Given Change in Rates		
Rates	**Liquid Only**	**Liquid/Core Split** (Interest Only)
Increase 200 bp	$ 4,000,000 4.00%	$ 4,375,000 4.38%
Increase 200 bp	$ 6,000,000 6.00%	$ 4,875,000 4.88%
Decrease 200 bp	$ 2,000,000 2.00%	$ 3,875,000 3.88%

Returns
Benefits of Diversified Maturity Structure

- **Assumptions**
  - **Current Portfolio Size:** $10,000,000
    - Liquid Portion (60%) $6,000,000
    - Core Portion (40%) $4,000,000
      - Blended Portfolio Duration: 0.49 years
  - **Historical Average Rates for last 10 years**

    Liquid: 4% Core: 4.5%
  - **Benchmark**

    US Treasury 0-3 year Duration: 1.2 yrs

12 Months Earnings Due to Given Change in Rates		
Rates	**Liquid Only**	**Liquid/Core Split** **(Interest Only)**
Increase 200 bp	$ 400,000 4.00%	$ 420,000 4.20%
Increase 200 bp	$ 600,000 6.00%	$ 540,000 5.40%
Decrease 200 bp	$ 200,000 2.00%	$ 300,000 3.00%

The Core Fund- Facts

- Designated investment component of the operating fund that can manage the risk and return of the portfolio in various market conditions.

- Within the core fund, the policy issues of safety and return can be refined and incorporated with a safety benchmark and return benchmark.

- The largest contributor to return is average maturity or duration over time. Historically, the longer the maturity the higher the return. Or the longer you can keep your money invested the greater it will grow.

Strategy Utilizing Markets Benchmarks to control risk and return

STEPS:

1. Evaluate return expectations
2. Determine acceptable risk tolerance
3. Establish appropriate benchmark
4. Establish duration targets
5. Determine guidelines – Asset Allocation
6. Monitor and report performance
7. Rebalance the portfolio

Definition of duration?

- It is a tool that fixed income managers use to approximate the price change in a portfolio or a security given a change in rates.

- It is the Sum of the Present Values of Future cash flows

Facts:

Longer Maturity	Longer Duration
Higher the Coupon	Shorter Duration
Higher Reinvestment Rates	Shorter Duration

- It is a measure of time and will always be shorter then the Weighted Average Maturity (WAM)

Calculation = Duration * Market Value*rate Change = Market sensitivity

Step 1: Evaluate Return Expectations Based on Duration

Ending Value and Return - Manage Duration

$100,000,000.00 Invested Over the Last 10 Years

Quarter Ending:	9/30/2008			
Portfolio Size (Core):	$	100,000,000	10 Year Returns	
Index/ Duration	10 Year Earnings		Raw	Annualized
US Treasury 0-1 Year 0.58	**$**	**44,593,000**	**44.59**	**3.75**
US Treasury 0-3 Year 1.2	**$**	**50,784,000**	**50.78**	**4.19**
US Treasury 0-5 Year 1.85	**$**	**54,390,000**	**54.39**	**4.44**

Source: Merrill Lynch indices

Step 1: Evaluate Return Based on Duration

Ending Value and Return- Manage Duration

$100,000,000.00 Invested Over the Last 5 Years

Quarter Ending:	9/30/2008			
Portfolio Size (Core):	$ 100,000,000		5 Year Returns	
Index/ Duration	5 Year Earnings		Raw	Annualized
US Treasury 0-1 Year 0.58	**$**	**17,934,000**	**17.93**	**3.35**
US Treasury 0-3 Year 1.2	**$**	**18,550,000**	**18.55**	**3.46**
US Treasury 0-5 Year 1.85	**$**	**19,541,000**	**19.54**	**3.63**

Source: Merrill Lynch indices

Step 1: Evaluate Return Based on Asset Allocation

Ending Value and Return- 6/30/08

$100,000,000.00 Invested Over the Last 5 Years

Quarter Ending:	9/30/2008			
Portfolio Size (Core): $	100,000,000		5 Year Historical Return	
Index	**Dur.**	**5 Year Earnings**	**Raw**	**Annualized**
US Treasury 90 Day Bill	**0.16**	**$ 17,386,000**	**17.39**	**3.26**
US Treasury 1-3 Year	**1.63**	**$ 18,971,000**	**18.97**	**3.53**
US Agency 1-3 Year Bullet	**1.74**	**$ 18,992,000**	**18.99**	**3.54**
US Agency 1-3 Year Callable	**0.98**	**$ 17,674,000**	**17.67**	**3.31**
1-3 Year Corp A-AAA	**1.77**	**$ 10,979,000**	**10.98**	**2.10**
1-3 Year Corp AA-AAA	**1.79**	**$ 14,839,000**	**14.84**	**2.80**

Source: Merrill Lynch indices

Step 2: Determine Acceptable Risk Tolerance Based on Mark to Market

$100,000,000 Portfolio

Portfolio Size (Core): $ 100,000,000	100 bp +/-		200 bp +/-	
Index/ Duration	**% ? P**	**Value**	**% ? P**	**Value**
US Treasury 0-1 Year 0.58	**0.58%**	**$ 580,000**	**1.16%**	**$ 1,160,000**
US Treasury 0-3 Year 1.2	**1.20%**	**$ 1,200,000**	**2.40%**	**$ 2,400,000**
US Treasury 0-5 Year 1.85	**1.85%**	**$ 1,850,000**	**3.70%**	**$ 3,700,000**

Portfolio Size (Core):

- **Value Change Calculation: $100,000,000 (portfolio size) * 1.2 (duration) * .01 (rate move) = $1,200,000**

- **2 YEAR TREASURY NOTE JUNE 1997 – JUNE 2007**
  - **Average annual yield change (high to low) was 153 basis points**
  - **Standard Deviation is 51 basis points**
  - **One Standard Deviation range (68%) is 102 bp to 204 bp**
  - **Two Standard Deviation range (95%) is 51 bp to 255 bp**

Step 3: Determine the Appropriate Benchmark for your Entity

BENCHMARK ALTERNATIVES	DURATION	SELECTION
State Pool	.2 years	
Treasury 0-1 Year	.55 years	
Treasury 0-3 Year	1.20 years	X
Treasury 0-5 Year	1.85 years	
DFIM 0-3 Year	1.2 years	
DFIM 0-5 Year	1.85 years	

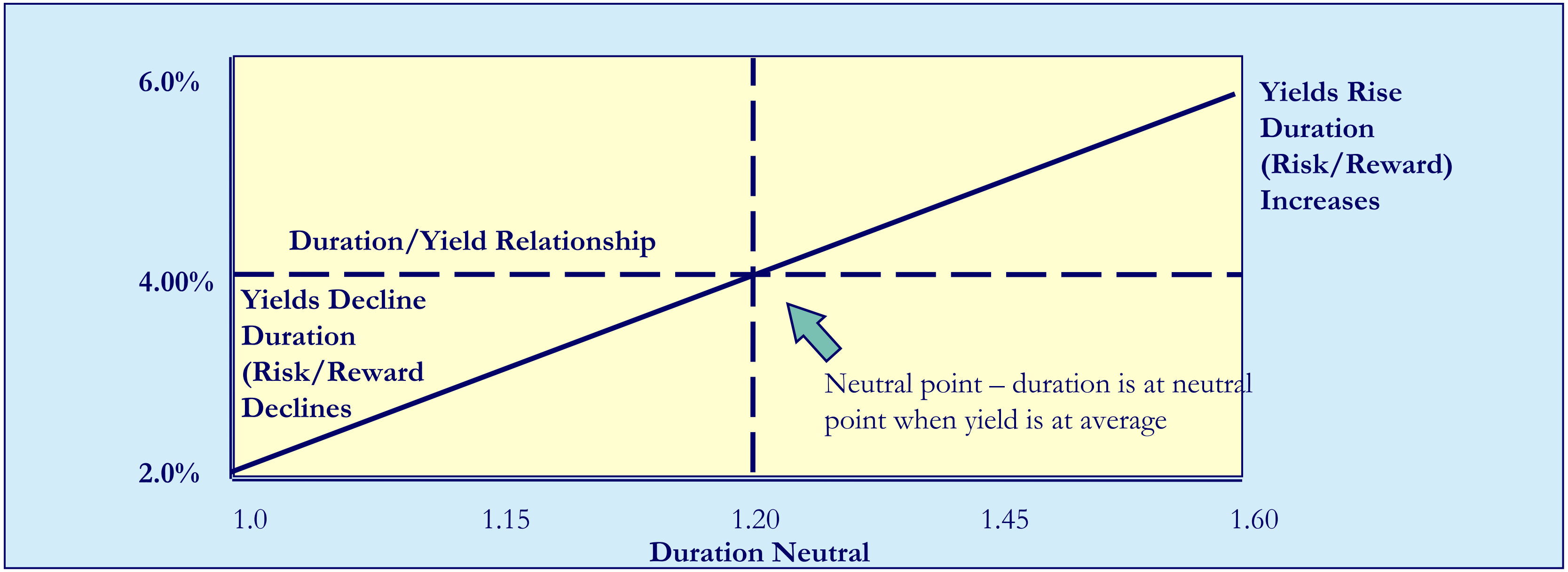
*DFIM are customized benchmarks for public fund investors that invest predominately in agency securities. They consist of 15% 0-1 year treasury and the balance in the 1-3 year or 1-5 year agency index. Comprises of approximately 15% callable securities.

DavidsonFIM.Com -- Benchmarks.

Step 4: Establish Duration Targets

Benchmark: US Treasury 0-3 Year
Benchmark duration: 1.20 years (this is your neutral position)
Historical Average rate on 2 year note is approximately 4.0%

Strategy: Based on current rates relative to historical rates portfolios should be approaching their neutral positions.



Historical Yield Levels

US Treasury	Historical Average Rates		Current Rates
	5 Year (through Aug 2008)	**10 Year (through Aug 2008)**	As of: 10/30/08
3 Month	**3.08**	**3.34**	.51
6 Month	**3.27**	**3.48**	.99
2 Year	**3.50**	**3.81**	1.56
5 Year	**3.94**	**4.30**	2.79

Step 5: Determine Acceptable Risk Credit Diversification

ASSET ALLOCATION TARGETS

	Policy	Practice
Treasury	100%	10%
Agency Bullet Securities	100%	65%
Callable	30%	25%

Step 6: Report on Portfolio

Liquidity Component of Portfolio

20MM State Pool or Short Term Money Market Issues Rate 2.20%

Core Component Of Portfolio - 06/30/08

Issue	Acq Date	Acq Yield	% Holding	Duration (Years)
4,000M FHLB 5.00 9/12/08	11/22/06	4.95	10%	.07
4,000M FFCB 3.625 10/24/08	1/17/08	3.35	10%	.18
4,000M FHLB 5.00 2/13/09	12/18/06	5.07	20%	.48
4,000M FHLMC 5.25 5/21/09	9/18/06	5.00	10%	.73
4,000M UST 3.375 9/15/09	12/17/07	3.32	10%	1.04
4,000M FFCB 5.08 12/02/09	01/22/07	5.04	10%	1.24
4,000M FFCB 2.75 5/4/10	05/01/8	2.90	10%	1.65
4,000M FHLB 3.00 6/11/10	6/18/08	3.72	10%	1.74
4,000M UST 2.875 6/30/10	7/29/08	2.54	10%	1.81
40,000,000		**4.10**	**100%**	**.94**

Step 7: Rebalance the Portfolio

STRATEGY GOAL		
Current Duration	.94 years	
Target Duration	1.10 years	
Change in Duration Needed	.16 years	
Percentage of Portfolio changing	10%	
Maturity needed to move duration	1.6	= Duration change needed / % portfolio changing

WHAT IF SCENARIO			
MATURING BOND	Price	Duration	YTM
4,000M FHLB 5.00 9/12/08	$ 100		
BUY			
4,000M FHLB 3.15 6/24/10 6/24/09 1X call	$ 100	1.6 years	3.15%

Decision: Added a 1.6 year duration to get to target of 1.10 years duration on the portfolio.
Added to callable sector due to wider spreads, bullets were at 2.66% - 1 X call

Benchmark #3 - Return

Public funds typically use a a total return benchmark and a yield benchmark:

- Established Market Benchmark for Risk and Return

  Example: US Treasury 0-3 year – Duration 1.20

- Yield benchmark for overall portfolio can be the state pool or a rolling 6 month bill

Monitor Portfolio Compared to Benchmark – Growth on $100,000,000

	Returns 12/31/07 - 6/30/08		Since Inception - 12/97	
	Portfolio	Benchmark	Portfolio	Benchmark
Raw Return	2.29%	2.10%	71.14%	62.42%
Annualized	4.66%	4.27%	5.26%	4.73%

VALUE ADDED SINCE 12/31/97

Portfolio	$71,141,000
Benchmark	$62,420,000
Pools (0-1)	$49,916,000

DIFFERENCE Portfolio vs. Benchmark	$8,721,000.00
DIFFERENCE Portfolio vs. Cash	$21,225,000

Benchmark 1-3 year Treasury

Duration 1.65 years

Core Fund Only Book Yield Comparison

BENCHMARK IN YIELD FOR COMPARISON - Through 9/30/08			
		Current	Rolling 1 Year
	Duration	Yield	Period
CA- State Pool (LAIF)	.2 years	2.77%	3.76%
2 Year Rolling Agency	0.95	3.00%	4.84%
Portfolio	1.2	3.95%	4.39%

Investment Process should include:

- Maximum Maturity – for Total Portfolio
- Asset Allocation Guidelines
- Strategy Based on Current Rates
- Reporting
- Operational Procedures

Operational Procedures

- Custodial Third Party Bank
- Broker/Dealer Relationships
- Money Transfers
- Advisory Relationships
- Reporting
- Communication to Board

What are the costs to manage a public fund portfolio?

- Staff time
- Software
- Credit risk
- Advisory fees
- Transaction costs

BEST PRACTICE INVESTMENT PROCESS BENCHMARKS

LIQUIDITY BENCHMARK	SAFETY BENCHMARK		RETURN BENCHMARK
LIQUIDITY RANGES	**ISSUER**	**PERCENTAGE**	**TARGETS**
Minimum	US Treasury	5%	**Risk Benchmark**
$13,000,000.00	US Agency Securities	40%	Treasury 0-3 Year
	FHLB	30%	
Maximum	*FHLMC*	20%	**Yield Benchmark**
$36,000,000.00	*FNMA*	20%	LGIP
	FFCB	30%	Rolling 2 year
Invested 6 months and shorter	*Other GSE's*	0%	
	Bank Deposits and CD's	10%	
	Commercial Paper	10%	
Minimum of $10,000,000 in Pool.	Bankers Acceptance	0%	
	Repurchase Agreements	0%	
	Corporate Medium Term Notes	15%	
	Mortgage Securiteis	0%	
	State Investment Pool	20%	

COMPLY	COMPLY	COMPLY

THANK YOU