

CDIAC - 2009

ESTABLISHING BENCHMARKS TO MEET INVESTMENT POLICY OBJECTIVES

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BEST PRACTICE PROCESS

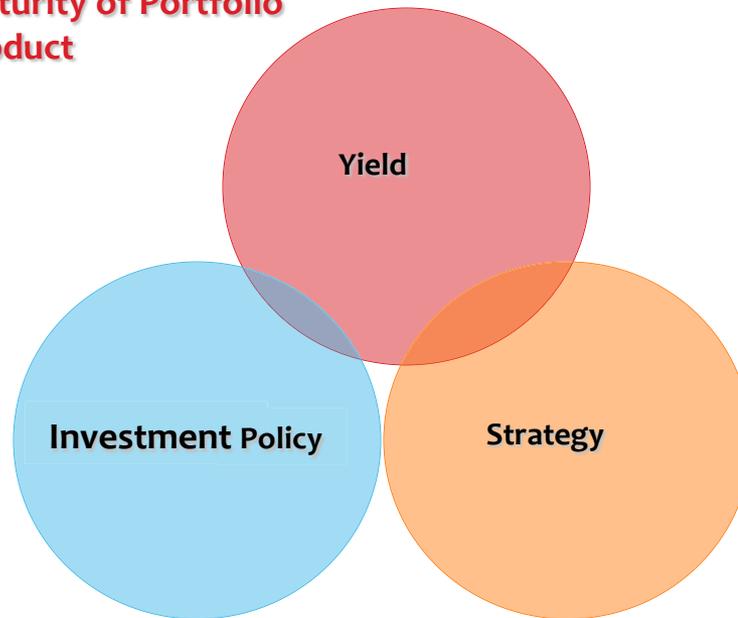
2009 and Beyond

Best Practice Benchmark		
LIQUIDITY	SAFETY	RETURN
Cash Flow Requirements Maintenance	Diversification Quality	Market Return Book Yield

Encompassing Portfolio Management Tools – Developing a Process

Effect:

- * Purchase date
- * Maturity of Portfolio
- * Product



Framework:

- * Maturity
- * Asset Allocation
- * Broker Relationships
- * Define Goals

Process:

- * Control Risk
- * Manage Return
- * Accountability
- * Strategy

Reality 2009 – Public Fund Cash Management Process

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

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 historically, 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: How should your excess liquidity funds be invested? Does it matter?

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

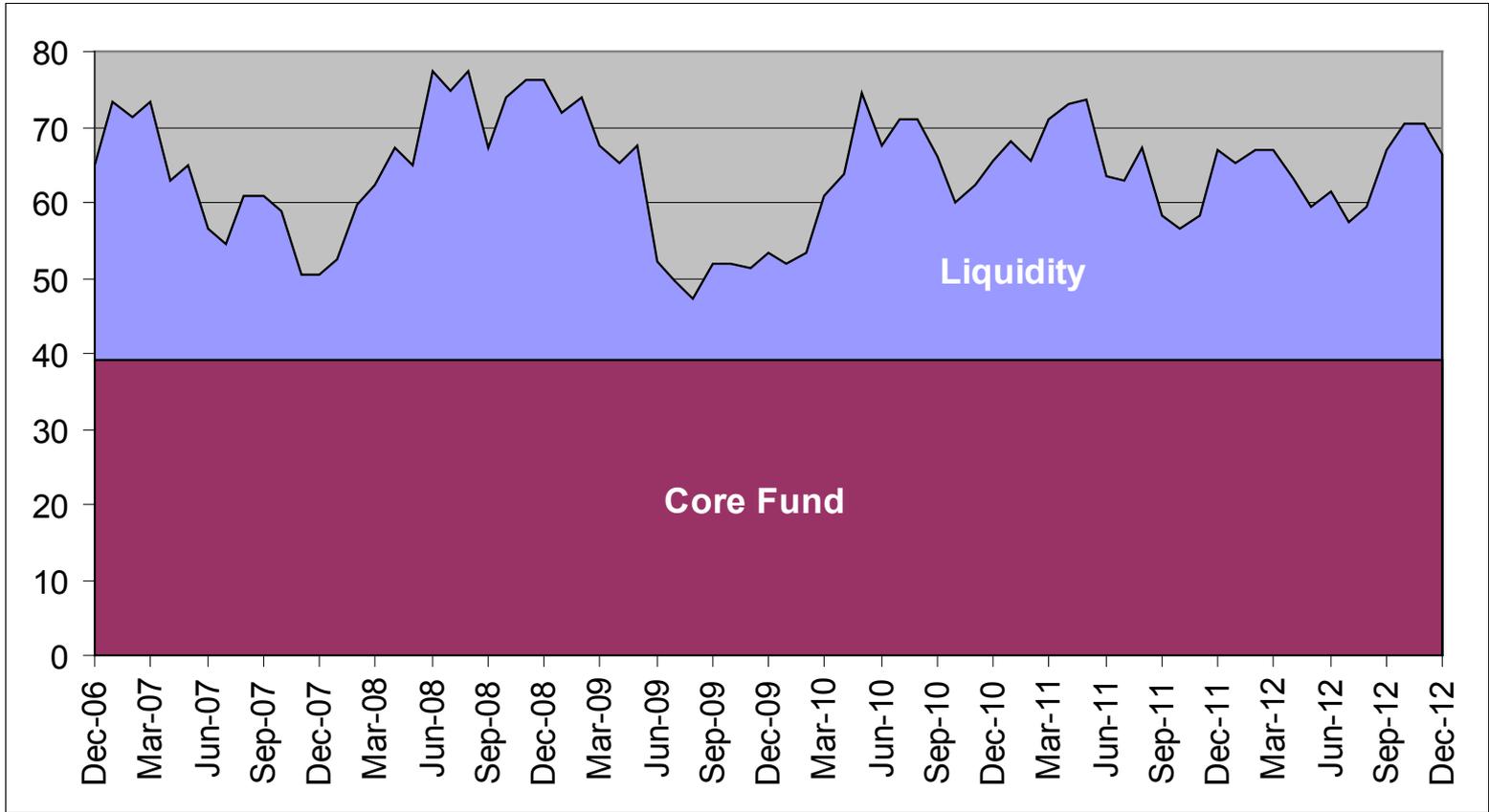
Addressing Liquidity- Benchmark

- ▶ 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		
LIQUIDITY FUND		Low	Average	High
		\$13,100,088.00	\$24,522,912.00	\$35,945,736.00
LARGEST NET CASH FLOW MONTH		\$ (5,593,919.66)		
PAST 36 Months				

Liquidity versus Core



Benchmark #1- Liquidity

Liquidity Ranges are developed as the benchmark to manage expectations.

Minimum Value: \$15,000,000

Average Value: \$50,000,000

Maximum Value: \$75,000,000

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.
- ▶ Just because you are allowed to buy it by state statute doesn't mean you should.
- ▶ Know what you are investing
- ▶ Establish the diversification

Benchmark # 2 - Safety

ISSUER		POLICY	BENCHMARK PRACTICE	CURRENT HOLDINGS	CURRENT STRATEGY
US Treasury		100%	10%	7%	Overweight
US Agency Securities		100%	45%	55%	Underweight
	FHLB	50%	15%	24%	Overweight
	FHLMC	50%	10%	8%	Underweight
	FNMA	50%	10%	7%	Underweight
	FFCB	50%	10%	16%	Overweight
	Other GSE's	10%	0%		
Bank Deposits and CD's		25%	5%	5%	Underweight
Commercial Paper		25%	5%		Underweight
Bankers Acceptance		25%	0%		
Repurchase Agreements		10%	0%		
Corporate Bonds		30%	15%	8%	Overweight
Municipal Bonds		20%	0%		
State Investment Pool		100%	20%	25%	Overweight
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: 3% Core: 3.5%
- **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)	Liquid/Core Split (with Price Change)
Stay the Same	\$ 3,000,000 3.00%	\$ 3,375,000 3.38%	\$ 3,375,000 3.38%
Increase 200 bp	\$ 5,000,000 5.00%	\$ 3,875,000 3.88%	\$ 2,075,000 2.08%
Decrease 200 bp	\$ 1,000,000 1.00%	\$ 2,875,000 2.88%	\$ 4,675,000 4.68%

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.

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 than 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

Index/ Duration	10 Year Earnings	Raw	Annualized
US Treasury 0-1 Year 0.58	\$ 41,554,000	41.55	3.53
US Treasury 0-3 Year 1.2	\$ 50,405,000	50.41	4.16
US Treasury 0-5 Year 1.85	\$ 56,329,000	56.33	4.57

Source: Bank of America/ Merrill 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: 6/30/2009		5 Year Returns	
Portfolio Size (Core): \$ 100,000,000			
Index/ Duration	5 Year Earnings	Raw	Annualized
US Treasury 0-1 Year 0.58	\$18,517,000	18.52	3.45
US Treasury 0-3 Year 1.2	\$20,703,000	20.70	3.83
US Treasury 0-5 Year 1.85	\$22,778,000	22.78	4.19

Source: Bank of America / Merrill indices

Step 1: Evaluate Return Based on Asset Allocation

Ending Value and Return- 6/30/09

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

Quarter Ending: 6/30/2009		5 Year Historical Return				
Portfolio Size (Core): \$ 100,000,000		Index	Dur.	5 Year Earnings	Raw	Annualized
		US Treasury 90 Day Bill	0.16	\$ 16,909,000	16.91	3.17
		US Treasury 1-3 Year	1.81	\$ 22,091,000	22.09	4.07
		US Agency 1-3 Year Bullet	1.78	\$ 25,619,000	25.62	4.67
		US Agency 1-3 Year Callable	1.12	\$ 20,970,000	20.97	3.88
		1-3 Year Corp A-AAA	1.80	\$ 19,354,000	19.35	3.60
		1-3 Year Corp AA-AAA	1.84	\$ 22,111,000	22.11	4.07
		0-3 Yrs WAL Mortgagas	2.69	\$ 26,368,000	26.37	4.79

Source: Bank of America/Merrill indices

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

\$100,000,000 Portfolio

Index	Duration	100 bp +/-		200 bp +/-	
		% P	Value	%P	Value
US Treasury 0-1 Year	0.445	0.45%	\$ 445,000	0.89%	\$ 890,000
US Treasury 0-3 Year	1.344	1.34%	\$ 1,344,000	2.69%	\$ 2,688,000
US Treasury 0-5 Year	2.081	2.08%	\$ 2,081,000	4.16%	\$ 4,162,000

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

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	
<p>*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.</p>		
<p>DavidsonFIM.Com -- Benchmarks.</p>		

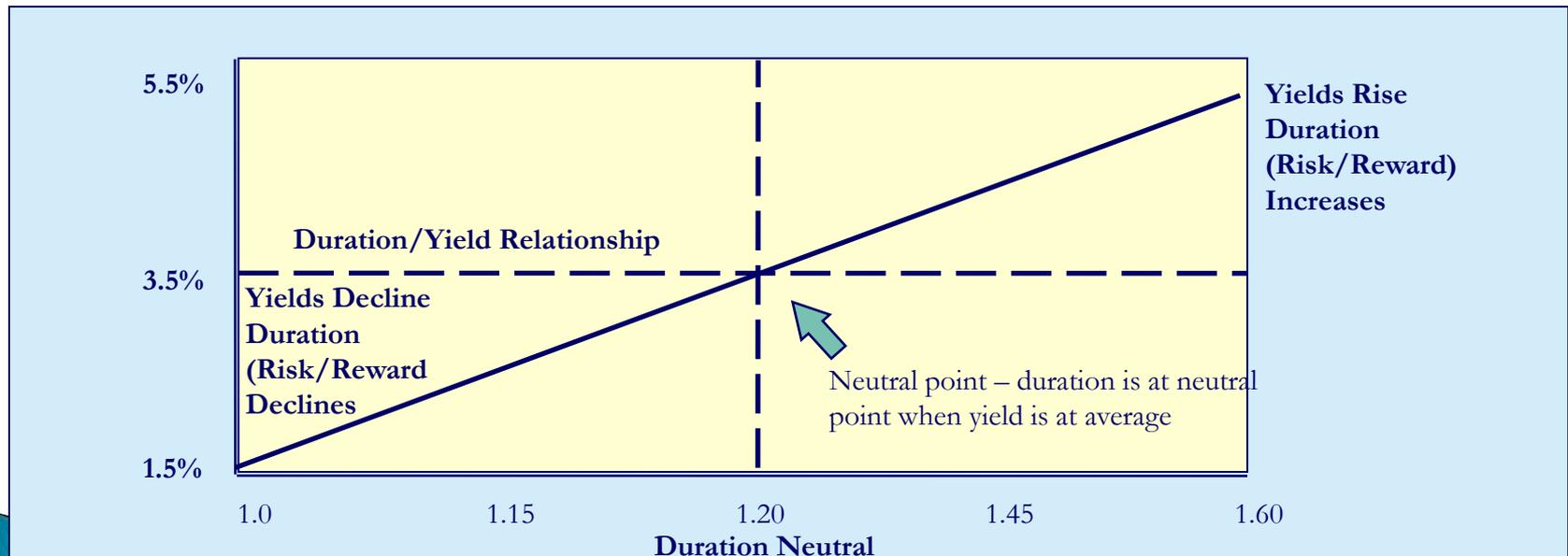
Step 4: Establish Duration Targets

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 3.5%

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: 8/31/09
3 Month	2.89	2.91	.14
6 Month	3.09	3.06	.21
2 Year	3.27	3.41	.90
5 Year	3.69	4.00	2.32

Step 5: Determine Acceptable Risk

Credit Diversification

Type of Issue	Policy	Target	Actual
Treasury (TLGP)	100%	10%	20%
Agency Bullet	100%	55%	45%
Agency Callable	30%	20%	30%
Corporate	30%	15%	5%

Step 6: Report on Portfolio

Liquidity Component of Portfolio

30MM State Pool or Short Term Money Market Issues Rate 2.25%

Core Component Of Portfolio - 01/30/09

Issue	Acq Date	Acq Yield	% Holding	Duration (Years)
10,000M FHLB 5.00 2/13/09	12/18/06	5.07	14.3%	.10
10,000M FHLMC 5.25 5/21/09	9/18/06	5.00	14.3%	.32
10,000M UST 3.375 9/15/09	12/17/07	3.32	14.3%	.74
10,000M FFCB 5.08 12/02/09	01/22/07	5.04	14.3%	.85
10,000M FFCB 2.75 5/4/10	05/01/08	2.90	14.3%	1.24
10,000M FHLB 3.00 6/11/10	6/18/08	3.72	14.3%	1.36
10,000M UST 2.875 6/30/10	7/29/08	2.54	14.3%	1.42
70,000,000		3.94	100%	.86

Step 7: Rebalance the Portfolio

STRATEGY GOAL			
Current Duration	.94 years		Date 1/30/09
Target Duration	1.10 years		
Change in Duration Needed	.16 years		
Percentage of Portfolio changing	14%		
Maturity needed to move duration	1.142857	= Duration change needed / % portfolio changing	

WHAT IF SCENARIO			
MATURING BOND	Price	Duration	YTM
10,000M FHLB 5.00 2/13/09	\$ 100		
BUY			
10,000M FHLB 2 9/24/10 3/24/09 1X call	\$ 100	1.14 years	2.00%
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 .89% - 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 – Actual Portfolio Returns from portfolio

	Returns 12/31/08 - 8/31/09		Since Inception - 12/97	
	Portfolio	Benchmark	Portfolio	Benchmark
Raw Return	1.29%	.512%	80.867%	70.561%
Annualized	1.945%	.77%	5.207%	4.575%

VALUE ADDED SINCE 12/31/97

Portfolio	\$80,867,000
Benchmark	\$70,561,000
Pools (0-1)	\$53,096,000

Benchmark 1-3 year Treasury

Duration 1.65 years

Portfolio .84 years

DIFFERENCE Portfolio vs. Benchmark	\$10,306,000
DIFFERENCE Portfolio vs. Cash	\$27,771,000

Core Fund Only Book Yield Comparison

Portfolio Yield Comparison			8/31/09
	Duration	Current Yield	Rolling 1 year Period
CA- State Pool (LAIF)	.54	.925%	2.06%
2 Year Rolling Agency	1.85	1.12%	1.83%
Core Portfolio	.84	3.04%	3.45%

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	Target Percentages	TARGETS
Minimum	US Treasury	5%	Risk Benchmark
	FDIC Guarantee - TLGP	10%	
\$13,000,000.00	US Agency Securities	55%	Treasury 0-3 Year
	FHLB	15%	
Maximum	FHLMC	10%	Yield Benchmark
\$36,000,000.00	FNMA	10%	LGIP
	FFCB	10%	Rolling 2 year
Invested 6 months and shorter	Callable	30%	
	Bank Deposits and CD's	5%	
	Commercial Paper	5%	
Minimum of \$10,000,000 in Pool.	Bankers Acceptance	0%	
	Repurchase Agreements	0%	
	Corporate Medium Term Onds	15%	
	Municipal Securities	0%	
	State Investment Pool	20%	
COMPLY	COMPLY		COMPLY

THANK YOU