Michigan Association of County Treasurers

Treasury Management Best Practices
Banking and Investing

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Treasury Management Topics

I. Treasury Management Overview

   A. Collection

   B. Disbursement

   C. New Innovations and Best Practices

II. Investing Process

   A. Cash Flows Are King

   B. Investment Options

III. Money Market Reform

Collection Options

- Traditional Branch Deposits
  - Either delivered in person or via armored carrier.
  - Counter deposits or night deposits
- Remote Deposit Capture
  - Convenient, saves time/personnel cost
  - No real advantage in availability
- Lockbox
  - Streamlined collection, ideal for large volumes (water/sewer)
  - Can integrate with accounting software to automate receivables

Collection Options

- E-Lockbox
  - Consolidates payments from residents who have paid via on-line banking
  - Saves time reconciling on-line banking payments to appropriate accounts
- ACH
  - The most economical, and relatively simple
  - Requires a little setup, but then runs pretty smooth
- Merchant Services (Credit Card Acceptance)
  - Self administered or Third Party
  - Pay at the counter, in office kiosk or by phone

The Cost of Collection

- The median cost for organizations to process the following payment types:
  - Wire Transfer - $7.64
  - Check - $1.57
  - ACH - $0.29

  - Credit Cards - 1.50% to 1.99%
  - Debit Cards - 1.00% to 1.49%

Source: 2015 Association for Financial Professionals Payment Cost Benchmarking Survey

Disbursement Options

- Write a check
  - Old school, but easy
- Send an ACH
  - Econimocal, and becoming more widely accepted
- Send a Wire
  - Immediate payment, desirable for large dollars
- Pay by Card
  - Efficient, and controllable

The Cost of Disbursement

- The median cost for organizations to initiate the following payment types:
  - Wire Transfer - $8.00
  - Check - $3.00
  - ACH - $0.29

  - Purchasing/Credit Cards - $1.00 to $1.99

Source: 2015 Association for Financial Professionals Payment Cost Benchmarking Survey

Integrated Payables

- One payment file is sent to the bank
- Payments are initiated by the bank based on payee acceptance and settlement date
- Payments can be ACH, Wire Transfer, Check or Card
- Can be integrated with accounting software to streamline the process
- Provided by your bank either directly or through a third party vendor.

Same Day ACH

- Phase 1 went live 9/23/2016
  - Credits only - funds available by end of RDFI processing day
- Phase 2 scheduled for 9/23/2017
  - Credits and Debits - funds available by end of RDFI processing day
- Phase 3 scheduled for 3/16/2018
  - Credits and Debits - funds available by 5:00pm RDFI local time.

- Transaction limit of $25,000
- Cost - More than a standard ACH, less than a Wire Transfer

Best Practices

- Optimize account structure - Less is more
- Daily reconciliation
  - Make it part of your routine
- Fraud prevention tools
  - Positive pay, ACH blocks & filters
- Use technology
  - Banks image everything
- Meet with your banker
  - We’re here to help

Cash Flows are King

Benefits of Cash Flow Forecast

- Ensures liquidity
- Can increase investment income / decrease interest expense
  - ✓ Amounts available for investment
  - ✓ Period of time to hold the investment
  - ✓ Assists with investment strategies
- Forecasts problems: trend lines
  - ✓ Revenues not being collected properly
  - ✓ Expenditures exceed budget

The Forecasting Process

- Identify Major Cash Flow Components

Inflows

  - Tax receipts
  - State Grants
  - Investment Income

Outflows

  - Payrolls
  - Debt service

- Determine Degree of Certainty/Predictability
  - Certain
  - Forecastable with reasonable certainty
  - Less predictable
- Develop Cash Flow Forecast Tool (focus on payroll dates)
- Compare Forecast to Actual Results

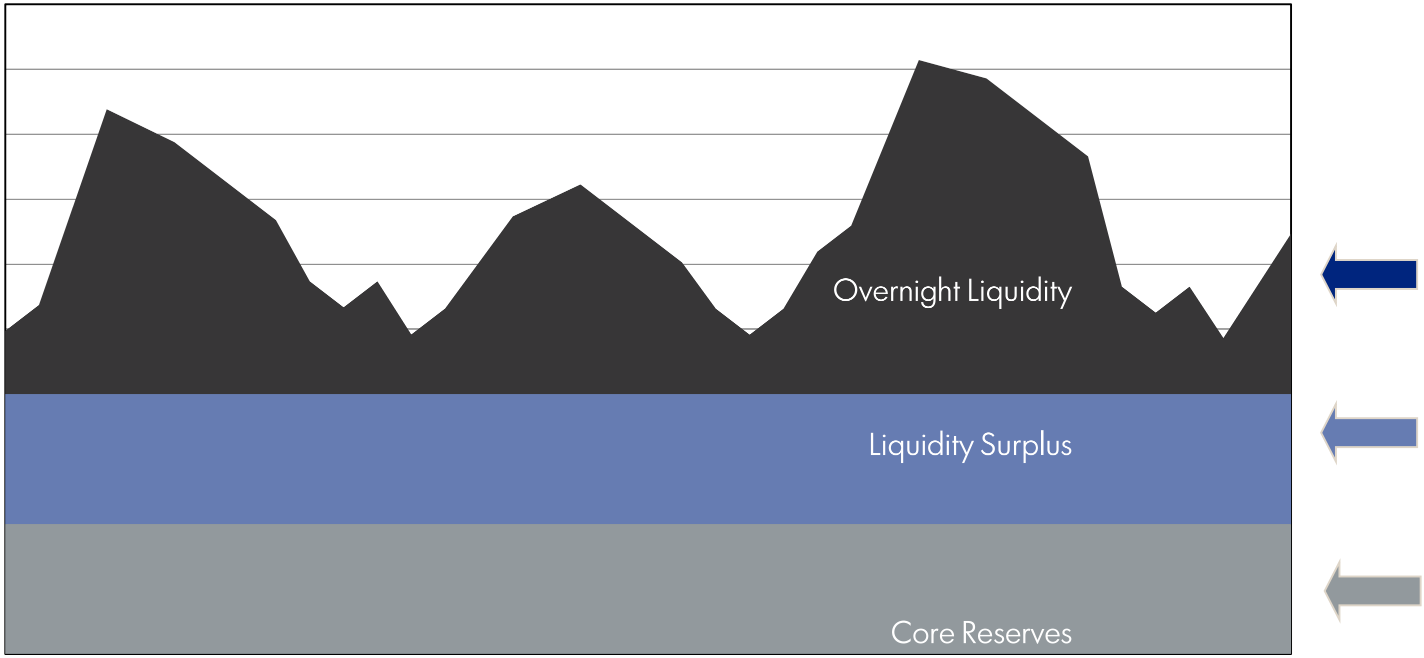
Sample Cash Flow Excel Set-up

A	B	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
Current Budget		Month	Mar-16			Month	Apr-16			Month	May-16			Month	Jun-16				
	Amended	9				10				11				12				Projected	Actual
Revenue	Budget	%	Projected	Actual	%	%	Projected	Actual	%	%	Projected	Actual	%	%	Projected	Actual	%	Total	Total
Property Taxes	6,000,000	0%	-		0.0%		-		0.0%	5%	300,000	90,000	1.5%		-			6,000,000	6,000,000
State Grants	800,000	5%	40,000	46,500	5.8%	5%	40,000	55,000	6.9%	25%	200,000	205,000	25.6%	15%	120,000	120,000		800,000	800,000
Charges for Services	2,000,000	5%	100,000	95,000	4.8%	10%	200,000	201,000	10.1%	10%	200,000	205,000	10.3%	10%	200,000	184,500		2,000,000	2,020,500
Investment Income	500,000	8%	41,500	42,000	8.4%	8%	41,500	39,525	7.9%	8%	41,500	45,500	9.1%	9%	43,500			500,000	448,525
Other Revenues	250,000	8%	20,750	21,000	8.4%	8%	20,750	20,525	8.2%	8%	20,750		0.0%	9%	21,750			250,000	191,775
Gain on Exchange of Assets	50,000		-		0.0%		-		0.0%	100%	50,000		0.0%		-			50,000	-
Transfers In	400,000		-				-				-			50%	200,000			400,000	200,000
	10,000,000	2.0%	202,250	204,500	2.0%	3.0%	302,250	316,050	3.2%		812,250				585,250			10,000,000	
Expenditures																			
Salaries & Wages	5,000,000	7%	325,000			8%	415,000			8%	415,000			8%	422,500			5,000,000	
Fringe Benefits	2,250,000	8%	186,750			8%	186,750			8%	186,750			9%	191,250			2,250,000	
Professional/Contractual Services	750,000	8%	62,475			5%	37,650			8%	62,475			8%	62,475			750,000	
Commodities	500,000	8%	41,650			8%	41,650			8%	41,500			8%	42,000			500,000	
Interest on Debt	500,000		-				-				-				-			500,000	
Captial Outlay	1,000,000		-			5%	50,000			10%	100,000			35%	350,000			1,000,000	
Trandfer Out	-		-				-				-				-			-	
	10,000,000		615,875				731,050				805,725				1,068,225			10,000,000	
Cash from Operations	0.00		(413,625)				(428,800)				6,525				(482,975)			0.00	
Beginning Cash & Investments	1,300,000		2,618,875				2,205,250				1,776,450				1,782,975			1,300,000	
Ending Cash & Investments	1,300,000		2,205,250				1,776,450				1,782,975				1,300,000			1,300,000	

Cash Flow Segmentation

- Excess liquidity in an investment management program can be an opportunity cost
- Detailed cash flow analysis may help prudently define fund balances that can be invested in intermediate – to longer-term investments at potentially higher yields

Sample Cash Flow Analysis



Overnight Liquidity
- 100% liquid
- Fully flexible
- Overnight

Liquidity Surplus
- Term investments to known upcoming cash flows

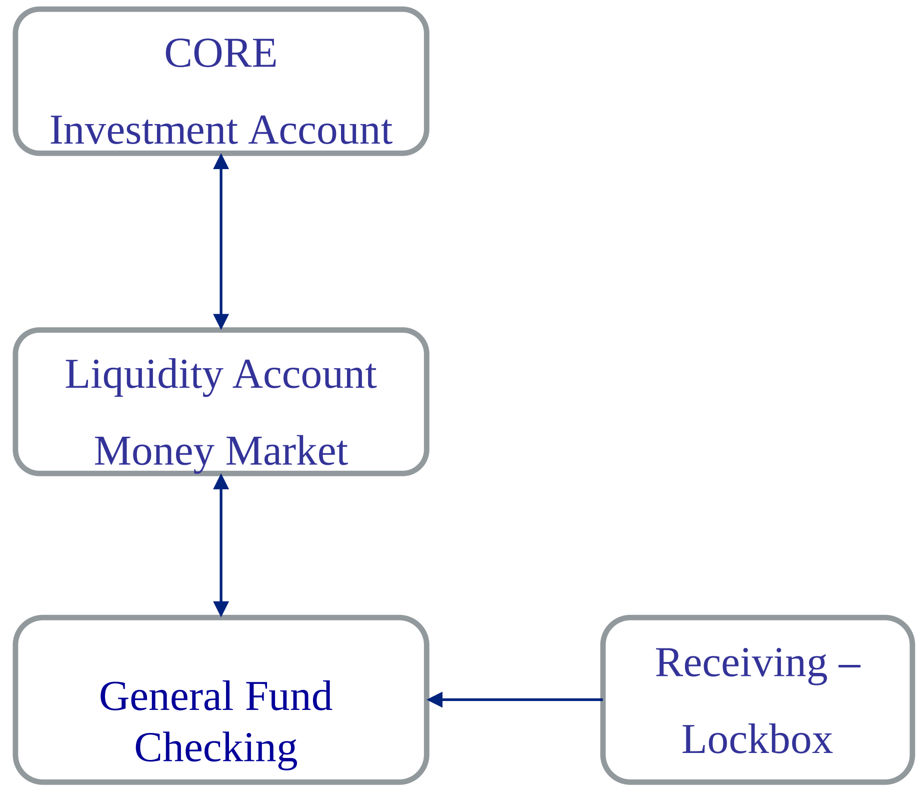
Core Reserves
- Intermediate and longer investments
- Potentially higher returns over time
- Employ active management tactics

Sample Bank Account Structure

Core - + 1 Year
- Steady Balance
- Income producing
- Marketable securities

Short-term – 90 Days
- LGIP/Money Market
- Wire / ACH Capability

Immediate - Overnight
- Transaction Accounts
- Target balance



Investment Process

P.A. 20 Allowable Investments

Sector	Maximum Maturity	Minimum Credit
U.S. Treasuries	No Limit	N/A
Federal Agencies	No Limit	N/A
Obligations of the State of Michigan	No Limit	Rated investment grade by at least one rating service
Commercial Paper	270 days	(A-1, A-2 / P-1, P-2) Rated in the two highest classifications by not less than two standard rating services
Certificates of Deposit (including CDAR's)	No Limit	N/A
Repurchase Agreements*	No Limit	N/A
Bankers' Acceptances	No Limit	N/A
Mutual Funds**	No Limit	N/A
Investment Pools**	No Limit	N/A

* Agreements must be collateralized with bonds, securities, and other obligations of the United States or an agency or instrumentality of the United States.
** Mutual funds and investment pools must be composed entirely of investment vehicles that are legal for direct investment by a public corporation.

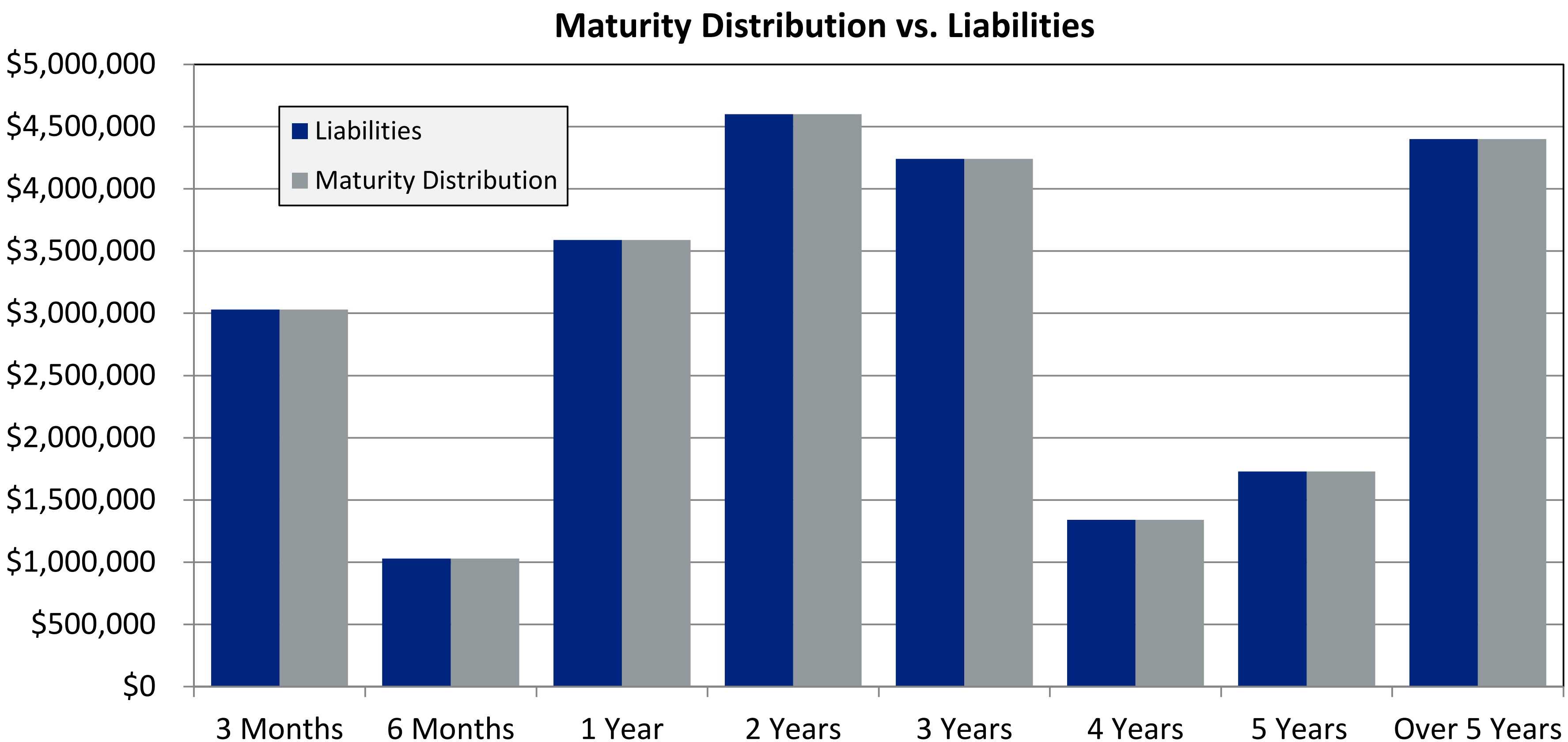
Allowable Bank Accounts and FDIC Coverage

- P.A. 20 allows for deposits into checking, NOW, savings, money market, CD's, and CDARs

Bank Account Type	In State (bank is located in the same state as the public entity)	Out of State (bank is located outside of the state of the public entity)
Demand Deposit *including NIBTA and Interest Bearing Transaction Accounts*	$250,000	Not separated
Time & Savings *including Negotiable Order of Withdrawal (NOW) and Money Market accounts*	$250,000	Not separated
Total	$500,000	$250,000

Note: *public entities are not allowed to invest in banks that do not have a physical place of deposit in the state of Michigan*

In a Perfect World



Wouldn't it nice if your investments were in perfect alignment with your liabilities

Investment Opportunities in Longer Maturities

- With an upward sloping yield curve, investors are compensated more for investing longer
- While longer duration investments increase earning potential, they are also associated with a modest increase in volatility

Risk/Return of Various Benchmarks *10 Years Ended 6/30/2016*				
Merrill Lynch Index	**Duration**	**Average Annual Return**	**Cumulative Value of $10,000,000**	**Quarters With Negative Returns**
3-Month Treasury Bill	0.25 Years	1.03%	$11,076,650	0 out of 40
6-Month Treasury Bill	0.50 Years	1.40%	$11,494,621	0 out of 40
1 Year Treasury Index	0.99 Years	1.68%	$11,819,795	5 out of 40
1-3 Year Treasury Index	1.90 Years	2.47%	$12,763,663	6 out of 40
1-5 Year Treasury Index	2.74 Years	3.23%	$13,747,547	10 out of 40
1-10 Year Treasury Index	3.89 Years	4.17%	$15,057,094	11 out of 40

Source: Bloomberg, Bank of America / Merrill Lynch Indices; based on historical results – future results may vary.

Benchmark Selection

- Selecting an appropriate benchmark is crucial in analyzing investment manager performance
- The CFA Institute characterizes a valid benchmark as follows:

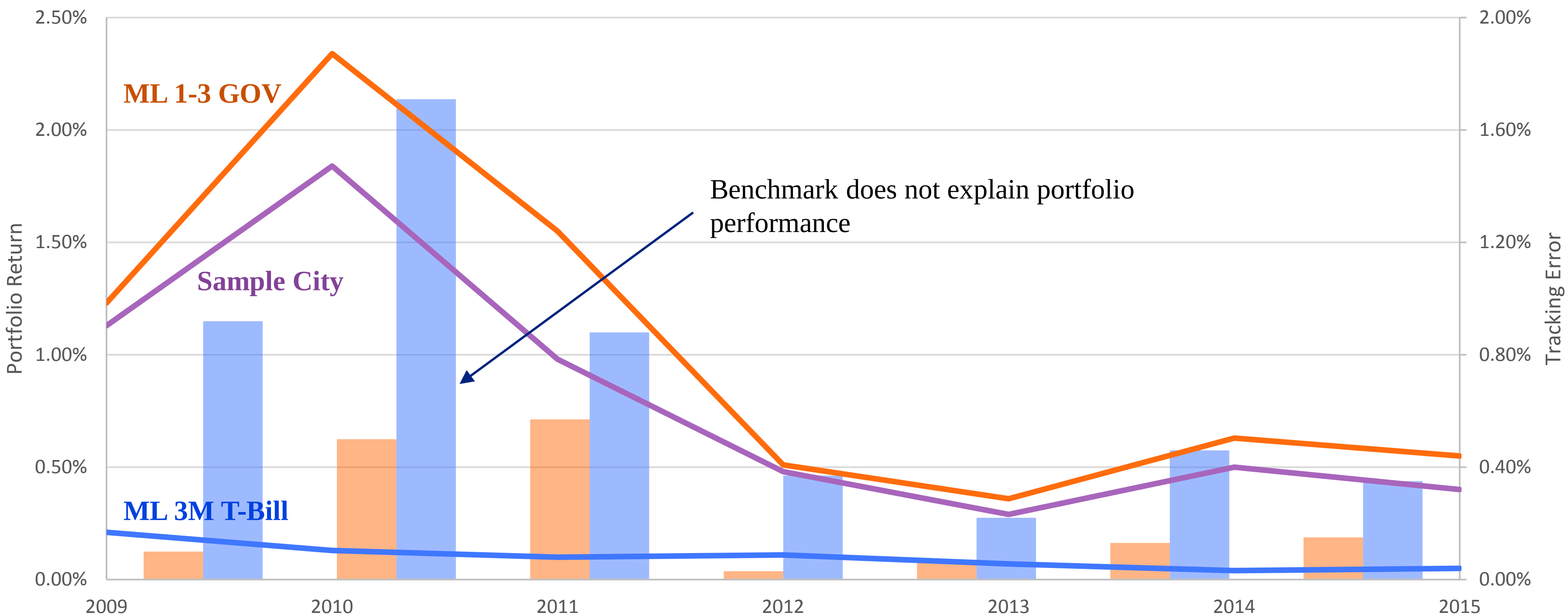
Criteria	Description
Specified	Benchmark is constructed and agreed on prior to manager evaluation
Appropriate	Consistent with the manager's style
Measurable	Return is readily calculable
Unambiguous	Names and weights of assets in the benchmark are identifiable
Reflective of current investment options	Securities in the benchmark coincide with portfolio
Accountable	Manager agrees that the benchmark is appropriate
Investable	Possible to hold the benchmark

Source: CFA Institute

Testing Benchmark Quality – Case Study

Appropriate benchmarks:

- Reduce tracking error
  - Difference between portfolio return and benchmark return (“tracking error”) should be minimized – larger tracking error may indicate portfolio return components do not align with the benchmark
  - Volatility of portfolio returns versus 3 month T-Bill benchmark is 280% greater than the volatility of portfolio returns versus Merrill Lynch 1-3 Treasury/Agency benchmark (2009-2015)

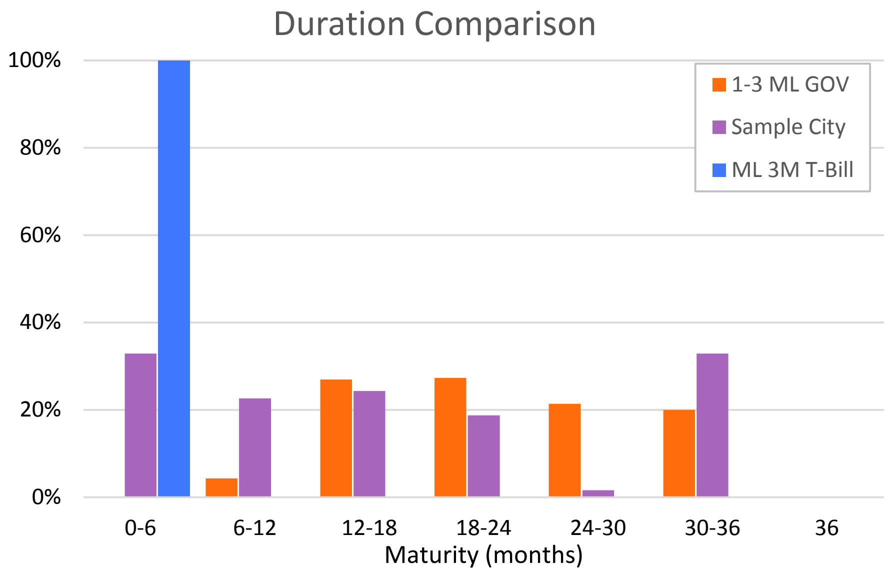


Source: CFA Institute. Holdings provided by Sample City Staff.

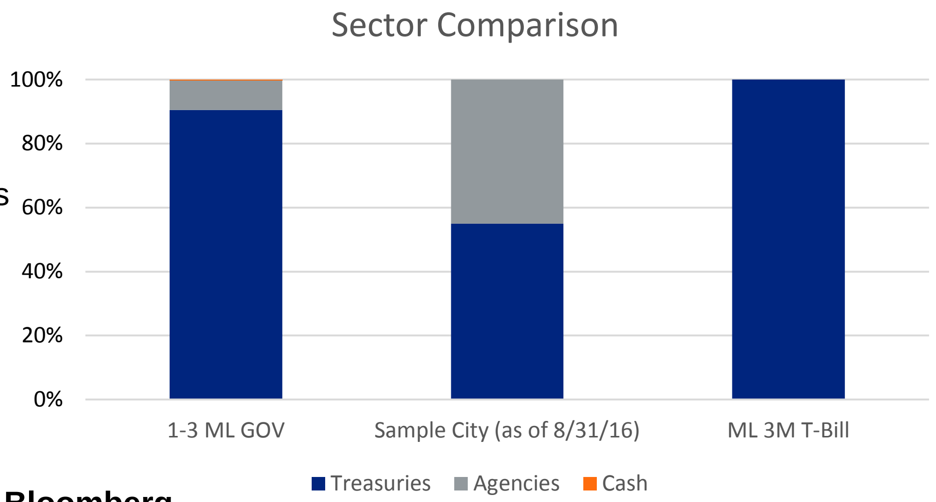
Testing Benchmark Quality (continued)

Appropriate benchmarks:

- Have similar exposures to systematic sources of risk
  - Risk exposures (duration/years to maturity) should be similar
  - 3 month T-Bill duration: 0.17 years to maturity
  - Merrill Lynch 1-3 Treasury/Agency benchmark – 1.94 years to maturity
  - Portfolio weighted maturity: 1.20 years to maturity



- Have higher proportions of asset coverage
  - Proportion of a portfolio's holdings/market value that is contained in the benchmark
  - 3 month T-Bill – 0% (does not contain any Treasury Bills)
  - Merrill Lynch 1-3 Treasury/Agency benchmark – 1.6% (one common CUSIP)



Source: CFA Institute. Benchmark information retrieved from Bloomberg.

Helpful Hints

- Remember “S L Y” – Safety, Liquidity, and Yield (in that order)
- Safeguarding of assets – safety comes first
  - No award for higher earnings, but public flogging for loss
  - Calculate your credit exposure (uninsured portion)
  - If uninsured or not backed by the U.S., then you need to do credit analysis on the bank
  - Take steps to mitigate risk through informed investing
- Cash flow analysis is fundamental to managing public funds
  - Understand how much is available and for how long
- Historically, yield curve provides higher earnings longer-term
  - Avoid timing market by consistently investing
- Benchmark must align with your underlying portfolio characteristics.
- If you can’t explain it, don’t buy it. Ask questions and use MGFOA contacts

Where To Look

- Deposit insurance coverage and banks under supervisory watch
  www.fdic.gov
- Public Act 20 of 1943
  http://www.legislature.mi.gov/(S(zyhyofujbnltpfbznx25in55))/mileg.aspx?page=getObject&objectName=mcl-Act-20-of-1943
- Broker License Check – Financial Industry Regulatory Authority
  http://brokercheck.finra.org/
- GFOA Best Practices – Treasury and Investment Management
  http://www.gfoa.org/financial-policy-examples-investments
- APTUSC investment policy certification program
  http://www.aptusc.org/images/certification/investment_model_policy_app_2015.pdf

Money Market Reform

Money Market Reform

The Securities and Exchange Commission ("SEC") adopted money market fund reform measures on July 23, 2014.

Objectives:

- Reduce heavy redemptions during periods of economic stress
- Mitigate negative impact on financial system created by a "run" on the funds
- Increase risk transparency
- Preserve, "as much as possible," fund benefits

Key Features:

- Floating net asset value ("NAV" or share price) for prime funds
- Default liquidity fees on non-governmental funds
- Authorization for funds boards to impose liquidity fees/redemption gates

Implementation:

- July 2015 - new reporting requirements
- April 2016 - new risk monitoring and disclosure requirements
- **October 14, 2016 - floating NAV, redemption gates and liquidity fees**

Possible Investor Actions:

- Shift to government money market funds
- Use bank deposits and overnight repo for liquidity
- Shift assets into separately managed accounts

Money Market Reform – New Classifications

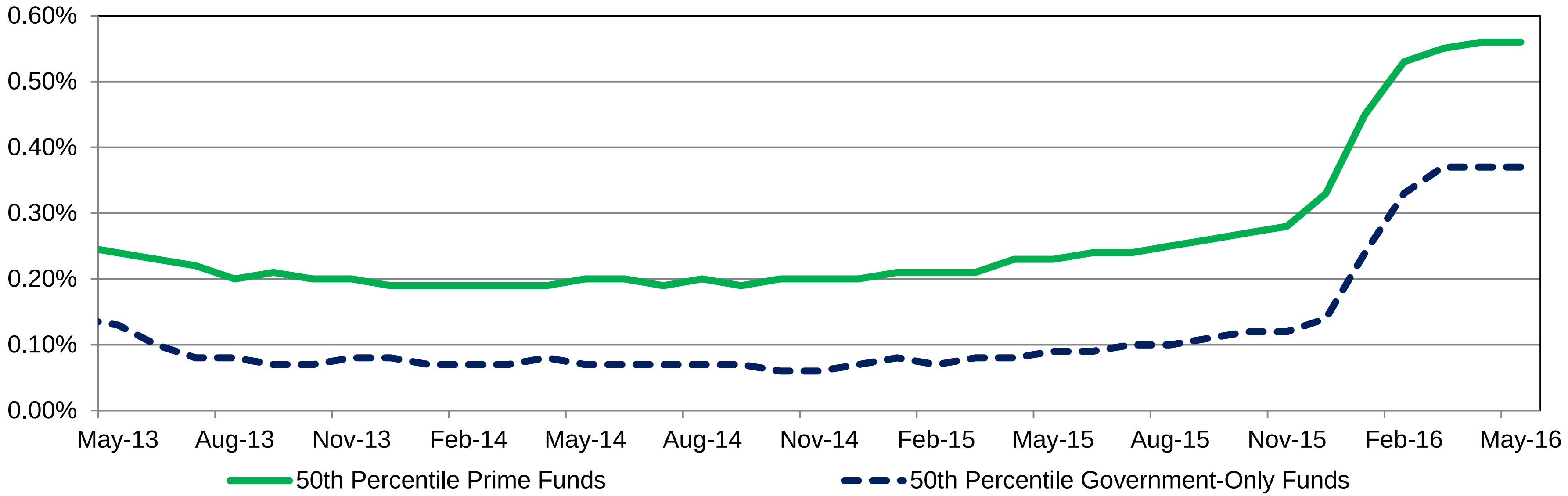
	Prime Fund Government securities, commercial paper, certificates of deposit, corporate notes, and other debt investments	**Government Fund** 99.5% of total assets in cash, government securities or repos
Retail Fund Limited to "natural persons"	• Constant NAV • Gates • Liquidity Fees	• Constant NAV • Optional Gates • Optional Liquidity Fees
Institutional Fund	• Variable NAV • Gates • Liquidity Fees	• Constant NAV • Optional Gates • Optional Liquidity Fees

Effective October 14, 2016

Government Funds vs. Prime Funds

- A comparison between historic gross yields on iMoneyNet's 50th Percentile Government Institutional and Prime Institutional funds is depicted in the graph below
  - The average difference between the iMoneyNet 50th Percentile Government and Prime funds over the prior 3-year period ending May 31, 2016 is 14 basis points (0.14%)
  - The spread between Prime and Government funds widened to 100 bps post-reform

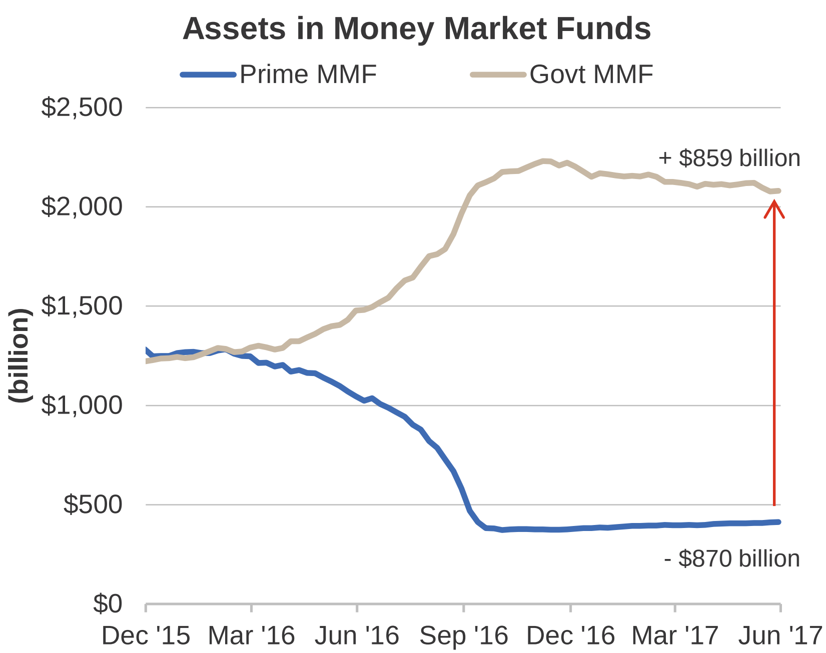
Difference in Gross Yields – Government vs. Prime Funds

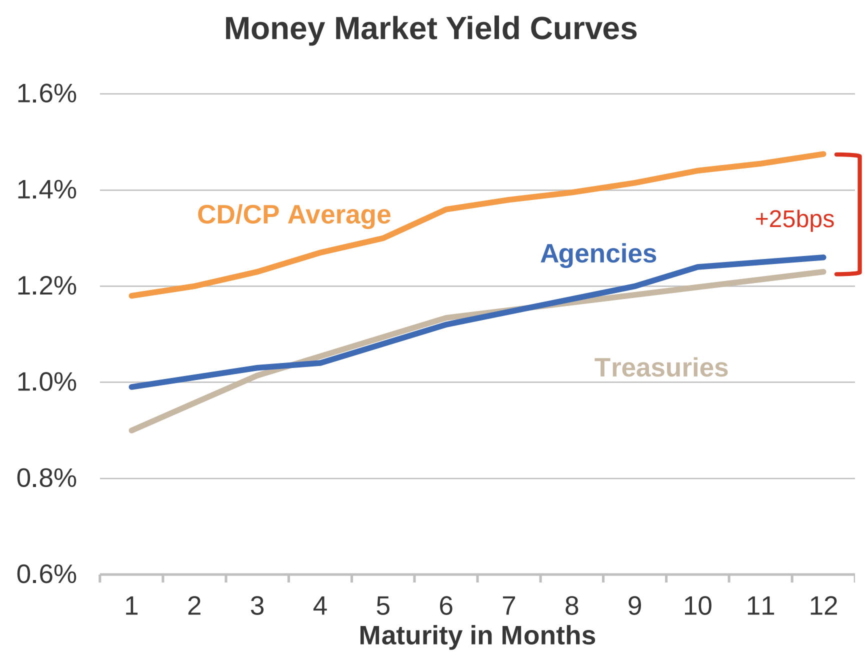


Source: As measured by the average of the gross rate advantage of the 50th percentile of the iMoneyNet Fund Rankings for Prime Funds over the 50th percentile of the iMoneyNet Fund Rankings for Government Funds for the five years ended May 31, 2016. The iMoneyNet Prime Institutional Average includes 258 highly rated Prime funds, and the iMoneyNet Government Institutional Average includes 321 highly rated Government funds.

Current Short-Term Credit Environment

- SEC-imposed reforms to the money market fund industry, which became effective in October 2016, caused a significant shift in assets from prime funds (which typically purchase short credit instruments) to government-only ones.
- As a result, yield spreads on short-term credit instruments widened sharply, making commercial paper and negotiable bank CDs attractive alternatives to Treasury bills and short-term agencies. These yield spreads have since normalized, but CP/CDs still provide some relative value compared to short-term government securities.





Source: Bloomberg, PFMAM Trading Desk, as of 06/30/17. Not a specific recommendation.

Money Market Reform - Implications

- Governmental investors unlikely to invest in Prime money market funds
  - Floating NAV, gates and liquidity fees
- Greater demand for short-term government obligations
  - Higher prices, lower yields
- Lower demand for CP drives inverse relationship
- Expected result
  - Wider spread between Government and Prime Funds
  - LGIP option (stable NAV/Yield)
  - Bank Money Market Funds (exclude FDIC charge)

Questions???

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Appendix

Security Types

- The Treasury Department issues debt to meet budgetary needs in the form of U.S. Treasury securities:
  - Highest credit rating (full faith and credit of the U.S. government)
  - Most marketable security – provides for liquidity
  - Fixed rate and term
  - Non-callable

Description	Maturities	Interest Payments
U.S. Treasury Bills	Short-term 4, 13, or 26 weeks	Issued at discount – buy for less than par; at maturity receive full par
U.S. Treasury Notes	Intermediate-term 1 to 10 years	Paid semi-annually; priced at current market
U.S. Treasury Bonds	Long-term 10 years or more	Paid Semi-annually; priced at current market

Security Types – Agency Securities

- Public Act 20 allows for investments in securities issued or guaranteed by agencies or instrumentalities of the U.S.
- Variety of debt instruments including bullets, callables, fixed, variable, etc.

Federal Agency / GSE	Short Name	Government Backing / Rating
Government National Mortgage Corporation	Ginnie Mae GNMA	Full faith and credit of the U.S. government
Federal Home Loan Mortgage Corporation	Freddie Mac FHLMC	Implicit backing of the U.S. government, temporarily explicit backing, AAA rating
Federal National Mortgage Association	Fannie Mae FNMA	Implicit backing of the U.S. government, temporarily explicit backing, AAA rating
Federal Home Loan Bank	FHLB	Implicit backing of the U.S. government, temporarily explicit backing, AAA rating

* Ratings by Moody's and Fitch.

Security Types – Commercial Paper

- Public Act 20 allows for investment in:
  - Commercial paper (CP) rated prime at the time of purchase and maturing not more than 270 days after the date of purchase
    - Commercial paper is defined as short-term, unsecured notes used to finance corporations operations or current assets.
    - CP can be issued from 1 to 270 days (usually less than 90 days)
    - CP is issued at a discount (similar to T-Bills)
    - Although CP is short-term – critical assessment is credit risk
    - Must be in two highest grades of commercial paper as determined by at least two rating agencies.
      - ✓ A-1/A-2 = Standard and Poor's highest rating
      - ✓ P-1/P-2 = Moody's highest rating

Credit Rating Scale

Moody's		Standard & Poor's		Fitch		
Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Definitions
Aaa		AAA		AAA		Prime Maximum Safety
Aa1		AA+		AA+	F-1	High Grade, High Quality
Aa2		AA	A-1+	AA		
Aa3	Prime-1	AA-		AA-		
A1		A+		A+		Upper Medium Grade
A2		A	A-1+	A	F-2	
A3		A-	A-2	A-		
Baa1	Prime-2	BBB+		BBB+		Lower Medium Grade
Baa2		BBB		BBB	F-3	
Baa3	Prime-3	BBB-	A-3	BBB-		
Ba1		BB+		BB+		Non Investment Grade
Ba2		BB	B	BB	B	Speculative
Ba3		BB-		BB-		
B1		B+		B+		Highly Speculative
B2		B		B		
B3	Not Prime	B-		B-	C	
Caa1		CCC+	C	CCC		Substantial Risk
Caa2		CCC+		-		In Poor Standing
Caa3		CCC-		-		
Ca		-		-		Extremely Speculative
		-		-		
C		-				May be in Default
-		-		DDD		Default
-		-		DD	D	
-		D	D	D		

Glossary of Bank Terms

- **ACH** – Growing in use; settlement 1-2 days after origination
- **Average Ledger Balance** - The net sum of the daily positive and negative ledger balances for the month, divided by the number of days in the month; the balance of the last preceding business day is used for weekends and holidays
- **Check** – Used for most corporate and consumer bill payments
- **Collected Balance** – Ledger balance less float.
- **Depository Bank** – Bank which accepts an item for deposit
- **Drawee Bank** – Bank on which check is drawn
- **Excess Earnings Allowance** – Difference between the earnings credit allowance and the balance-based service charges
- **Float** – The dollar amount of deposited items that have been given immediate, provisional credit but are in the process of collection from drawee banks; this is also called uncollected funds
- **Ledger Balance** – End of day balance after all accounting entries (debits and credits) have posted to your account
- **On-us item** – Check deposited to same bank on which it was drawn
- **Payor** – Party who issues the check
- **Payee** – Party to whom check is payable
- **Payment Cards** – Credit, debit, purchasing, and smart cards
- **Provisional Credit** – Payee receives ledger credit when the check is deposited
- **Reserve Requirement** – The portion of the DDA balances that must be set aside by the bank to meet reserve requirements; this amount is not available to offset services charges, and is calculated by multiplying the average positive collected balance by the current reserve requirement rate
- **Return item** – Check the drawee bank rejects and returns
- **Settlement Date** – When the analysis billing period is greater than one month, this represents the day for which the analysis billing cycle will be complete.
- **Wires** – Primarily used in LARGE $ payments - immediate funds