

CDIAC

**CALIFORNIA
DEBT AND
INVESTMENT
ADVISORY
COMMISSION**

Advanced Securities Analysis: Analyzing Liquid Securities to Meet Cash Flow Needs

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THE MISSION INN
RIVERSIDE, CA

Debbie Goodnight, Managing Director, PFM

John Johnson, Chief Deputy Treasurer, County of San Bernardino

Key Investment Objectives

Protect principal



**Provide necessary
liquidity to cover both
ongoing and
unexpected cash needs**

**Maximize earnings recognizing need for safety
and liquidity, and subject to restrictions
specified by the State Statutes and the local
governing body**

Basic Considerations

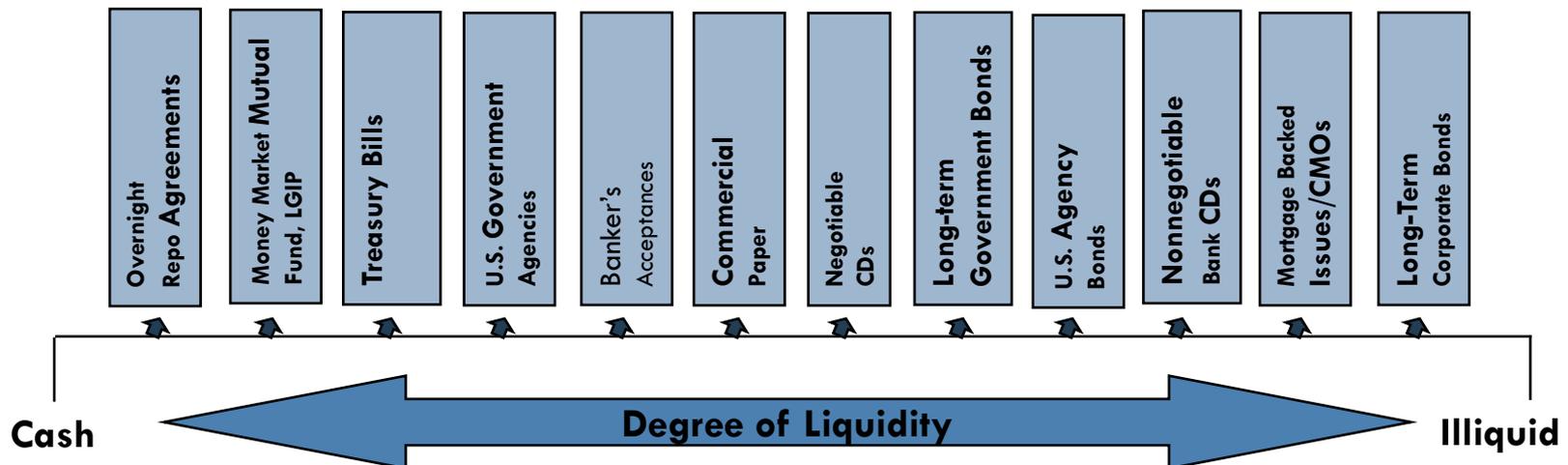
- Safety of principal
- Securities and maturities permitted by California Statutes
- Securities and maturities permitted by your investment policy
- Cash flow needs
- Diversification
- Risk tolerance
- Capabilities of investment staff
- Relative value of securities being purchased

Liquidity Management Challenges

- Money Market Reform—Floating NAV/Liquidity Gates
- Repurchase Agreement collateral availability
- Commercial Paper issuance and availability
- Bank Capital Rules
- Credit Cycle and secondary liquidity
- New product types available under California Code
- Credit Analysis considerations
- Continued low rates

Liquidity Risk

- Inability to sell portfolio holdings at a competitive price
 - Substantial penalty for earlier withdrawal
 - Capital losses if interest rates have gone up
 - Fire sale prices
- Long period to maturity



Impact of Interest Rate Movements on Value

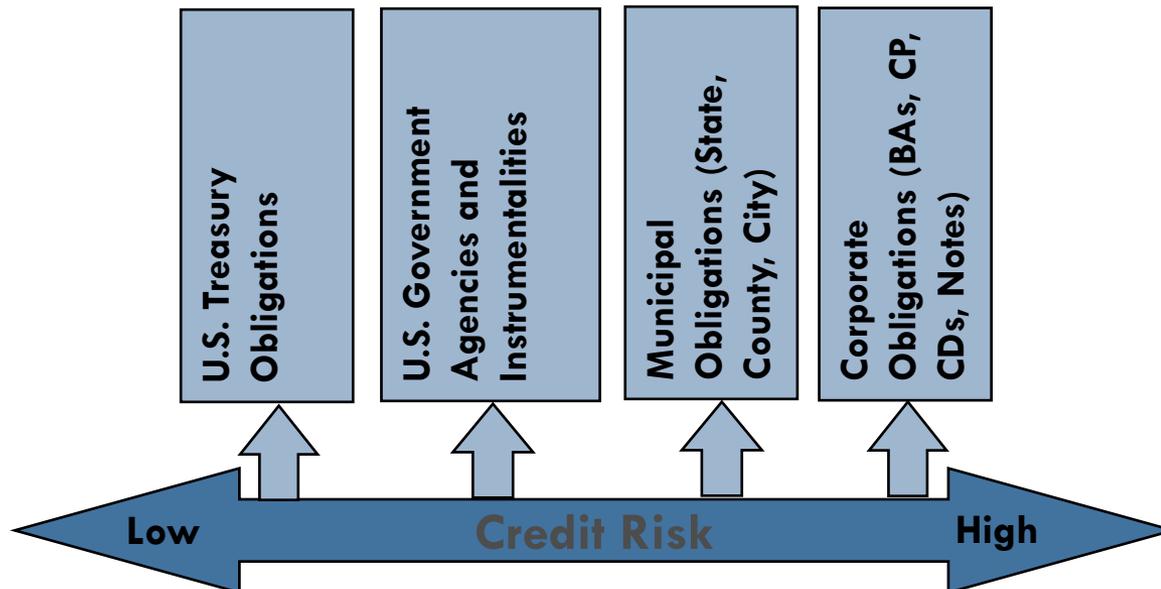
- Market value of longer duration portfolios are more impacted by a change in interest rates than shorter ones.

Portfolio Duration	Simultaneous Change in Interest Rates				
	(2.00%)	(1.00%)	No Change	1.00%	2.00%
1.00	200,000	100,000	-	(100,000)	(200,000)
2.00	400,000	200,000	-	(200,000)	(400,000)
4.00	800,000	400,000	-	(400,000)	(800,000)

Portfolio duration measured in years. Assumes instantaneous shock.

Credit Risk

- Risk of default or decline in security value due to conditions outside investors control
 - Bankruptcy
 - Rating agency downgrades
 - Regulatory changes



Monitoring Credit Risk

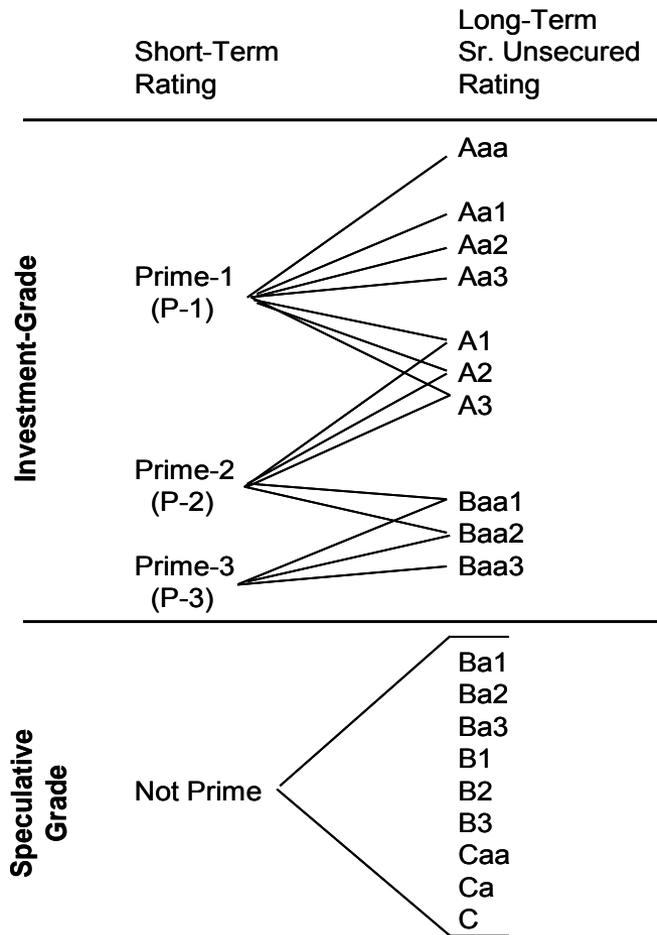
- Nationally Recognized Statistical Rating Organizations (“NRSRO”)
 - Designated by the SEC
- Largest and most active NRSROs
 - Standard & Poor's
 - Moody's Investors Service
 - Fitch Ratings



Ratings

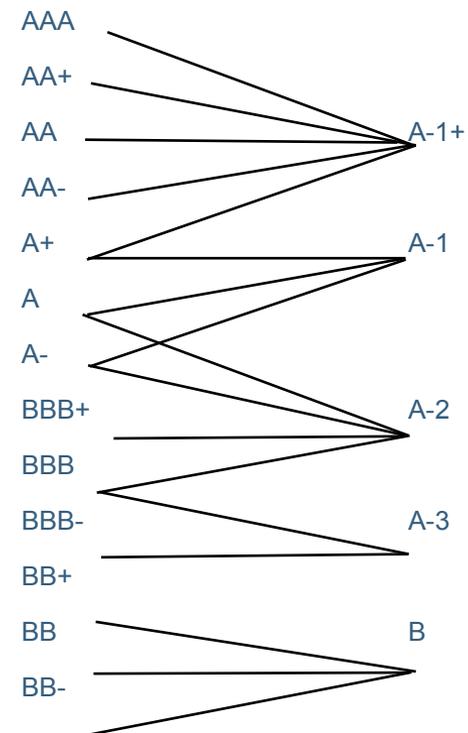
<u>S&P</u>	<u>Moody's</u>	<u>Explanation of Rating</u>
AAA	Aaa	High quality. Smallest degree of investment risk
AA	Aa	High quality. Differs only slightly from highest-rated issues
A	A	Adequate capacity to pay interest and repay principal
BBB	Baa	More susceptible to adverse effects of changes in economic conditions
BB	Ba	Has speculative elements; future not considered to be well-assured
B	B	Generally lack characteristics of desirable investment
CCC	Caa	Poor standing. Vulnerability to default
C	C	Extremely poor prospect
D	D	In default

Short-Term and Long-Term Ratings



Source: Moody's Investors Service, Commercial Paper Default and Rating Transitions, 1972-1995

Correlation of CP Ratings with Debt Ratings



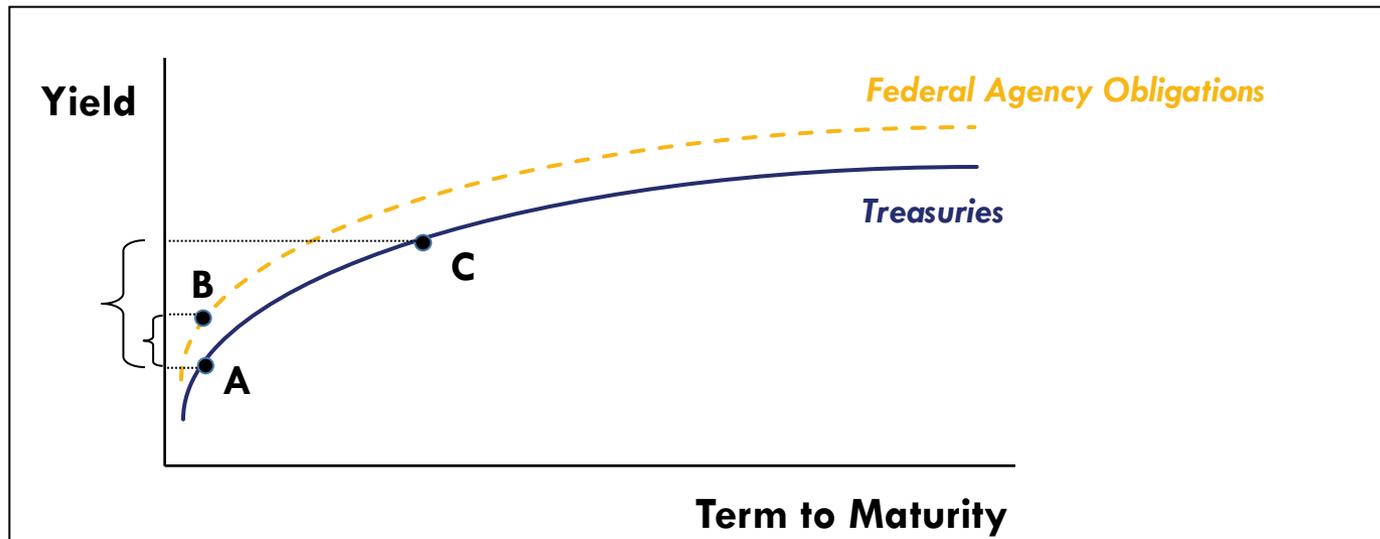
Source: Standard & Poor's Commercial Paper Guide

Reinvestment Risk

- The risk that a security's cash flow will be reinvested at a lower rate of return than what is being earned by the security
- Exposure to reinvestment risk
 - Callable securities
 - Mortgage backed securities
 - Securities with larger earlier cash flows (high coupon bonds)

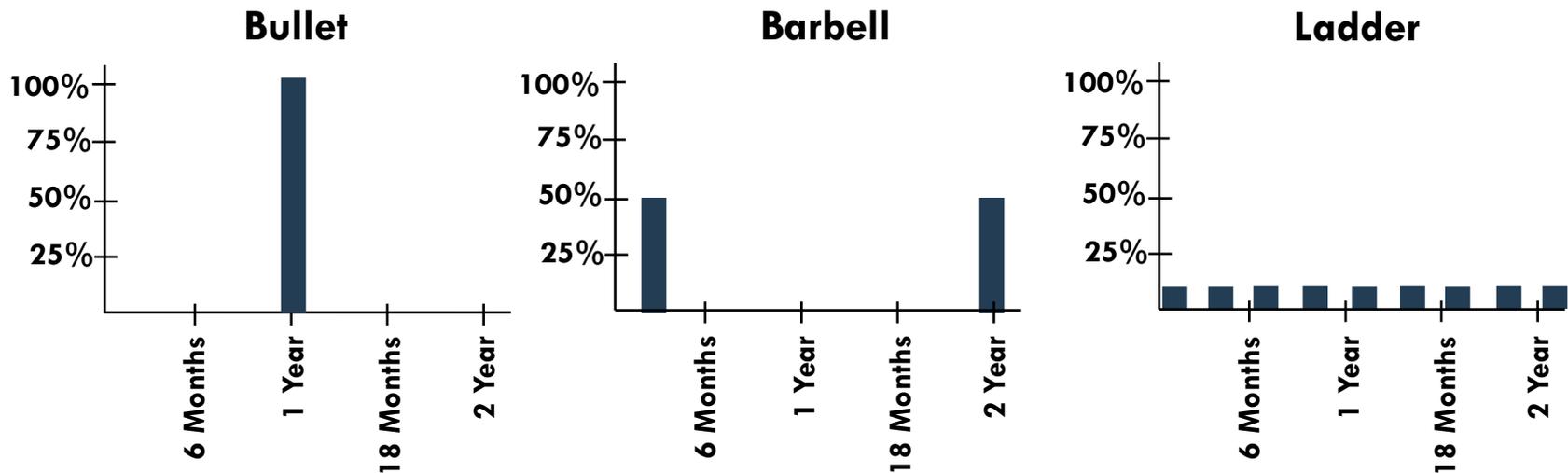
Average Maturity

- Average maturity determines investment performance
- To increase returns:
 - extend maturities
 - increase credit risk
 - reduce liquidity



Portfolio Structuring

- Many ways to achieve a specific target maturity
- The optimal structure will depend on the shape of the yield curve



Types of Fixed Income Securities

Money Market

- U.S. Treasury Bills
- Federal Agency Discount Notes
- Commercial Paper
- Bankers' Acceptances
- Repurchase Agreements
- Certificates of Deposit
- Money Market Mutual Funds

Mature in < 1 Year

Bonds

- U.S. Treasury Notes/Bonds
- Federal Agency Notes/Bonds
- Mortgage Backed Securities
- Corporate Notes
- Mutual Funds (aka Bond Funds)

Mature in > 1 Year

Bank Deposit Accounts

- FDIC Insured, collateralized per CGC Section 53652 et seq., or secured by letter of credit as per CGC Section 53651(p)
- Banks don't have collateral to back deposits
- Collateral offered may not be acceptable
- Banks don't want your balances due to increased capital requirements and narrow spreads
- Low current yields offered

Bank Placement Service Deposits

- Authorized under CGC Sections 53601.8 and 53635.8
- Deposits are FDIC Insured (due diligence required)
- Allows for institutional size investments
- Provides liquidity with some restrictions
- Time deposits with specific maturities
- Govt Code sections amended by AB 283 effective January 1, 2016 (sunsets January 1, 2021)
- 30% portfolio limitation

Examples-Private Placement Services

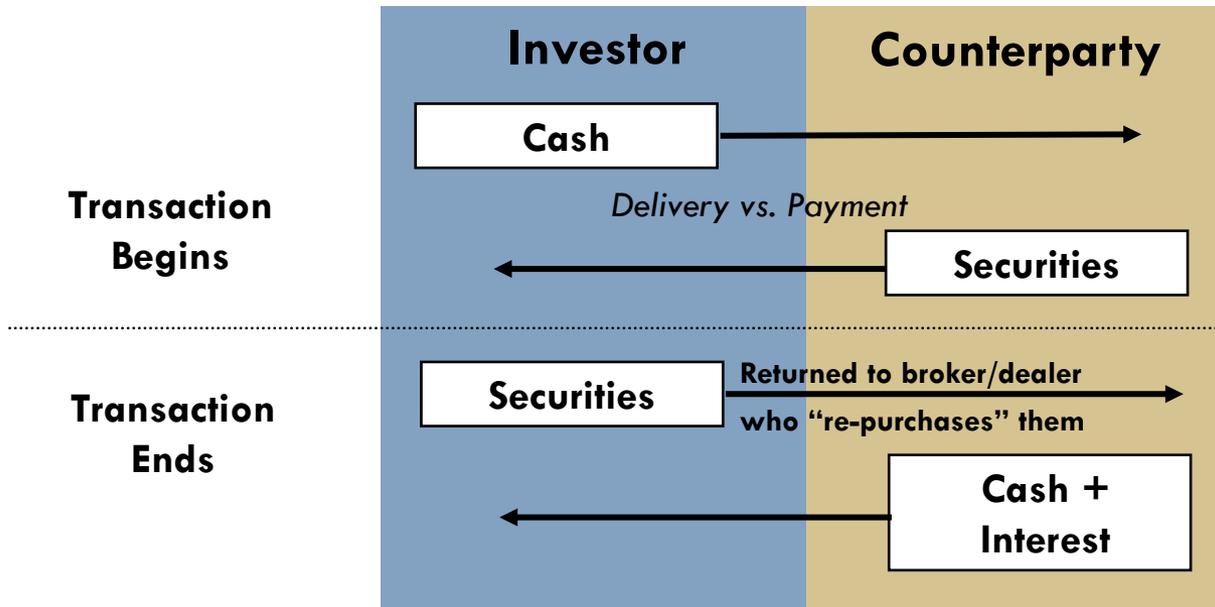
- Certificate of Deposit Account Registry Service (CDARS): Offered by Promontory Interfinancial Network, a private **CD placement** service that allows local agencies to purchase more than \$250,000 in CDs from a single financial institution (must be a participating institution of CDARS).
- Federally Insured Cash Account (FICA): a proprietary cash management vehicle by StoneCastle Partners. It is an FDIC insured Liquid Structured Bank **Deposit** Vehicle.

Repurchase Agreements

Issuer:	Banks and brokerage firms
Credit Quality:	Varies
Term of Maturity:	1 day to several years
Liquidity:	Generally none prior to maturity
Custody:	Book entry (collateral)
Return:	Generally higher than Treasuries
Caution:	Investors should require a third party custodian Monitor credit quality of counterparty and collateral value

Repurchase Agreements

- An agreement in which an investor buys securities from a counterparty who agrees to buy the securities back at a later date at an agreed upon price and rate
- Yield determines the “repurchase price”

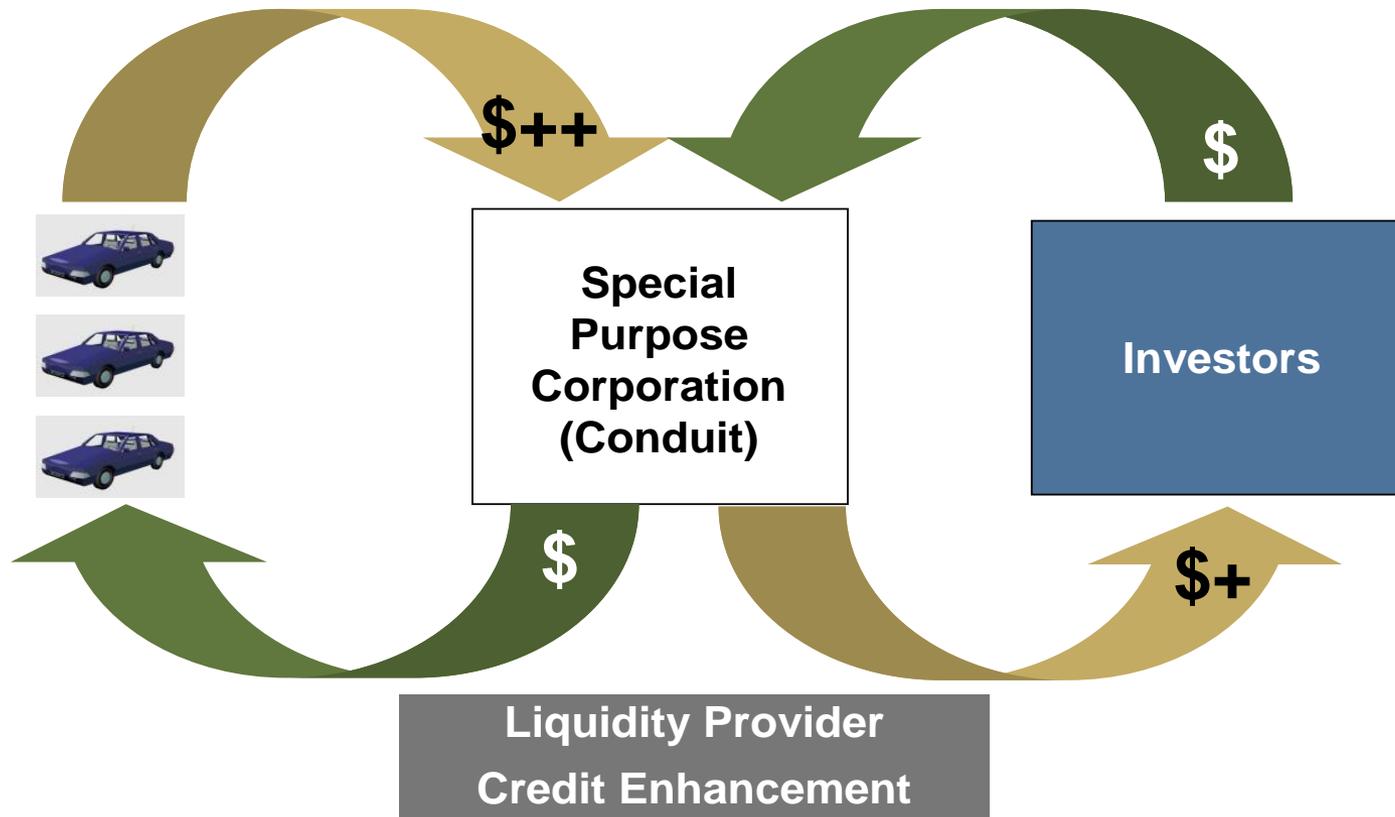


Commercial Paper

Issuer:	Domestic and foreign corporations
Credit Quality:	Investment grade
Term of Maturity:	1 to 270 days
Liquidity:	Moderate to high
Custody:	Depository Trust Company (Book Entry)
Return:	Moderate to high
Caution:	Unsecured promissory note Bankruptcy risk extends for 90 days after maturity May be asset-backed

Asset Backed Commercial Paper

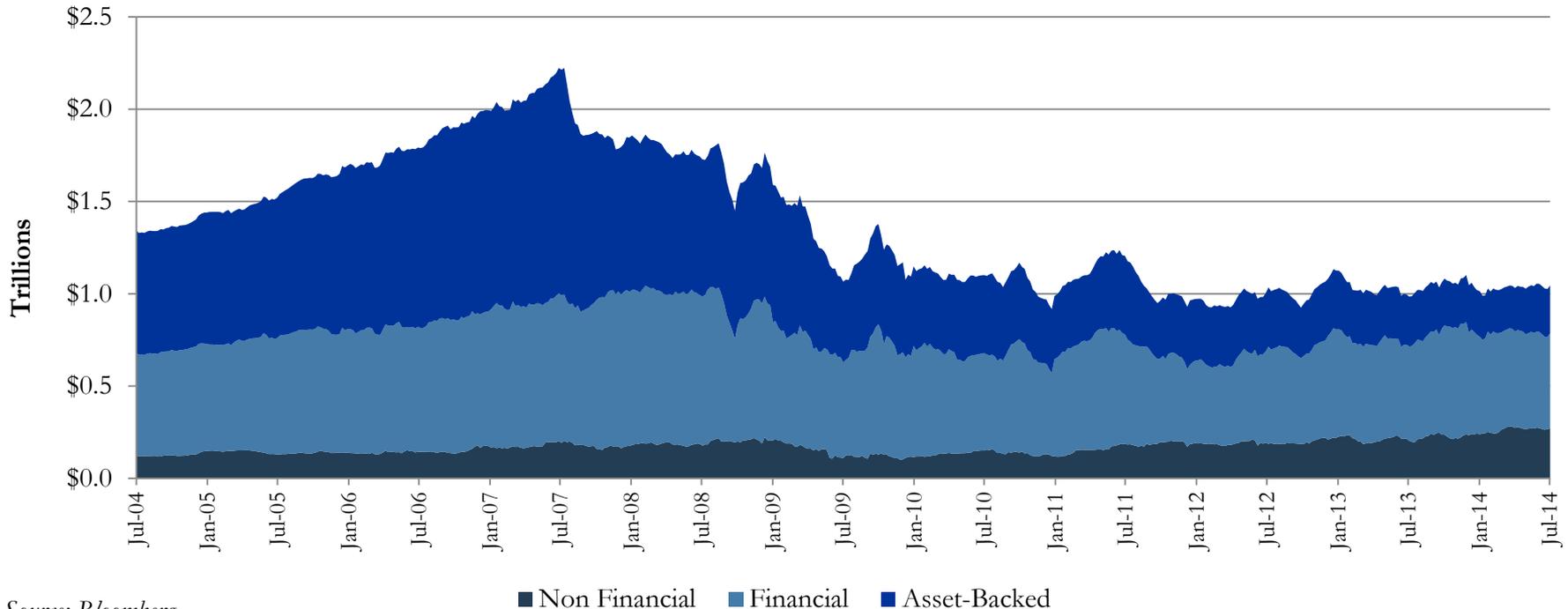
- CP issued by a special purpose corporation to finance receivables or purchase assets
- Allows institutions to shift liabilities off of their balance sheets



Commercial Paper

- After the credit crisis, corporations sharply reduced reliance on short-term debt to fund liquidity needs
- New regulations for financial institutions have also contributed to reduced issuance of commercial paper

Commercial Paper Outstanding



Source: Bloomberg

Negotiable vs. Non-Negotiable CDs

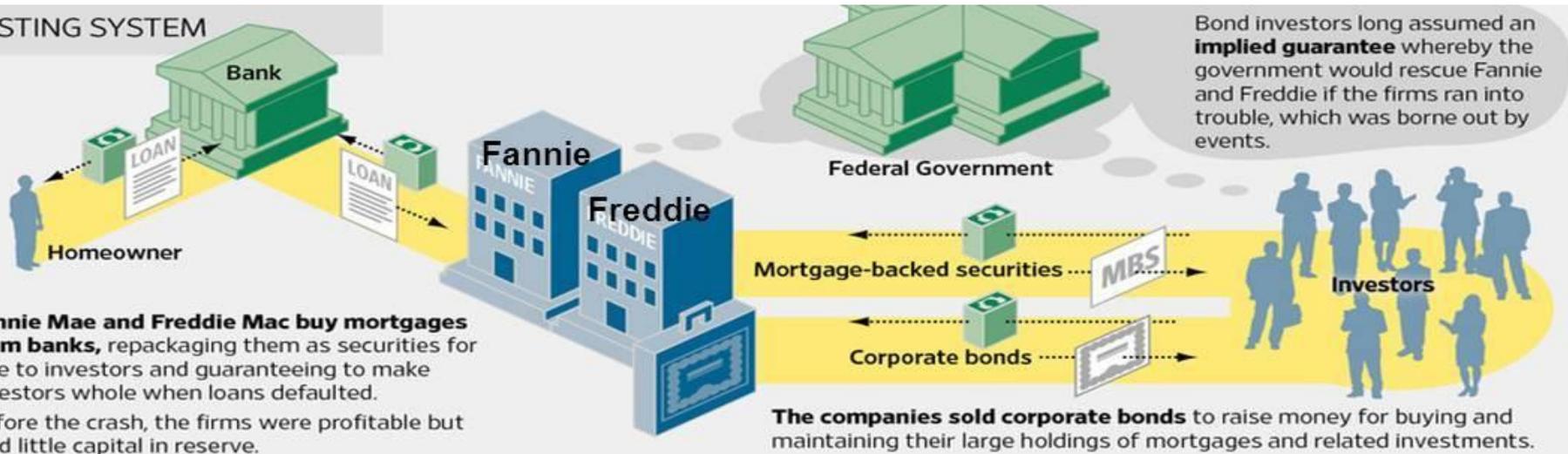
- Non-Negotiable CD's
 - Issued by in-state financial institutions
 - No secondary market
 - Penalties for early withdrawal
- Negotiable CD's
 - Issued by large banks and savings and loans
 - Lots of at least \$1 million
 - Active secondary market
 - Not collateralized
 - Credit quality

Mortgage-Backed Securities

Issuer:	Federal Agencies
Credit Quality:	AA+, may carry Government guarantee
Term of Maturity:	Typically 5 - 30 years
Liquidity:	Moderate to high, depends on structure, volume
Custody:	Federal Reserve (Book entry)
Return:	Relatively high
Caution:	<p>Prepayment risk</p> <p>Cash flow variability</p> <p>Sophisticated accounting system required</p>

Mortgage-Backed Securities

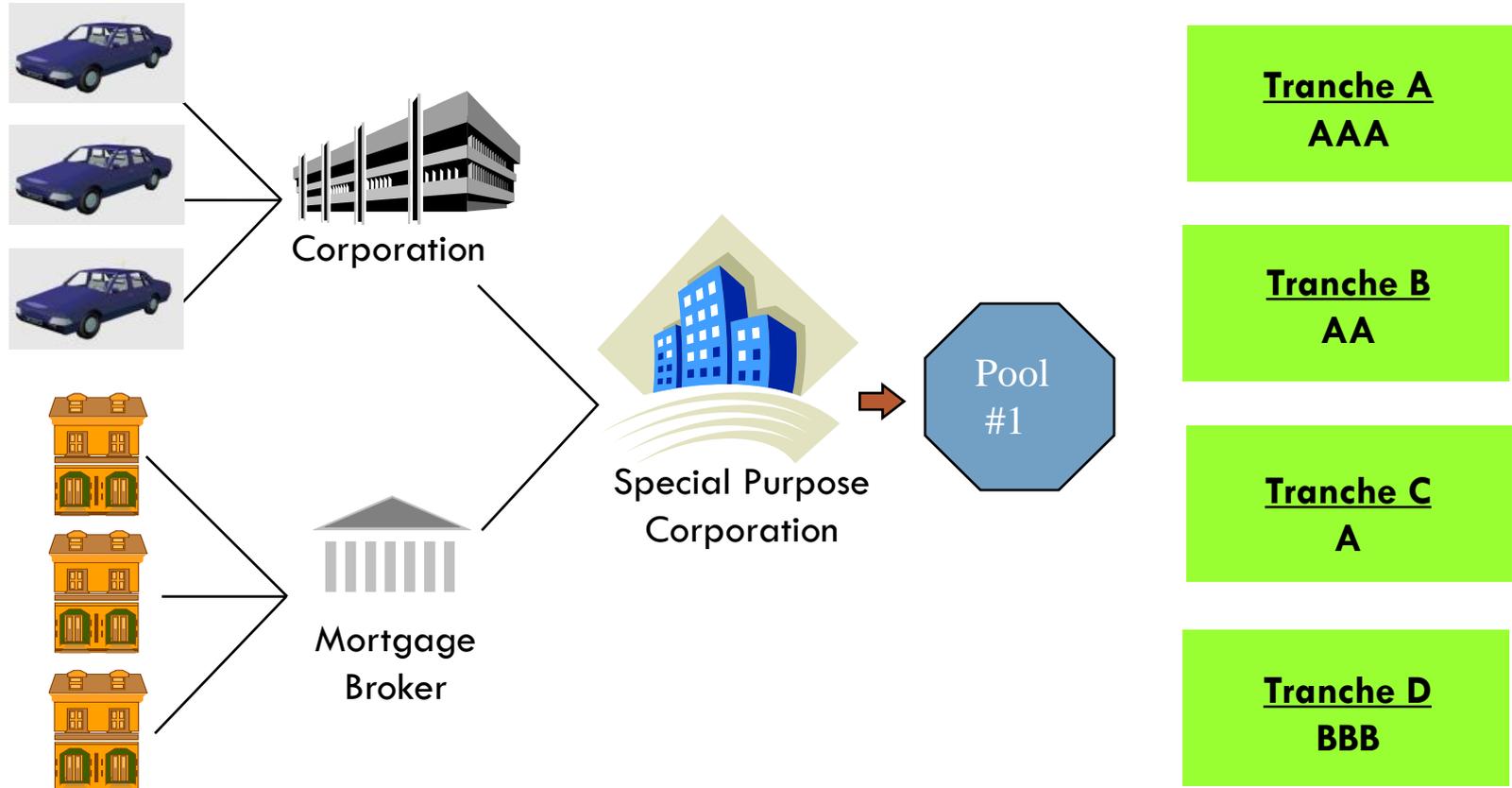
EXISTING SYSTEM



Asset Backed Securities

Issuer:	Special Purpose Corporations
Credit Quality:	Varies, Credit Analysis Required
Term of Maturity:	Generally up to 10 years
Liquidity:	Moderate, depends on structure, volume
Custody:	DTC (Book Entry)
Return:	Relatively high
Caution:	<p>Prepayment Risk</p> <p>May be backed by:</p> <ul style="list-style-type: none"> credit card receivables home-equity loans manufactured homes automobile loans or sub-prime mortgages

Asset Backed Securities



Evolution of Rule 2a-7; Post Credit Crisis

Type	Pre 2010	2010 Requirements
Liquidity	<p>Daily liquid assets or weekly liquid assets were not defined terms</p> <p>No more than 10% may be invested in illiquid securities</p>	<p>At least 10% of assets must be in cash, U.S. Treasury securities, or other Government securities that mature in one day. 30% of assets must mature within seven days. Government securities are liquid if they mature < 60 days</p> <p>"Illiquid" securities, any security that cannot be sold or disposed of within seven days at carrying value, are limited to 5% of the total portfolio.</p>
Quality	<p>< 5% may be "second tier" securities</p> <p>Limit single name "second tier" to the greater of 1% or \$1 million</p> <p>Max maturity is 397 days</p>	<p>< 3% may be "second tier" securities</p> <p>< 0.5% may be in a single "second tier" issuer</p> <p>Maximum maturity of any "second tier" security is 45 days</p>
REPO	<p>Collateral is limited to cash, government securities, and highly-rated securities</p> <p>No current creditworthiness requirement</p>	<p>Collateral is limited to cash or government securities</p> <p>The credit quality of repo counterparties must be evaluated using approved methodology</p>
Stress Test	No requirement	Periodic stress tests with quarterly reporting to the Boards
Investors	No requirement	Require funds to identify investors whose redemption requests may pose risks for the funds
Maturity	Maximum weighted average maturity (WAM) is 90 days	<p>Maximum WAM is 60 days</p> <p>Maximum weighted average life (WAL) is 120 days</p>
Disclosure	No website requirement	Funds must post holdings on their website each month
Transaction	No requirements on shareholder software	Funds must be able to process purchases and redemptions at a price other than \$1.00

Key Features of Amendments

Government vs. Prime

- Government: a money market mutual fund that invests 99.5% of its total assets in cash, government securities, or repurchase agreements collateralized by government securities
- Prime: a money market mutual fund that invests primarily in any eligible high-quality money market instrument as defined by SEC regulations, including U.S. government securities, commercial paper, certificates of deposit, corporate notes, and other debt investments

Key Features of Amendments

- Floating NAV for institutional prime money market fund
- Liquidity fees
- Redemption gates

Summary of Key Amendments

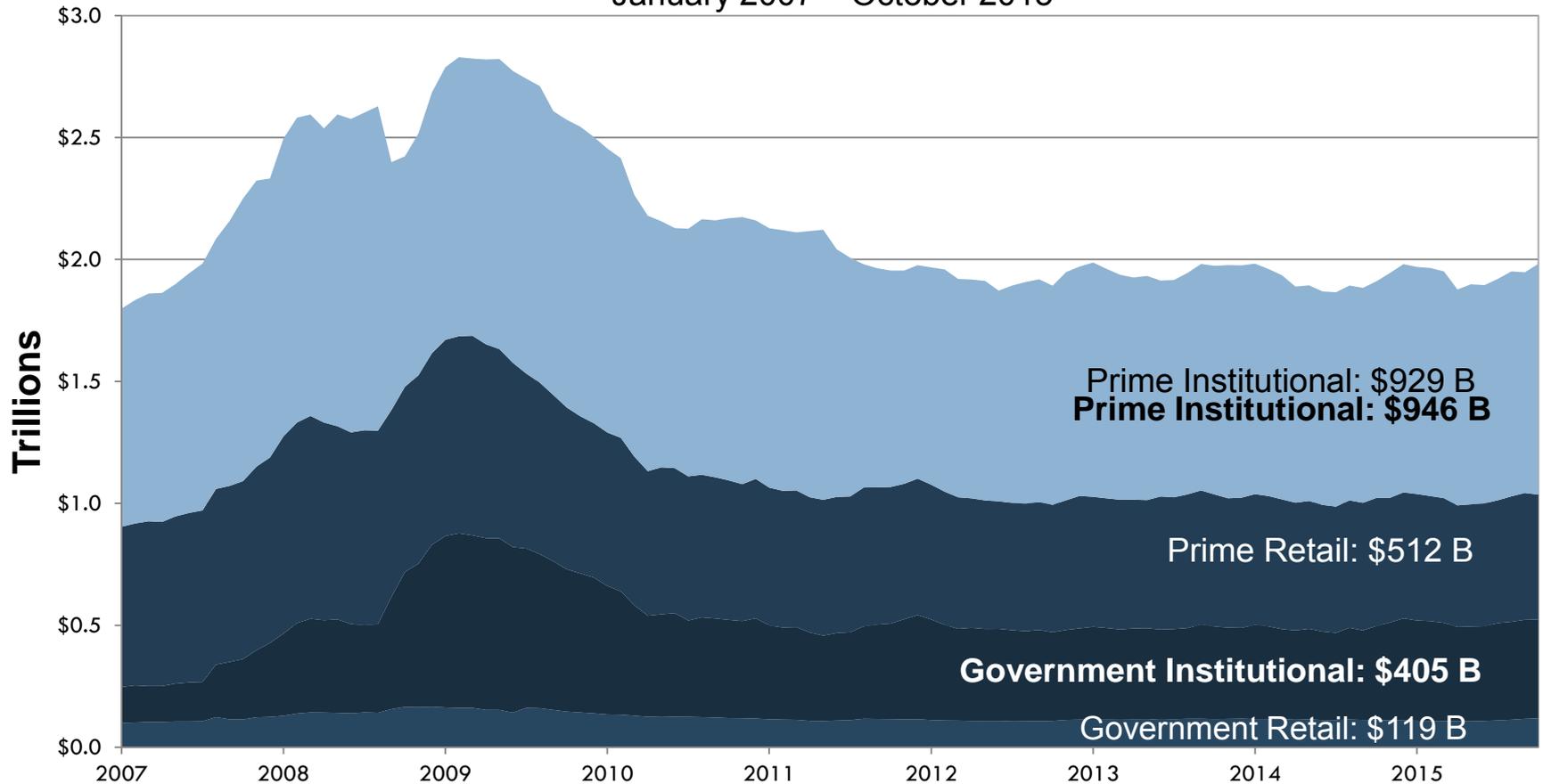
	Prime Fund Government securities, commercial paper, certificates of deposit, corporate notes, and other debt investments	Government Fund 99.5% of total assets in cash, government securities or repos
Retail Fund Limited to “natural persons”	<ul style="list-style-type: none">• Constant NAV• Gates• Liquidity Fees	<ul style="list-style-type: none">• Constant NAV• Optional Gates• Optional Liquidity Fees
Institutional Fund	<ul style="list-style-type: none">• Variable NAV• Gates• Liquidity Fees	<ul style="list-style-type: none">• Constant NAV• Optional Gates• Optional Liquidity Fees

Implementation Timing

<u>Topic</u>	<u>Implementation Date</u> (From Rule Release / Actual Date)
Application of floating NAV	2 years / 10-14-2016
Definition of retail fund	2 years / 10-14-2016
Definition of government fund	2 years / 10-14-2016
Redemption gates	2 years / 10-14-2016
Liquidity fees	2 years / 10-14-2016

MMF Industry Composition

Industry Taxable Money Market Fund Assets
January 2007 – October 2015



Source: Bloomberg, ICI Institutional Money Market Funds Indexes.

New Banking Regulations

Capital



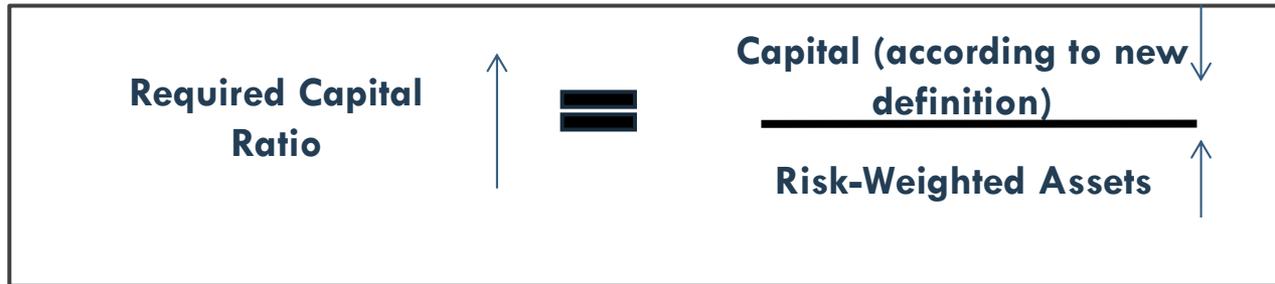
Leverage



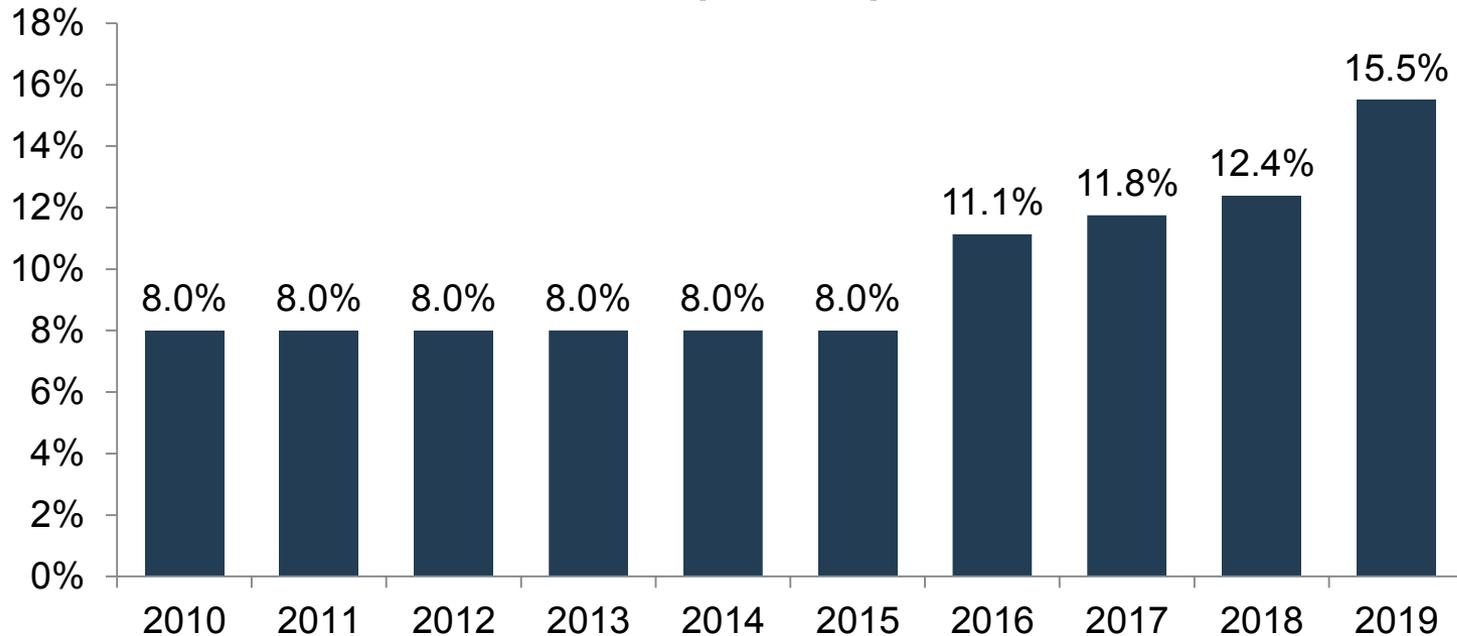
Liquidity



Capital Ratio Requirements



Total Capital Requirements



Leverage Restrictions

- In order to make banks more stable, many banks were required to increase their capital or decrease their total assets

De-Leveraging Requirements by Bank (\$billion)		
	Capital Increase	(or) Asset Reduction
BAC	-	-
C	2	(49)
JPM	10	(204)
WFC	-	-
GS	5	(107)
MS	8	(166)
BK	4	(72)
STT	-	-
Total	30	(598)

Impact of Liquidity Requirements

- Retail and “operational wholesale” deposits more valuable
- High-quality, liquid assets are precious
- Liquid reserves needed for undrawn commitments
- Desire for longer-term funding

High-Quality Liquid Assets

$$\frac{\text{High-Quality Liquid Assets}}{\text{Total Net Cash Outflows}} \geq 100\%$$

Total Net Cash Outflows

Liquidity Crisis: Withdrawals of deposits,
draws on letters of credit, etc.

External Investment Pools

- Local government investment pools (LGIPs) get accounting and reporting guidance from GASB not the SEC
- In response to MMF reform, GASB published new guidelines for LGIPs
- The new guidelines parallel many aspects of the SEC's 2010 amendments to Rule 2a-7
 - Maturity
 - Credit Quality
 - Diversification
 - Liquidity
 - Shadow pricing
- LGIPs will still be able to maintain a stable \$1.00 NAV without becoming a government securities-only fund

Joint Powers Authority Pools

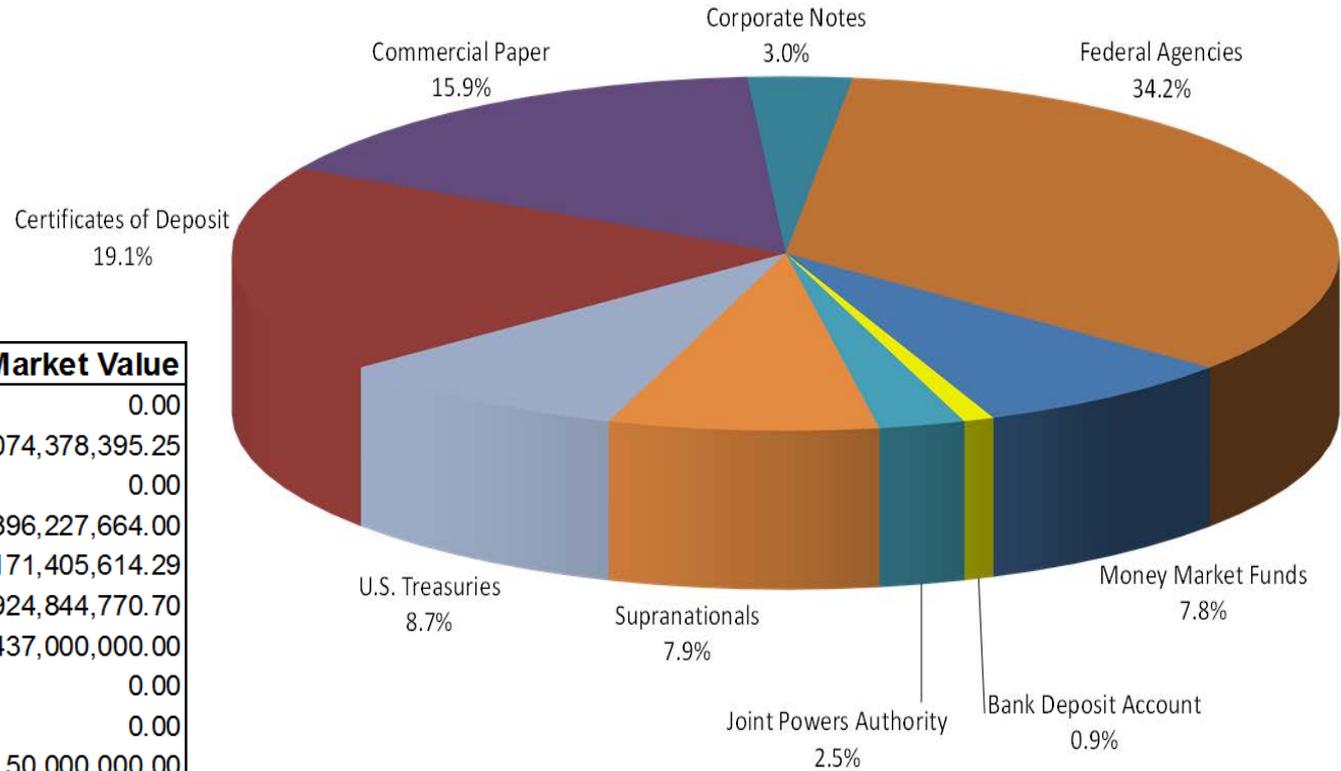
- Authorized under CGC Section 53601(p) established pursuant to Section 6509.7
- 2a7 registered mutual funds (CalTrust)
- 2a7 “like” structured funds (CAMP)
- Bond funds with varying duration targets (CalTrust)
- JPA Voting Member vs. Investor
- NAV vs. Market Value
- Daily liquidity with some restrictions
- Competitive yields

County Investment Pools

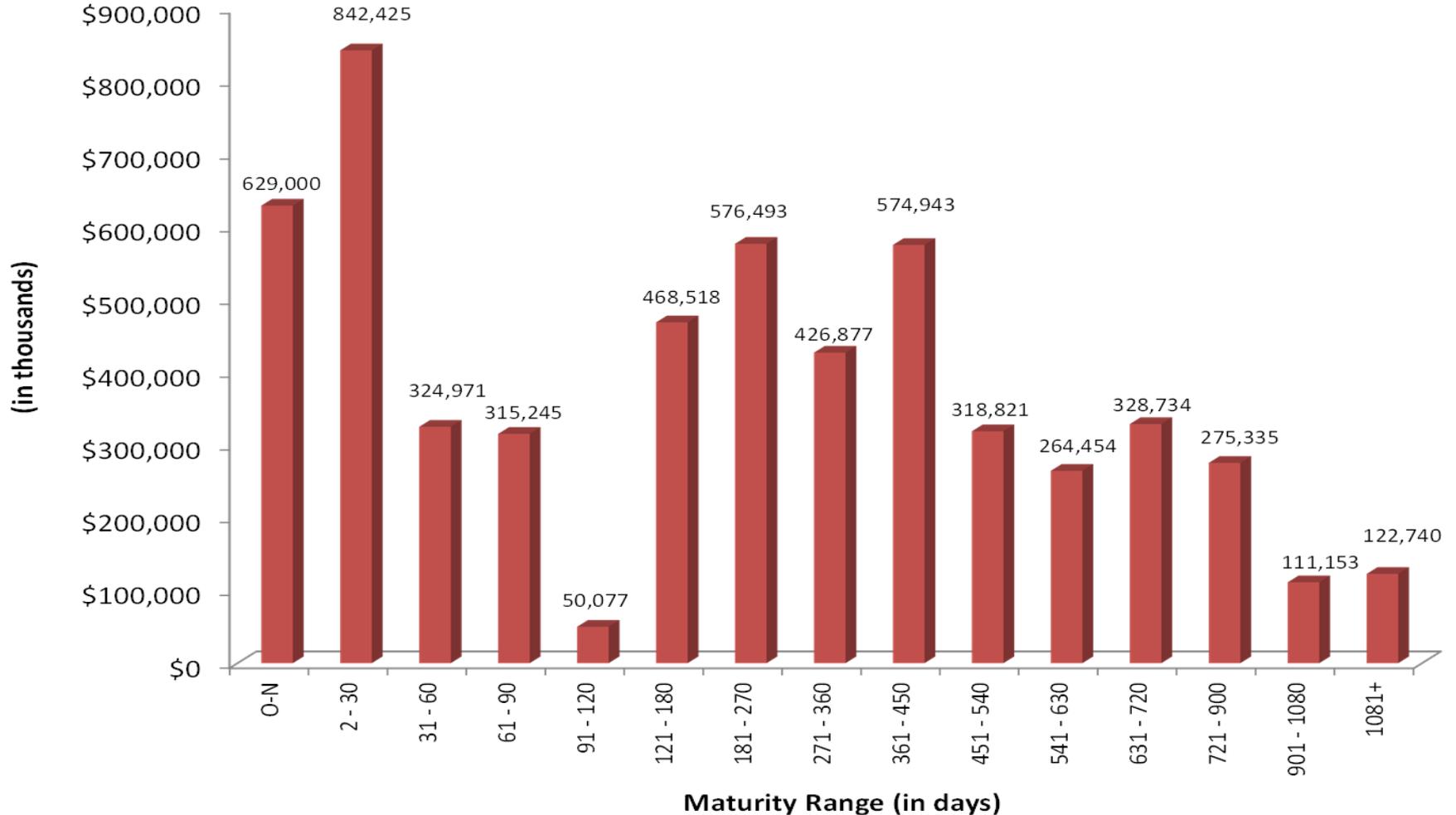
- Authorized under CGC Sections 27000 et seq, 53601, 53635 et seq
- Managed by County Treasurer
- Combines monies from different governing bodies
- May or may not allow voluntary contributions
- Investment policies will vary from one pool to another
- Investment performance will vary from one pool to another
- May have restrictions on deposits and withdrawals

LGIP Sector Distribution (12/31/15)

Sector	Market Value
Bankers Acceptance	0.00
Certificates of Deposit	1,074,378,395.25
Collateralized CD	0.00
Commercial Paper	896,227,664.00
Corporate Note	171,405,614.29
Federal Agencies	1,924,844,770.70
Money Market Funds	437,000,000.00
Municipal Debt	0.00
Repurchase Agreement	0.00
Bank Deposit Account	50,000,000.00
Joint Powers Authority	142,000,000.00
Supranationals	442,973,255.00
U.S. Treasuries	490,955,265.00

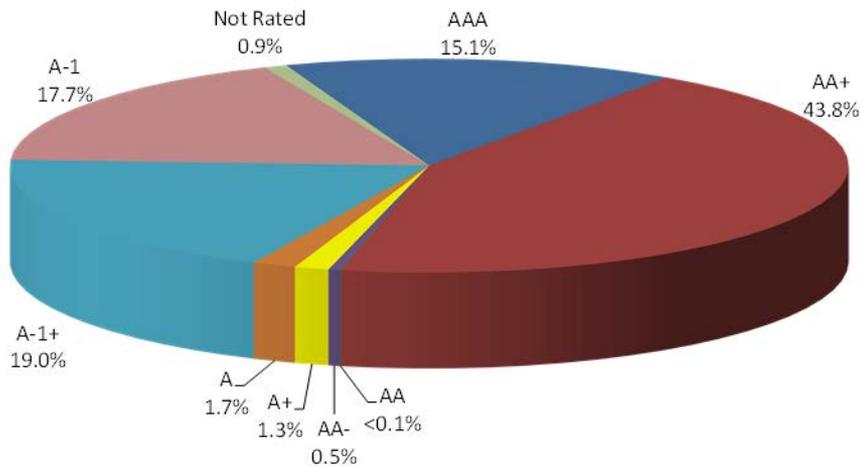


LGIP Maturity Distribution (12/31/15)



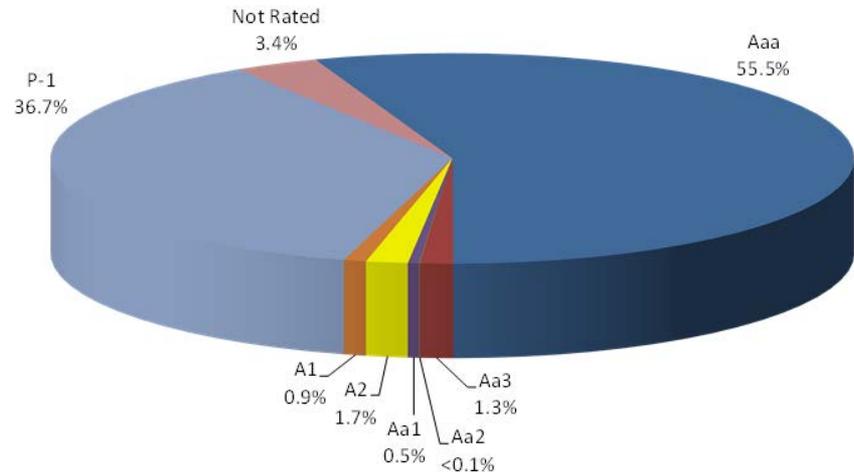
LGIP Credit Quality Distribution (12/31/15)

S&P Ratings



Credit Rating	Market Value
A-1+ (Short-Term)	1,069,356,324.25
A-1 (Short-Term)	996,343,649.00
AAA (Long-Term)	851,986,075.00
AA+ (Long-Term)	2,466,286,739.30
AA (Long-Term)	1,501,099.50
AA- (Long-Term)	25,000,000.00
A+ (Long-Term)	74,848,641.00
A (Long-Term)	94,462,436.19
Not Rated	50,000,000.00

Moody's Ratings



Credit Rating	Market Value
P-1 (Short-Term)	2,065,699,973.25
Aaa (Long-Term)	3,125,786,110.70
Aa3 (Long-Term)	74,848,641.00
Aa2 (Long-Term)	1,501,099.50
Aa1 (Long-Term)	25,000,000.00
A2 (Long-Term)	94,462,436.19
A1 (Long-Term)	50,486,703.60
Not Rated	192,000,000.00

Pooled Money Investment Account LAIF

LAIF Performance Report

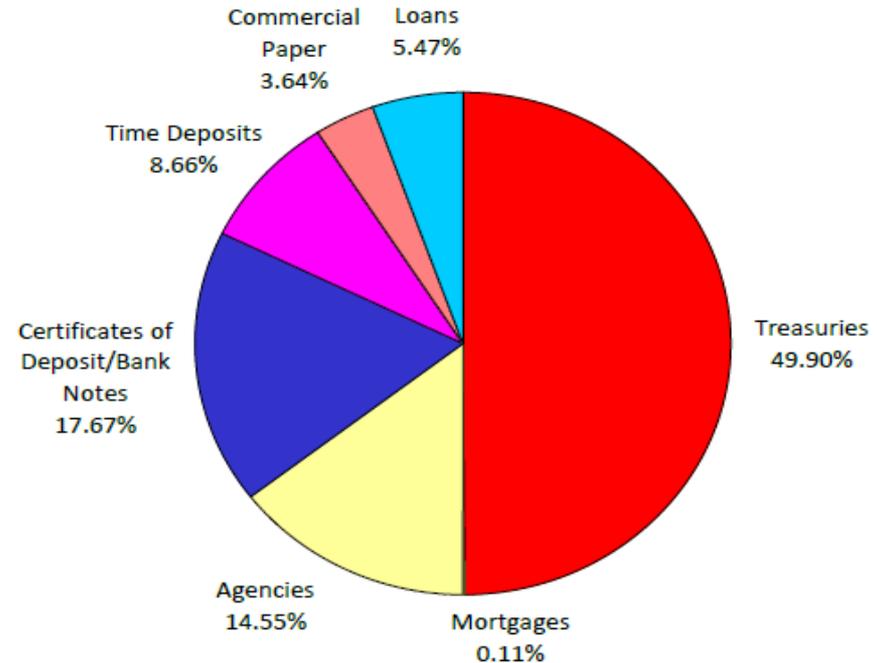
Quarter Ending 12/31/15

Apportionment Rate:	0.37%
Earnings Ratio:	0.00001006140492611
Fair Value Factor:	0.999186963
Daily:	0.43%
Quarter to Date:	0.38%
Average Life:	179

PMIA Average Monthly Effective Yields

DEC 2015	0.400%
NOV 2015	0.374%
OCT 2015	0.357%

Pooled Money Investment Account
Portfolio Composition
12/31/15
\$65.6 billion



Questions ???

CONTACT US:

goodnightd@pfm.com

john.johnson@atc.sbcounty.gov