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Municipal Training Conference

Best Practices for Investment of Cash and Bond Proceeds

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Considerations for Investment of Cash and Bond Proceeds

Investment Objectives for Operating Cash & Reserve Cash Assets

An investment policy statement describes key investment objectives.

Investment objectives typically include safety of capital, liquidity of funds, and investment income.

KEY CONSIDERATIONS:

1. **SAFETY** - Primary objective of investment activities is the preservation of capital.

2. **LIQUIDITY** – Investment strategy will provide sufficient liquidity to meet cash flow requirements in an orderly manner.

3. **INVESTMENT INCOME** - Investment strategy will strive to maximize returns, consistent with policy restrictions on credit quality, issuer, diversification and liquidity requirements.

Maturity & Liquidity Requirements

An investment policy typically requires that the investment portfolio is structured in such manner as to provide sufficient liquidity to pay obligations as they come due.

To the extent possible an effort will be made to match investment maturities with known cash needs and anticipated cash-flow requirements.

- The portfolio shall be managed in such a manner that funds are available to meet reasonably anticipated cash flow requirements in an orderly manner.
- The investment strategy will provide an appropriate mix of maturities to maximize the return on the portfolio while minimizing investment risk.
- Investment of bond reserves, construction funds, and other non-operating funds shall have a term appropriate to the need for funds, and in accordance with debt covenants.
- A liquidity amount of approximately three months of anticipated disbursements will be kept in relatively short-term investments such as high quality, stable $1 NAV accounts

Risk & Diversification

Investments held should be diversified to control the risk of loss resulting from over concentration of assets in a specific maturity, issuer, instrument, dealer, or bank through which financial instruments are bought and sold.

"I'm disappointed. If anyone should have seen the red flags, it's you."

Short Fixed Income Investment Philosophy

Superior results are attained through active management

- Market inefficiencies result in mispriced sectors and/or individual securities that offer superior risk-adjusted return potential.
  - Examples include fixed vs floating rate coupons, 144a private placements, anticipated changes in market technicals, and ‘herding’ market sentiment that results in asymmetrical risks.
- Dynamic markets require dynamic account management.

Combination of both ‘top-down’ and ‘bottom-up’ approach

- Top-down market surveillance provides comprehensive macro view to make decisions on duration and sector positioning that yield optimal risk adjusted results.
- Bottom-up security selection optimizes these macro themes and enables product specialists to identify unique opportunities to enhance performance.

Diversification is essential to managing portfolio risk

- Cross-sector correlations compel us to seek sector allocations that improve risk-adjusted performance across a wide range of potential market environments.
- We consider the entire opportunity set to measure the performance, diversification, and liquidity benefits of each sector when developing investment strategies.

Forward looking approach to credit analysis with a global industry focus

- Our global industry analysts conduct extensive proprietary research on their sectors and credits. They also leverage our strong dealer relationships, engage in frequent interaction with the ratings agencies, and have access to external credit resources.
- A high importance is placed on meeting directly with management teams and underwriters to establish a qualitative opinion on a company in addition to conducting an in-depth quantitative assessment.

Tiering of Short-Term Fixed Income Portfolios

Customized for relevant time horizon, return expectation and risk tolerance

Lower Expected Return
Less Volatility

Higher Expected Return
Higher Volatility

	Tier 1 "Cash Management"	Tier 2 "Enhanced Cash"	Tier 3 "Low Duration 1-3yr"	Tier 4 "Low Duration 1-5yr"
Investments	▪ Commercial Paper (CP) ▪ Certificates of Deposit (CDs) ▪ Governments/Agencies ▪ Corporates – IG Only	▪ CP and CDs ▪ Governments/Agencies ▪ Asset-Backeds ▪ Corporates – IG Only	▪ Governments/Agencies ▪ Asset-Backeds ▪ Mortgages ▪ Corporates – IG Only	▪ Governments/Agencies ▪ Asset-Backeds ▪ Mortgages ▪ Corporates – IG
Average Quality	AA	AA	AA-	AA-
Average Portfolio Duration	1-6 months	6-18 months	1.5-3.0 years	1.5-3.0 years
Maturity Range	Overnight to 1 year	Overnight to 3 year	1-5 years	1-7 years
Expected Return over Money Markets	+25bps	+45bps	+60bps	+100bps

Comparison of Cash Management Options for Rhode Island Municipal Investors

- **Higher interest rates have driven average money market fund (MMF) yields equal to or greater than bank deposit/sweep accounts**
- **MMF yields will continue to move higher as the Federal Reserve raises the Fed Funds Target Rate**
- **MMFs and conservative ultra-short duration bond funds are diversified portfolios with professional active management, offering daily liquidity and attractive investment returns**

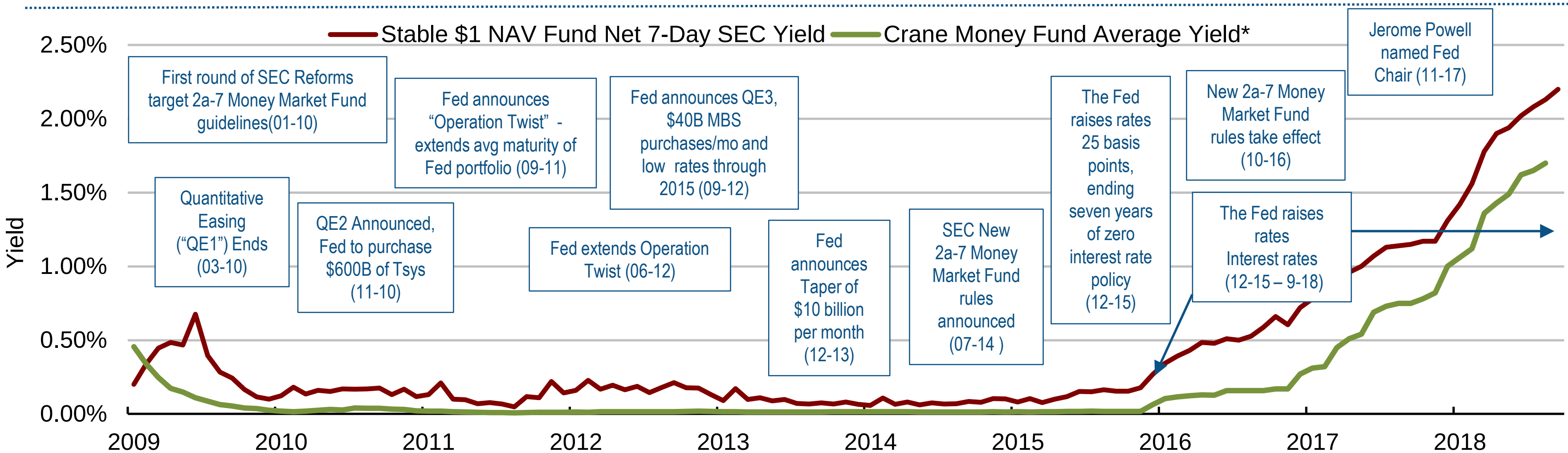
Considerations	Internal / Bank Deposits	"Prime" Money Market Fund	Ocean State Investment Pool	Govt Money Market Fund	Short Duration Fund / ETF	Deposit Syndication ("CDARS")	Separate Account
Daily cash	✓	✓	✓	✓	✓		✓
Mark-to-market		✓	✓		✓		✓
Subject to gates		⊘					
Diversified portfolio	?	✓	✓	✓	✓	⊘	✓
Large exposure to banks	⊘	⊘	⊘			⊘	
Co-investing		⊘	⊘	⊘	⊘		
Duration risk					✓		✓
Credit risk	⊘	✓	✓		✓	✓	✓
Custom liquidity and guidelines	✓						✓
Illiquidity	?					⊘	
Fees	Low (not 0)	Low-modest	Low-modest	Low-modest	Modest	Hidden	Low

Representative Stable $1 NAV Fund: Yield & Total Return Comparison

Attractive Relative Yield and Total Return

As of September 30, 2018

Representative Stable $1 NAV Fund Net 7-Day SEC Yield, Since Inception vs. Crane Money Fund Average Yield*



*Institutional (government) 7-day yields

REPRESENTATIVE STABLE $1 NAV FUND TOTAL RETURNS VS. 3- MONTH TREASURY BILL RETURNS

	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD 2018
Stable $1 NAV Fund (gross)	**0.37%**	**0.28%**	**0.22%**	**0.33%**	**0.20%**	**0.18%**	**0.23%**	**0.65%**	**1.13%**	**1.48%**
ICE BofAML 3 M US Tsy Bill	0.17%	0.13%	0.08%	0.08%	0.05%	0.04%	0.05%	0.33%	0.86%	1.30%

Returns under one year are unannualized

Cash Reserves - Enhanced Cash Management Overview

What do I Need to Get Started?

Step 1. Estimate cash needs (Flow vs. Core)

Step 2. Invest 'Core' in higher yielding securities and 'Flow' in very liquid securities.

Step 3. Client notifies manager on daily cash needs.

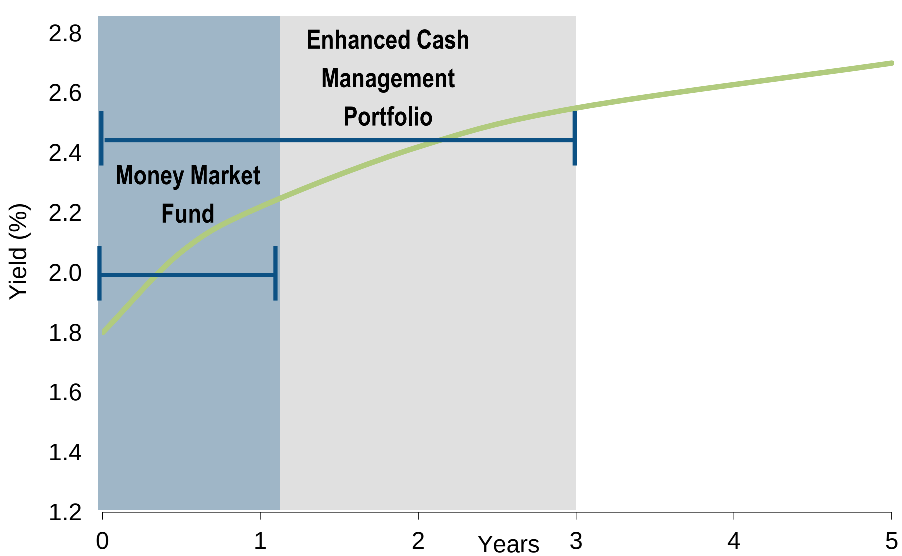
Step 4. Manager uses existing maturities or sells liquid product to raise cash.

Step 5. Over time, the portfolio has the opportunity to earn higher return than a money fund, while still meeting liquidity needs.

Why Does It Make Sense?

- Take advantage of the steepness of the yield curve beyond 13 months.
- Expand investment opportunity set.
- Maintain liquidity with higher-quality orientation than Money Market Funds.
- Provide higher yield.
- Money is fungible. A security bought today with a two-year maturity will roll down the curve and can be used as liquidity.

USD Treasury Yield Curve – As of 08/31/18



Source: Bloomberg

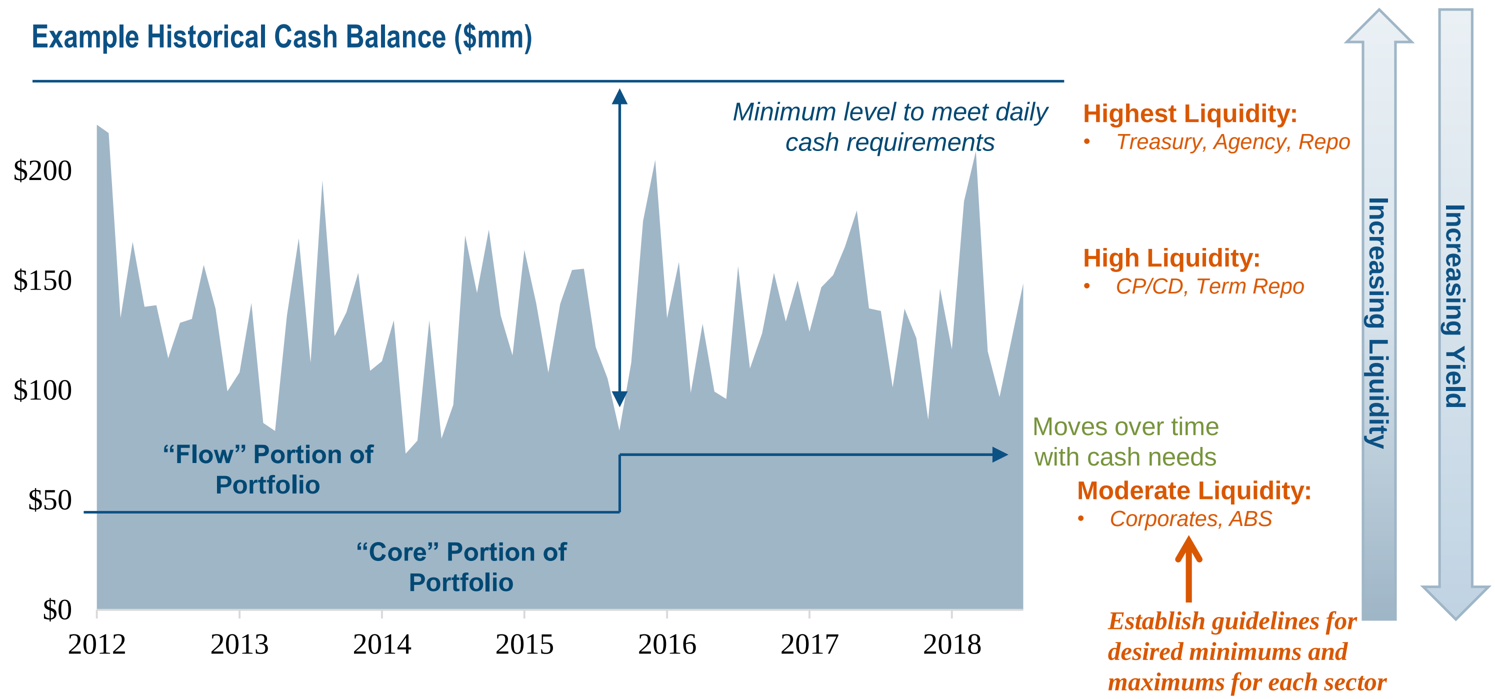
	Prime Money Market Fund	Enhanced Cash Strategy
Daily liquidity	Yes	Yes
$1 NAV	No	No
Control and transparency	No	Yes
Redemption fees and gates	Yes	No
13 month max maturity	Yes	No
Yield curve strategies	No	Yes

Managing Liquidity in Enhanced Cash Strategies

The key is providing an optimal portfolio for better *income, diversification, and liquidity … and control over guidelines*

- Study historical minimum cash needs – more information improves efficient use of cash.
- Portfolio can then match "Flow" needs with most liquid and low cost securities.
- "Core" (non-flow) portion matched more appropriately with longer maturities and a broader tool kit
- Over time, adjust the balance as actual cash flows are experience.

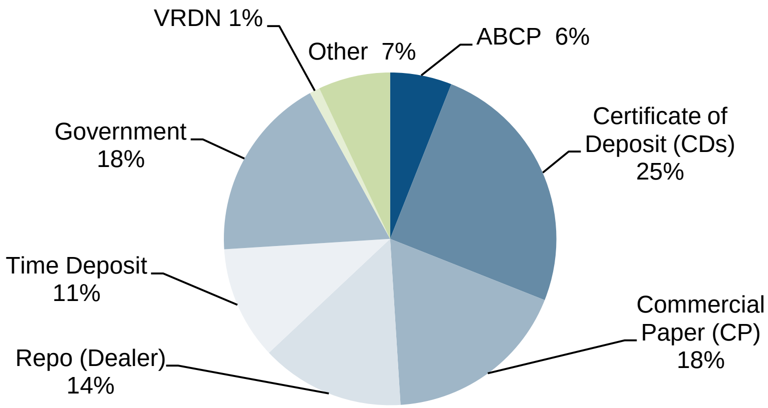
Example Historical Cash Balance ($mm)



Comparison of Money Fund vs. Enhanced Cash Strategy

Prime Money Market Fund

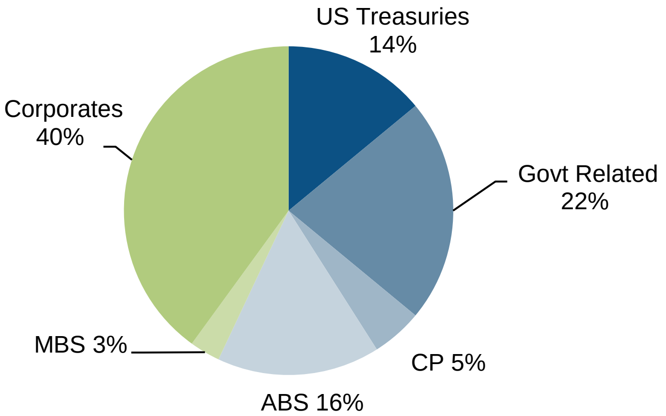
Gross Yield 2.30%, Net Yield 2.15%, Duration 0.16yr (59 days)



Source: J.P. Morgan
** Other includes collateralized CP, investment companies (other mutual funds), corporates bonds, other municipal investments*

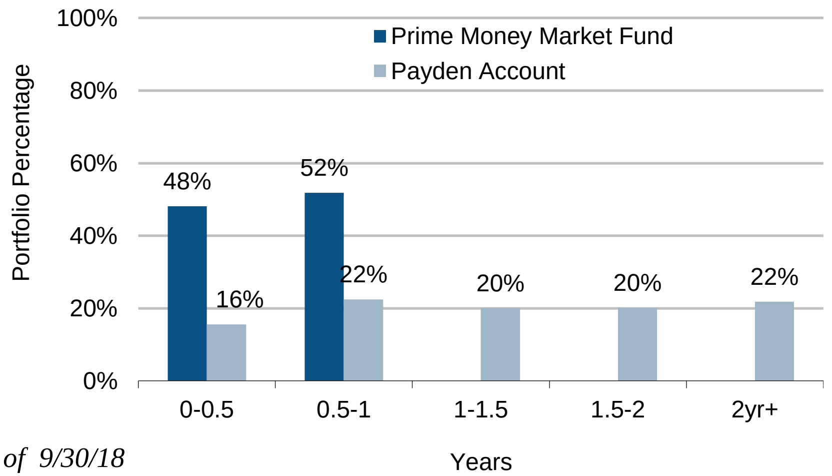
Payden & Rygel Enhanced Cash Portfolio

Gross Yield 2.60%, Net Yield 2.50%, Duration 0.35yr



Source: Payden & Rygel

Typical Maturity Distribution



As of 9/30/18

Advantages of Enhanced Cash Strategy

- Higher yield of 2.50% vs 2.15% - net of fees
- 50% allocation to floating rate notes across treasuries, agencies and corporate industrials
- Higher allocation to US government securities
- Ability to buy longer dated maturities opens access to syndicated IG corporate market
- Bank exposure approximately 20% compared to over 50% in Prime MMFs
- No ABCP

Perspective on Duration, Credit, and Return Volatility

- Extending duration adds yield and return potential.
- Adding credit improves risk adjusted return profile.

Total Return (Monthly) 10 Years Ending 9/30/2018:	iMoneyNet Money Market Index	ML 1-Year Treasury	ML 1-3 Treasury	ML 1-3 Govt/Credit	ML 1-5 Treasury	ML 1-5 Govt/Credit
Yield-to-Maturity[1]:	**1.63%**	**2.56%**	**2.81%**	**2.98%**	**2.86%**	**3.09%**
Duration[1]:	**-**	**0.9 yrs**	**1.9 yrs**	**1.9 yrs**	**2.6 yrs**	**2.7 yrs**
Maximum	0.19%	0.63%	1.17%	1.26%	2.06%	1.97%
Minimum	0.00%	-0.16%	-0.79%	-0.62%	-1.29%	-1.00%
Average	0.03%	0.06%	0.09%	0.14%	0.13%	0.19%
Std Deviation (monthly)[2]	0.15%	0.37%	0.90%	0.94%	1.62%	1.56%
Std Deviation (quarterly)[2]	0.26%	0.51%	1.04%	1.06%	1.88%	1.64%
# of Negative Rolling 12 Months	0	0	6	0	20	6
# of Negative Rolling Quarters	0	4	24	17	31	21
# of Negative Months	0	23	43	38	50	40
# of Negative Months in %	0%	19%	36%	32%	42%	33%
Annualized Trailing Returns						
3 Year	0.78%	0.80%	0.38%	0.75%	0.29%	0.77%
5 Year	0.48%	0.60%	0.56%	0.85%	0.73%	1.11%
10 Year	0.34%	0.73%	1.09%	1.68%	1.58%	2.33%
Sharpe Ratio (10 Year)	-	1.11	0.85	1.45	0.78	1.29

[1] *As of 9/30/2018*
[2] *Annualized*

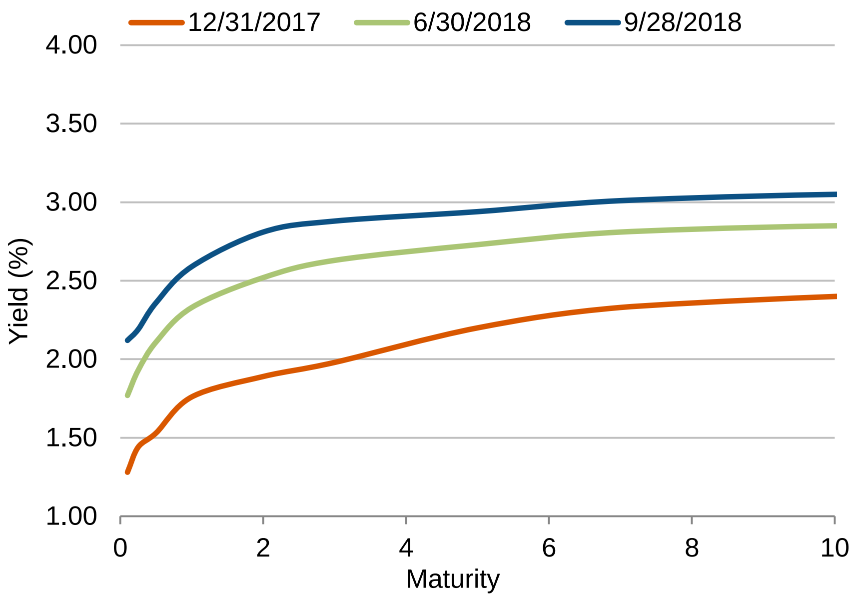
Market Environment

We Still Detect the Subtle Hint of a Rate Hike…

"I'm getting subtle hints of what the Fed might do."

US Bond Market Environment (as of 9/30/18)

Rates Are Drifting Higher in 2018



… and Year-to-Date 2018 Total Returns Are Mixed

	2018 YTD Total Return	Trailing One Year Total Return
3-month LIBOR	1.52%	1.92%
3-month T-bill	1.26%	1.57%
6-month T-bill	1.25%	1.56%
12-month T-bill	1.11%	1.18%
2 Yr. Treasury	0.13%	-0.24%
3 Yr. Treasury	-0.73%	-1.23%
5 Yr. Treasury	-1.46%	-2.27%
7 Yr. Treasury	-2.25%	-2.85%
10 Yr. Treasury	-3.92%	-4.54%
30 Yr. Treasury	-6.79%	-4.88%

- **Interest rates in the U.S. are being driven higher by the Federal Reserve's continued path to monetary policy normalization, with the Federal Open Market Committee raising its overnight lending rate for a third time this year in September.**
- **Our Economics team forecasts a quarterly rate hike through Q3 2019.**
- **3-month LIBOR and short-term Treasuries have outperformed longer dated Treasuries as income has not been able to offset negative price returns driven by higher rates**

Floating Rate Notes ("FRNs") – Favored in a Rising Rate Environment

Key Characteristics of FRNs

- Coupon rate "floats" or is linked to an external reference rate such as LIBOR (London Inter Bank Offered Rate), where they pay a fixed spread over a specified reference rate
- The interest rate will fluctuate during the bond's life, following the changes in the reference rate
- Price is less affected when interest rates change because their coupon rates vary with market interest rates and are reset at regular, short-term intervals.
- Little to no interest rate risk
- Credit risk still applies!
- Favored by investors who expect interest rates to rise

FRN Coupon = Reference Rate + Spread

Example: If LIBOR = 2.25%, Quoted Spread is +0.30%, FRN coupon is 2.55%

Reference Rates - What is LIBOR? What is SOFR?

- LIBOR is the rate at which banks borrow from one another in the London interbank market. The borrowing involves a cash deposit from one bank into a CD in return.
- The maturity can be from overnight to several years.
- LIBOR is used as a key reference rate by which to measure the attractiveness of investments, where borrowers seeks to reinvest proceeds at a higher rate as rates rise.
- LIBOR expected to go away in 2021 and be replaced by The Secured Overnight Financing Rate (SOFR)
- SOFR is a volume-weighted median rate similar to Fed Funds and is based on actual transaction data.

Where Do We Source Portfolio Income?

We evaluate all asset classes in the low duration universe to identify sectors that provide the best carry and roll at various points along the curve.

	Treasury	Treasury FRN	Agency	Supra (AAA)	CP (A-1)	CP (A-2)	LIBOR	Corp (A IND)	Corp (A FIN)	Corp (BBB IND)	Corp (BBB FIN)	Corp FRN (IND)	Corp FRN (FIN)	Muni	ABS (Cards) (AAA)	ABS (Auto) (AAA)	CLO (AAA)	CRT	Agency CMO	EM
1-month	2.00		2.00		2.09		2.16							1.63	2.19	2.20				
3-month	2.15	2.06	2.12	2.34	2.26	2.55	2.34	2.54	2.62	2.77	2.85			1.63	2.41	2.42				
6-month	2.33		2.25	2.44	2.46		2.57	2.63	2.71	2.86	2.95			1.65	2.58	2.58				
12-month	2.56		2.57	2.61			2.88	2.81	2.90	3.04	3.16	2.44	2.58	1.74	2.83	2.80			2.77	3.73
2-year	2.78	2.18	2.82	2.91				3.15	3.25	3.35	3.53	2.58	2.66	1.84	3.06	3.11	3.39	4.12	2.98	3.81
3-year	2.85		2.90	2.96				3.31	3.41	3.55	3.75	2.62	2.84	1.93	3.17	3.22			3.07	4.26
5-year	2.90		3.01	3.06				3.51	3.62	3.81	4.06	3.20	3.13	2.12	3.30		3.54		3.24	4.40

The spread over treasuries across the low duration universe is most attractive for IG Corporates and ABS/MBS. Financials offer value over industrials. Commercial Paper spreads have tightened compared to levels at the beginning of the year.

	Treasury	Treasury FRN	Agency	Supra (AAA)	CP (A-1)	CP (A-2)	LIBOR	Corp (A IND)	Corp (A FIN)	Corp (BBB IND)	Corp (BBB FIN)	Corp FRN (IND)	Corp FRN (FIN)	Muni	ABS (Cards) (AAA)	ABS (Auto) (AAA)	CLO (AAA)	CRT	Agency CMO	EM
1-month			0.00		0.09		0.16							-0.37	0.19	0.20				
3-month			-0.03	0.19	0.11	0.40	0.19	0.39	0.47	0.62	0.70			-0.52	0.26	0.27				
6-month			-0.08	0.11	0.13		0.24	0.30	0.38	0.53	0.62			-0.68	0.25	0.25				
12-month			0.01	0.05			0.32	0.25	0.34	0.48	0.60	-0.12	0.02	-0.82	0.27	0.24			0.21	1.17
2-year		0.03	0.04	0.13				0.37	0.47	0.57	0.75	-0.20	-0.12	-0.94	0.28	0.33	0.61	1.34	0.20	1.03
3-year			0.05	0.11				0.46	0.56	0.70	0.90	-0.23	-0.01	-0.92	0.32	0.37			0.22	1.41
5-year			0.11	0.16				0.61	0.72	0.91	1.16	0.30	0.23	-0.78	0.40		0.64		0.34	1.50

Source: Payden. Yields and spreads as of September 17, 2018

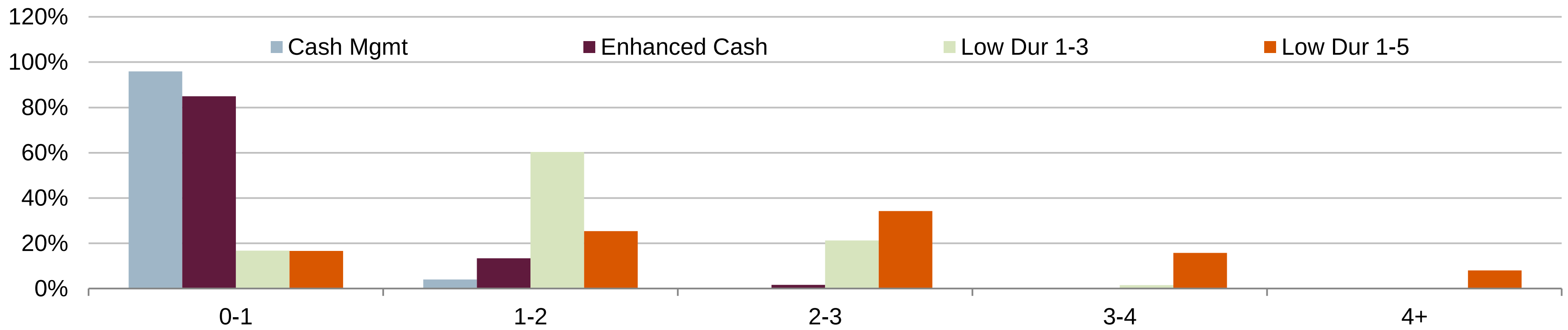
Sample Portfolios – As of 09/30/2018

Weighted Average Statistics	Cash Management	Enhanced Cash	Low Duration 1-3 Year	Low Duration 1-5 Year
Duration (years)	0.19	0.53	1.53	2.34
Maturity (years)	0.8	1.3	2.0	2.8
Yield-to-Maturity	2.46%	2.85%	3.26%	3.47%
Credit Rating	AA	AA-	A+	A+

Sector Breakdown

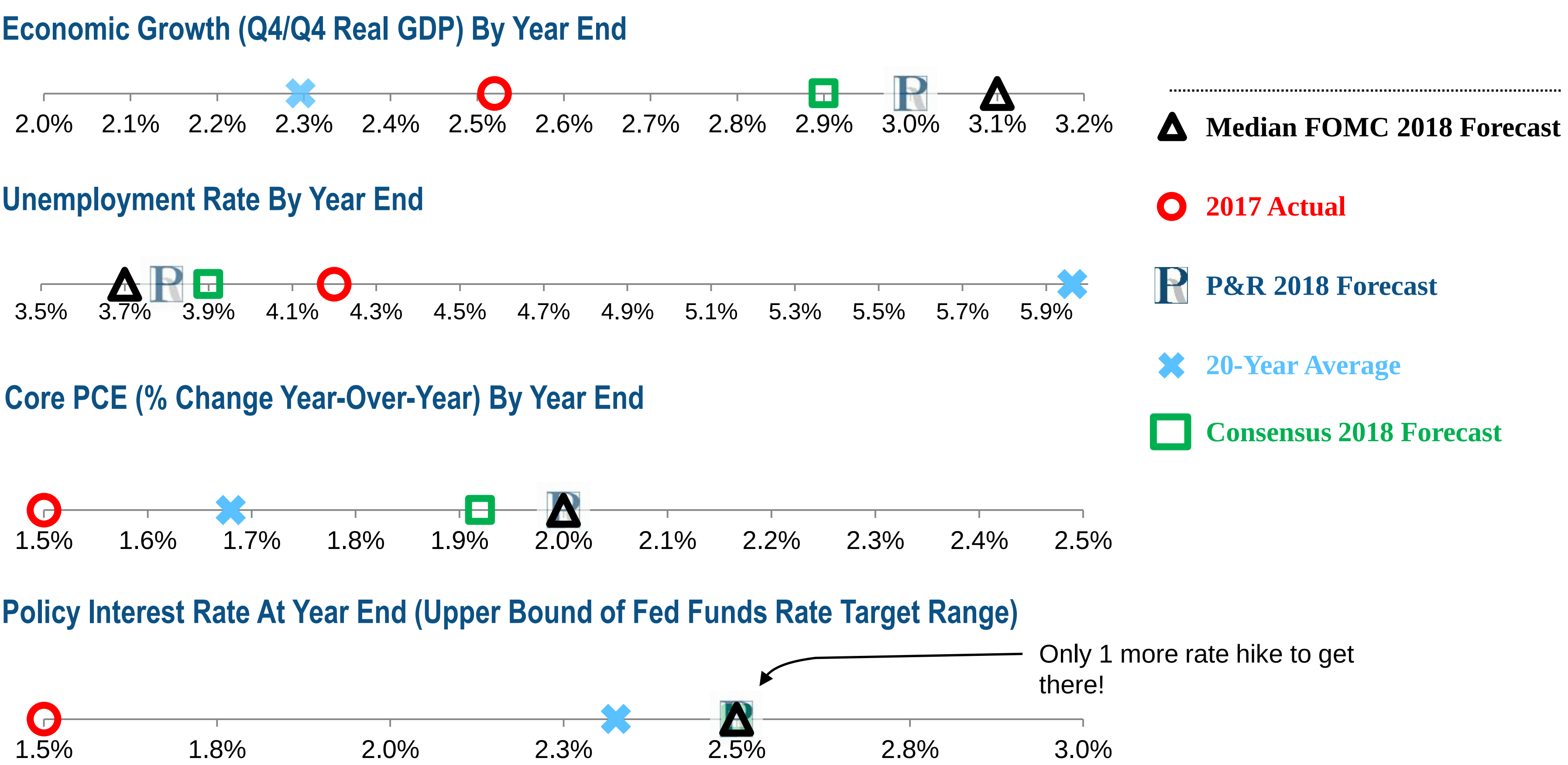
US Treasuries	22%	19%	28%	25%
Agencies & Govt Related	23%	4%	2%	6%
CP/CD	7%	3%	0%	0%
Corporates	29%	44%	44%	43%
Structured Product	19%	29%	19%	19%
Emerging Market & High Yield	0%	1%	7%	7%

Duration Distribution



Our 2018 Outlook Summary: Continued Above-Trend Economic Growth and "On Target" Inflation Will Keep The Fed On A Once-Per-Quarter Hiking Pace For the Foreseeable Future

We expect GDP growth to approach 3% in 2018. Such a stellar pace of economic growth, well above the economy's "trend" growth rate, will put further downward pressure on the unemployment rate. Unemployment could reach 3.8% by the end of the year. We also expect inflation, as measured by core PCE, to settle in at 2.0% by year-end 2018. We think this economic backdrop is consistent with a total of four hikes in 2018, which translates to another 25 basis point increase at the December meeting. We think the risks to our views on growth and inflation are skewed to upside (i.e., faster GDP growth and higher inflation before year end).

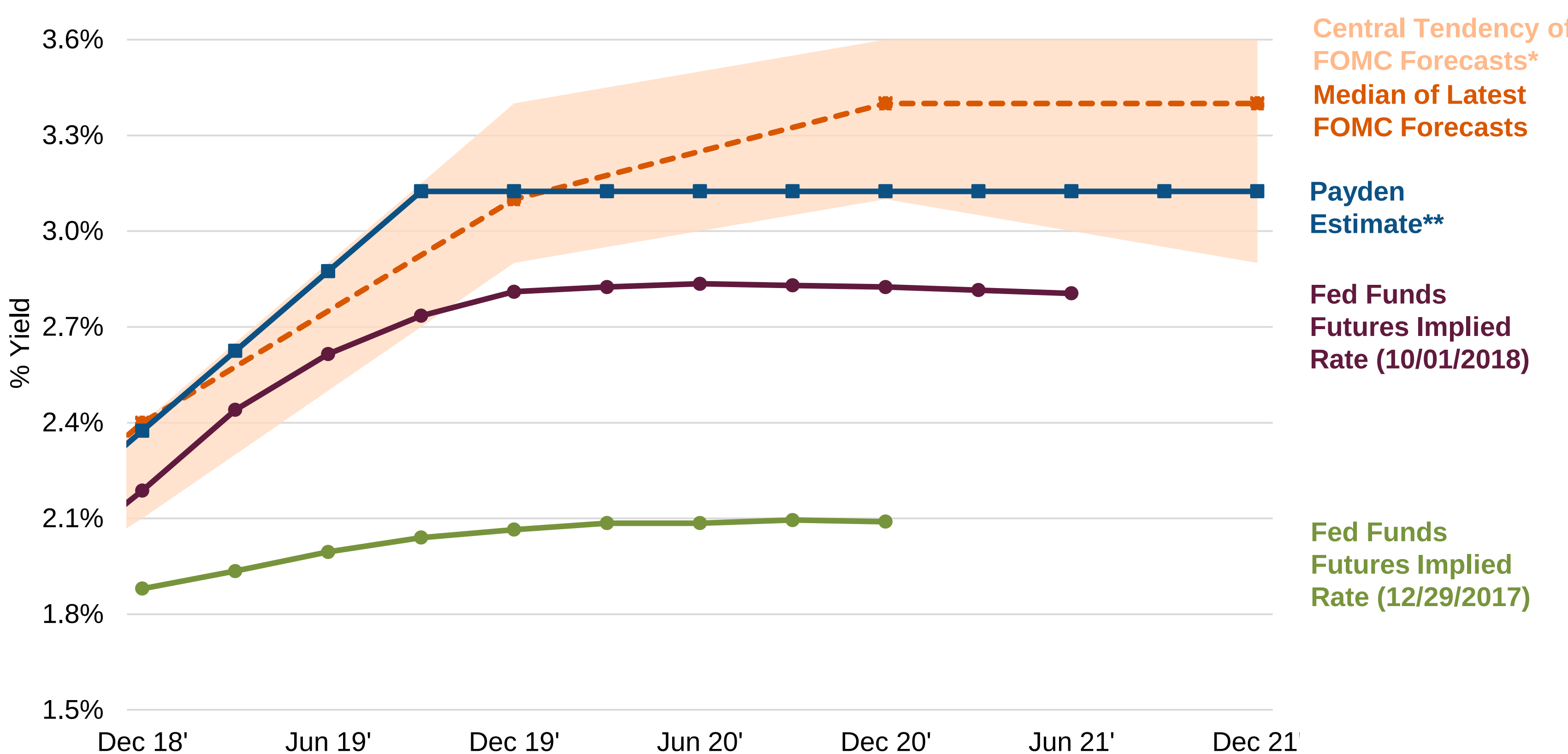


Sources: Bloomberg Consensus, Payden Estimates, Bureau of Labor Statistics and Bureau of Economic Analysis

Short-Term Interest Rates: "One Rate Hike Per Quarter For The Foreseeable Future"

Based on our macroeconomic outlook (above-trend GDP growth, falling unemployment, inflation at or above the Fed's 2% target), we think the Fed is on a "one hike per quarter" pace of tightening monetary policy for the foreseeable future. The infamous "dot plot," from which we created the chart below, indicates that the median FOMC member sees 1 more rate hike in 2018, which is in line with our expectations (bringing the total to 4 for the calendar year). We also expect three additional hikes in 2019, in line with the Fed.

Path of the Federal Funds Rate Under Various Scenarios



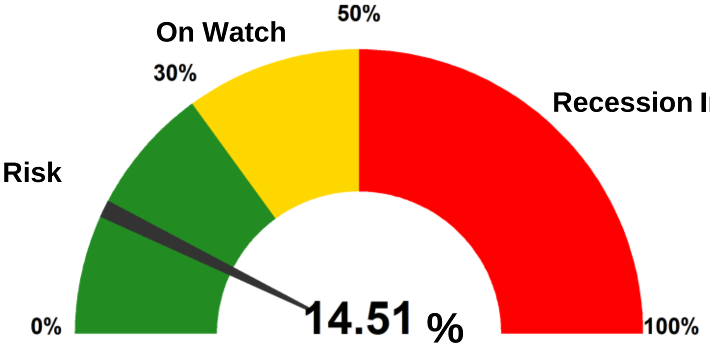
*The central tendency excludes the three highest and three lowest projections
**Midpoint of the target range

Source: FOMC, Bloomberg, Payden Estimates

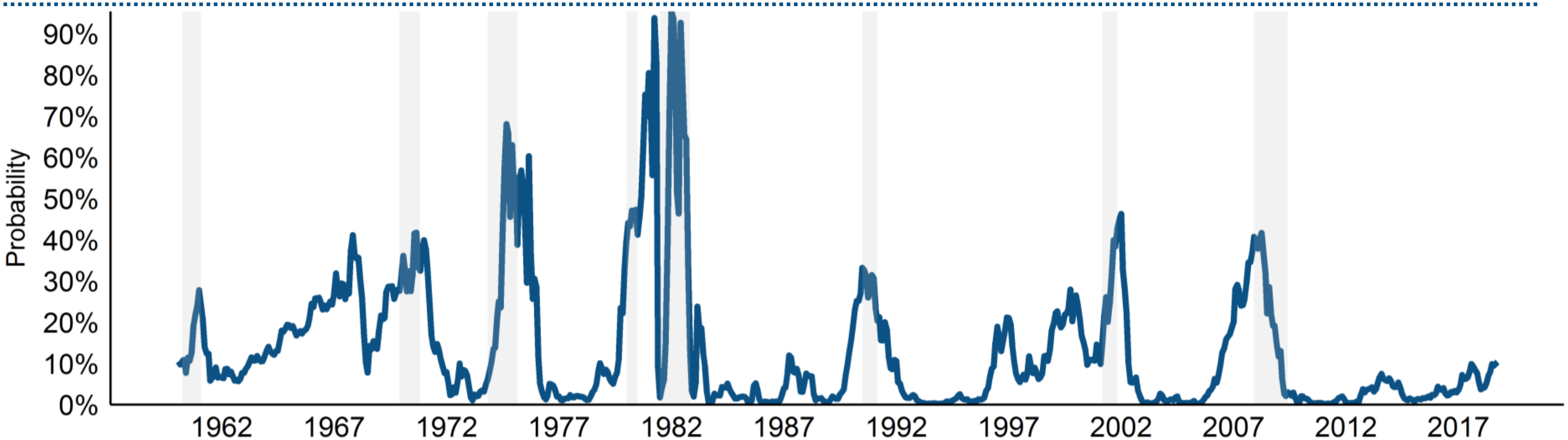
Our Favorite Recession Risk Indicator Is Still Not Showing Any Warning Signs

It isn't perfect, but the spread between the 3-month Treasury bill and the 10-year Treasury note is one of the best forecasting tools investors have available. In the post-war era, this indicator has preceded every recession by 12-24 months, with only one false positive (in 1967). The New York Federal Reserve created a model using probit equations "to convert the value of a measure of yield curve steepness into a probability of recession one year ahead." Based on the current slope in the yield curve, we are not worried.

Probability of a Recession in the Next 12 Months



Historical Trend of Yield Curve Based Recession Probability, 12-Months Ahead



Source: New York Federal Reserve, NBER

Speaker Biography

Elizabeth M. Westvold, CFA®
Senior Vice President

2011 – Joined Payden & Rygel

Elizabeth M. Westvold, CFA, is a Senior Vice President at Payden & Rygel. Based in the Boston office, Beth serves as a Senior Client Portfolio Manager for U.S. institutional clients including public plans, corporations, universities and endowments and insurance companies.

Prior to joining Payden & Rygel, Beth was a managing director in BlackRock's global client group for seven years, responsible for developing and maintaining relationships with institutional clients. Prior to 2005, she was a managing director and fixed income portfolio manager with State Street Research & Management Co. and earlier worked in fixed income strategies for Harvard Management Company.

A member of the CFA Boston Society, Beth holds the Chartered Financial Analyst designation. Beth is president and an investment committee member of the Trustees of Donations to the Episcopal Church. She earned an MBA from the Tuck School of Business at Dartmouth College and a BA, cum laude, in economics and biology from Middlebury College.