

Cash Management Solutions for Unusual Times

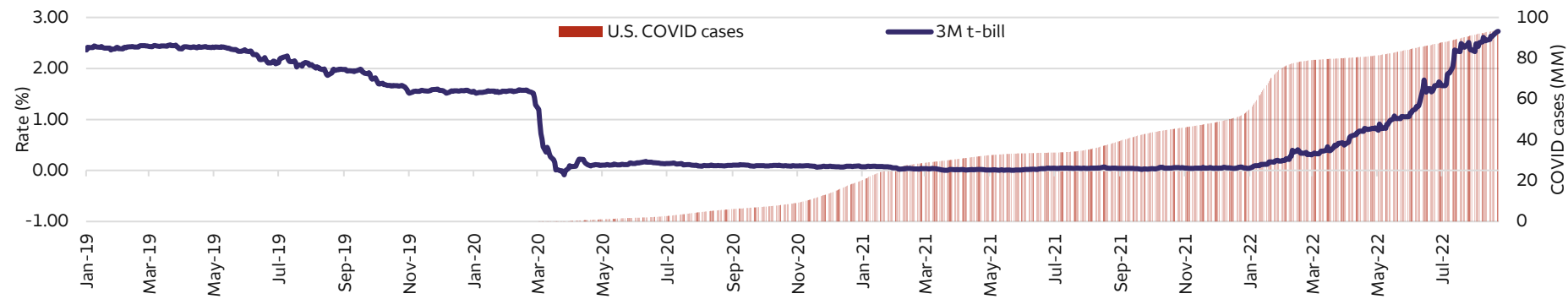
September 29th, 2022

Vanessa McMichael, Director, CTP
Head of Corporate & Public Entity Strategy
Wells Fargo Corporate & Investment Bank



Economic Conditions and Rate Environment

2020 - 2022: The COVID Years




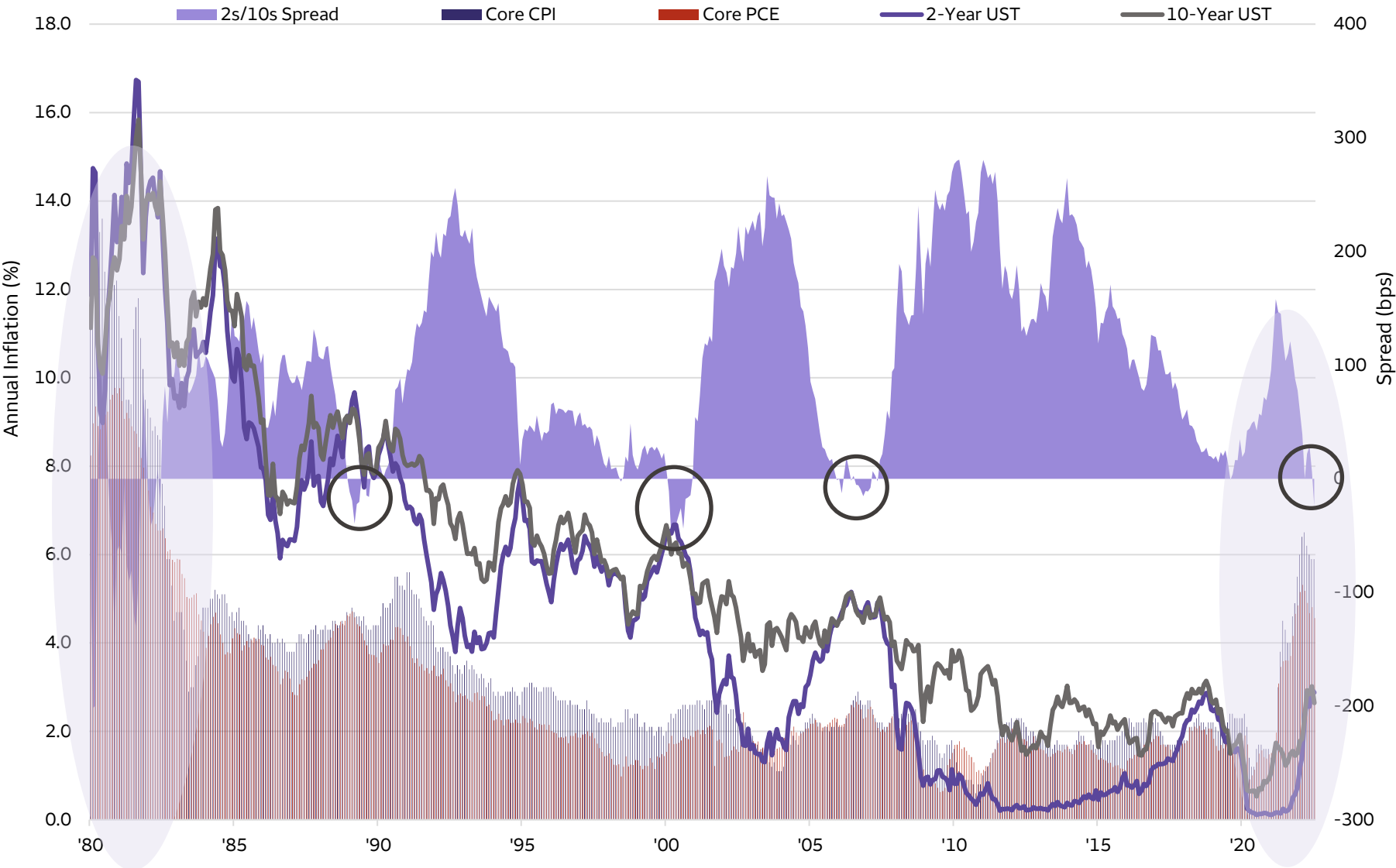
| Fed Policy | 2019 | 2020 | | 2021 | | 2022 | | |
|------------|---|---|--|--|--|--|---|--|
| | Easing begins | Extreme accommodation | | Still very accommodative | | Full on tightening | | |
| | 2019 | 2020 | | 2021 | | 2022 | | |
| Drivers | Economic outlook becomes more negative & the Fed begins to lower rates. | COVID fears escalate fast, prompting the shutdown of global economies. COVID worries persist. | Organizations focus on cash build and remaining liquid. | Confirmed COVID cases ramp up around various points in the year, causing continued apprehension and uncertainty. | Fed keeps monetary policy extremely accommodative because it argues inflation is <i>transitory</i> . | Inflation reaches heights not seen since the early 1980s. | Front-end rates increase, driven by a pickup in supply (particularly in front-end credit markets like CP and YCDs), wider spreads, Russia invades Ukraine, and the FOMC hikes the Federal Funds rate for the first time by 25bps. | The Federal Reserve embarks on a quick and aggressive tightening cycle. Economic indicators are mixed. Recession concerns grow and the Treasury curve inverts. |
| | Organizations already impacted by easier monetary policy in 2019. | Organizations begin a liquidity crisis ¹ . Draw down on revolvers, cut capital expenditures, increase access to capital markets and flock to safe-haven investments (bank deposits, MMFs, gov't securities, etc.). | Government MMF assets reach an all-time high of \$2.95 trillion in May and remain above \$2.50 trillion for the rest of the year | Organizations prefer to remain liquid as the future is still uncertain. | ESG conversation picks up across organization s, investors, issuers and society. | Organizations explore solutions/opp ortunities to allocation historically large cash balances [in most cases]. | Organizations make opportunistic fixed income investments. Government MMF assets fall and continue to decline through August 2022. | Organizations are more “duration” focused, desiring to invest in shorter maturities. |

Source: Wells Fargo Corporate and Investment Banking, Bloomberg

¹AFP Liquidity Survey

Inflation is at Levels Not Seen Since the 80s...

 Inverted yield curve

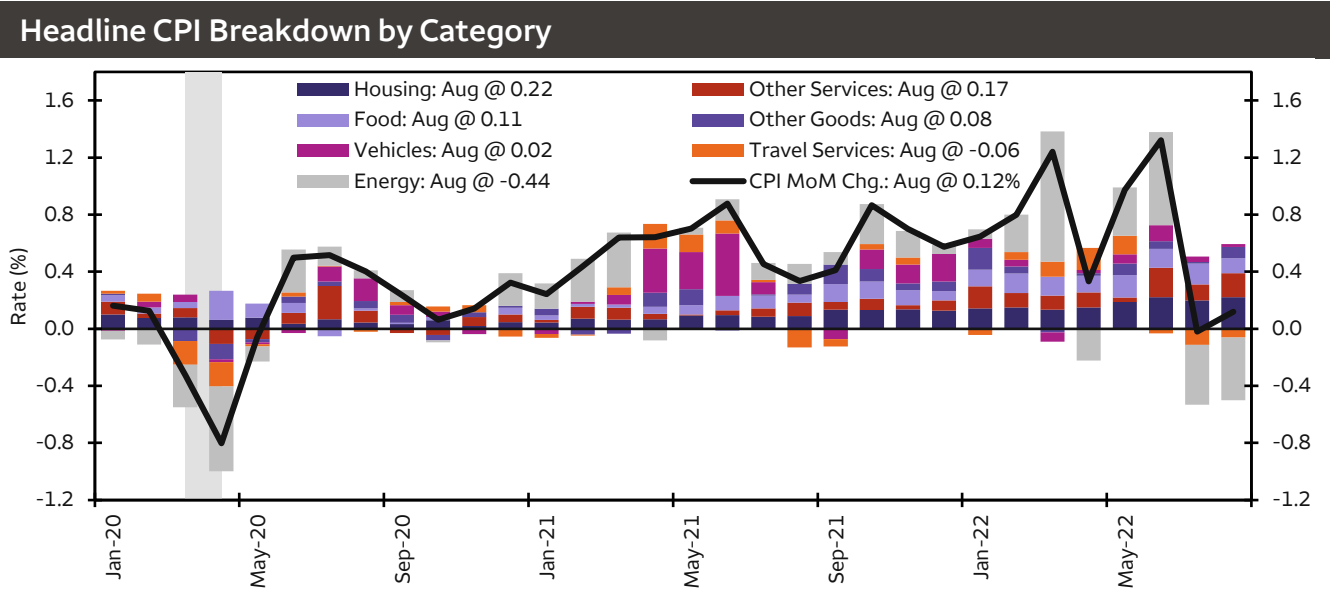
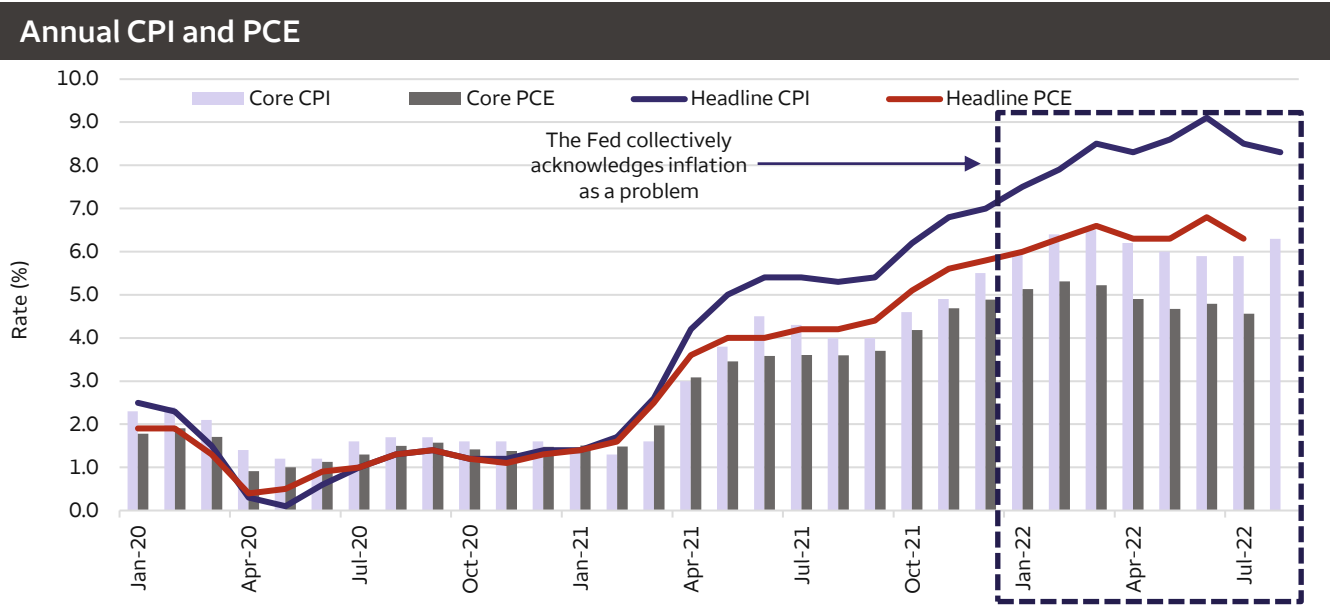
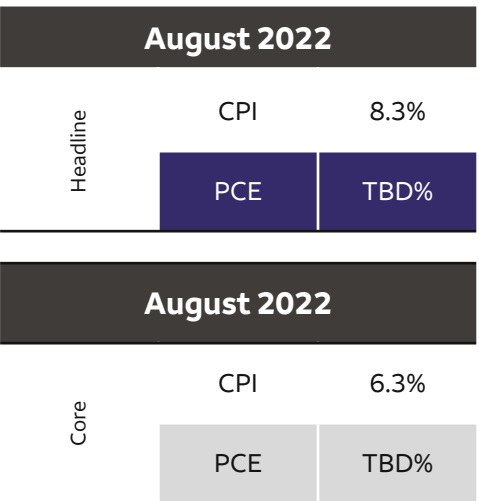


Source: Wells Fargo Corporate & Investment Banking, Bloomberg

Inflation: Consumer Price Index (CPI) and (Personal Consumption Expenditure) PCE

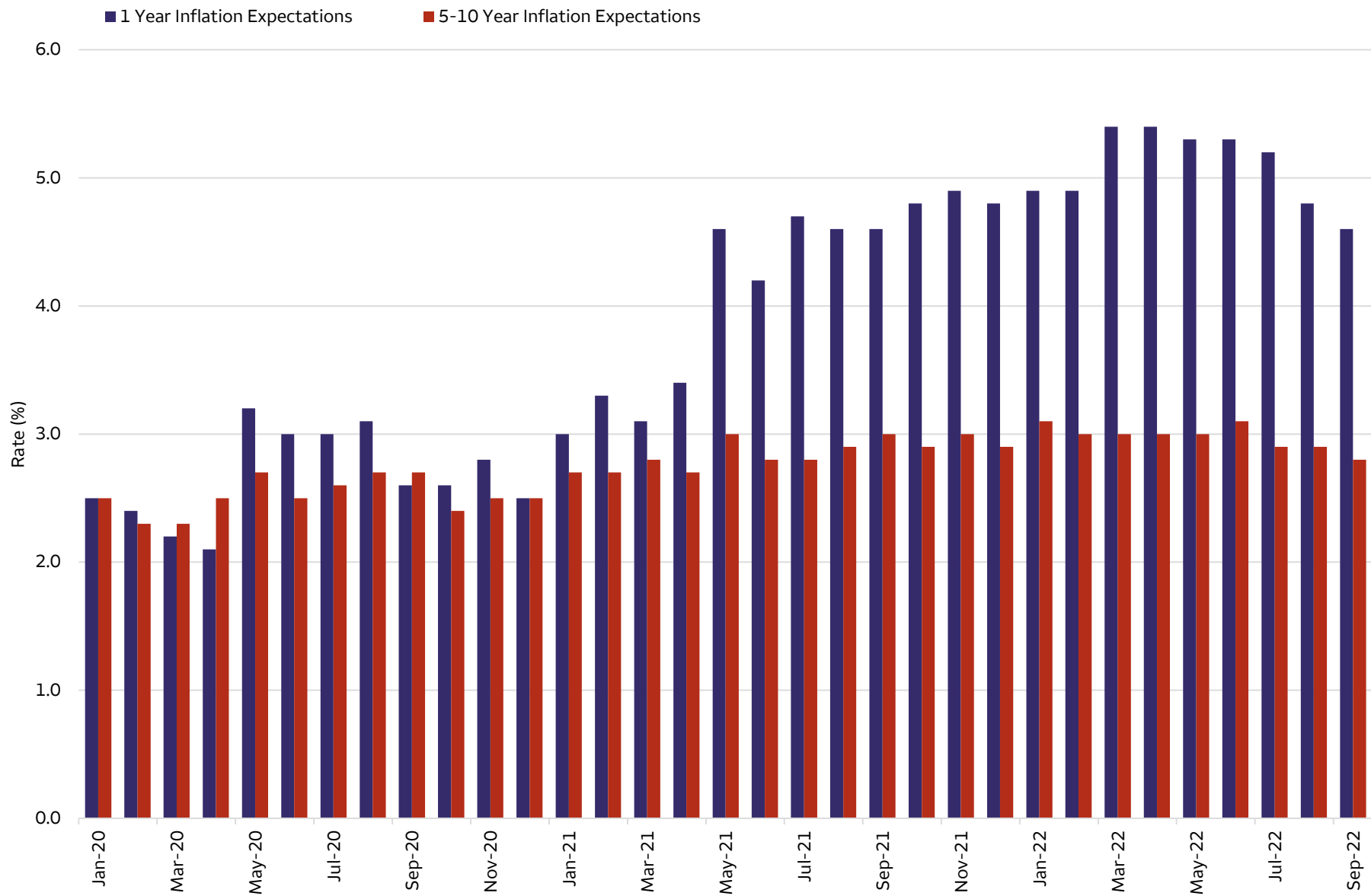
Although there are many metrics to measure inflation, observing data for CPI and PCE indicates that price levels are at their highest point in the U.S. since the early 1980s...

CPI growth has outpaced PCE, reflecting a concentration of price increases in the food and energy sectors.



Source: Wells Fargo Corporate and Investment Banking Wells Fargo Economics, Bloomberg, BLS

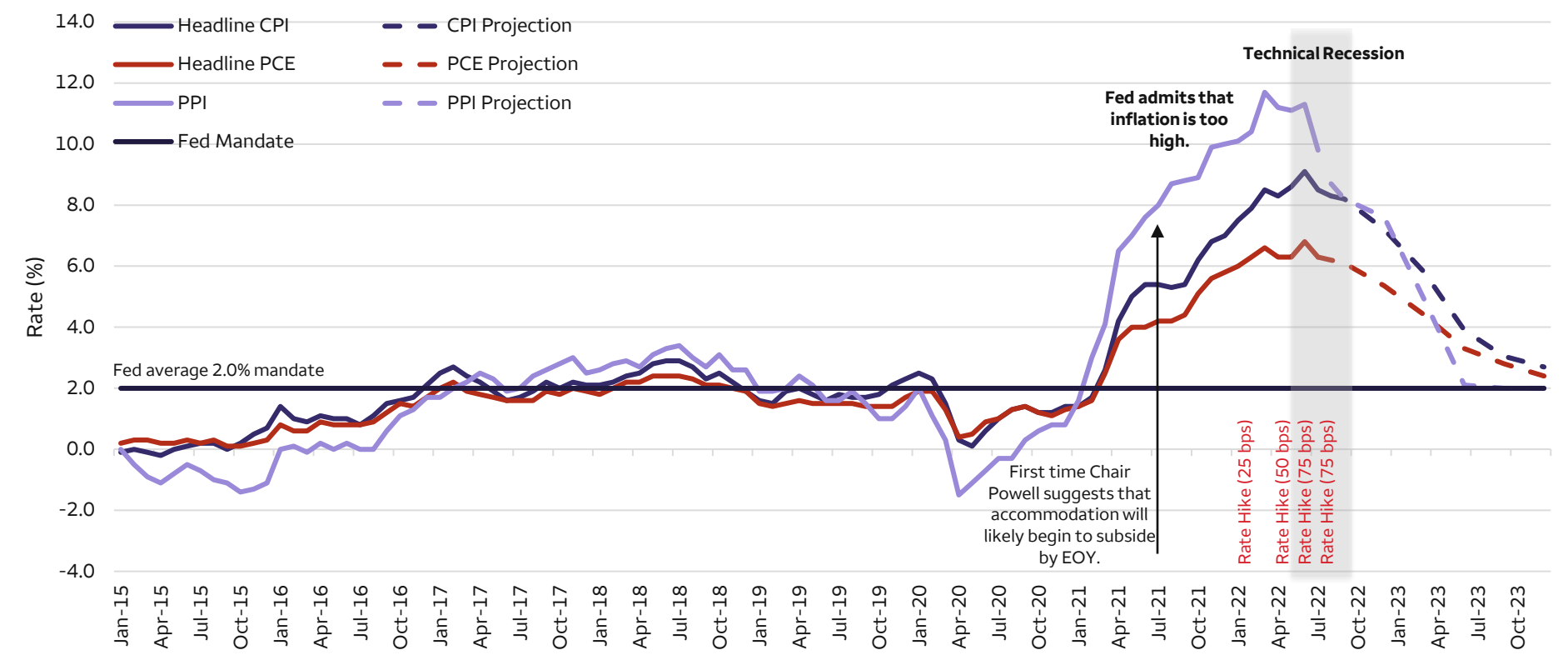
Inflation Expectations (University of Michigan Consumer Sentiment Index)



Source: Wells Fargo Corporate and Investment Banking, Bloomberg

Inflation: The Fed Pivots

Inflation versus Fed Mandate

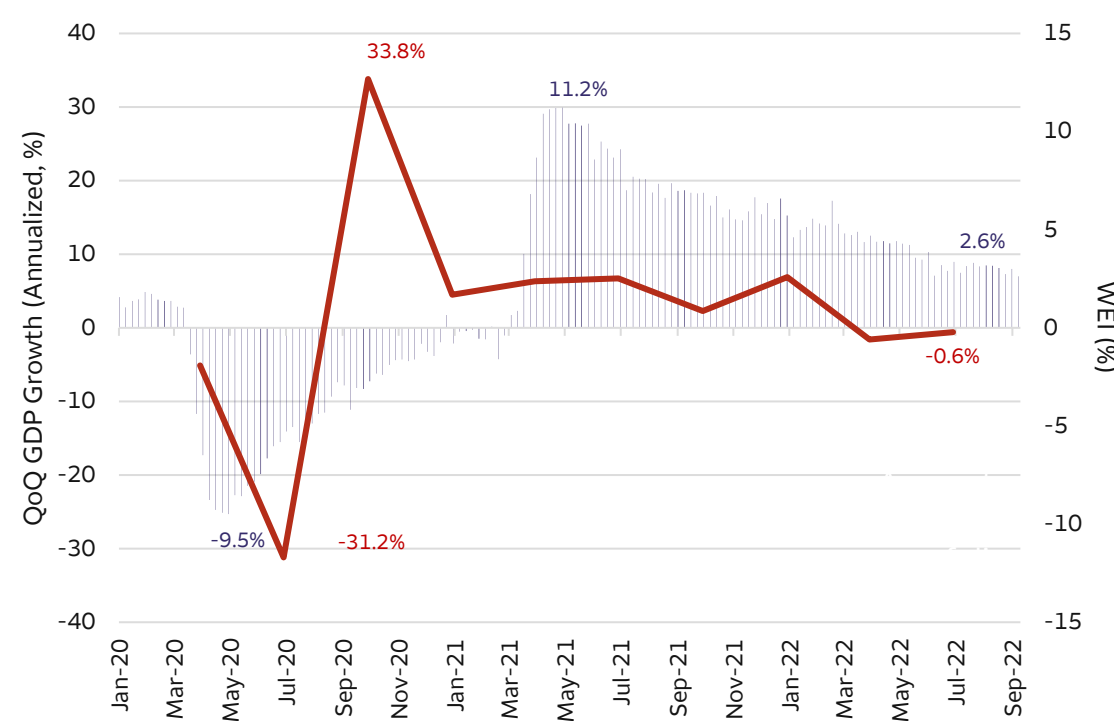


The latest annual headline PCE data for July is 6.3%. The Federal Reserve expects this data point to fall to 5.4% by the end of 2022.

| Federal Reserve PCE Forecast | | | |
|------------------------------|------|------|------|
| | 2022 | 2023 | 2024 |
| Jun SEP Headline PCE | 5.2% | 2.6% | 2.2% |
| Sep SEP Headline PCE | 5.4% | 2.8% | 2.3% |
| Jun SEP Core PCE | 4.3% | 2.7% | 2.3% |
| Sep SEP Core PCE | 4.5% | 3.1% | 2.3% |

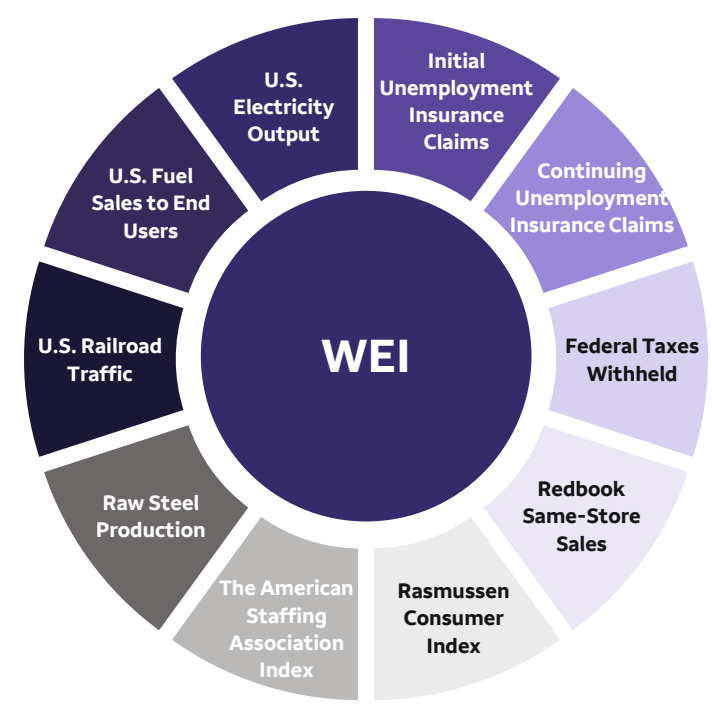
Source: Wells Fargo Corporate & Investment Banking, Bloomberg, Federal Reserve

U.S. Economic Growth: GDP vs Fed's Weekly Economic Index (WEI)



The WEI is an index of ten indicators of real economic activity, scaled to align with the four-quarter GDP growth rate. It represents consumer behavior, the labor market, and production.

-Federal Reserve



The U.S. fell into a “technical recession” (the second consecutive quarter of negative growth). However, this is not the official recession metric.

The Federal Reserve Bank of New York’s Weekly Economic Index shows a greater level of economic stability with positive values for 2022 thus far.

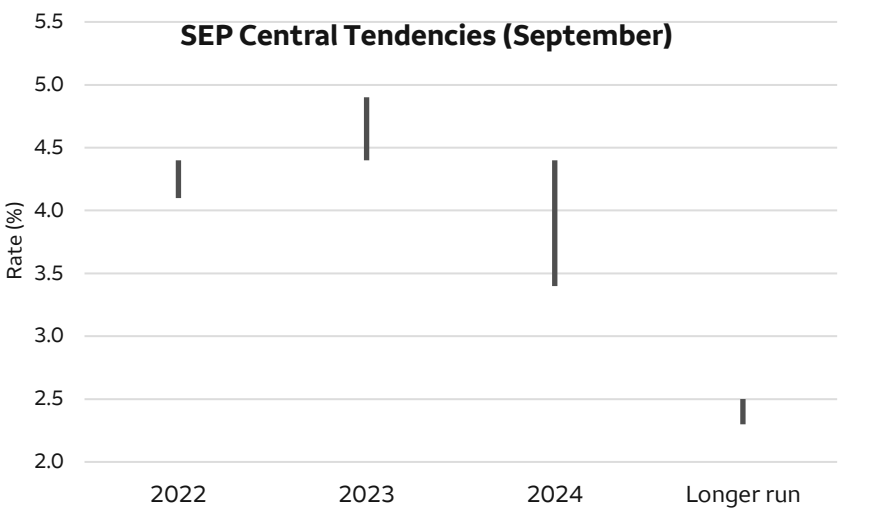
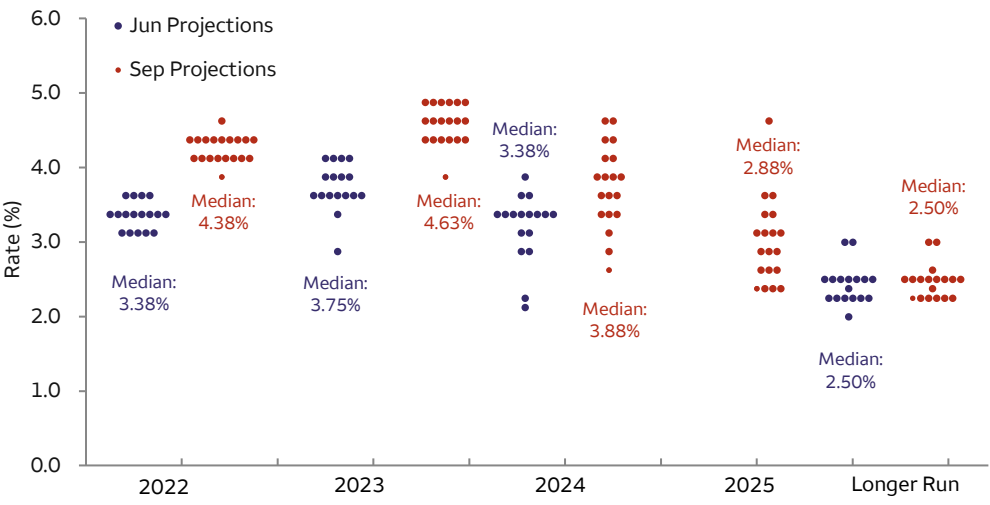
Source: Wells Fargo Corporate and Investment Banking Federal Reserve Bank of New York, Bloomberg, BEA

* Data as of September 22nd, 2022

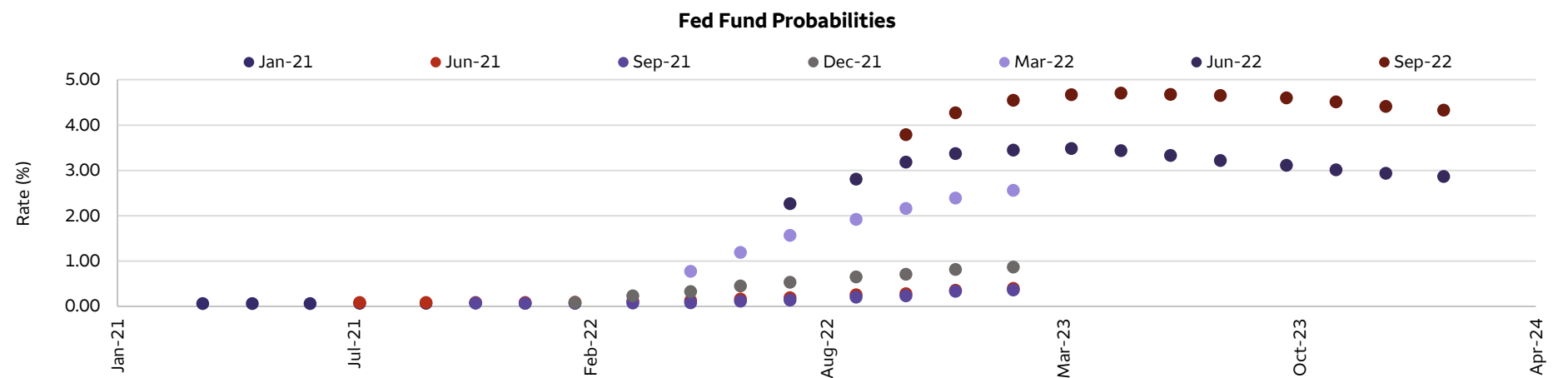
Federal Funds Expectations: Fed vs the Market

Rates are expected to climb even higher throughout the balance of 2022 but by how much?

Federal Reserve



Market Expectations



Source: Wells Fargo Corporate & Investment Banking, Bloomberg, CME Fedwatch Data as of September 23rd, 2022

Liquidity During a Period of High Cash Balances

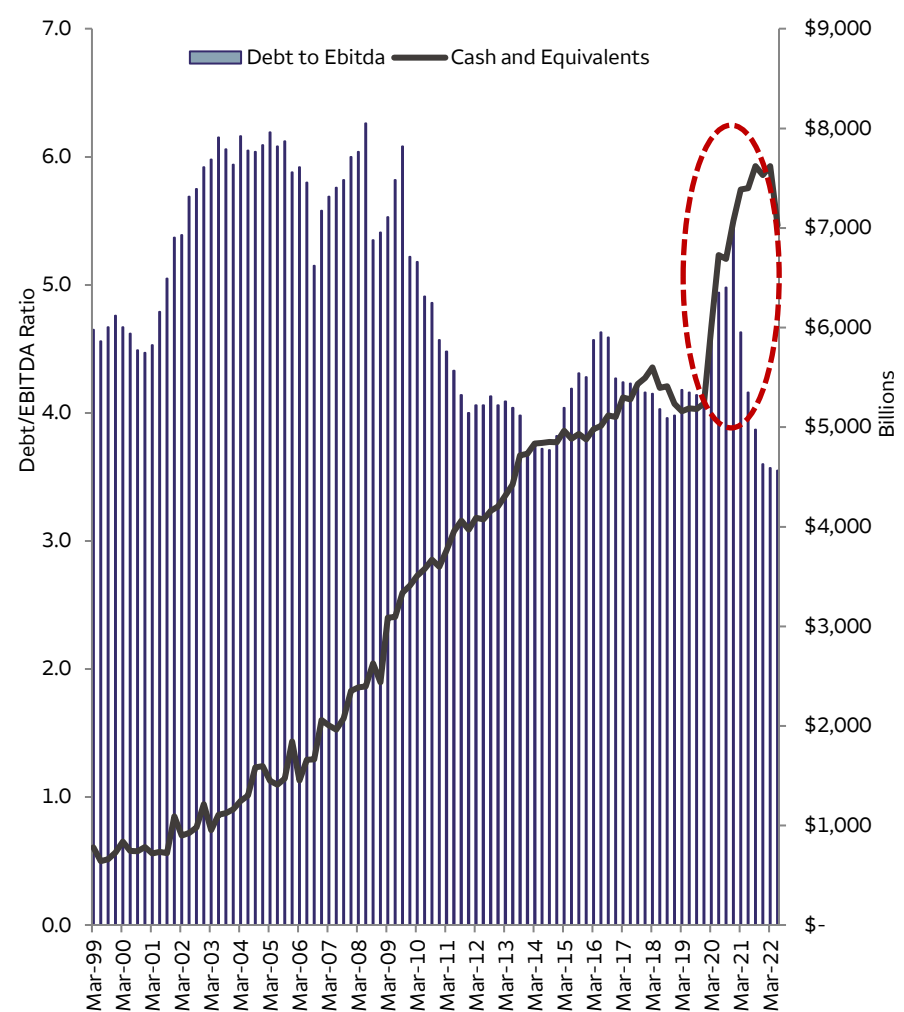
Cash Balances

- Since the start of the COVID pandemic, cash balances for many organizations remain historically high. Initially the balances rose due to:
 - Federal stimulus
 - Pandemic planning and contingencies
 - Changes (decrease) in capital expenditures
 - Increased access to capital markets
- While there is always a need for readily available cash, there are likely opportunities to strategically allocate a portion of balances, while not comprising liquidity.
- **Do the events over the past 2 years shape our perception of liquidity?**
 - COVID
 - Headlines
 - Disruption
 - Uncertainty

Yes, but...

Inflation and higher rates have propelled many organizations to rethink cash balances and fixed income allocations.

Cash on S&P 500 Balance Sheets*



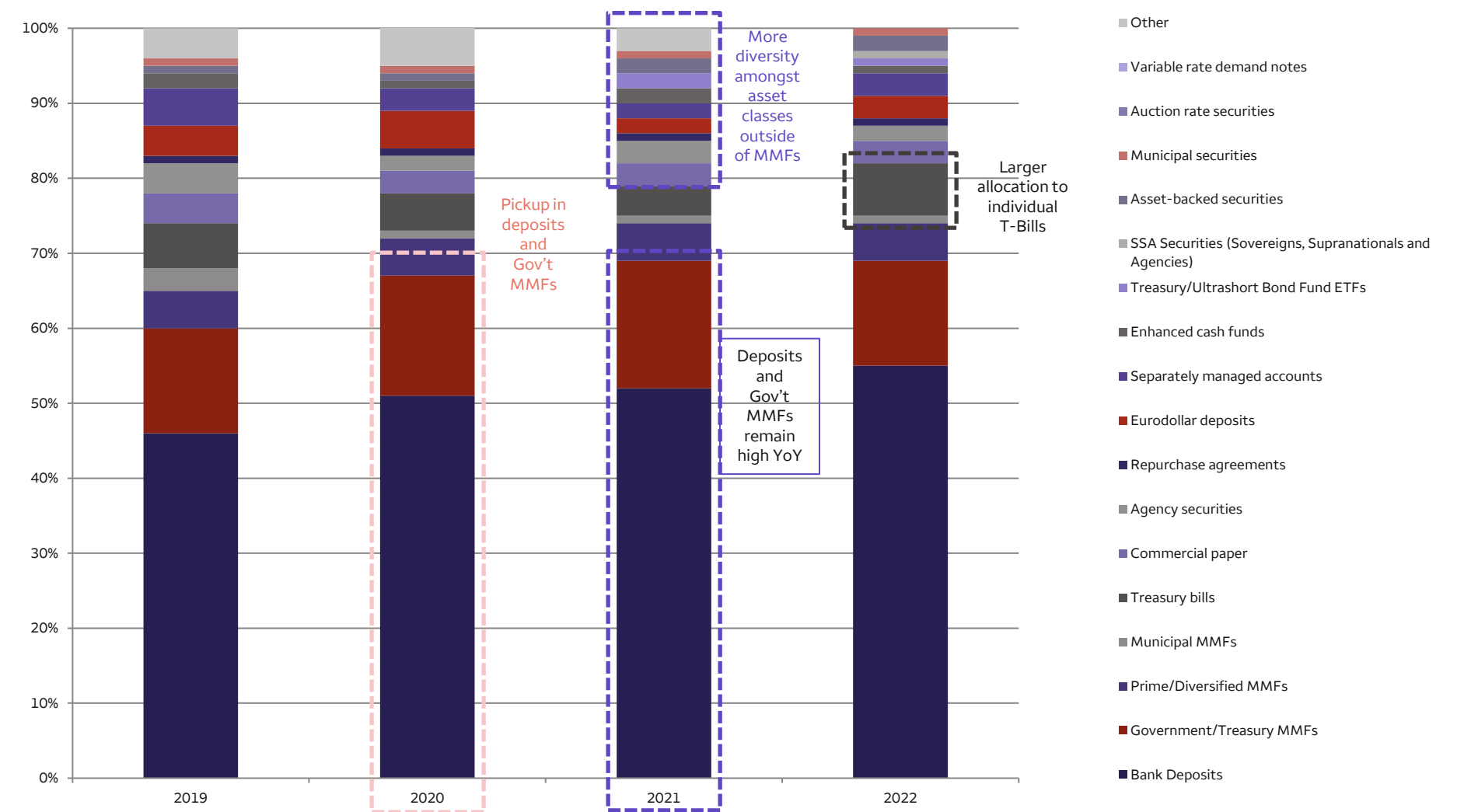
Source: Wells Fargo Corporate & Investment Banking, Bloomberg

*Used as proxy for general cash balances; Data as of 05/23/2022

AFP Liquidity Survey: Annual Portfolio Allocations

Across the corporate spectrum, deposits, money market funds, and Treasuries increased as a percentage of overall short-term portfolio assets in 2022. These categories comprise 81% of cash allocations, an increase from years prior.

AFP Liquidity Survey



Source: Wells Fargo Corporate & Investment Banking, AFP Annual Liquidity Survey

Cash Management Solutions Snapshot

There are a variety of liquidity alternatives available to cash managers with maturities ranging from overnight to 3-months, depending on comfort with “risk”.

| | YTD Change (bps) | Overnight | 1-Month | 3-Month |
|---------------------------|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Fixed Income Alternatives | Money Market Funds | | | |
| | Government | +207 bps | | |
| | Treasury only | +218 bps | | |
| | Prime | +233 bps | | |
| | Government | | | |
| | Treasuries | | +260 bps | +310 bps |
| | U.S. Agencies/GSEs | | +273 bps | +327 bps |
| | SSAs ¹ | | | +305 bps |
| | IILD | +219 bps | | |
| | Brokered CDs | +220 bps | | |
| | Credit | | | |
| | Certificates of Deposit ³ | | | +244 bps |
| | Commercial Paper Tier-1 / Tier-2 | +223 bps +243 bps | +262 bps +293 bps | +250 bps +292 bps |
| | Municipals (VRDNs) ² | +138 bps | +138 bps | +138 bps |
| | Federal Funds Rate | | +225bps | |

Indicative yields for each product. Contact your Wells Fargo sales rep for current market rates.

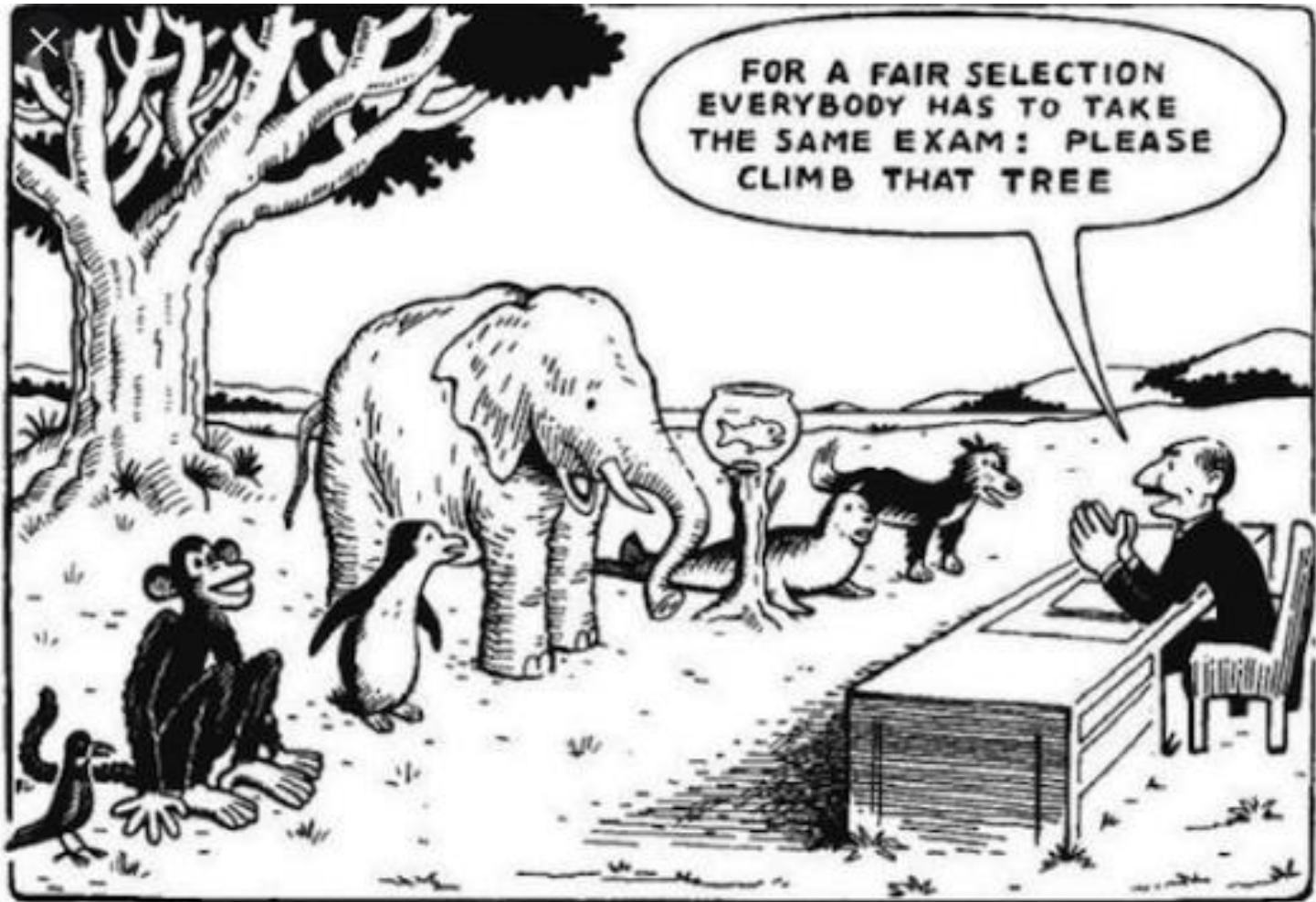
¹Quasi-government asset class

²7-day SIFMA index rate. Spreads will adjust for maturity of reset and spread adjustment is not depicted in table.

³Yankee CD

Source: Wells Fargo Corporate & Investment Banking, Bloomberg, Federal Reserve

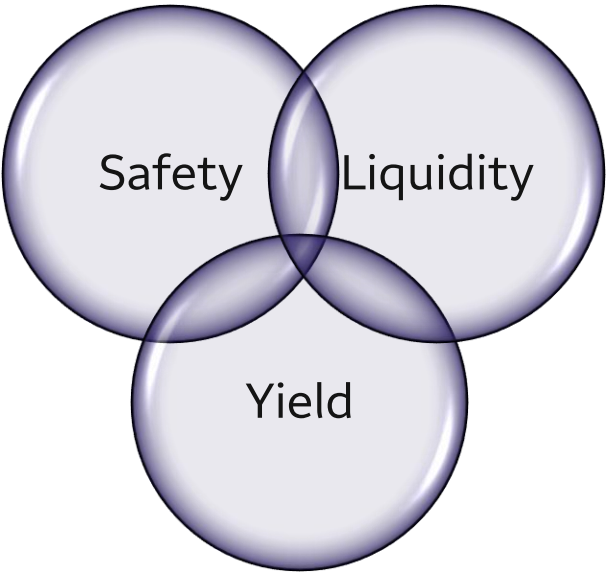
Cash Management



Source: Wells Fargo Corporate & Investment Banking, the coolcatteacher

Cash Management Investment Goals

Despite rate or market environment, these are the investment objectives for cash managers:
safety AND liquidity first, followed by earning a market appropriate yield second.



The order of priority of these goals can change, but the goals themselves remain the same.

1 The order of priority can change depending on the specific cash balance in consideration.

Operational

1. Safety/Liquidity
2. Yield

vs.

Strategic

1. Yield
2. Safety/Liquidity

2 An investment strategy can change based on rate and market environment or entity specific considerations.

Recession

Flight-to-quality

Potential acquisition

Monetary policy

High excess cash balances

Safety

Safety or preservation of capital can be measured by **default risk**.

What it is

Safety, or capital preservation, **is** investing cash in a manner whereby it is reasonably expected to receive par at redemption or maturity.

What it is not

Safety is **not** avoidance of investing.

Safety is **not** overconcentration - For example, allocating cash to **one issuer**, or **one sector**, or **one term**. Overconcentration exposes investors to additional risk.

Maximization of Safety*

| Short-Term Investments | | | Issuer Limitations | | | Specific Instruments | | |
|------------------------|---------------------|----------------------|-------------------------------|-------------------------------|------------------------------------|----------------------|--------------------|----------------|
| <i>May limit:</i> | | | <i>Methods of evaluation:</i> | | | <i>Such as:</i> | | |
| Interest-rate risk | Credit/Default Risk | Option-Embedded Risk | Ratings Agencies | Concentration/Diversification | Backed, Secured, or Collateralized | Money-Market Funds | Government-Related | Credit-Related |

Liquidity

Liquidity can be measured by **tenor/maturity** and/or **ease of redemption**.

What it is

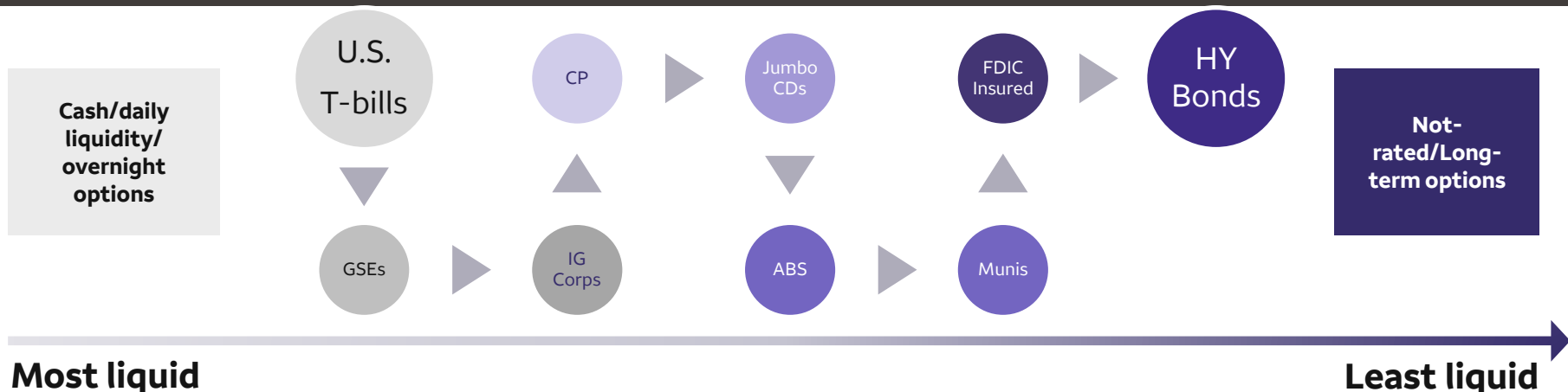
Liquidity relates to how quickly a security is **converted into cash at par** – whether through investor redemption or maturity.

Liquidity can also **be measured** by the generation of consistent income.

What it is *not*

Liquidity is **not a guarantee**, and it is not static. – it can change.

Liquidity Scale*



*Illustrative purposes only. Not an exhaustive list.

Bank deposits are not the only source of “liquidity” for institutional cash managers.

Cash managers face “risk” no matter where an organization’s liquid cash is held.

Liquidity - Maturity

- Intra-day/same-day liquidity
- Overnight
- 7-day or longer (up to 90-days)

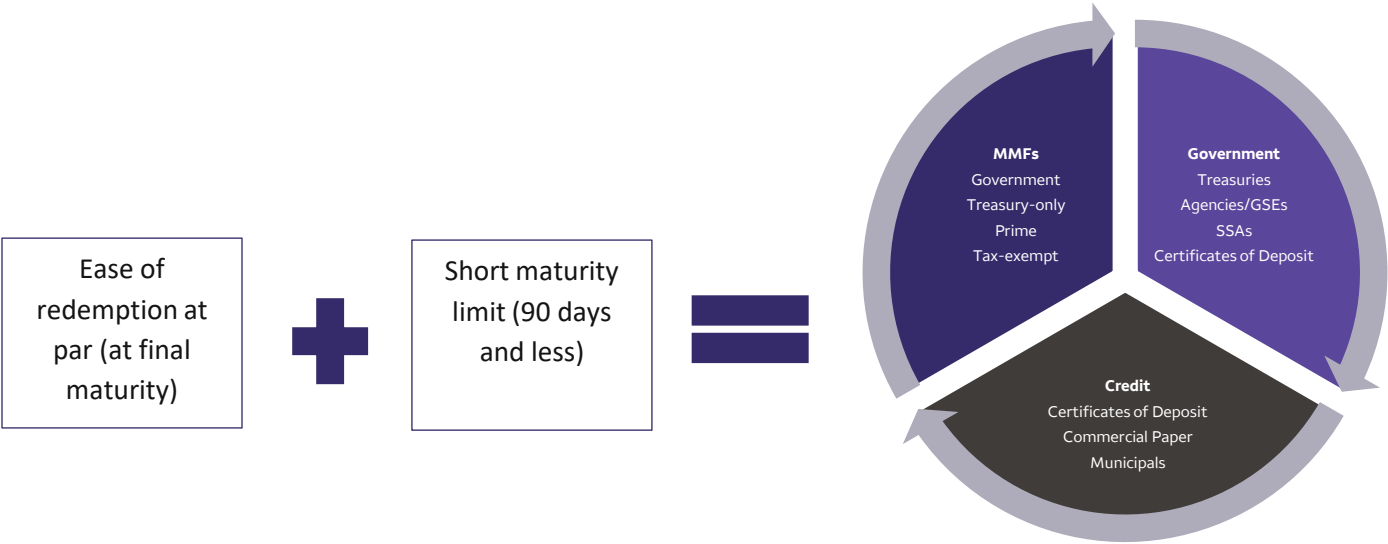
Even though there are some general similarities for “liquid” fixed income options for cash, liquidity is not defined exactly the same for every organization.

Liquidity – Ease of Redemption

- Immediate redemption (assuming within operable hours)
- Subject to “conditions”

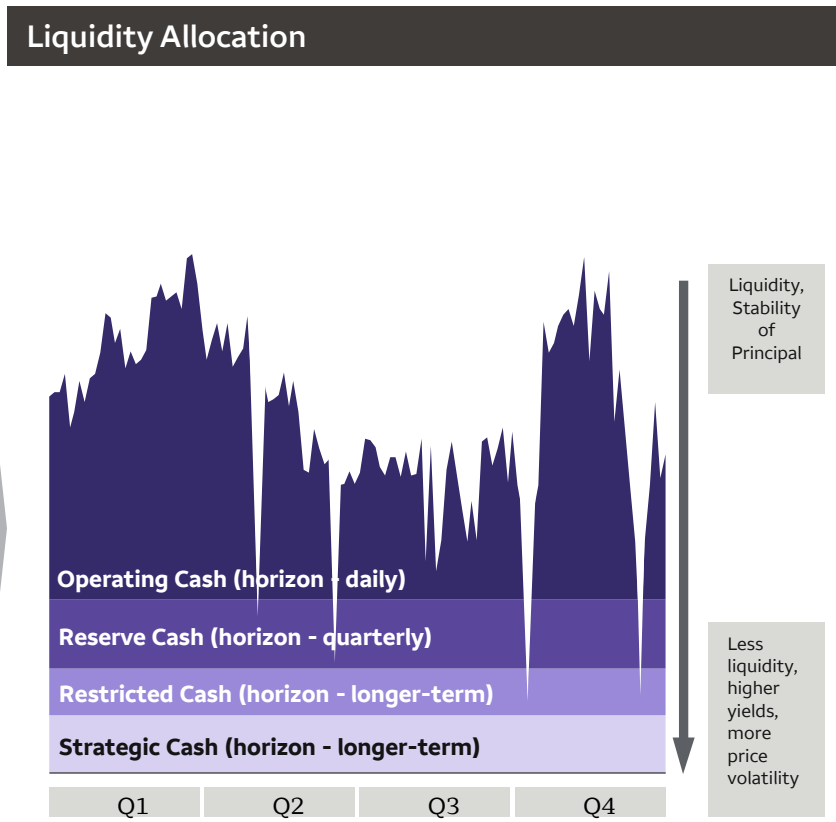
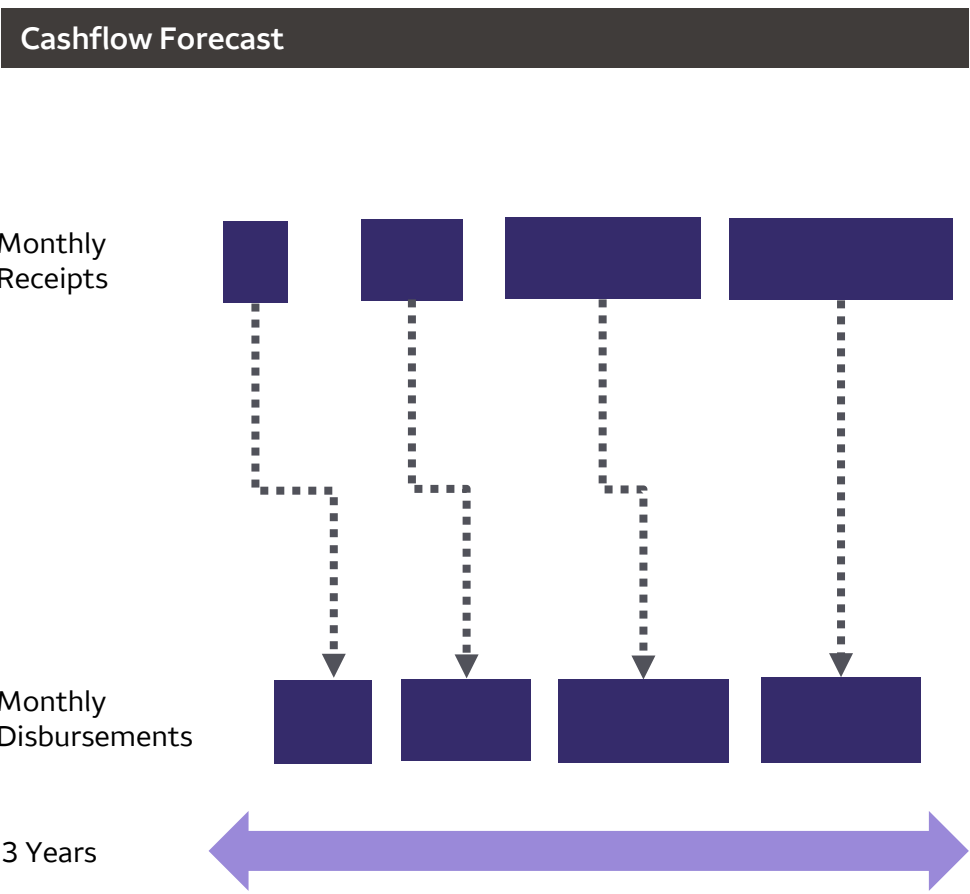
Liquidity Alternatives

Are there alternative fixed income options that can meet traditional liquidity requirements?



Liquidity Investing

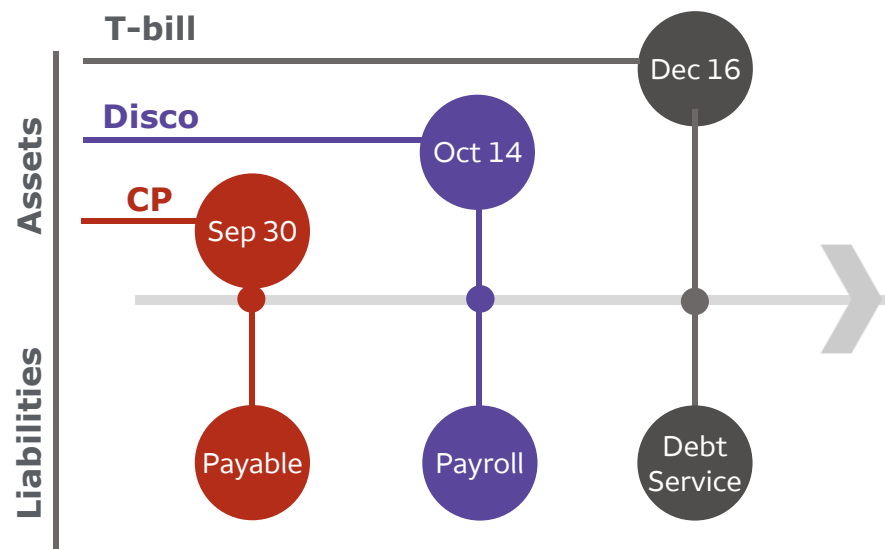
Liquidity investors' top priority is managing cash in such a way as to ensure that outflows are funded. How is this accomplished?



Source: Wells Fargo Corporate & Investment Banking

Liquidity Investing

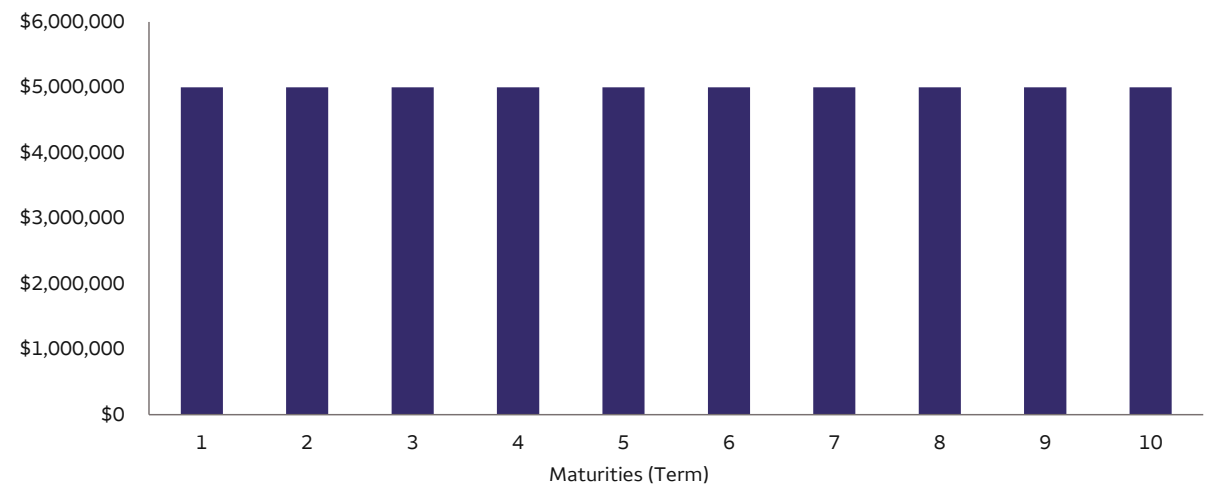
Maturity/Cashflow Matching Strategy



- Securities mature concurrent with or immediately prior to anticipated organizational outflows.
- Allows for diversification across asset class/issuer/maturity within “like” structures (e.g., discount notes).

Bond Ladder Strategy

- Securities mature at equal intervals along yield curve, according to desired time horizon, providing consistent and ongoing liquidity.
- Rate agnostic.
- Relatively low maintenance.



Yield

Yield is a measure of the **rate of return** on an investment which encompasses the value of **coupon payments**, the **price of the instrument**, and **reinvestment rate**.

Cash investors are typically more concerned with book yield than total return.

What it is

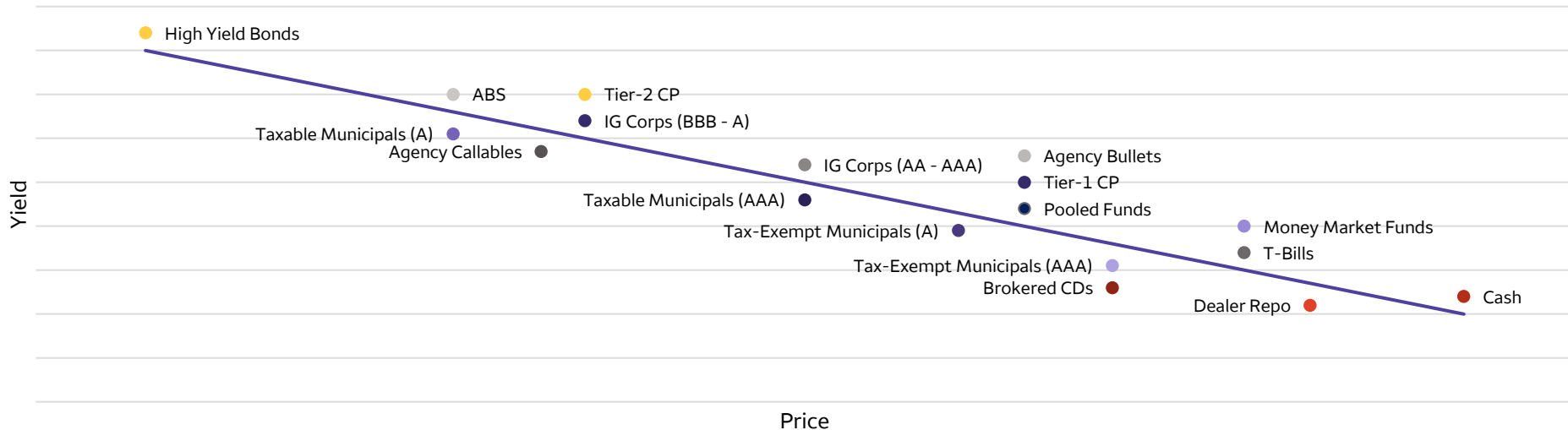
Yields compensate investors for their willingness to loan cash.

Yields and bond prices have an ***inverse*** relationship in fixed income markets.

What it is not

A higher yield does not necessarily indicate a security itself is extremely risky; it can be a measure of relative risk or a function of the market. e.g., yields for *all* securities are currently rising. However, higher yields aren't always the most safe and liquid cash management appropriate options either.

Yield also isn't measured in only one way. *Discount*, *bond equivalent*, and *money market yields* evaluate short term securities; *yield to worst* is for securities with embedded options; *tax equivalent yields* are used for certain municipal securities. *Yield-to-maturity* is used most frequently.



Inflation + Cash Investing

Protecting Cash in an Inflationary Environment

There is no single way to protect cash in an inflationary environment but sitting in cash is NOT an inflationary protected strategy.

Shorten duration

- Fixed-rate: Shorten the final maturity of individual investments
- Floating-rate: price sensitive alternative

Add spread products

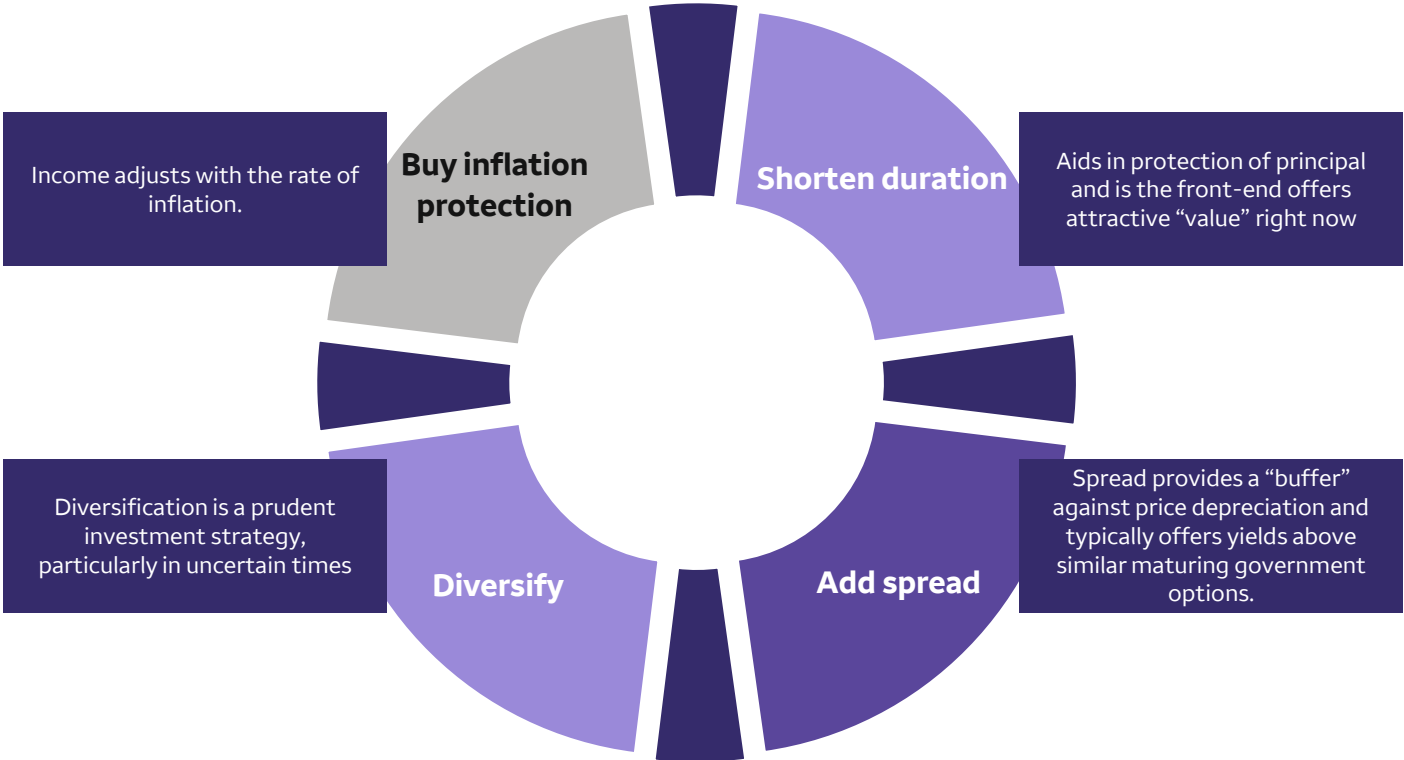
- Alternatives outside of government fixed income markets (e.g., Yankee CDs, commercial paper, corporate notes, municipal securities, etc.)

Diversify

- Sector
- Issuer
- Ratings
- Maturities
- Security structure
- Asset class

Inflation protected options*

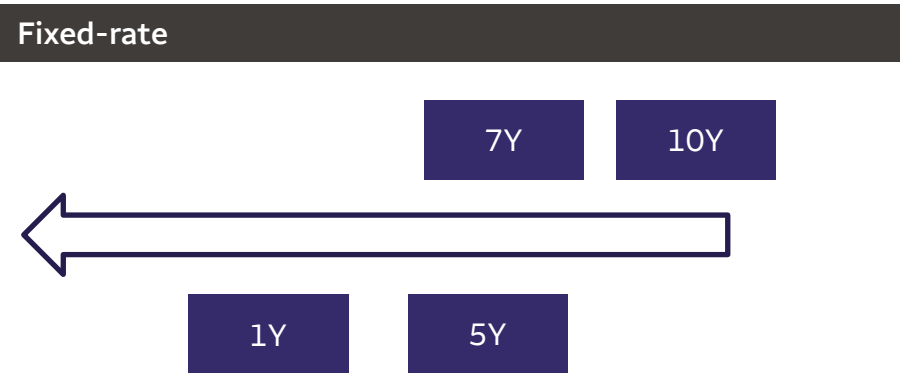
- Treasury Inflation Protected Securities (TIPS)



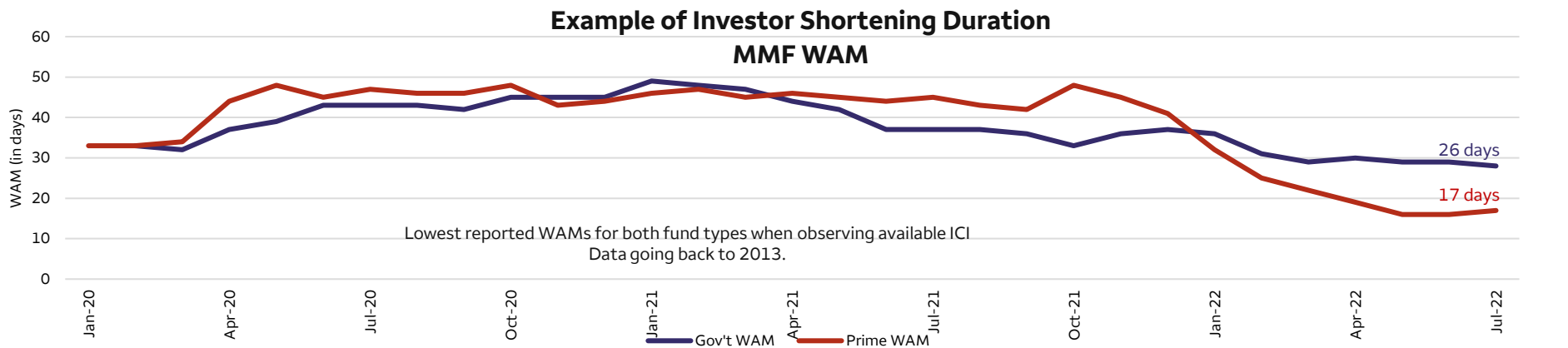
***CAUTION – TIPS may not be appropriate vehicles for cash management. But potentially a consideration for more strategic buckets of cash.**

Protecting Cash in an Inflationary Environment: Shorten Duration

- There are multiple ways to shorten duration in a cash portfolio.
 - Fixed-rate versus floating-rate
 - Asset-class/products



- Floating-rate**
- A floating-rate security, or “floater”, is a debt security whose coupon rate is reset at designated dates and is based on the value of a designated reference rate.
 - Coupon rate = reference rate ± quoted margin



Credit Exposure

Do you already have exposure to credit risk? *Most likely...*

Credit risk can be taken in many different ways

Some investors may not consider “credit risk” exposure to the overall business the same way it is viewed in investing, but it is still credit risk

Deposits



Lines of Credit

Letters of Credit



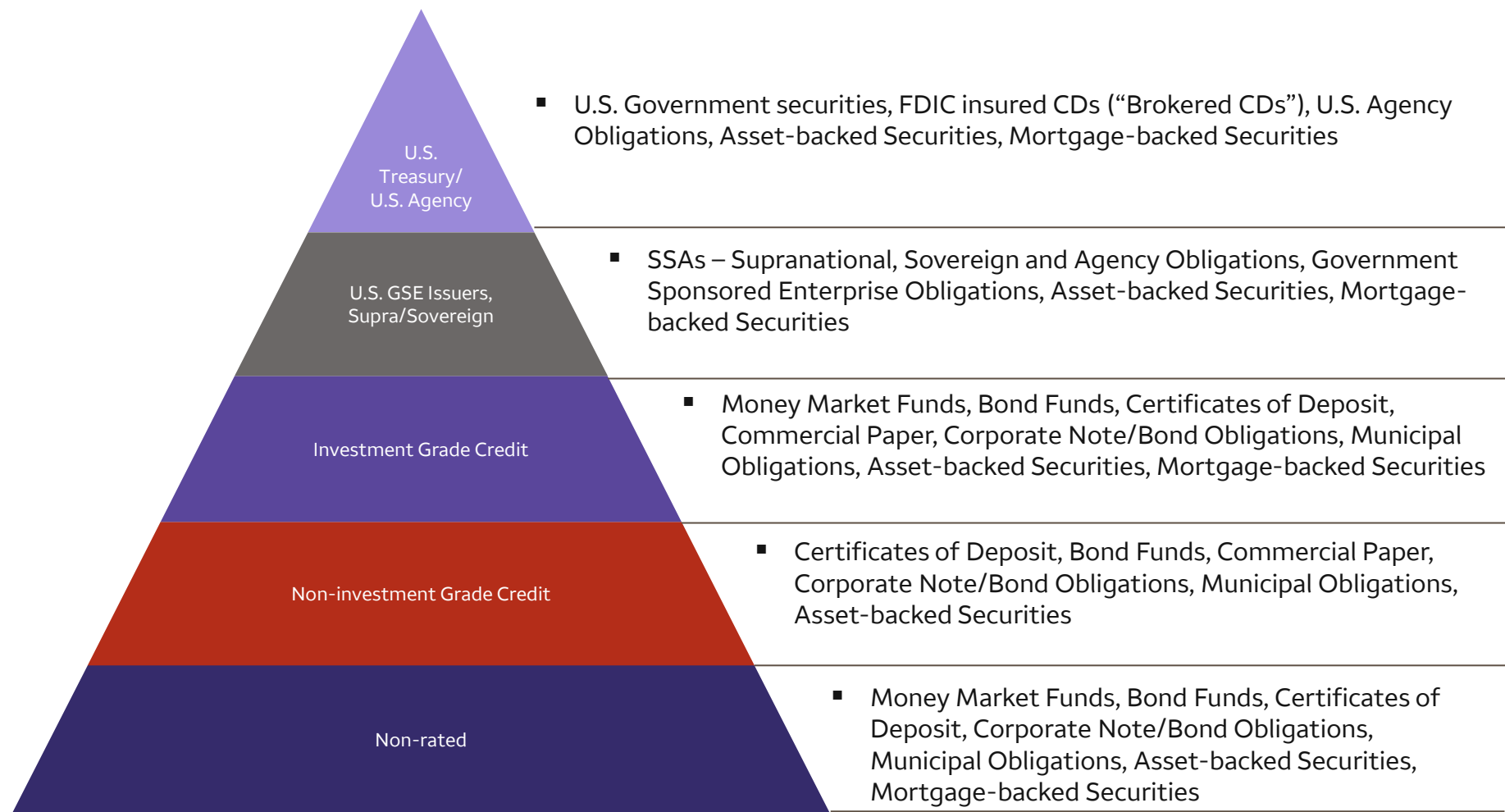
Trade Receivables

Why does this matter when we are talking about investing?

- Every entity has exposure to some form of “credit” risk
- The rules that you apply when managing credit risk in other parts of your business can be applied to fixed-income investing
- e.g., Could a commercial paper issuer also invest in commercial paper or short-term corporate bonds?

Every time an organization enters into a contractual obligation, it accepts a measure of credit risk.

Diversify Amongst Asset Classes/Issuers

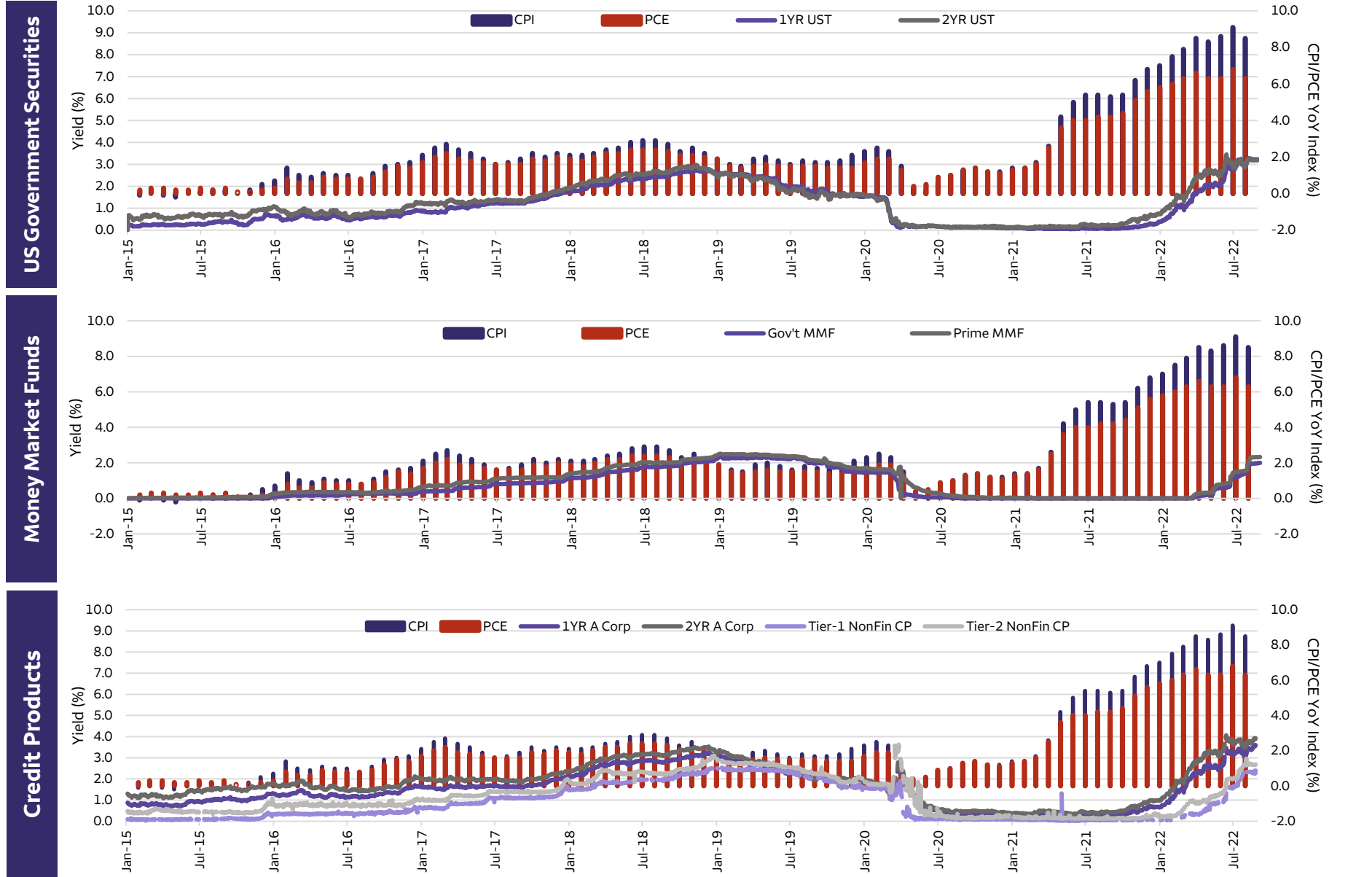


Illustrative purposes only. Not an exhaustive list.

Diversify Amongst Structure Substitutes

| U.S. Treasuries | U.S. Agencies/ GSEs | CDs | CP | Corporate Notes/ Bonds | Municipals | ABS | MBS |
|-------------------------|---------------------------|--------------------|---------------|------------------------------|--------------------|--------------------|--------------------|
| Fixed Rate | Fixed Rate | Fixed Rate | Fixed Rate | Fixed Rate | Fixed Rate | Fixed Rate | Fixed Rate |
| Floating Rate | Floating Rate | Floating Rate | | Floating Rate | Floating Rate | Floating Rate | Floating Rate |
| STRIPs | Zero Coupon | Zero Coupon | Zero Coupon | Zero Coupon | Zero Coupon | Zero Coupon | Zero Coupon |
| Discount Note/ Bills | Discount Note/ Bill | Discount Note | Discount Note | | | | |
| Bullet | Bullet | Bullet | Bullet | Bullet | Bullet | Bullet | Bullet |
| | Callable | Callable | | Callable | Callable | Callable | Callable |
| | Amortizing | | | Amortizing | Amortizing | Amortizing | Amortizing |
| | Puttable | Puttable | | Puttable | Puttable | Puttable | Puttable |
| | Step Up | Step Up | | Step Up | | | |
| | Step Down | Step Down | | Step Down | | | |
| Structured Note | Structured Note | Structured Note | | Structured Note | Structured Note | Structured Note | Structured Note |

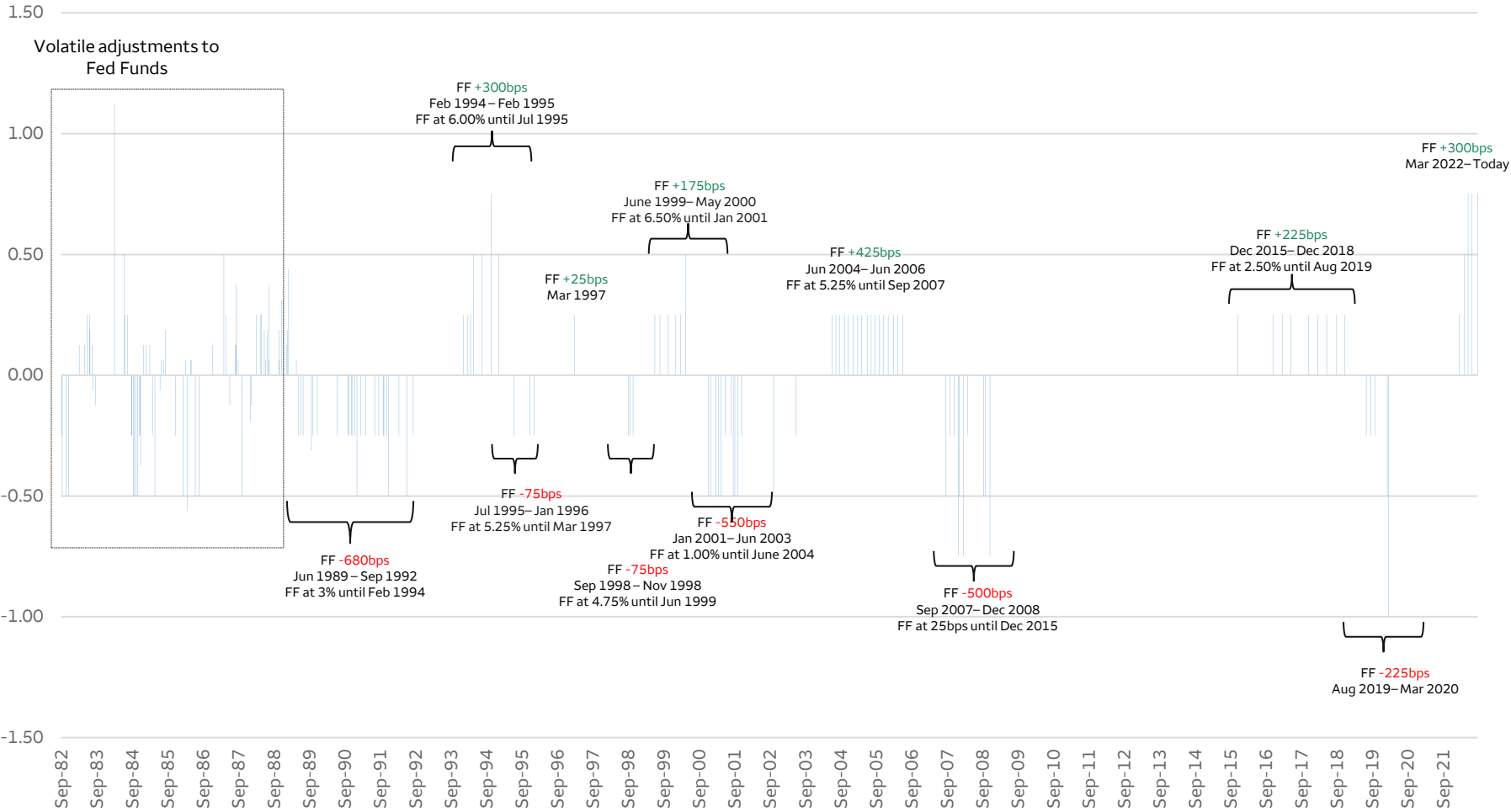
Fixed Income Versus Inflation



Source: Wells Fargo Corporate & Investment Banking, Bloomberg Data as of September 1st, 2022

Rate Hikes + Inverted Yield Curve
+ Cash Investing

Fed Fund Adjustments

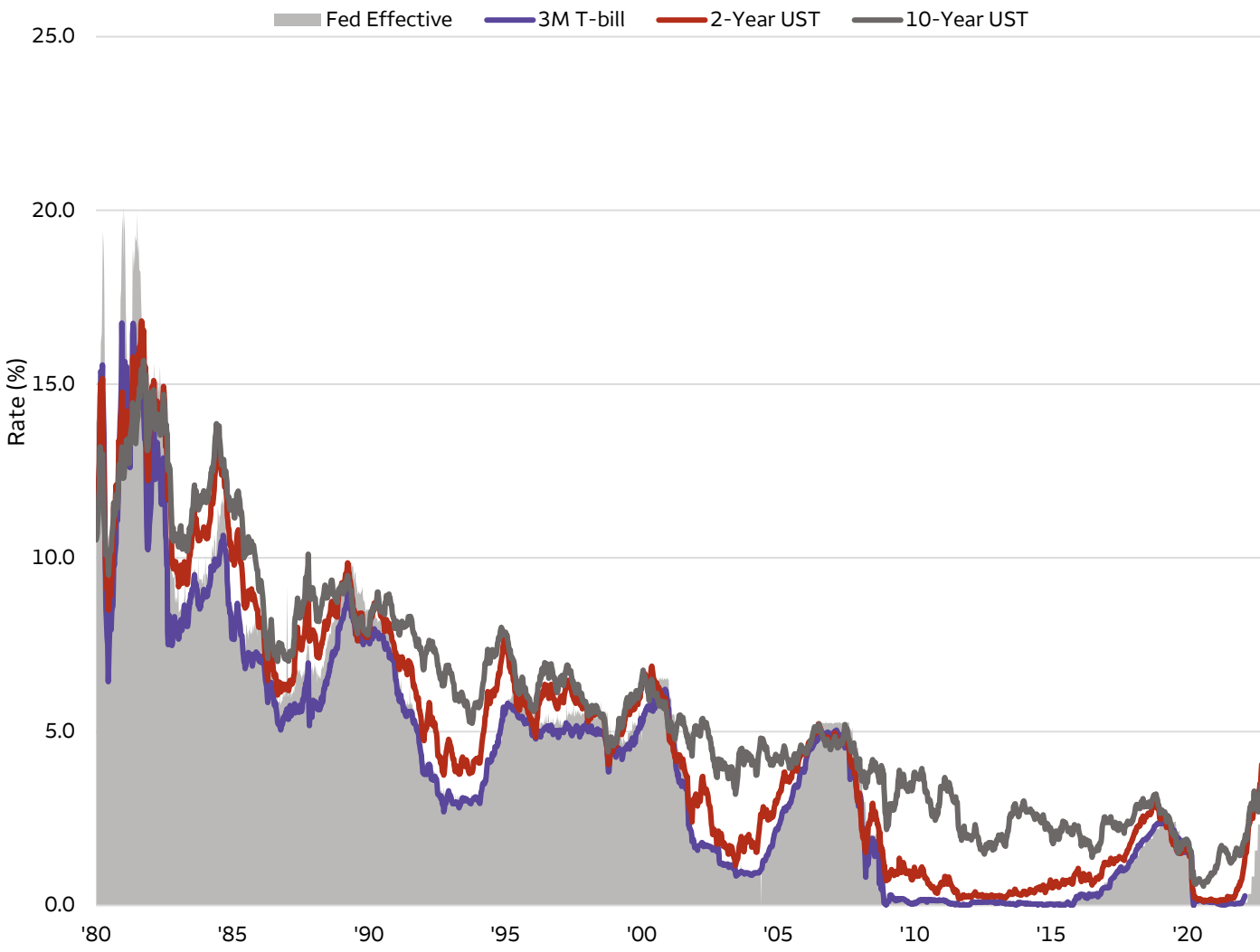


Source: Wells Fargo Corporate & Investment Banking, Federal Reserve

Fixed Income Market Dynamics: The Wave of Monetary Policy Changes

The front-end of the Treasury curve is most sensitive to Fed fund rate shifts while the longer-end of the curve will be impacted more by economic factors.

While the 3-month T-bill moves concurrently with Fed funds, the 2-year Treasury note is more sensitive to market expectations.

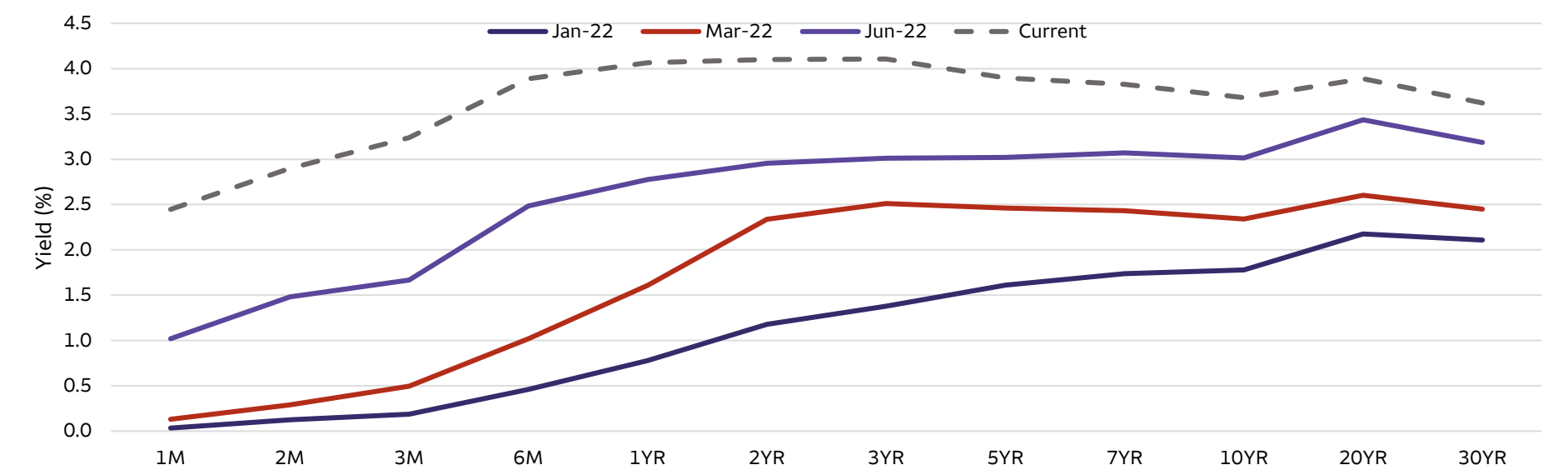


Source: Wells Fargo Corporate & Investment Banking, Bloomberg

Data as of September 22nd, 2022

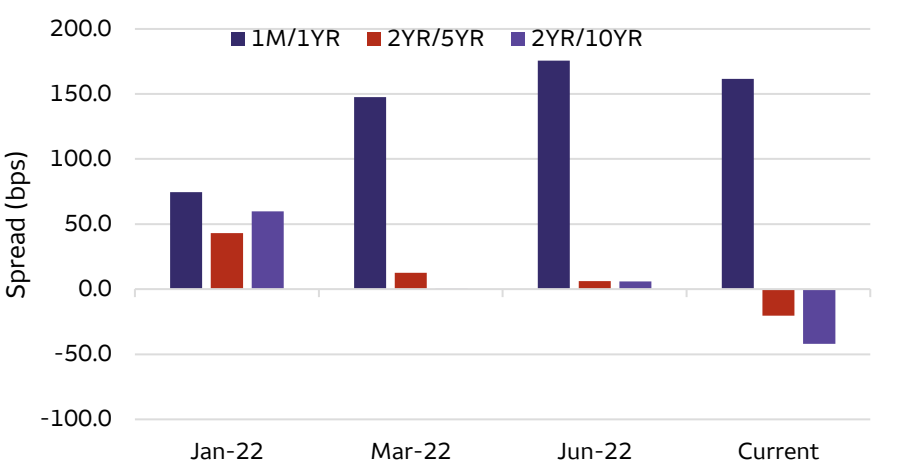
Treasury Curve

Yield Curve Changes 2022, YTD



The Treasury curve has inverted over the past two months, driven by Fed tightening. The very front-end (1-Month to 1-Year) is still steep, though.

Treasury Curve

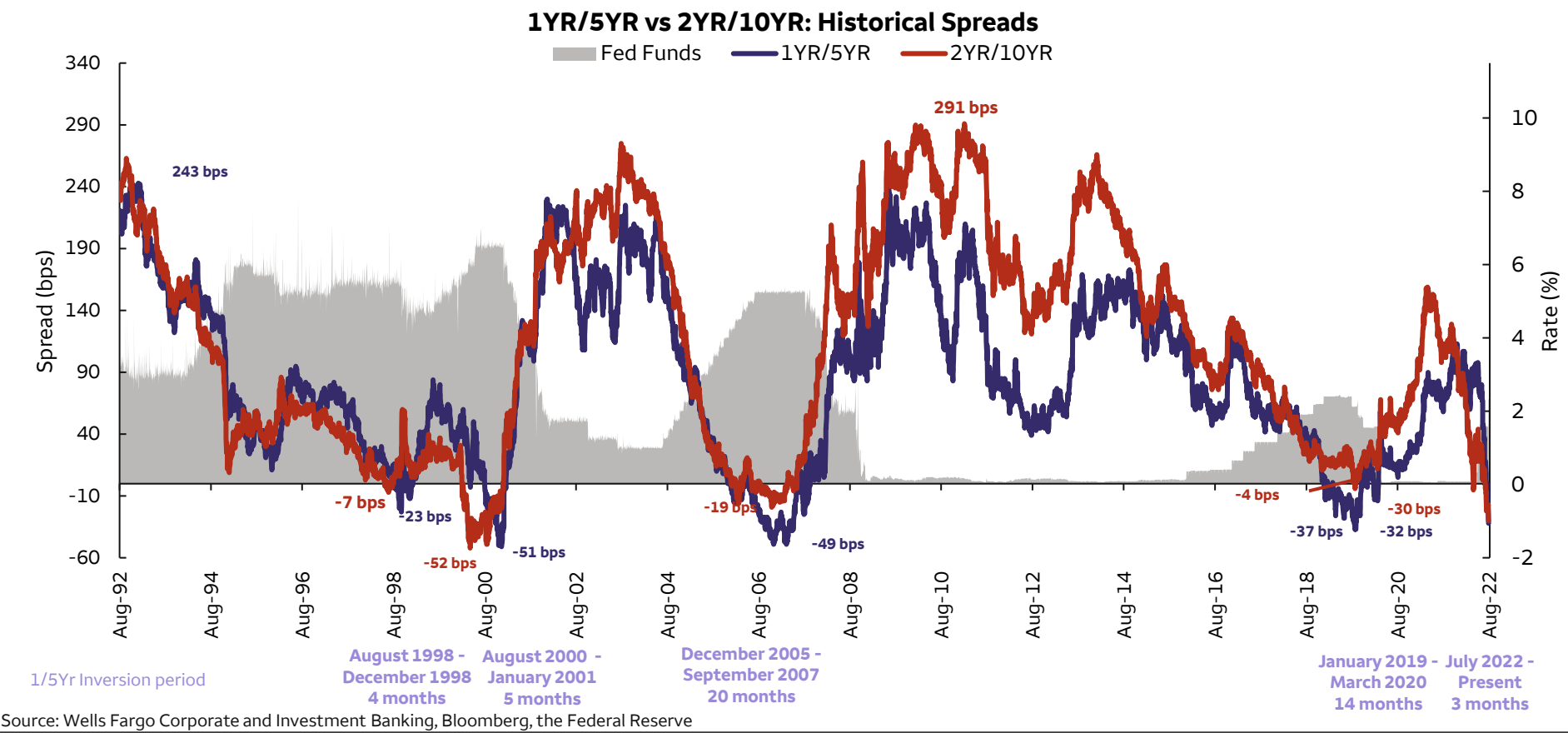


Source: Wells Fargo Corporate and Investment Banking Bloomberg

Data as of September 22nd, 2022

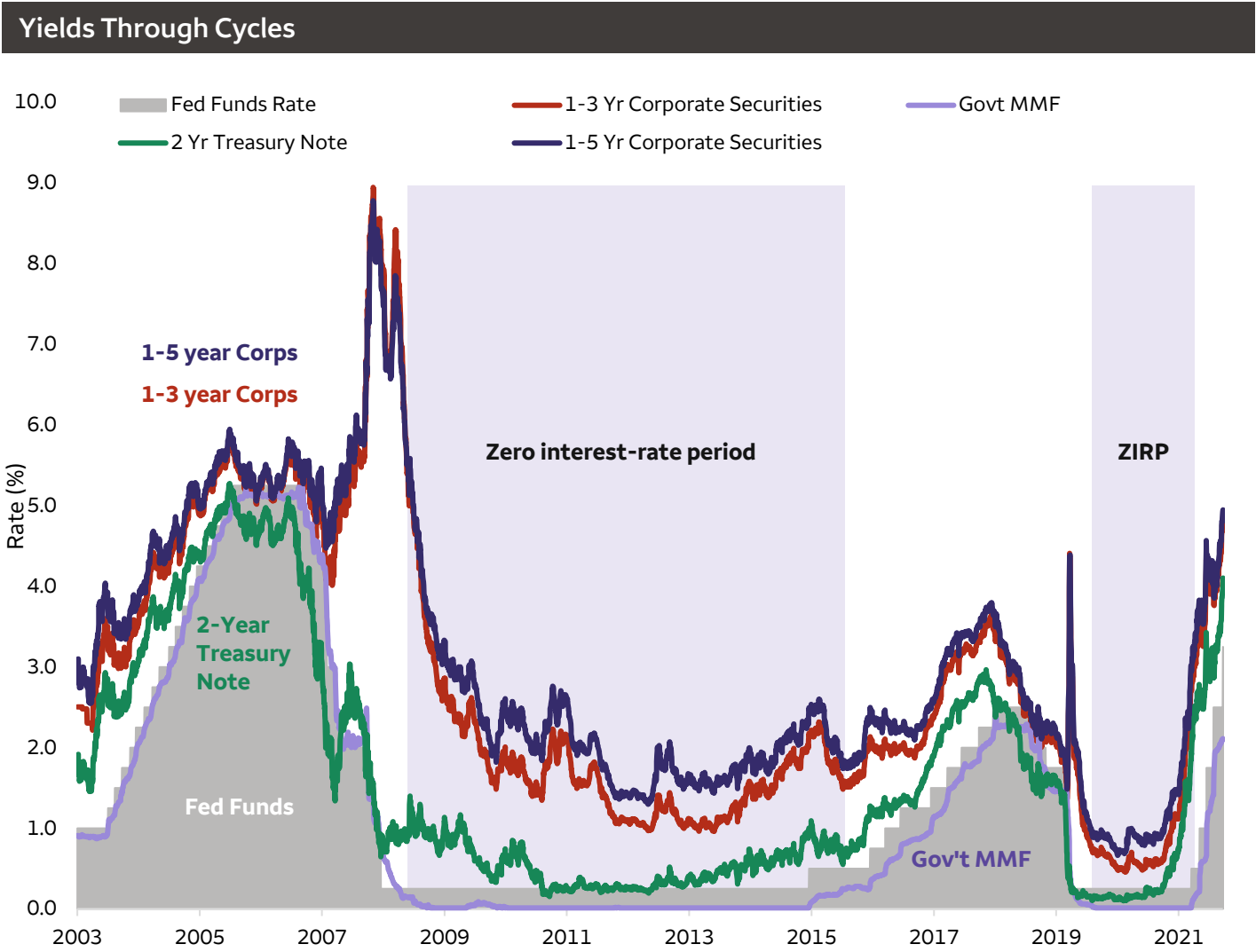
Elephant in the Room....

| | 4-Week T-Bill | 1-Year T-Bill | 2-Year Treasury Note | 5-Year Treasury Note |
|------------------------------------|---------------|---------------|----------------------|----------------------|
| Current Rate | 2.59% | 3.97% | 3.93% | 3.68% |
| Last Time Rates Reached This Level | 2007 | | | |



Higher Rates + Portfolio Structure = Ongoing Income Generation

Investors who allocate some cash to term fixed income instruments tend to pick up more income, all else equal, through interest rate cycles.

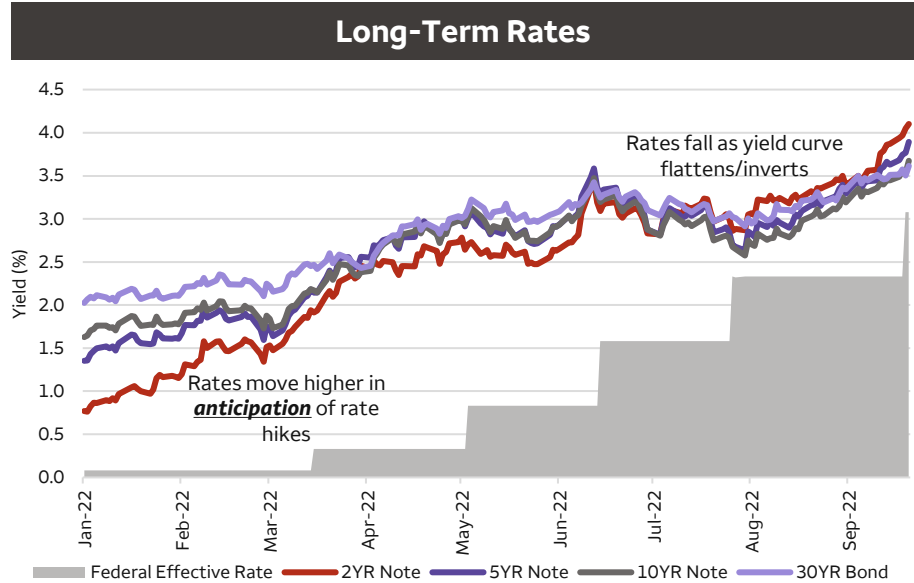
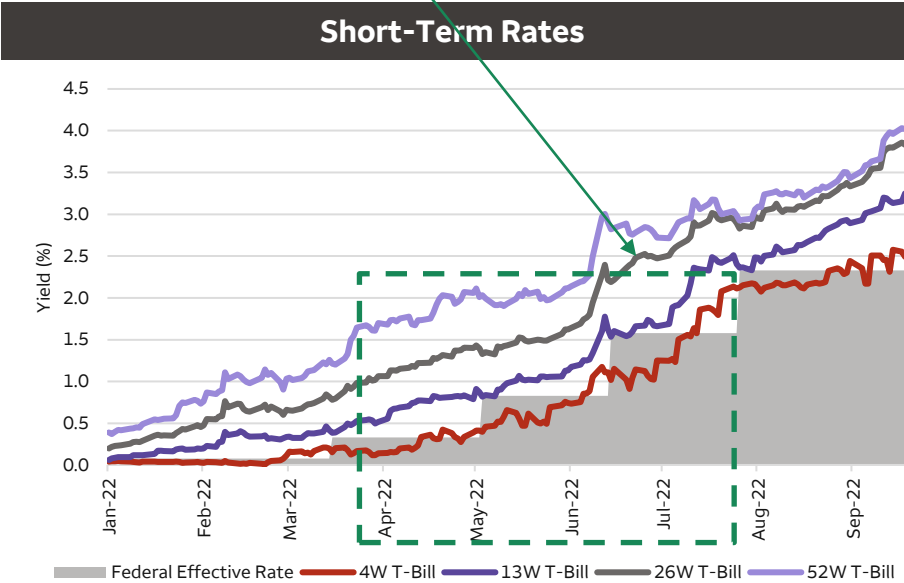
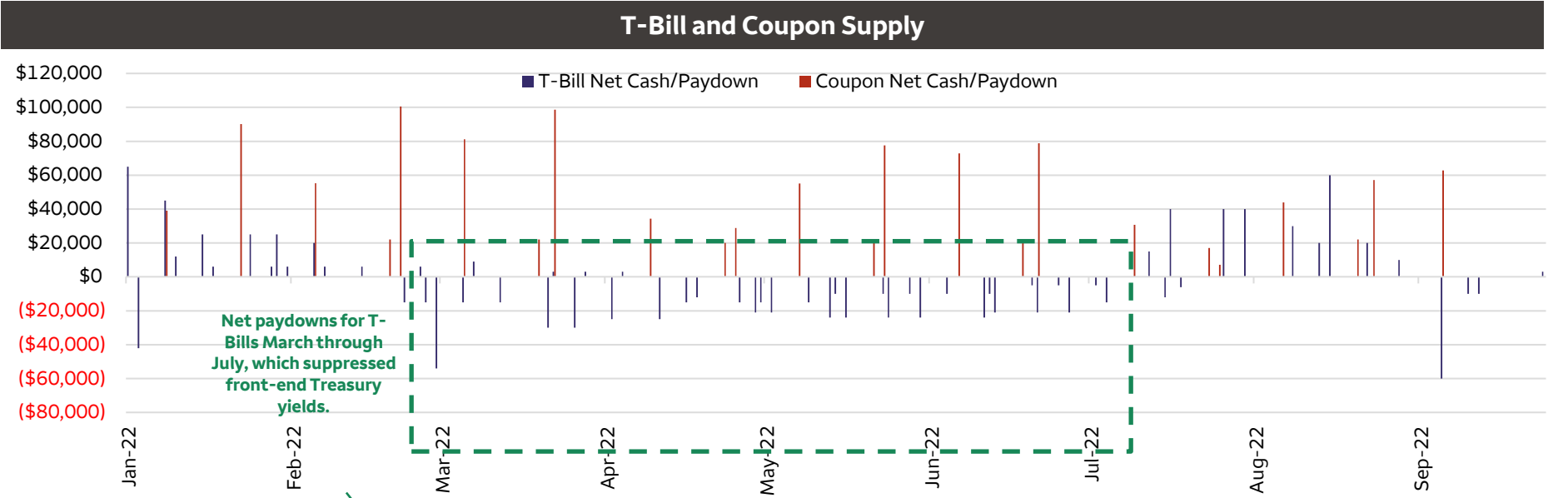


Source: Wells Fargo Corporate & Investment Banking

Data as of September 22nd, 2022

Market Update

Treasuries This Cycle



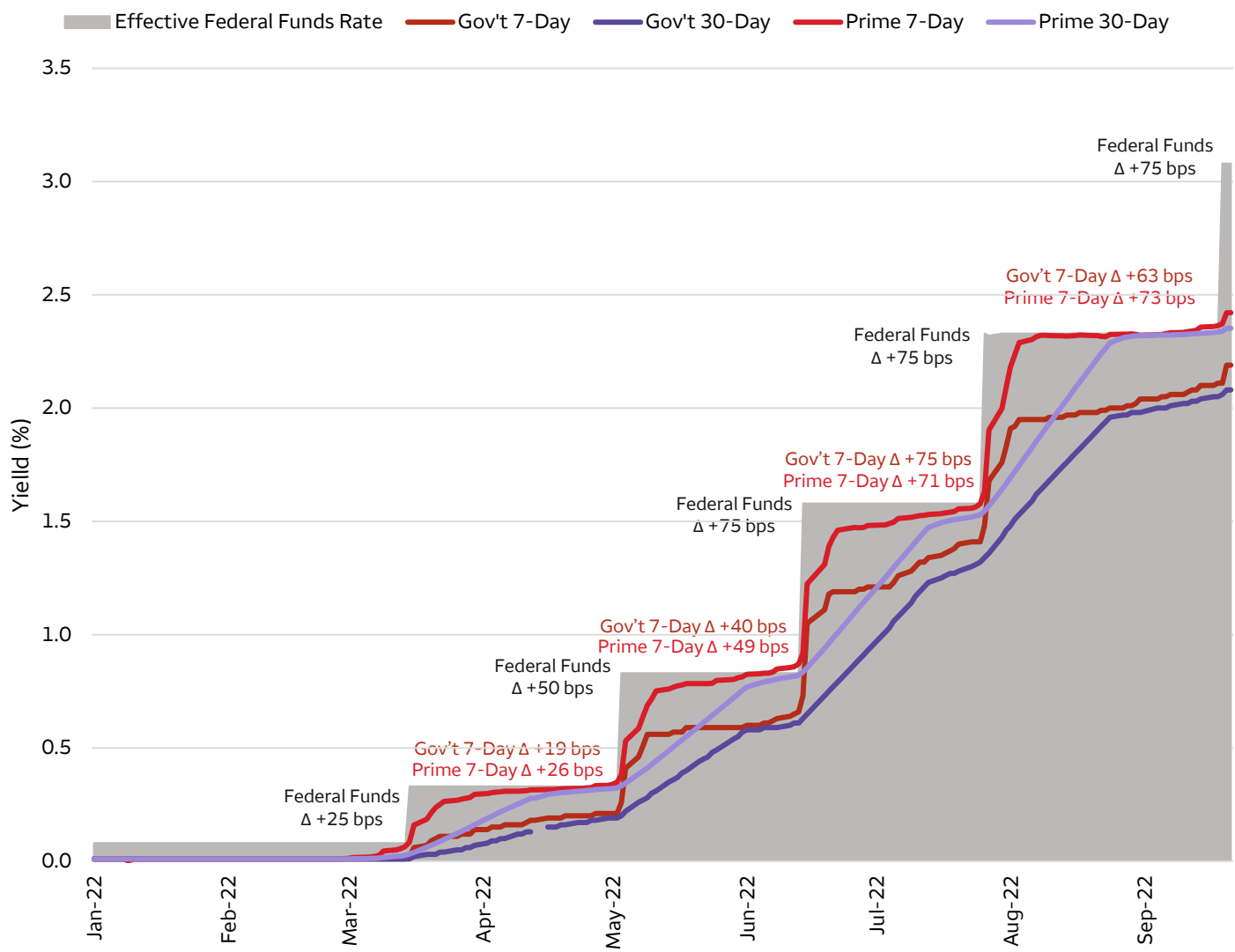
Source: Wells Fargo Corporate & Investment Banking, TreasuryDirect.gov Data as of September 22nd, 2022

Money Market Funds This Cycle

Average MMF rates versus Effective Federal Funds rate

Quoted MMF yields adjust on a lag, depending on the lookback period (e.g., 7-days or 30-days).

Average fund yields have surpassed 2.0%.



Source: Wells Fargo Corporate & Investment Banking, Bloomberg, ICI

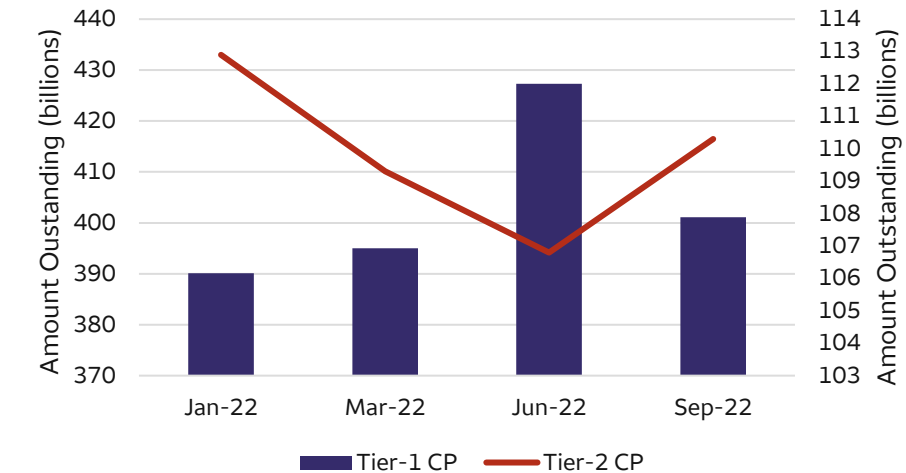
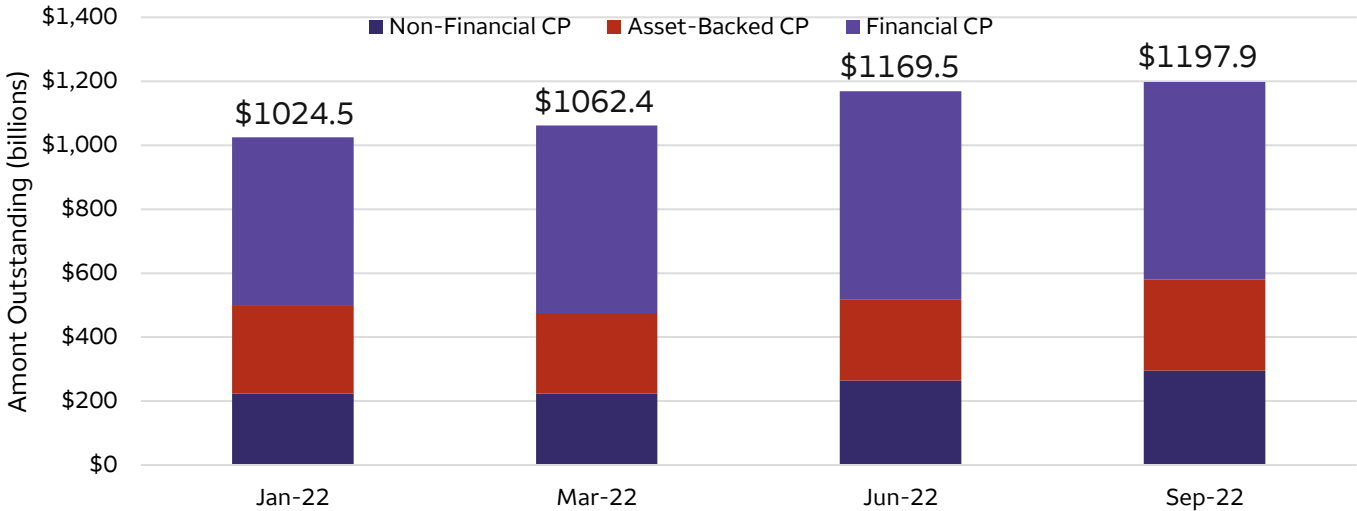
Data as of September 23rd, 2022

Commercial Paper: Supply YTD

Growth in outstandings since COVID has primarily been driven by financial issuers, and more specifically the U.S. branches of foreign financials.

Outstanding commercial paper has increased by approximately \$124 billion since the beginning of 2022.

As typical for this instrument, issuance has been most robust during the summer months.



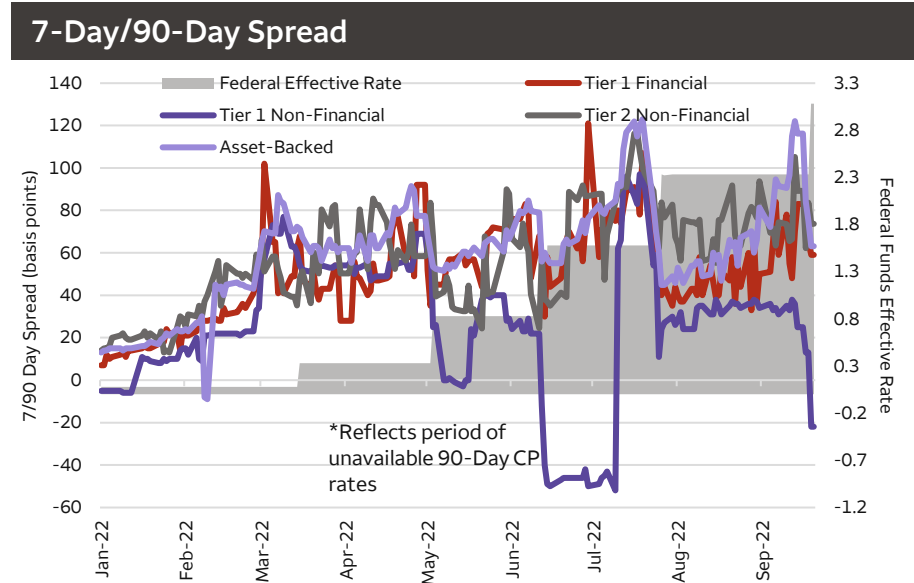
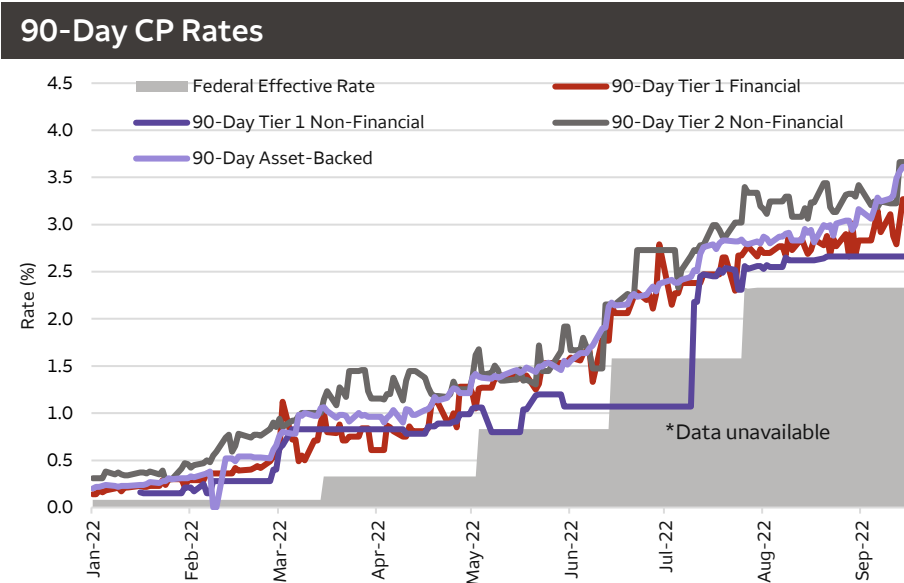
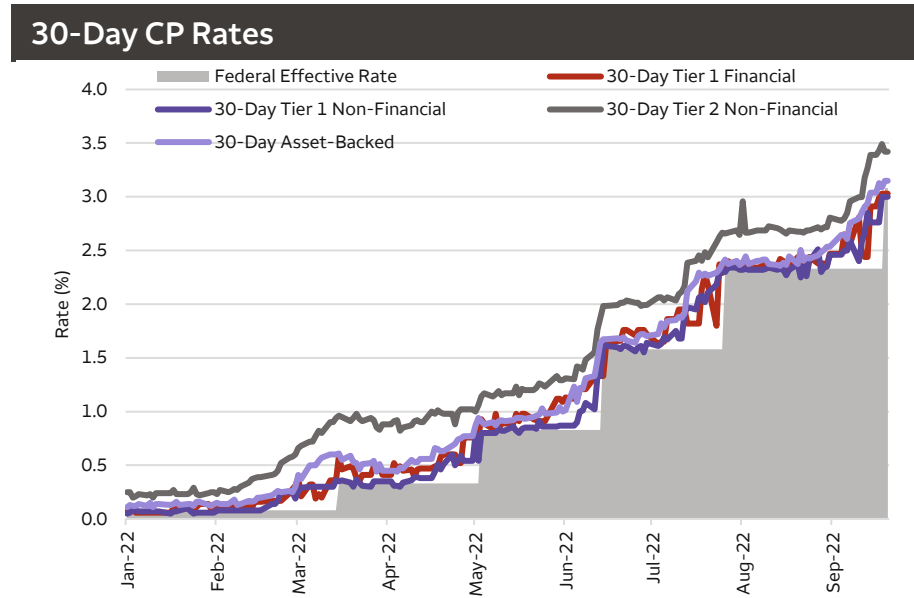
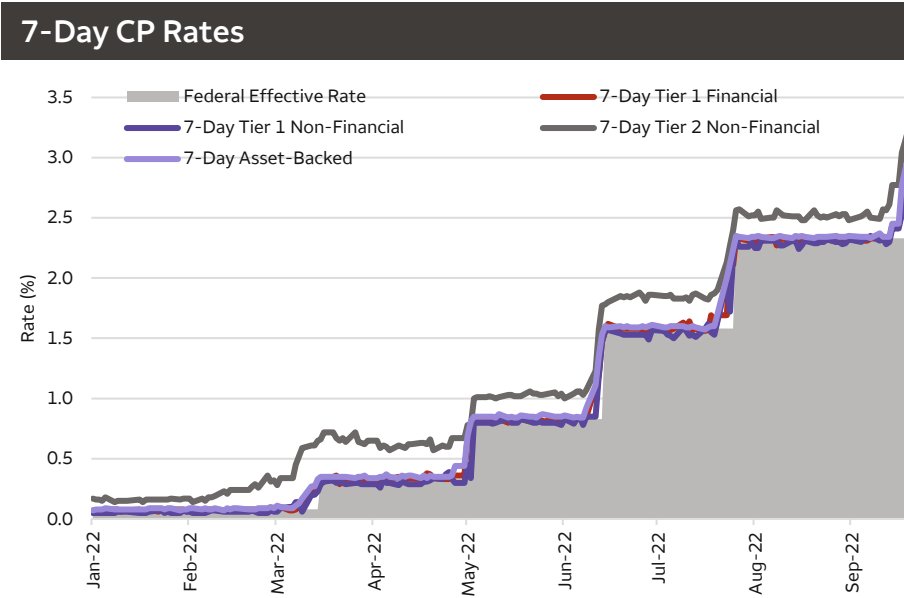
While it appears there has been a significant drop in tier-2 CP YTD, the decline is more reflective of the steep rise in outstandings at the start of the year. Tier-2 outstandings hit the highest level on record since a quick spike in 2012 (\$156.8B).

| Average Tier-2 Outstandings | | |
|-----------------------------|------------|----------|
| 2015 - 2019 | 2020 - YTD | 2022 |
| \$81.2B | \$89.6B | \$109.9B |

Source: Wells Fargo Corporate & Investment Banking, Federal Reserve.gov

Data as of September 7th, 2022

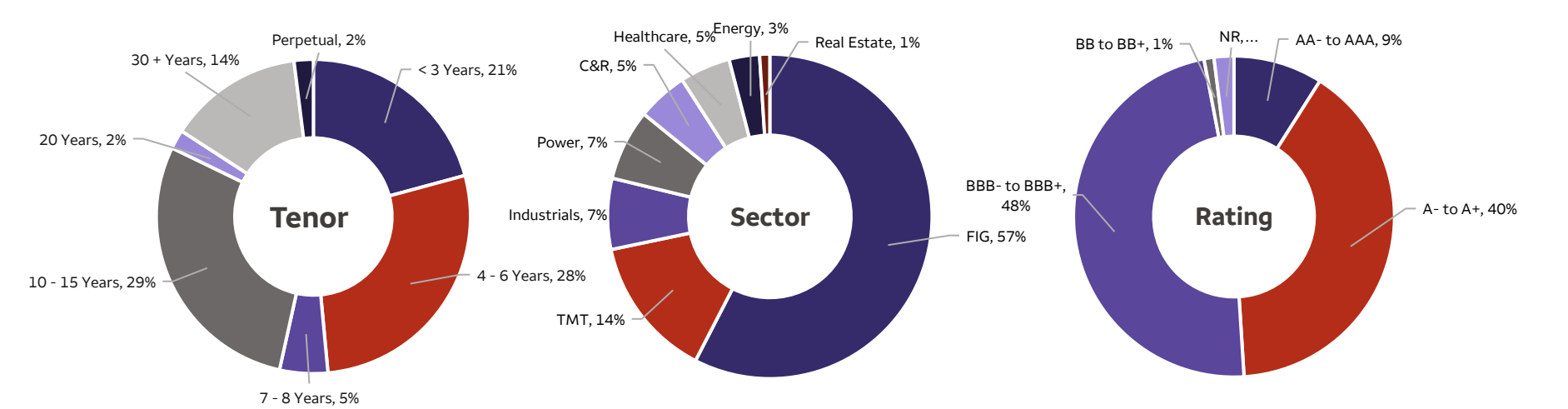
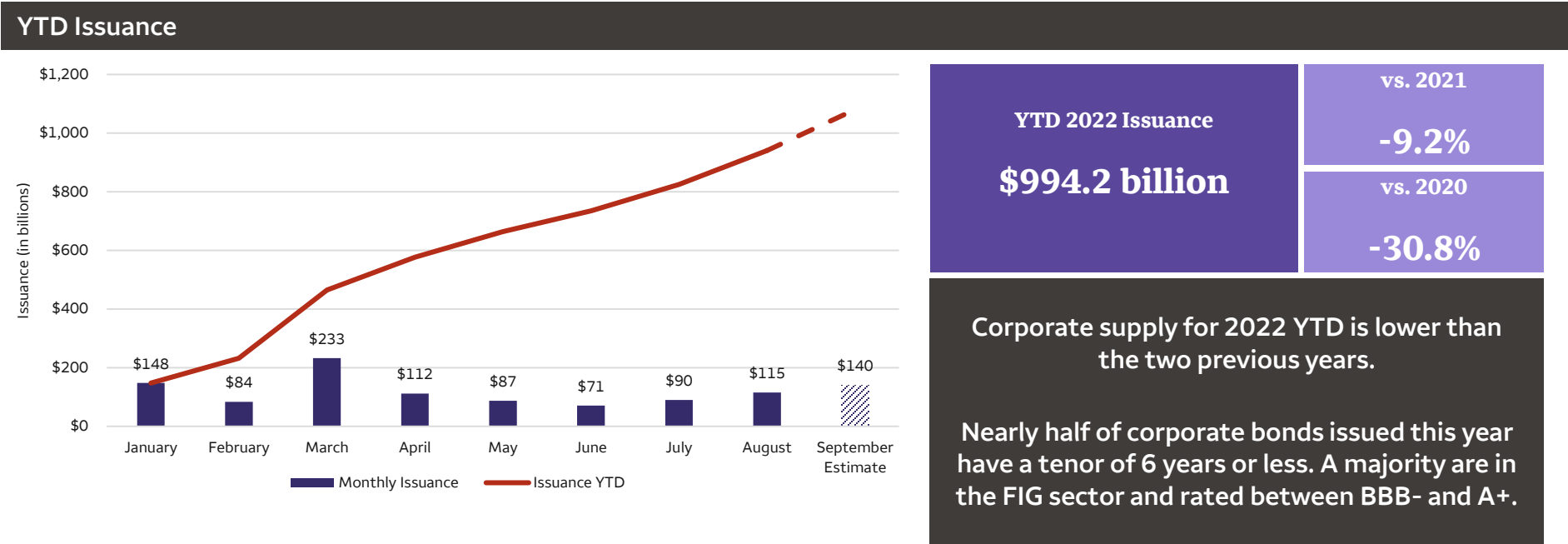
Commercial Paper This Cycle: Rates



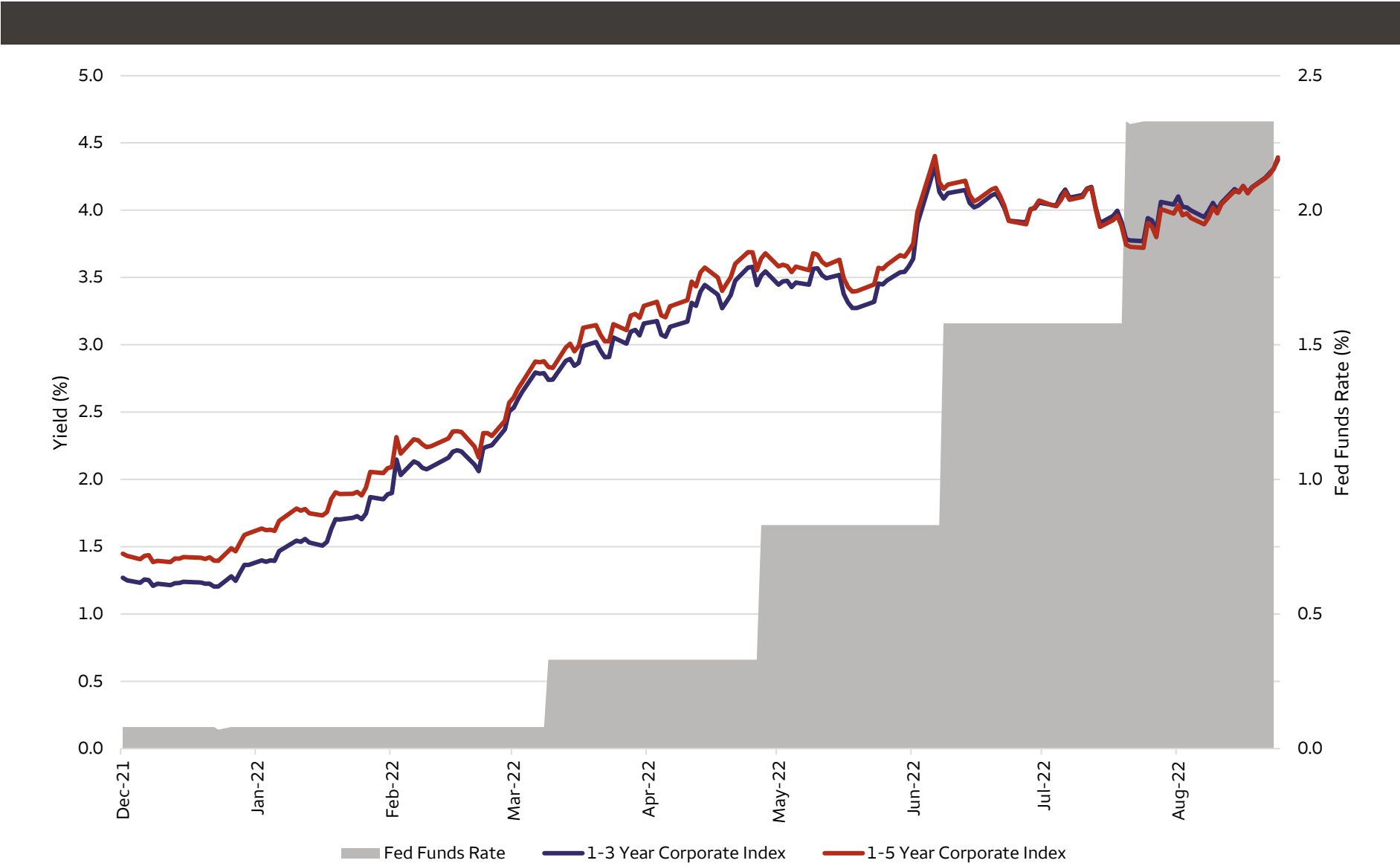
Source: Wells Fargo Corporate & Investment Banking, Bloomberg

Data as of September 22nd, 2022

Investment Grade Corporate Issuance YTD



Investment Grade Corporates This Cycle

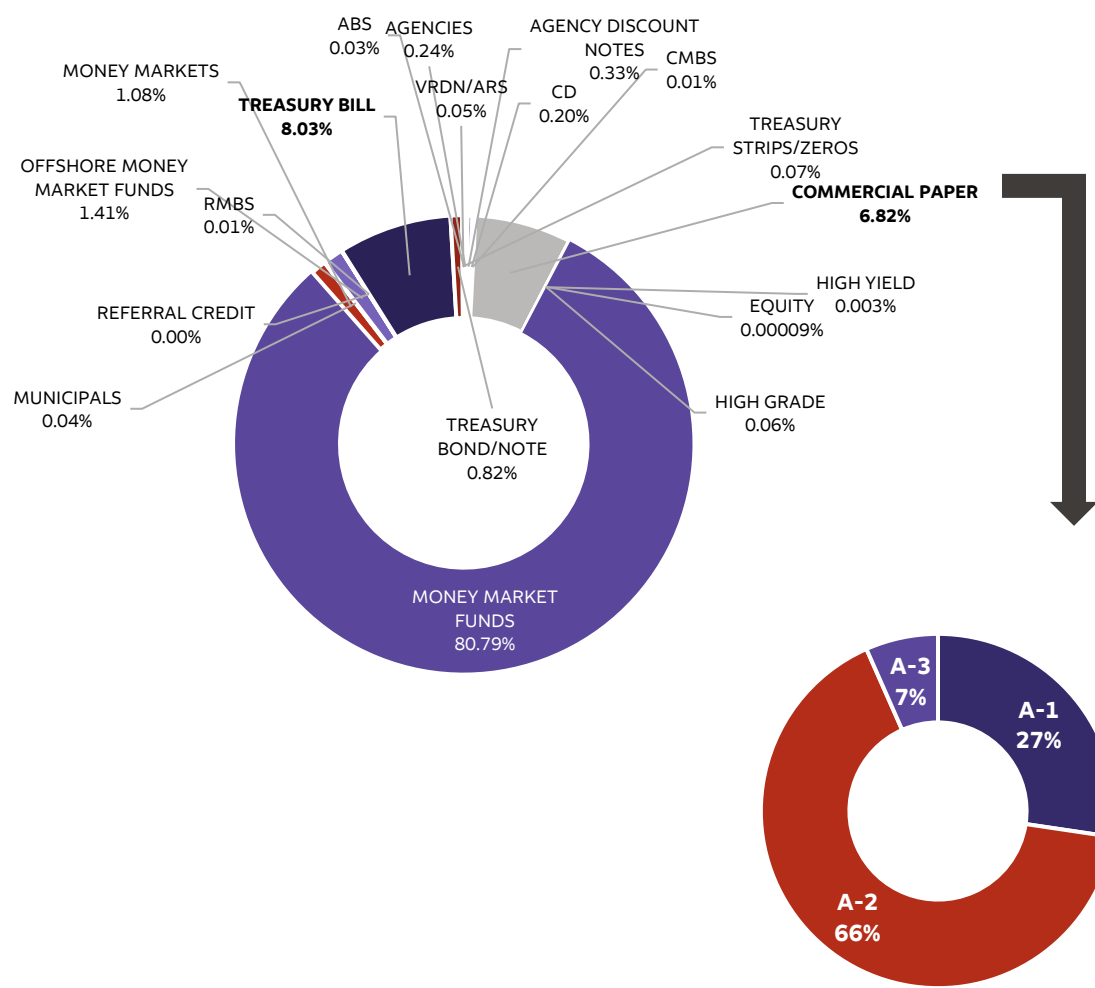


Source: Wells Fargo Corporate & Investment Banking, Bloomberg

Discussions with Clients

Wells Fargo YTD Trading Activity with Corporate Investors

Trade activity in 2022 for corporate investors has been highly concentrated in money market funds, T-Bills and commercial paper.



Source: Wells Fargo Corporate & Investment Banking

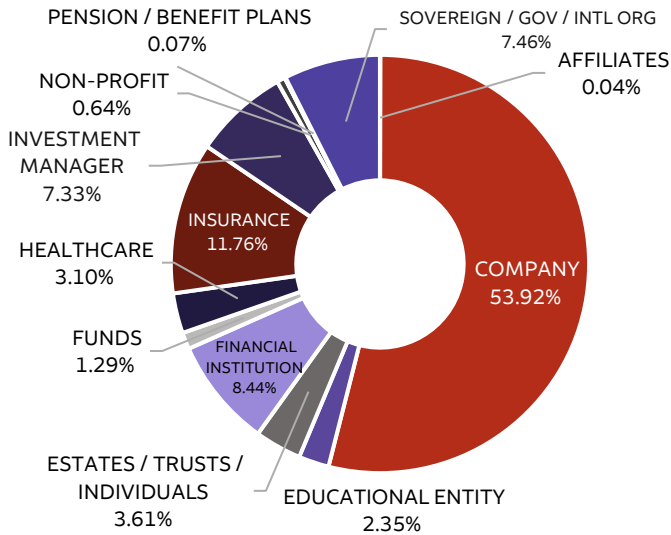
*Wells Fargo trade data

Money Market Fund Activity*

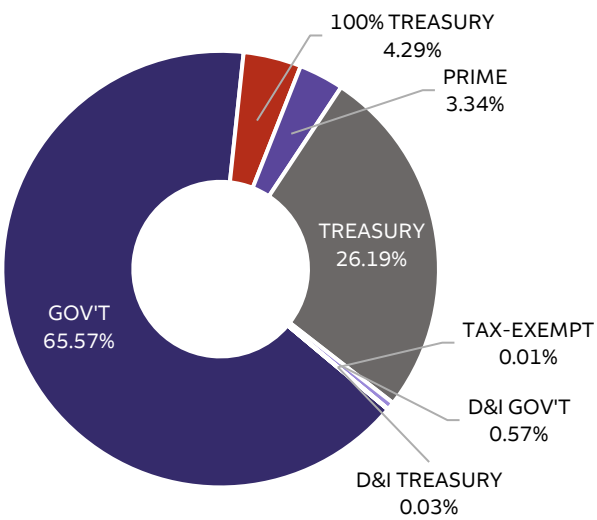
Government fund trades continued to decline nearly another 5% after experiencing a similar drop in July. Treasury funds activity continued to grow and accounted for 26.19% of money market fund activity.

Money market fund activity with Wells Fargo clients rose in August.

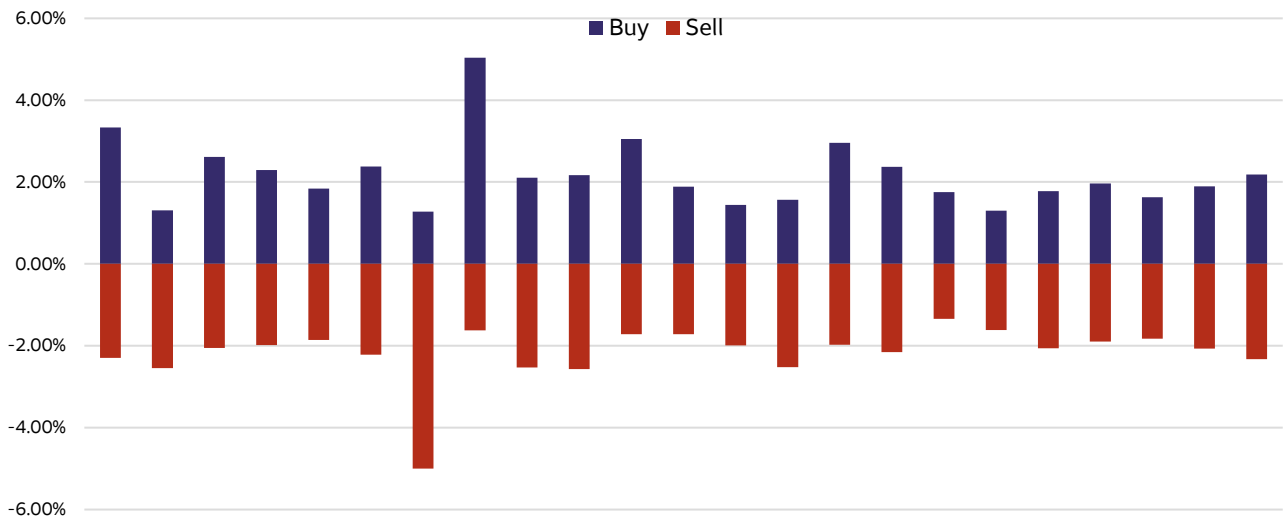
Activity by Client Type



Activity by Fund Type



Fund Flows throughout August

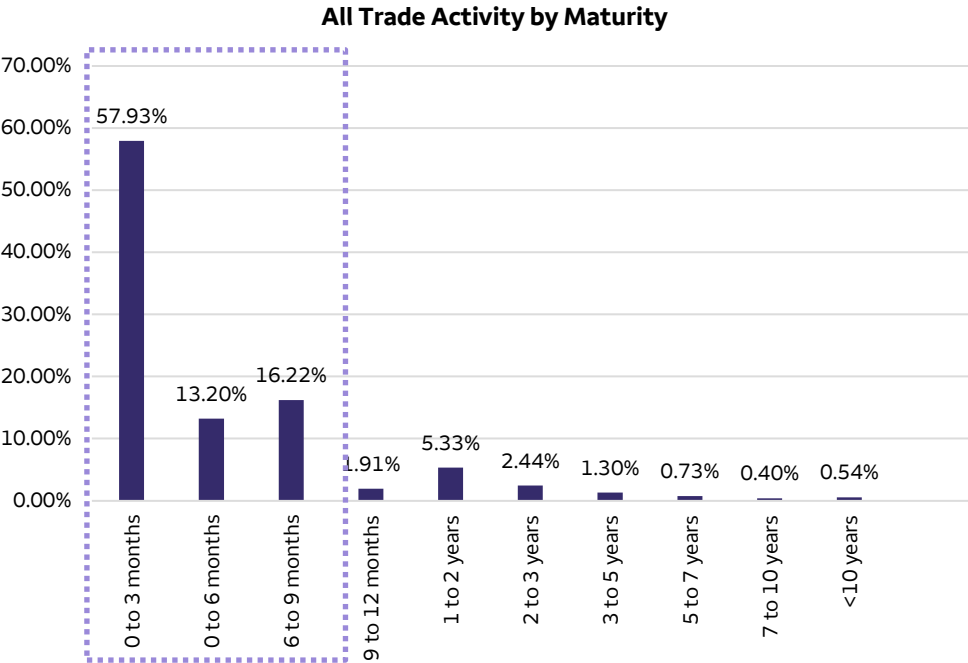


Source: Wells Fargo Corporate & Investment Banking

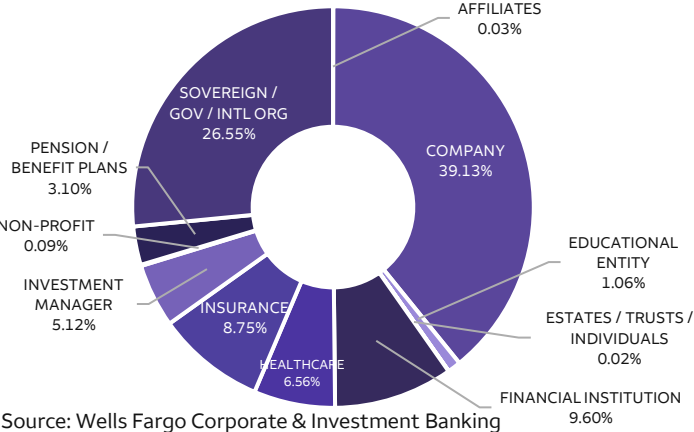
*Wells Fargo trade data

Investment Activity* Excluding Money Market Funds

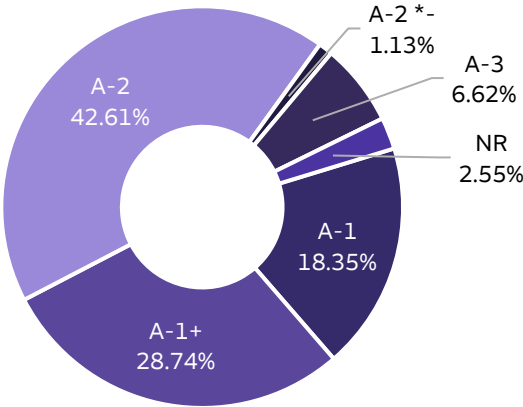
| Category | Product | August Product % of Total | August Category % of Total | July Category % of Total | June Category % of Total |
|----------|-----------------------|------------------------------|-------------------------------|-----------------------------|-----------------------------|
| Agency | AGENCY DISCOUNT NOTES | 6.03% | 11.28% | 9.40% | 10.72% |
| | AGENCIES | 3.86% | | | |
| | RMBS | 1.39% | | | |
| Credit | COMMERCIAL PAPER | 44.83% | 45.37% | 48.53% | 38.92% |
| | HIGH GRADE | 0.54% | | | |
| | HIGH YIELD | 0.00% | | | |
| Treasury | TREASURY BILL | 35.10% | 40.97% | 33.21% | 44.20% |
| | TREASURY BOND/NOTE | 5.82% | | | |
| | TREASURY STRIPS/ZEROS | 0.05% | | | |
| | IILD | 0.00% | | | |
| Other | CD | 1.73% | 2.38% | 8.86% | 6.16% |
| | ABS | 0.11% | | | |
| | VRDN/ARS | 0.25% | | | |
| | MUNICIPALS | 0.29% | | | |
| | CMBS | 0.00% | | | |
| | EQUITY | 0.00% | | | |
| | TOTAL | 100.00% | 100.00% | 100.00% | 100.00% |



CP: Activity by Client Type



CP: Activity by Rating



Commercial paper made up most of credit trades and 44.83% of all trade activity in August.

Tier-2 CP has grown in prominence, with a market share of nearly 50% this past month (the highest it has been all year).

Source: Wells Fargo Corporate & Investment Banking

*Wells Fargo trade data

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