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Heightened Bond Liquidity Risk is the New Normal

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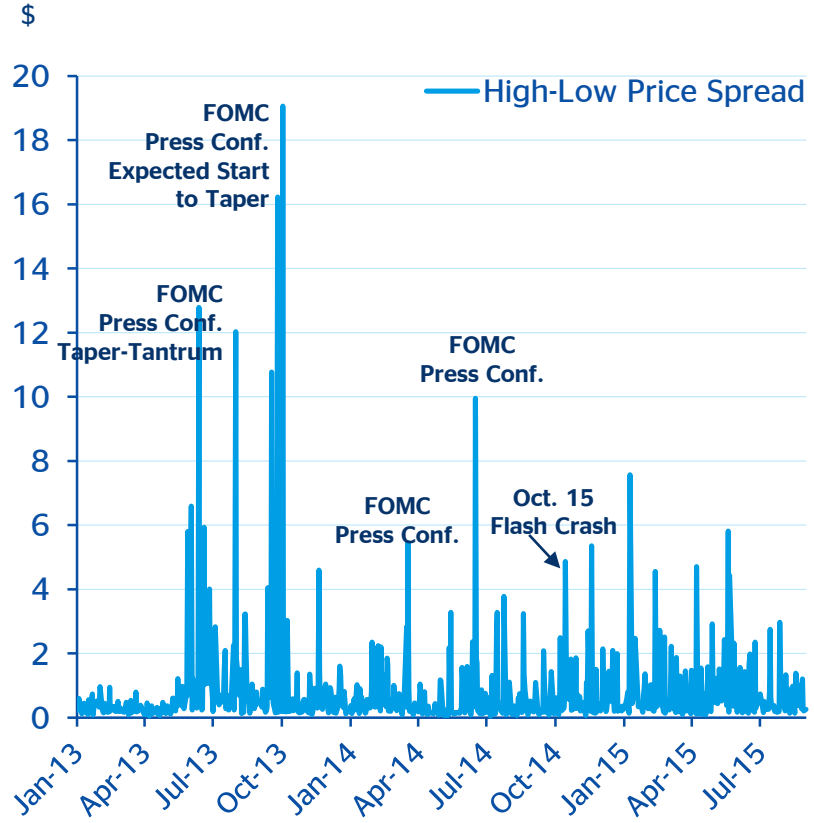
The Signs of Weakened Liquidity

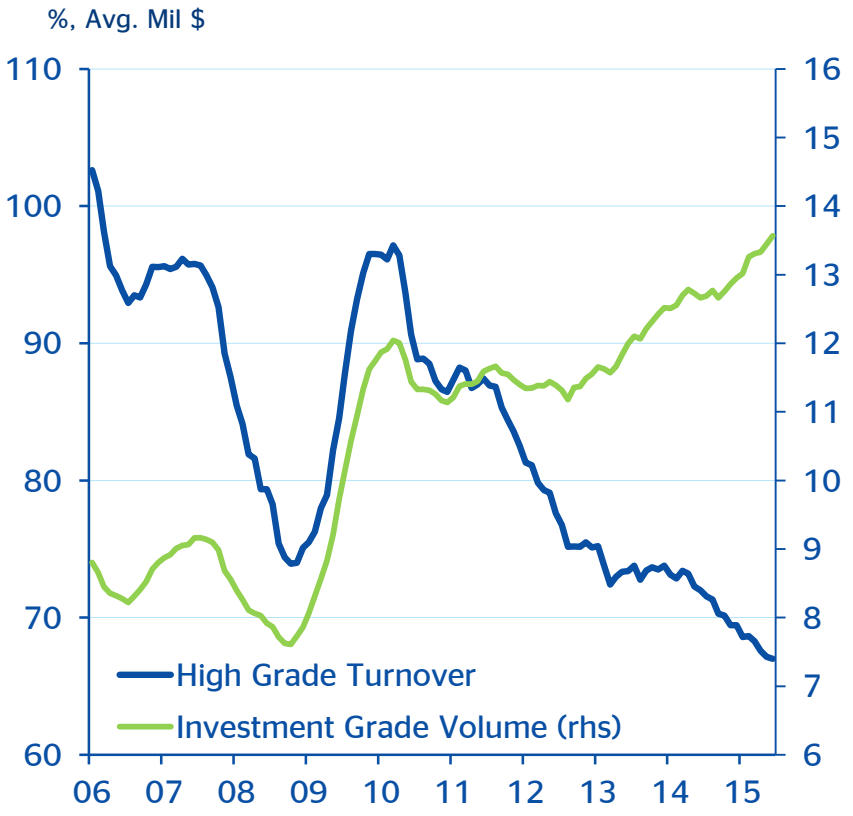
The erosion of liquidity is more of a concern in the secondary markets

10-Year Treasury Note Futures Volatility Index



Source: CBOE & BBVA Research

Corporate Bond Market



Source: TRACE, MarketAxess & BBVA Research

Structural Shifts Establish "New Normal"

Bond Markets have Changed the Business Model

- Technological advancements in trading platforms and post-crisis regulatory oversight are structural factors that have changed the market business model
- Large investment firms hold buy-side dominance in price setting and initiate trades directly with inter-dealer brokers

"New Normal" in Bond Liquidity

- Higher transactions costs, smaller trade sizes and distorted reliability of common liquidity measures (volume, frequency, bid-ask spread)
- Retrenchment of banks as market-makers and transfer of both "immediacy services" and risks to investment firms
- Liquidity bifurcation
- Increased volatility and the frequency of flash-crash episodes in the market

"New Normal" and Cyclical Factors

Monetary Policy Normalization on the Horizon

- The Fed is at the beginning of a tightening cycle and bond markets have priced in a very slow pace of interest rate increase per Fed's forward guidance

"New Normal" in Bond Liquidity

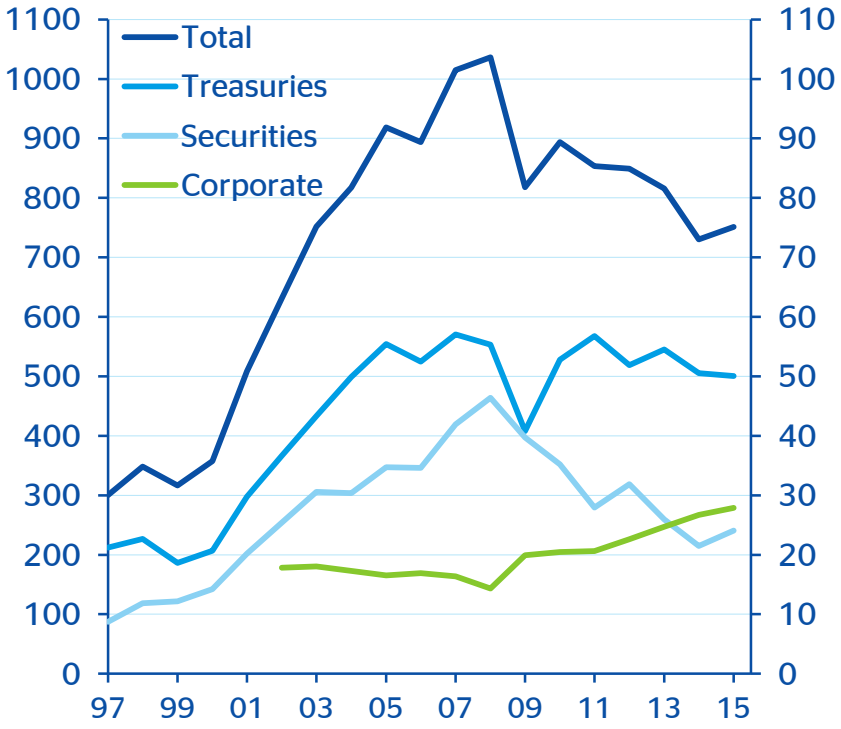
- Fed normalization will ease but not eliminate existing limitations on liquidity
- New liquidity dynamics pose an increased risk of "flash crash" episodes at times when market expectations are misaligned with Fed announcements

Post-Crisis Regulatory Environment

Regulations have moved liquidity away from risky assets and towards Treasury securities

U.S. Bond Market Trading Volume

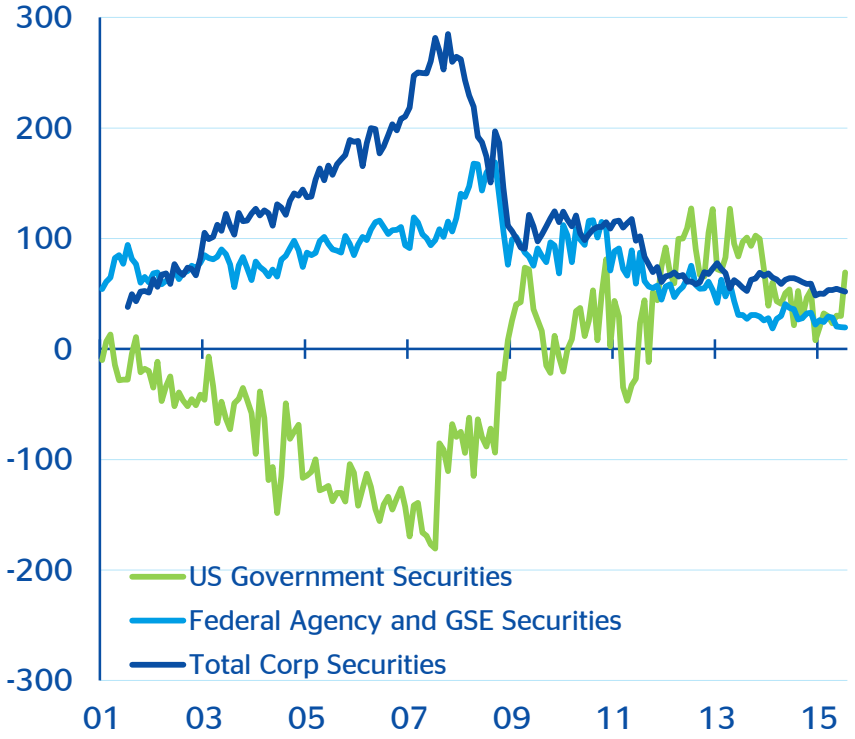
Daily Avg., Bn $



Source: SIFMA & BBVA Research

Primary Dealers' Positions

EOP, Mil $

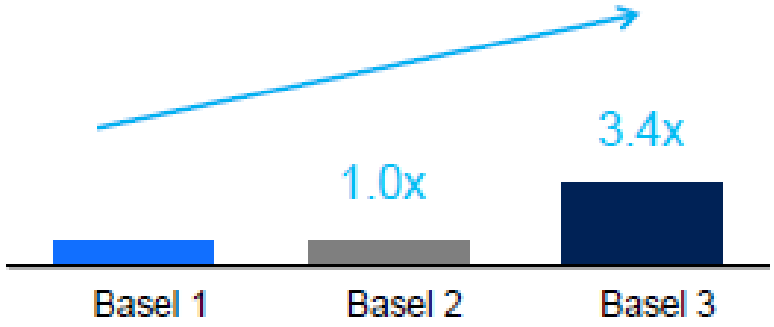


Source: FRB & BBVA Research

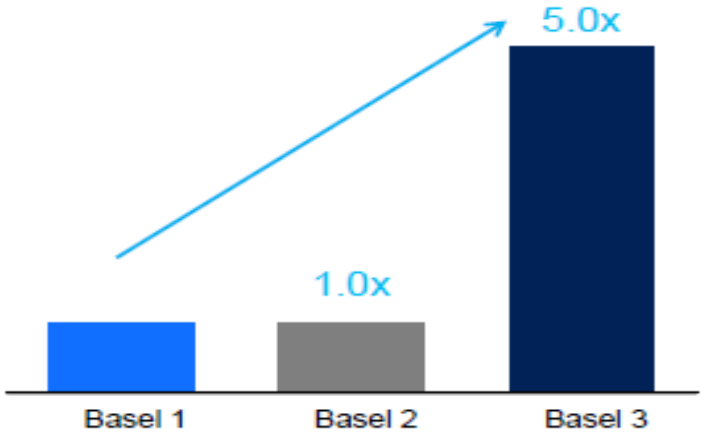
Post-Crisis Regulatory Environment

- Wholesale banking balance sheets supporting traded markets have contracted by 20% since 2010
- Bank balance sheets are Further expected to shrink by another 10% to 15% over the next two years
- 10 basis point increase in the leverage ratio can be offset by raising $2.5bn in capital or by reducing assets by $50bn
- Liquidity deterioration expected to continue due to the phased-in implementation of post-crisis regulations

Cost for Investment Grade
Risk-weighted asset charges (Mil $)



Cost for High Yield
Risk-weighted asset charges (Mil $)



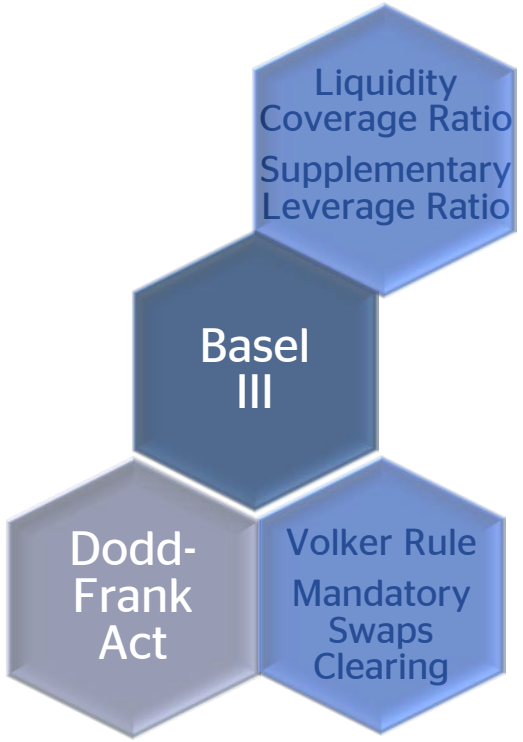
Source: U.S. Department of Treasury, Morgan Stanley and Oliver Wyman Report (2015) & BBVA Research

Regulatory Environment Outcome

- Banks decreased their inventories of corporate bonds
  - Limited their ability to provide market-making and "immediacy" services
- In search of liquidity, large investment firms bypass banks and buy directly from broker-dealers
- Transfer of buy-side power to investment firms
- Transfer of liquidity risks to investment firms

Risk to Market Liquidity

- Increased share of buy-and-hold investors
- Investor strategies converging as other strategies exit the market
- At times of stress, investors move in lockstep creating a liquidity challenged one-way market



Electronic Trading

Level of Electronic Penetration by Volume				
Treasury Futures	Cash Equities	U.S. Treasuries	High Yield Bond	Investment Grade Bond
90%	**70% - 80%**	**30%**	**10%**	**15% - 20%**

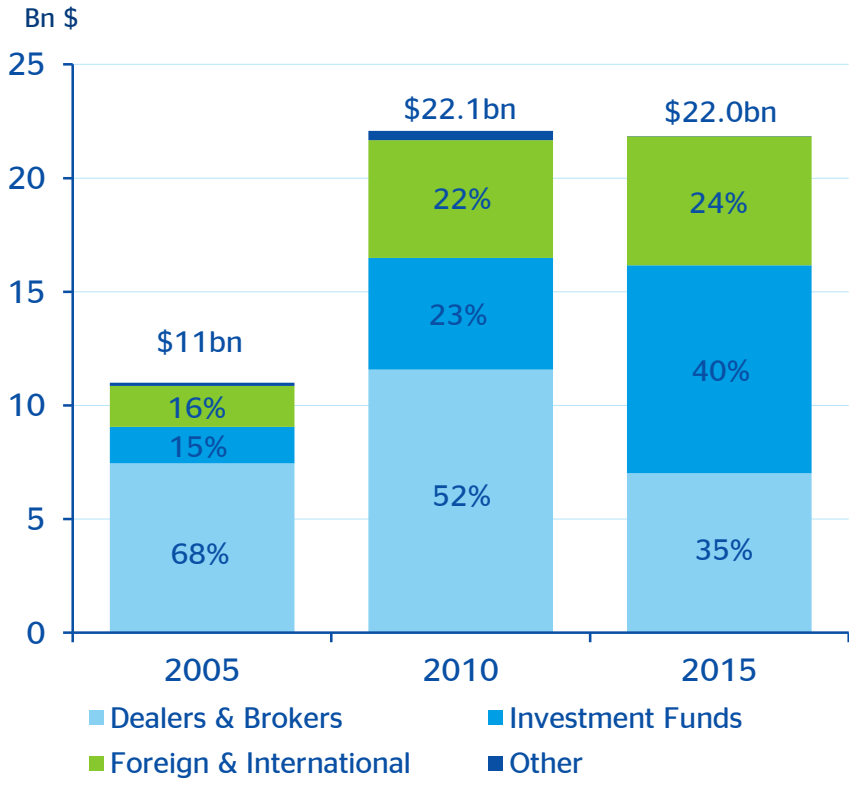
- Share of e-trading in corporate bonds market is low
  - Less liquid, larger trade sizes due to higher inherent cost of trading
  - Scarcity of e-trading platforms on buy side
- Growing role of e-trading in Treasuries market
  - Smaller trade sizes, higher frequency of trades, narrower bid-ask spreads
  - Dramatic decline in bank-dealer quoting and trading activity
  - Principal investment firms deploying proprietary automated trading strategies account for the majority of trading and market depth

Source: McKinsey & Company and Greenwich Associates Report (2013) & BBVA Research

Electronic Trading

E-trading, in particular high-frequency trading (HFT), is the driving force behind the change in liquidity supply composition in the Treasury market

Auction Allotments for 10-Year Treasury Note



Source: FRB & BBVA Research

Treasury Futures Active Contract Trade Size

Source: Joint Report by U.S. Department of the Treasury, FRB, FRBNY, U.S. SEC and U.S. CFTC (2015)

E-Trading Advancements Outcome

	Futures		Cash	
	Bank/Dealer	PTF	Bank/Dealer	PTF
Number of Participants	21	65	45	40
Top 10 Volume Share	91%	86%	77%	93%

Risk to Market Liquidity

- Buy-side dominance; volume concentrated among the top 10 firms
- Increased cost and competitiveness pressure from HFT firms
  - distortion of liquidity measures of volume, bid-ask spreads, and trade sizes
- Automated trading strategies move in lockstep
- Imbalance between buyer-initiated trades and seller-initiated where low volume of seller-initiated trades strains market depth
- Liquidity providers monitor market closely and withdraw during the episodes of elevated price uncertainty (flight to safety days)

Source: Joint Report by U.S. Department of the Treasury, FRB, FRBNY, U.S. SEC and U.S. CFTC (2015) & BBVA Research

New Normal: Corporate Bond Market

Market participants find it increasingly difficult to trade large amounts of bonds and have to change the way both trade and allocate funds

Buy-Side

- Buy-and-hold stance
- Trading less of their portfolio
- Feeding trades into the market slower
- Feeding smaller sizes of trades
- Avoid illiquid secondary markets
- More active buying newly issued bonds

Sell-Side

- Reduced balance sheet capacity and competition due to dealers' exit
- Decline in the appetite of bulge-bracket dealers
- Increasing difficultly to get block trades quotes
- Forced break of block trades into smaller trades
- Forced electronic trading
- Drop-off in proprietary trading

Source: McKinsey & Company and Greenwich Associates Report (2013) & BBVA Research

Policy Implications: Corporate Bond Market

- Policy makers' attention likely to shift to powerful buy-side traders
- Large investors are likely to face greater regulatory scrutiny
- Large financial institutions may be poorly prepared for big market swings in the absence of robust market-making by the banks
- Search for modified trade models that will improve pricing and liquidity conditions and/or provide additional liquidity during times of stress

Source: Morgan Stanley and Oliver Wyman Report (2015) & BBVA Research

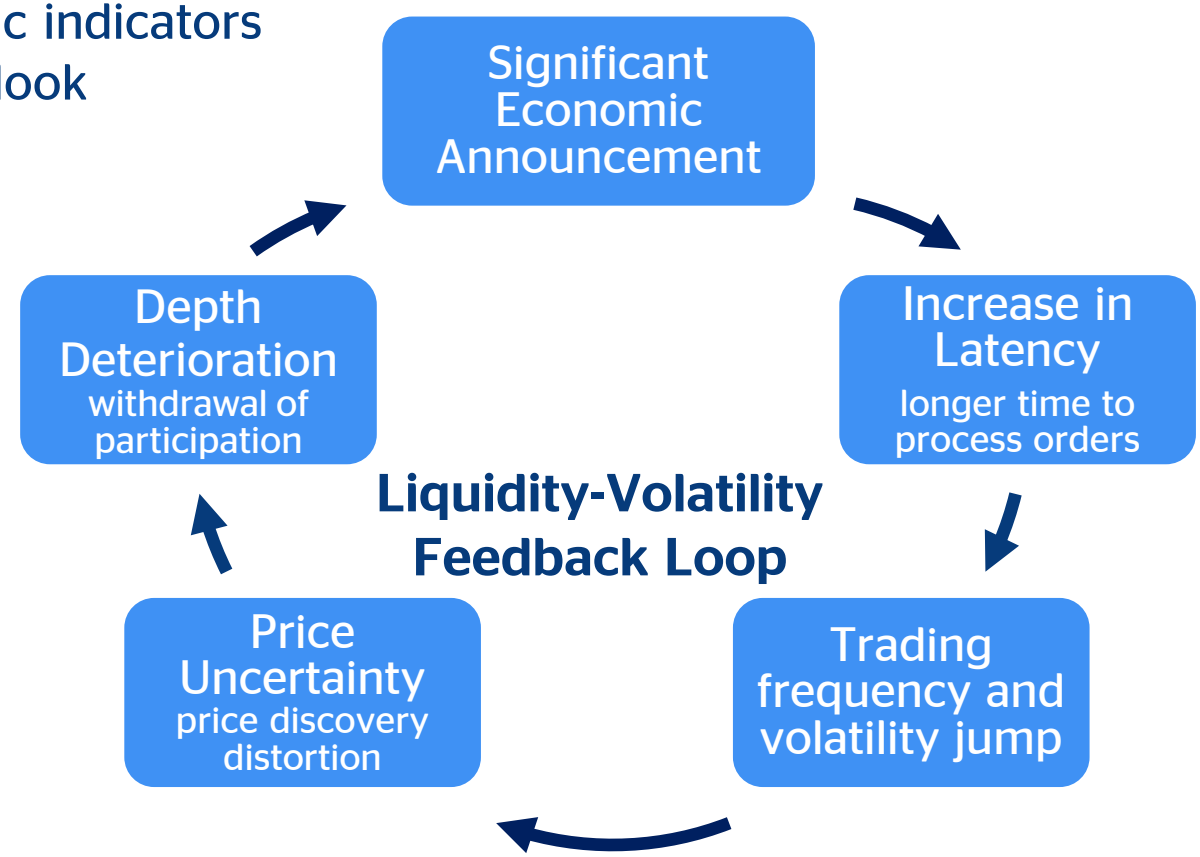
New Normal: Treasuries Market

Volatility spikes associated with liquidity deterioration are driven by

- domestic policy announcements
- domestic economic indicators
- global growth outlook

HFT Intensifies the Risks

- Overload exchanges and decrease latency
- Distort price discovery by positioning in front of flow
- Withdraw when liquidity needed the most



Policy Implications: Treasuries Market

- Policy makers consider reforms such that current market structures can be "improved for the benefit of all"
- Introduction of regulatory requirements applicable to modern-day high-speed automated trading.

1. Review of current regulatory requirements
2. Registration requirements for firms conducting certain types of automated trading
3. Market-conduct oversight for voice and automated trading
4. Continuous review of policies and risk management practices at Treasury trading venues to assess risks posed to trading, risk transfer, price discovery, clearing and settlement risks associated with the increased speed of automation

Source: Governor Powell Speech (Aug 3, 2015), Joint Report by U.S. Department of the Treasury, FRB, FRBNY, U.S. SEC and U.S. CFTC (2015) & BBVA Research

Heightened Liquidity Risk

The main structural changes that have transformed the fixed income markets' liquidity dynamics

- Post-great-recession risk perception by traders
- New and tighter regulations
- Increasing dominance of high-speed electronic trading

The Outcome

- Large buy-side investor firms' dominance
- Relocation of liquidity risk from market-makers to buy-side investors
- Increased volatility and the frequency of flash-crash episodes

Key Points

- The reshuffling of liquidity risk from banks to large investors has, as intended, lowered the systemic risk of regulated financial institutions

- Market participants may be poorly prepared for big market swings in the absence of robust market-making by the banks

- Fed's gradual increase in the fed funds rate will not significantly affect market liquidity

- The new liquidity dynamics will prompt massive sell-off episodes such as the "taper-tantrum," when market expectations are misaligned with Fed's actions

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