

## DO WE HAVE A LIQUIDITY PROBLEM POST CRISIS?

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# Changing market liquidity is due to a confluence of factors

## Monetary Policy

- Diverging monetary policies
- Interest rates are at historic lows or negative
- Central banks world-wide (US, EU, Japan) stimulated growth through quantitative easing / HQLA holdings

## Market Structure and New and Declining Participants

- Share of fixed income owned by mutual funds, ETFs and other products offering daily liquidity has grown
- Increased role of central banks as market participants
- More algorithmic and high-frequency trading; increasing participation of principal trading firms (PTFs)
- Shift to electronic trading platforms
- Mandatory clearing through CCPs
- Reduction in dealers' inventory positions, loss of proprietary trading activities, highly leveraged buyers

## Behavioral Change

- Sell-side: Changes in risk management (VaR, Stress Testing, increased granularity), reduced risk appetite accumulation of HQLA, and decreased repo activity among dealers
- Buy-side: Central banks holding more Treasuries, growth of government MMFs, more homogenous investor strategies

## Regulatory Change

- Rapid price disclosure requirements (TRACE/MiFID) have reduced appetite for large trades
- Regulations have increased the cost of holding and financing inventory positions, especially for high-quality, assets and liquidity requirements are driving accumulation of HQLA on balance sheets

- **New regulations are one of many drivers of changing market liquidity and may be exacerbating the impacts of other factors – policymakers are actively examining these issues**
- **Lower market liquidity could increase the cost to borrowers, corporations, and individuals, as well as reduce returns to investors**

## Balance sheet declines by major product post-crisis

Exhibit 1. Balance sheet reductions, 2010 - 15 (% change)

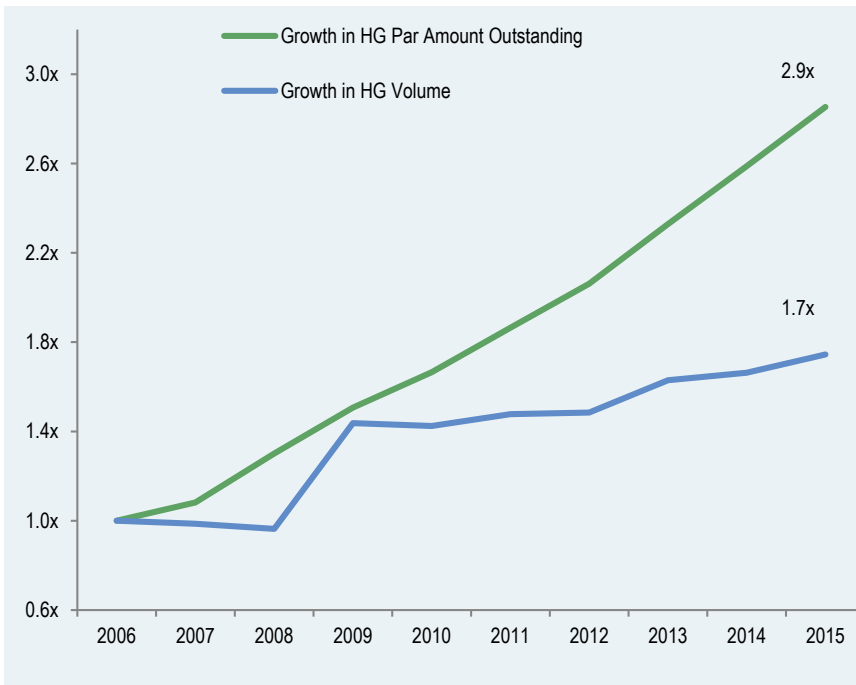
Product	2010-15	Next 3 - 4 Years
Repo	Down ~50%	Down ~10%
Prime	Up ~20%	Flat
Bonds, FX & commodities	Down ~25%	Down ~10%
Structured & securitized	Down ~20%	Down ~10%
Listed, flow & cleared products	Down ~20%	Down ~5%
Issuance & advisory	~Flat	Down ~5%
<b>Total</b>	<b>-25% to -30%</b>	<b>-5% to -10%</b>

Source: Oliver Wyman and Morgan Stanley (2016)

## Market observations - Credit

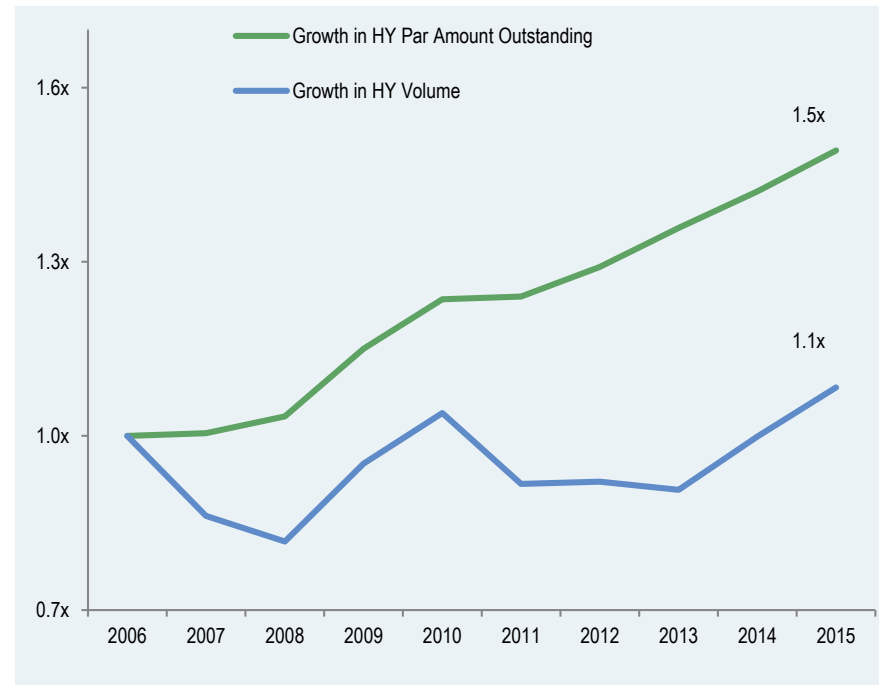
- Trading activity in HG bonds has nearly doubled from the pre-crisis level, and in HY it is higher as well. However, the size of the HG corporate bond market is about 3x what it was 10 years ago.
- The size of the HY market is about 50% larger compared to 10 years ago, while trading volumes are about 10% higher.
- The charts below are indexed to 2006, and they show the growth in trading and in market size for the HG and HY markets.

**Exhibit 2. The HG market is about 3x what it was pre-crisis and trading volume is 2x 2006 levels**



Source: TRACE, J.P. Morgan

**Exhibit 3: The HY market is 1.5x larger than what it was pre-crisis and trading volume is about 10% more than 2006 levels**

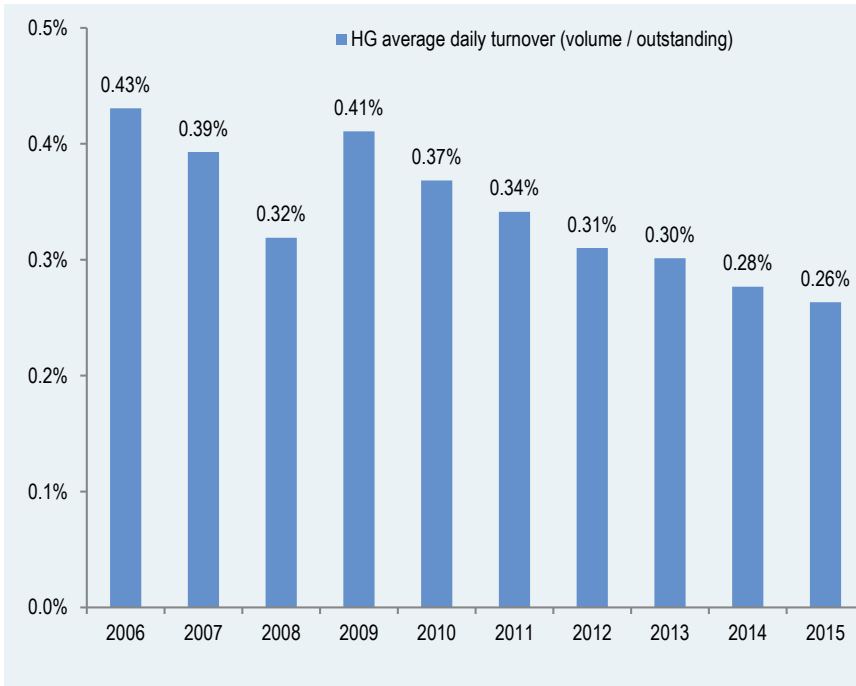


Source: TRACE, J.P. Morgan

# Market observations - Credit

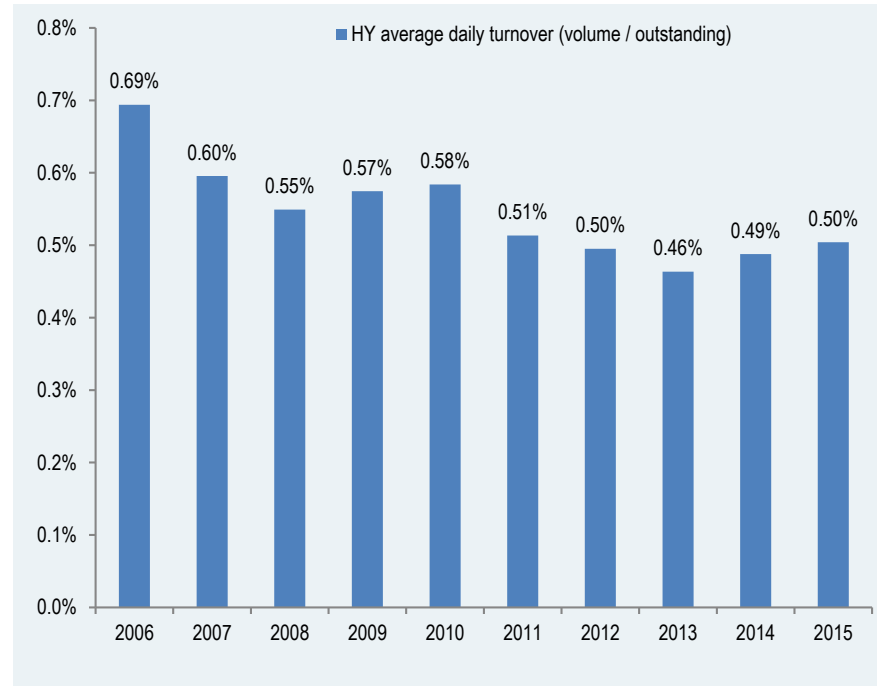
- HG turnover was 36% lower in 2015 than at the 2009 peak and 5% down from 2014.
- In 2015, HY turnover was 9% above the 2013 low but still 14% below the 2010 peak.

Exhibit 4. HG turnover has declined each year since 2009



Source: TRACE, J.P. Morgan

Exhibit 5: HY turnover rose modestly in 2015 and matched the 2011-2012 level



Source: TRACE, J.P. Morgan

## Treatment of highly liquid assets under the new framework

### Liquidity Rules

- LCR is driving accumulation of HQLA on balance sheets, which must remain unencumbered.
- NSFR favors longer term funding over repo financing, even when the repo is backed by HQLA.

### Leverage Rules

- The leverage ratio is risk-agnostic and thus weighs most heavily on low margin, high quality assets. As a result, it increases the cost of holding and financing positions and impacts market liquidity in these assets.

### Other Changes

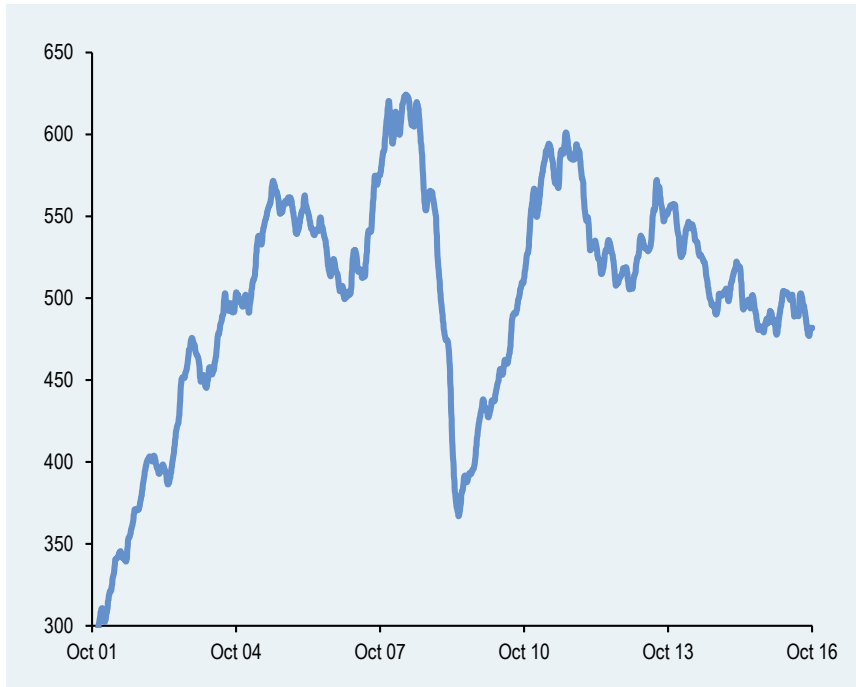
- Increased demand for collateral as margin for CCPs further reduces velocity in HQLA.
- BCBS is currently reviewing regulatory treatment of sovereign exposures; changing the risk weight on sovereigns will affect banks' portfolio decisions, with potential implications for sovereign debt markets.

- We are at an inflection point (changing market structure, regulations and monetary policy). Given the various ways in which the regulatory framework impacts HQLA, the evolution of market liquidity in these assets warrants careful attention.
  - Some reduction in market liquidity was expected given the intent of regulatory reforms, and the increase in buy-and-hold participants means day-to-day liquidity demand is lower.
  - However, market liquidity has materially changed and market depth has declined in recent years, as evidenced by the Taper Tantrum (2013), October 15th Flash Rally and Bund market selloff (2014) and volatility in USD and euro interest rate swaps (2015). These events took place in relatively benign times in the most liquid markets in the world.
- An assessment of regulatory coherence – amongst prudential rules, across jurisdictions and between prudential and markets regulations – will help identify opportunities to add liquidity back to the market without sacrificing safety and soundness.

# Market observations – US Treasuries

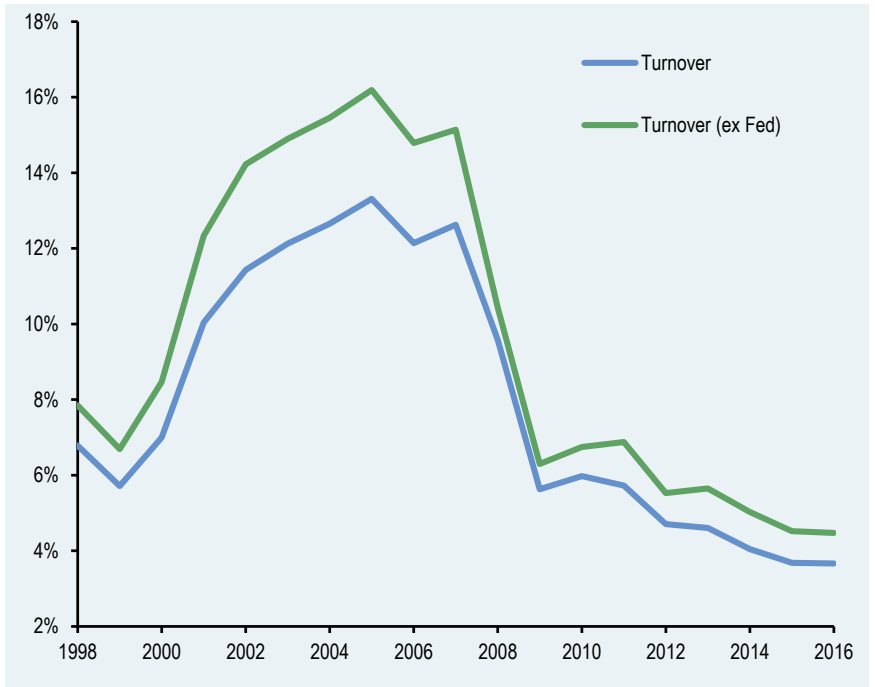
- Trading volumes have been on a declining trend, even as the Treasury market continues to grow...
- ...resulting in lower turnover, even after adjusting for the Fed's outsized holdings.

Exhibit 6. 6-month moving average of daily US Treasury trading volumes (\$bn)



Source: Federal Reserve, J.P. Morgan

Exhibit 7. Daily US Treasury market turnover\*, including and excluding Treasuries held by the Fed; %



\*Average daily trading volumes divided by amount outstanding  
Source: US Treasury, Federal Reserve Bank of NY, J.P. Morgan



## Market observations – US Treasuries

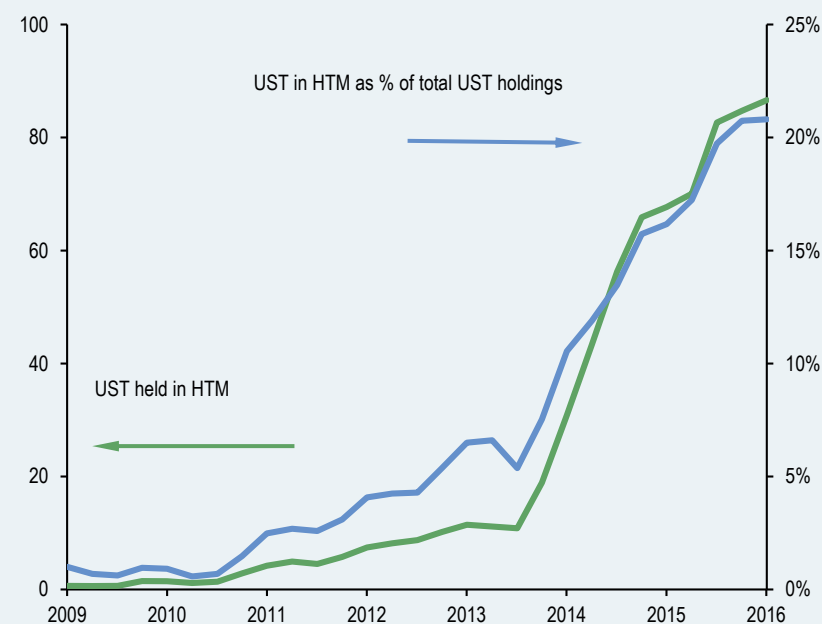
- Foreign investors and the Fed continue to hold roughly two-thirds of outstanding marketable Treasury debt.
- Banks have continued purchasing Treasuries to meet their liquidity regulatory needs and are moving these securities into their held to maturity (HTM accounts), reducing tradable float.

Exhibit 8. Ownership of Treasury securities (excluding savings bonds) by investor type; %

	4Q06	4Q11	2Q15	2Q16
Foreign Investors	49.0%	50.3%	48.6%	46.8%
Federal Reserve	17.9%	16.7%	19.4%	18.3%
Household	2.9%	5.2%	6.4%	6.9%
Money managers	3.9%	4.5%	5.5%	6.4%
State and local govt	7.2%	4.1%	4.1%	4.5%
Banking institutions	2.6%	2.5%	4.0%	4.2%
Money market funds	1.9%	4.5%	3.1%	3.9%
Pension funds	7.1%	4.4%	4.1%	3.8%
Insurance	4.6%	2.7%	2.3%	2.3%
ETFs	0.3%	0.6%	0.6%	0.7%
Broker dealers	-1.5%	1.8%	0.3%	0.7%
Corporate	1.0%	0.4%	0.2%	0.3%
Others*	3.1%	2.1%	1.4%	1.4%
Total market size (\$bn)	4,341	9,948	12,712	13,425

\* Includes GSEs, issuers of ABS, and holding companies  
6-month moving average of daily US Treasury trading volumes (\$bn)  
Source: Federal Reserve Z.1, J.P. Morgan

Exhibit 9. Treasuries held by domestic commercial banks in Held-to-Maturity (HTM) accounts and Treasuries held in HTM accounts as a percentage of total Treasuries owned by commercial banks



Source: J.P. Morgan, SNL Financial

## Market observations – Treasury market depth

- 10-year Treasury market depth tends to decline by \$38 million for each 1bp increase in the intra-day range in 10-year yields, versus a \$25 million decrease two years ago.
- Pre-crisis, a dealer could trade about \$500 million of 10-year Treasuries without causing prices to move versus ~\$187 million today.
- Average Treasury market depth in 2Q16 remained roughly 10-60% below its post-crisis average.

Exhibit 10: YTD average of market depth for on-the-run Treasuries, and various statistics for market depth since July 2007; \$mn

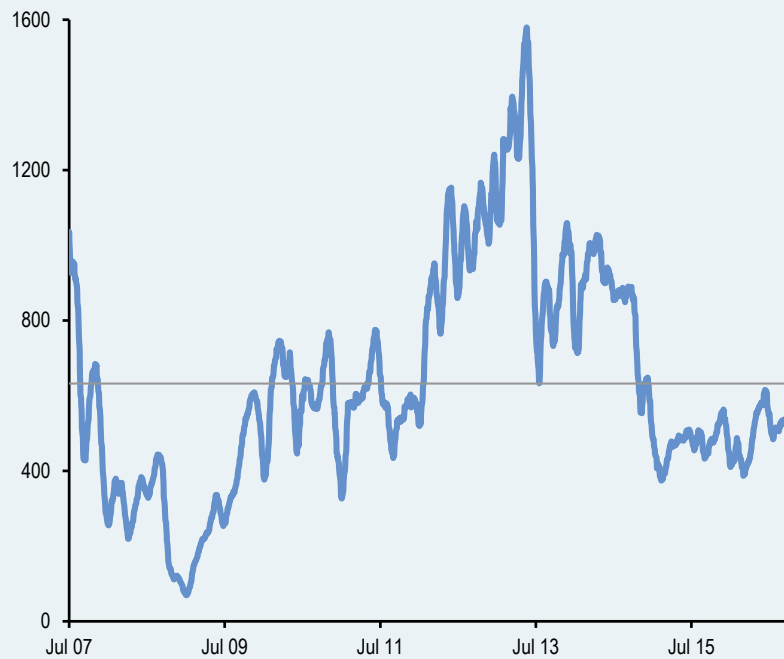
Sector	2016YTD Avg	Minimum	Maximum	Average	YTD vs. long-term avg
2Y	739	228	5076	1671	-56%
5Y	224	44	856	253	-12%
10Y	187	21	413	185	1%
30Y	20	7	51	21	-6%

Source: BrokerTec

# Market observations – Treasury market depth

- Market depth has retraced to more average levels...
- ...and has become more sensitive to delivered volatility: it disappears rapidly when investors most need access to liquidity.

Exhibit 11. One-month average of Treasury market depth\* across on-the-run Treasuries\*\*; \$mn of 10-year Treasury equivalents



\* Market depth is the sum of the three bids and offers by queue position, using the top 3 bids and offers in Treasury notes and bonds, averaged between 8:30 and 10:30am daily.  
 \*\* We look at market depth across 2-, 5-, 10-, and 30-year Treasuries, in 10-year Treasury Equivalents.  
 Source: BrokerTec, J.P. Morgan

Exhibit 12. Rolling 3-year beta of three-month average of 10-year Treasury market depth (\$mn) with respect to three-month average of the daily trading range in 10-year Treasuries (bp), slope of 3m/1y3m OIS curve (bp).

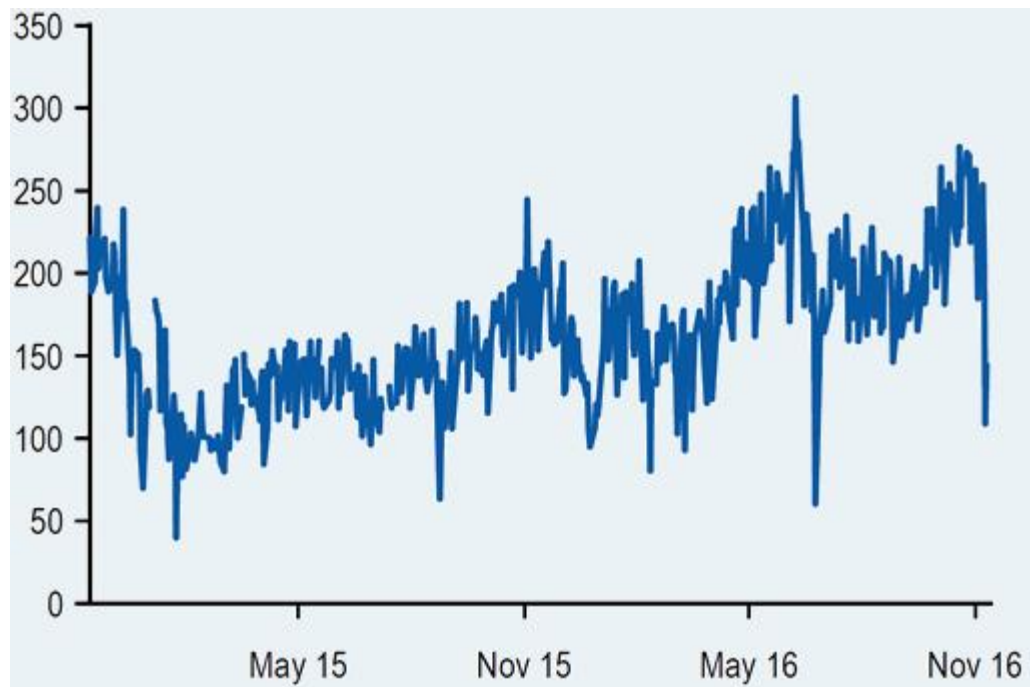


Note: The intraday trading range is measured between 7:30am and 5:00pm EST from an interdealer electronic trading platform. Regression period is three years.  
 Source: BrokerTec, J.P. Morgan

## Market observations – Treasury market depth

- 1M average 10Y Treasury market depth was \$230 – 240m. Post-election that has dropped c.60% over four days, to \$109 – 144m

Exhibit 13: 10Y Market Depth; \$m



Source: J.P. Morgan Research