ECB Bond Market Contact Group Market functioning and the monetary policy normalisation of central banks

November 2022



Monetary Policy normalisation and the impact on various asset classes

Market Liquidity conditions from IMF Global Financial Stability Report¹



Volatility Fear/Uncertainty Gauge- 3m ATM Implied vol, 1yr History - Implied vs Realised Volatility across asset classes²

| Asset | Current | Low | Low date | High | High date 5 | th percenti | 15th percentile | | | Upside | Downside | Implied/realized volatility |
|----------------------|---------|-----|-----------|------|-------------|-------------|-----------------|---|-------|--------|----------|-----------------------------|
| S&P 500 | 24% | 15% | 05-Nov-21 | 28% | 13-Jun-22 | 19.5% | 24.7% | | • | 4% | 9% | 0.9x |
| EuroSTOXX | 20% | 14% | 05-Nov-21 | 39% | 04-Mar-22 | 20.5% | 25.0% | | | 19% | 6% | 1.4x |
| Nikkei 225 | 20% | 17% | 05-Jan-22 | 27% | 09-Mar-22 | 18.9% | 21.8% | - | | 7% | 396 | 1.0x |
| Hang Seng | 32% | 17% | 13-Jan-22 | 39% | 15-Mar-22 | 20.7% | 25.9% | - | • | 7% | 14% | 0.7x |
| MSCIEM | 26% | 15% | 13-Apr-22 | 41% | 11-Mar-22 | 21.1% | 25.2% | | | 15% | 10% | 0.9x |
| Gold | 16% | 13% | 18-Jan-22 | 27% | 08-Mar-22 | 14.7% | 17.1% | | | 11% | 3% | 1.0x |
| Oil (brent) | 4796 | 34% | 18-Nov-21 | 73% | 23-Mar-22 | 43.7% | 51.0% | | | 26% | 1396 | 1.5x |
| Copper | 30% | 24% | 16-Nov-21 | 35% | 15-Jul-22 | 27.0% | 29.5% | - | | 5% | 6% | 0.8x |
| BB commodity index | 26% | 17% | 10-Nov-21 | 30% | 26-Jul-22 | 18.5% | 27.2% | | • | 496 | 9% | 1.3x |
| EUR/USD | 11% | 5% | 05-Nov-21 | 13% | 28-Sep-22 | 6.6% | 10.4% | | • | 2% | 6% | 1.1x |
| USD/NOK | 15% | 10% | 08-Nov-21 | 18% | 12-Oct-22 | 12.0% | 14.8% | | • | 2% | 5% | 1.2x |
| USD/JPY | 12% | 6% | 31-Dec-21 | 14% | 21-Oct-22 | 7.0% | 11.7% | | • | 2% | 6% | 1.4x |
| GBP/USD | 13% | 6% | 07-Jan-22 | 19% | 28-Sep-22 | 7.6% | 11.4% | | | 6% | 7% | 0.8x |
| USD/CHF | 10% | 6% | 31-Dec-21 | 11% | 28-Sep-22 | 6.7% | 9.3% | - | | 1% | 4% | 1.1x |
| 10y Treasury futures | 135 | 72 | 08-Nov-21 | 187 | 12-Oct-22 | 88 | 137 | - | • • • | 52 | 63 | 0.8x |
| 10Y bund futures | 139 | 51 | 05-Nov-21 | 179 | 11-Oct-22 | 68 | 138 | - | • • | 40 | 88 | 1.0x |
| CDX IG | 57% | 40% | 05-Nov-21 | 76% | 07-Mar-22 | 53.7% | 62.9% | | - | 18% | 1796 | 1.9x |
| CDX HY | 56% | 37% | 05-Nov-21 | 68% | 07-Mar-22 | 51.9% | 59.7% | - | • | 12% | 19% | 2.0x |
| iTraxx | 63% | 36% | 08-Nov-21 | 86% | 07-Mar-22 | 55.7% | 65.4% | - | | 23% | 27% | 2.1x |
| iTraxx X/O | 58% | 42% | 08-Nov-21 | 85% | 07-Mar-22 | 57.8% | 64.7% | - | | 27% | 16% | 2.3x |

1.Sources: Bloomberg Finance L.P.; Haver Analytics; Japan Bond Trading; JPMorgan Big Data and AI Strategies; MarketAxess; Reuters; Securities Industry and Financial Markets Association; and IMF staff calculations. 2.Source: J.P. Morgan. Bloomberg Finance L.P. J.P.Morgan

Volatility, Market Depth & Liquidity - A Repricing of Liquidity

Bund Market Depth vs Volatility



Bund market depth (€mm equivalent) and Bund daily trading volume (€bn equivalent) since 1 Jan 2020



Treasury market depth vs Volatility



Market depth and average daily volume for German Eurex future

| | Ma | rket depth (+ | êmn equivale | nt) | Volume (€bn equivalent) | | | | |
|--------|---------|---------------|--------------|-------------|-------------------------|---------|-------------|-------------|--|
| | Current | YTD Avg | Last 5Y Avg | Last 5Y Min | Current | YTD Avg | Last 5Y Avg | Last 5Y Min | |
| Schatz | 135 | 259 | 1476 | 62 | 53 | 56 | 40 | 13 | |
| Bobl | 48 | 96 | 423 | 29 | 48 | 63 | 51 | 14 | |
| Bund | 17 | 42 | 87 | 14 | 84 | 86 | 77 | 24 | |
| Buxl | 2 | 5 | 8 | 1 | 9 | 9 | 7 | 2 | |

Sources: J.P. Morgan research

Volatility, Market Depth & Liquidity - A Repricing of Liquidity Contd

Average daily notional volume in € Bn

Benchmark BOS in bps





Sources: Tradeweb

J.P.Morgan

Is the liquidity evenly distributed? A multi-tiered approach to liquidity with more concentrated flows

1M MA of yield RMSE for German and French par curves; bp¹



1M MA of yield RMSE for Italian and Spanish par curves; bp²



BondVision Composite Daily B/O Spreads: NON-CORE 10-Yr Benchmarks³



Root Mean Square Error (RMSE), a measure of US Treasury Curve Deviations⁴



1. – 2. Sources: J.P. Morgan Research

3. Sources: MTS

4. Sources: J.P. Morgan Research

5. Sources: FINRA TRACE, US Department of Treasury

On-and-off-the-run nominal coupon volumes, share of sector volume Based on average daily volumes in DV01 in 2022^5



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Price impact of trades increasing - Fixed Income markets getting less resilient

Weighted average Hui-Heubel liquidity ratio for 10y futures on US, German, Japanese, UK, French and Italian government bonds¹



10-year Treasury price impact, 5-day moving average; 32nds²



1. Sources: Bloomberg Finance L.P., J.P. Morgan

2. Sources BrokerTec, J.P. Morgan

Dealer balance sheets may be getting more constrained at the same time as supply is increasing and fund flows turning negative





Total marketable US Treasury debt outstanding (lhs, \$bn) versus absolute value of primary dealer positions in Treasuries (1m moving average, rhs, \$bn)²



1. Sources: J.P. Morgan

2. Sources Federal Reserve Bank of New York

3. Sources: ICI, EPFR, EFAMA, Bloomberg Finance L.P., J.P. Morgan

Global equity & bond fund flows³



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2023f (full reinv.)

.023f (no PSPP reinv.)

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Lessons from Sterling Market – Following the broad trend, but with sui generis catalysts and lingering scars



Gilt and bund market depth (contracts 000's), adjusted by volatility²



Levels and changes for selected UK rate market metrics; bp unless levels³

Tradeweb liquidity Cost index⁴

BV Composite Daily B/O Spread: GILT 10-Yr Benchmark⁵

| - | | | | | _ | | |
|-----------------|--------|---------|---------|-------------|----------|-------------|--|
| | | Change | | |] | | |
| | 27-Oct | 22 Sep, | 12 Oct, | 22 Sep - 12 | 12 Oct - | Retracement | |
| | 27-00 | COB | COB | Oct | current | Reracement | |
| Nov 22 MPC OIS | 295 | 289 | 330 | 41 | -35 | 87% | |
| 1Yx1Y SONIA, % | 4.63 | 4.89 | 5.64 | 0.75 | -1.01 | 135% | |
| 10Y gilt, % | 3.60 | 3.59 | 4.58 | 0.98 | -0.98 | 99% | |
| 30Y gilt,% | 3.60 | 3.76 | 4.85 | 1.09 | -1.25 | 114% | |
| 10s/30s gilt | 0 | 16 | 27 | 11 | -28 | 247% | |
| 10Y swap spread | 19 | 4 | 28 | 24 | -9 | 36% | |
| 30Y swap spread | -25 | -49 | -35 | 14 | 10 | | |
| 30Y UST, % | 4.09 | 3.64 | 3.89 | 0.25 | 0.20 | | |
| 30Y Bund,% | 2.08 | 1.93 | 2.45 | 0.52 | -0.37 | 70% | |
| 30Y gilt - UST | -49 | 12 | 96 | 85 | -145 | 172% | |





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1. – 3. Sources: J.P. Morgan Research

4. Sources: Tradeweb

5. Sources: MTS

- What are the potential sources of further financial stress?
- Will Central Banks be proactive or reactive in addressing financial market stress? What pre-emptive action can Central Banks take?
- Will liquidity improve as volatility decreases, or is the market permanently scarred?
- ▶ Is the uneven distribution of liquidity within individual bond curves a function of policy normalisation?
- ▶ What can European Sovereign borrowers do to help ensure market functioning?

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