For professional / qualified / institutional clients and investors only

Liquidity's many faces

A broad and global view

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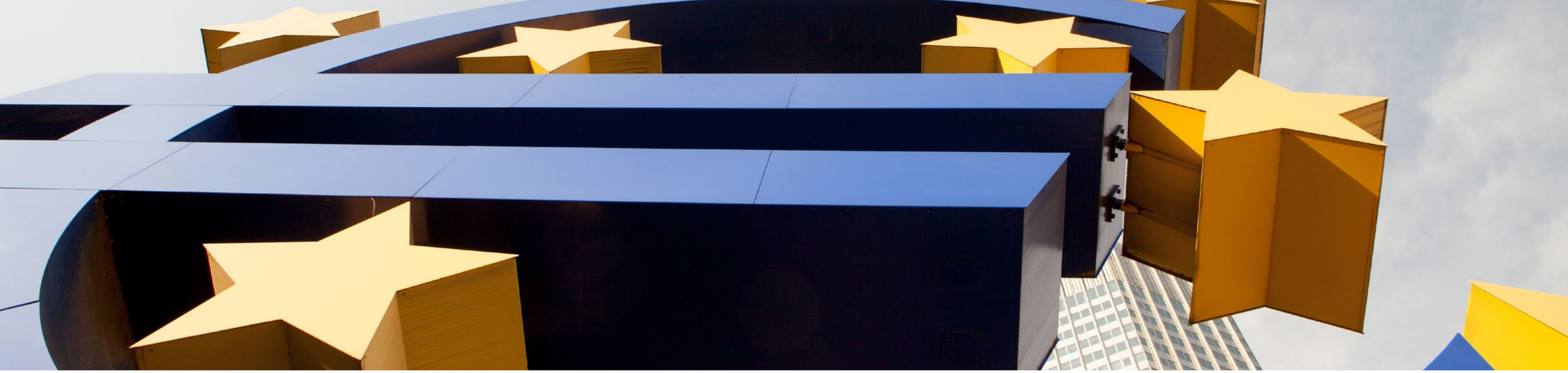
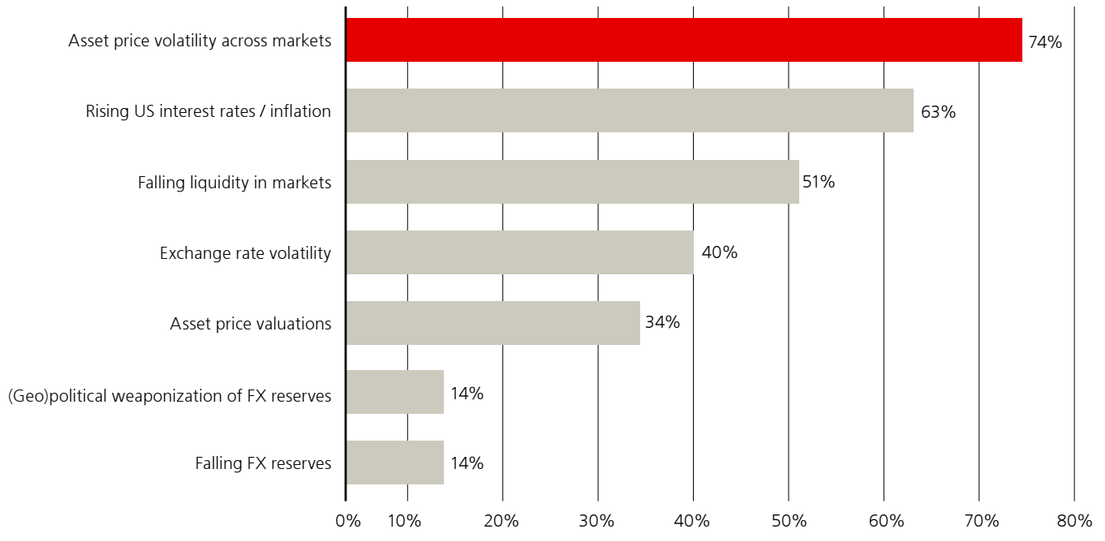
Each year at the UBS Reserve Management Seminar, the Global Sovereign Markets team carries out a survey with reserve managers. With replies from over 40 central banks that are active in reserve management globally, we consider this one of the most authoritative depictions of official reserve management activity available.

Of particular interest each year is the question about major concerns when it comes to the investment of FX reserves. A key trend that we have observed for several years, and which has now risen to #3 spot are concerns about falling liquidity in markets which now come right behind asset price volatility and rising US interest rates. This certainly reflects recent events like the March 2020 US “dash for cash” and the September 2022 UK liability-driven investing crisis which temporarily disrupted the Treasury and Gilt markets and prompted interventions by central banks to restore the “correct” functioning of markets.

When the topic of liquidity was discussed at the seminar, the lack of depth in the US Treasury markets as well as the risk of liquidity events in private markets were seen as the biggest pain points. Nearly 70% of participants said they are worried about deteriorating liquidity in government bond markets, and approximately 90% mentioned falling liquidity in private markets as a major cause of concern during a live survey. We therefore decided to explore these issues further.



What are the major concerns when it comes to the investment of FX reserves?



Source: UBS Annual Reserve Manager Survey, results as of June 2023.

While the major concerns for our client group were about “transactional” liquidity in government bond markets as well as liquidity in private markets, liquidity is a much broader concept.

A more holistic definition of liquidity encapsulates drivers and mechanics that are quite different to the narrower notion of market liquidity, but the interconnections are large. At a macro level, investors are closely watching the size of central banks’ balance sheets and developments around quantitative tightening and easing (QT/QE) for signals on how much global net liquidity is flowing out of the financial system and how markets are responding. In this context, rather obscure facilities on the liability side of a central bank balance sheet like reverse repo balances and the Treasury General Account have become a staple of global liquidity discussions everywhere from research notes to Twitter/X. These global liquidity supply discussions often extend to problems specific to US dollar liquidity – in particular in offshore/ Eurodollar markets.

At market levels, liquidity is discussed in the context of proper market functioning. This means either addressing dramatic “liquidity events” which describe a number of system-breaking market failures, or, in the context of “transactional liquidity”, addressing concerns about the ability to buy or sell securities without causing a significant shift in the price. Less liquid markets with wider spreads are more costly to trade, and lower liquidity in the order book makes it more difficult to move large positions without affecting markets. In this context,

While the major concerns for our client group were about "transactional" liquidity in government bond markets as well as liquidity in private markets, liquidity is a much broader concept.

regulatory changes that have lowered the willingness and ability of banks to make markets and take on balance sheet risk, the need to hold large amounts of high-quality collateral especially for Global Systemically Important Banks (G-SIBs) as well as technological changes (high-frequency trading) are often mentioned as longer-term drivers in the public discussion.

The risks arising from falling liquidity and rising yields were also visible during the recent events surrounding Silicon Valley Bank and other mid-sized banks in the US. After a prolonged period of withdrawals from money market funds due to ultra-low interest rates – that triggered a regulatory review of these financial instruments in the US and Europe – US investors shifted away from bank deposits to take advantage of higher returns in money markets. Coupled with the negative impact of soaring yields, the dramatic drop in liquidity at mid-size US banks led the US authorities to intervene to stabilize the US banking sector.

Increased volatility in markets and rising yields are also affecting liquidity in private markets. Years of ample liquidity and ultra-low interest rates have pushed investors into alternative asset classes as they searched for yield. As it is often the case during prolonged periods of low economic volatility and rising asset prices, investors might have underestimated the "illiquid" nature of these asset classes as continuous inflows driven by search-for-yield-behavior can give the impression of ample liquidity during the upswing. As interest rates rise, we have now entered a more illiquid phase of price discovery.

What these different liquidity developments have in common is that they are related to the increased volatility caused by economic and monetary policy uncertainty surrounding inflation and interest rates. It is here that transactional liquidity, global net liquidity and liquidity in private markets interconnect. With the Fed switching from QE to QT on top of interest rate hikes and China not increasing their Treasury holdings for quite some time, significant buyers that were the ultimate providers of liquidity in fixed income markets are being gradually removed. The shift from QE to QT worsens the transactional liquidity problem and rising yields are causing a repricing of alternative asset classes to reflect the much higher interest rate environment.

The real test will come in times of market stress and liquidity events: What is the willingness of central banks to intervene with liquidity injections as long as they perceive their fight against inflation to be far from over? Following the intervention of the Bank of England during the stress in the Gilt market last year and the measures the Federal Reserve (Fed) implemented during the banking crisis in March, market participants are closely watching the extent to which liquidity might at some point force the hands of central banks once again. Should the Fed lose their long-term inflation-fighting credibility due to a series of short-term liquidity-supporting measures, could volatility and therefore illiquidity at the long-end of the curve get out of control?

Liquidity can be looked at from a wide range of perspectives. We will first analyze the liquidity situation in US Treasury markets and then provide an overview of private market liquidity in alternative assets.

The Global liquidity situation

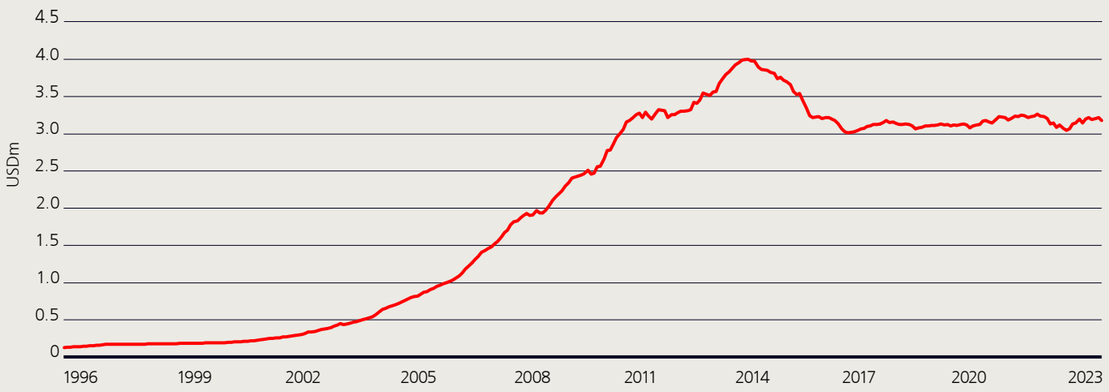
For 20 years, the Treasury market has been supported by a couple of "visible hands" that are largely now being withdrawn. First came China's decision to build up its stock of US Treasuries, then came the quantitative easing programs in response to the global financial crisis (GFC), the Eurozone crisis and the COVID-19 pandemic.

The changing face of China's economy is having a direct impact on the Treasury market. During the Global Financial Crisis (GFC), China's accumulation of reserves helped provide funding to the US. China has a been a key driver of the so-called saving-glut – the excessive global saving that has been largely channelled into the US Treasury market – helping to keep long-term interest rates low globally. Now, however, China is sitting on some of the largest reserves of Treasuries ever accumulated and it is unlikely to need more. China's holdings peaked in 2014 and slipped back to around USD 3.2 trillion by 2016. They have held steady since. Nowadays there is a bit of turnover, but it is mostly portfolio management; there is no accumulation of reserves.

Chinese foreign exchange (FX) reserves are unlikely to grow any time soon given China's slowing growth, Chinese foreign exchange (FX) reserves are unlikely to grow any time soon given China's slowing growth, shrinking current account, and geopolitical tensions that continue to reduce the appetite of Chinese authorities to accumulate more dollar denominated assets.

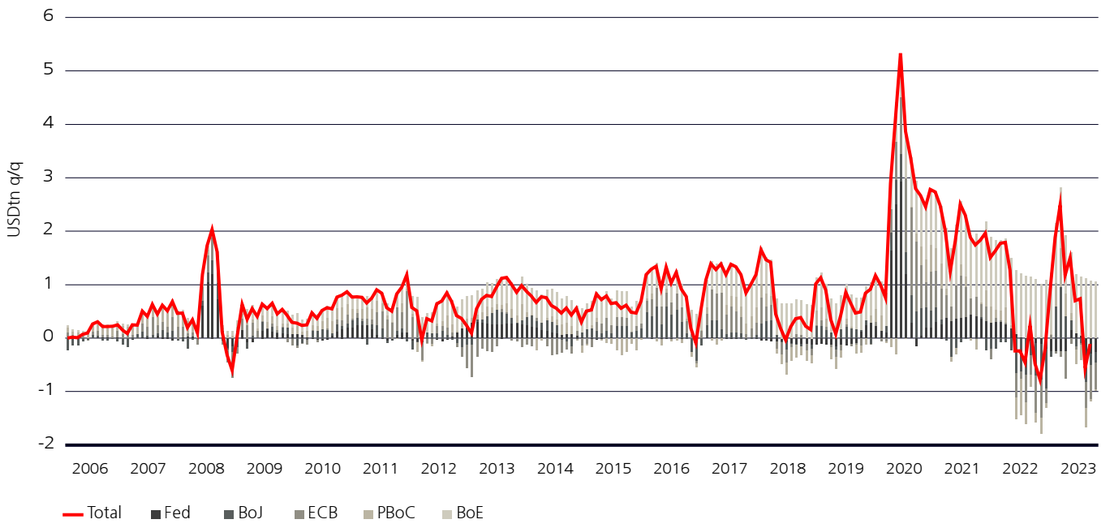
The share of the US dollar (USD) in global FX reserves (largely invested in government bonds from advanced economies) has been steadily falling over the last decade as central banks diversify more across currencies and regions. Higher interest rates and the safe-haven status of the USD keep central banks' demand for US Treasuries strong as highlighted in the last 2023 UBS RMS Survey. However, the steady decline of the USD's share in global reserves is likely to continue; geopolitical tensions including the sanctions against the Russian central bank has increased demand for more currency diversification, particularly among emerging markets. This is not a capitulation of the dominant role of the USD in global markets, but rather a gradual diversification across currencies. Ultimately this could reduce the flow of global reserves into the US Treasury market compared to the last few decades.

China's FX reserves



Source: Bloomberg, as of August 2023.

Net changes of central bank balance sheets



Source: UBS, Macrobond, as of September 2023.

QE was a defining factor of the pre-pandemic years when the main goal for the Fed and other leading central banks was to support growth and fight deflation. In conjunction with ultra-low interest rates, QE has massively increased global liquidity. By expanding their balance sheets, central banks have injected liquidity in the banking sector (transforming newly printed cash into banks deposits) and have decreased interest rates by buying government bonds and other assets. The Federal Reserve has now switched from QE to QT, as it seeks to unwind its balance sheet.

QT is expected to reverse the impact of QE. However, there is still uncertainty over its true impact on liquidity and more importantly on interest rates. QE happened in an era of low inflation and very low and steady interest rates; according to some estimates, US QE reduced long-term interest rates by around 50 basis points (bps). QT started in an era of higher inflation and rapidly rising interest rates as these are the main tools adopted by central banks to fight inflation. Markets expect the impact of QT to be relatively mild – when compared to interest rates – in light of the small impact from the previous (and only) episode of QT experienced in the US from 2017-2019. During that period, even with interest rates rising – albeit much less than in 2022-23 – the yield curve declined at both short and long-term rates.

Given the focus on interest rates as the key policy tool, central banks are communicating little about QT and the potential implications for markets. The Fed has barely started its balance sheet unwind from its pandemic era assistance. Its formal guidance is that it will reduce "securities holdings and the balance sheet to levels much lower than today's." Should the QT pace accelerate and the impact be larger than currently expected by policy makers, the impact on volatility, interest rates and liquidity in the Treasury market could be more severe.

The Fed is also contributing to uncertainty surrounding the unwind of pre-pandemic unorthodox policies via monetary policy. On four occasions in 2022, the Fed surprised markets with unexpected changes to its guidance (April, June, September and December). First switching from its "transitory" message on inflation to recognize inflation had significantly accelerated; then to a faster pace of hikes; and by the end of the year to a higher-for-longer message.

What is certain is that QT removes a significant buyer of Treasuries from the market, putting the onus on the private sector to absorb the central bank withdrawal.

The supply of Treasuries is also set to ramp up sharply. The debt held by the public could nearly double over the next decade, from USD 24.3 trillion at the end of 2022 to USD 46.4 trillion at the end of 2033, based on forecasts from the US Congressional Budget Office. It noted in February, "Debt held by the public is projected to rise in relation to the size of the economy each year, reaching 118% of GDP by 2033 – which would be the highest level ever recorded. Debt would continue to grow beyond 2033 if current laws generally remained unchanged".

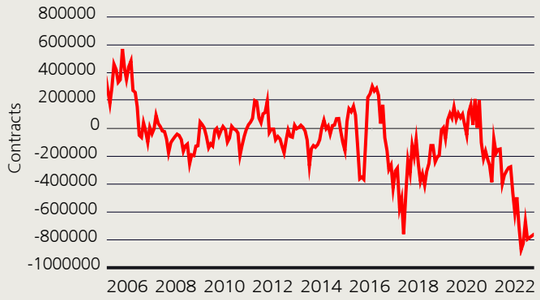
Liquidity in US Treasury market

It is these epoch-defining shifts that are generating such uncertainty in the Treasury market; it is therefore no surprise to see this reflected in such high volatility.

Look no further than the remarkable gyrations in US Treasuries over the last decade or so. The Commodity Futures Trading Commission's (CFTC) measure of net positioning in US 10-year futures show that, in the last five years, the contract has shifted from a near-record short, to a record long, and back again – and it has happened twice. First in 2017/18, and now again during the COVID-19 pandemic.

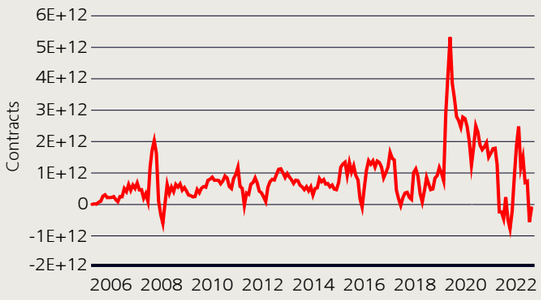
In the US 2-year, there has been a shift from a net long to a net short position that is three times greater than has ever been witnessed - a switch that occurred just as the economy heads into a downturn. Market participants are struggling to understand why the derivatives market is so extreme. One possibility is enormous basis trades; another are hedges against long cash positions. Either way, the extent of the short, which in time will need to be covered, creates even more uncertainty in the market. Even if the Fed decides to only cut rates back to neutral,it is likely that there will be a drop of 275 (bps) on the Fed Funds rate against the shortest 2-year Treasury position ever recorded.

CFTC 2yr net non-commercial positioning



Source: Bloomberg/CFTC/UBS, as of September 2023.

CFTC 10yr net non-commercial positioning



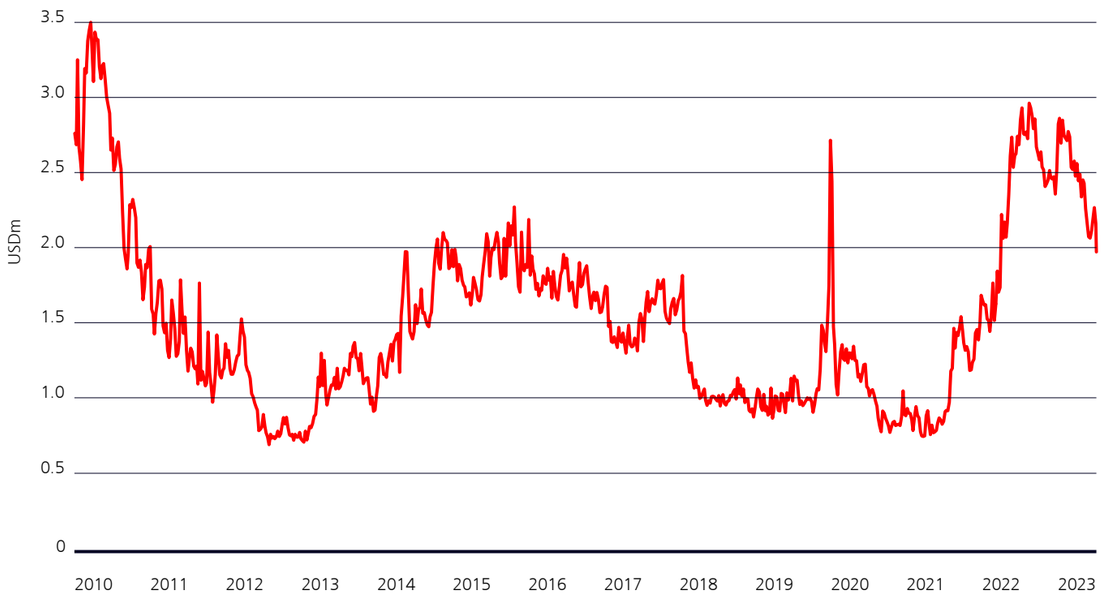
Source: Bloomberg/CFTC/UBS, as of September 2023.

The result this has had on Treasury market liquidity can be seen in Bloomberg's "Government Securities Liquidity Index", which measures the basis point gap between the actual traded market and Bloomberg's relative value curve fitter. Over the last 13 years, liquid and functional conditions have been characterized by a spread between 0.5 and 1.5 bps. The Eurozone crisis and the build into the Fed's first post-GFC rate hike in December 2015 saw the spread widen to 2 bps. The spread soon settled, before surging to 3 bps following the pandemic and has barely retreated since. On that measure, liquidity can be considered three times worse today than prior to the pandemic. It should, however, be mentioned that the spread reached 20 bps during the GFC – reflecting the virtual closure of the market.

The MOVE Index of Treasury market volatility helps visualize market participants' skittishness. Low liquidity in a low volatility period may well represent benign conditions, but low liquidity in a high volatility environment is the worst-case scenario. The chart displayed on page 14 repeats Bloomberg's liquidity index, but adds the MOVE Index of volatility. In the aftermath of the pandemic, Treasury volatility rose sharply and has held at a much higher level than anything seen since the GFC. Indeed, it is currently much higher than during the severe pandemic-induced dislocations of March 2020. Although causality isn't entirely clear, since the onset of the pandemic the high level of volatility has appeared to lead to the weakening of liquidity.

The Federal Reserve Bank of New York (FRBNY) has followed liquidity dynamics in the US Treasury market for decades. Michael Fleming, Head of Capital Market Studies at the FRBNY, wrote a seminal paper on the subject in 2001, "Measuring Treasury Market Liquidity". It provides the framework by which to consider market functionality.

Bloomberg Government Securities Liquidity Index



Source: Bloomberg, as of September 2023.

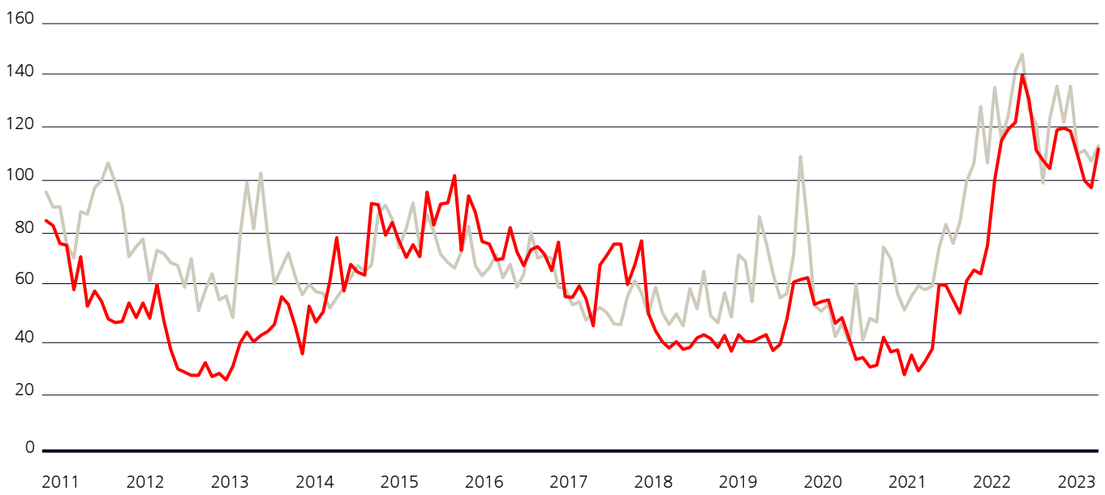
Over the years, Fleming has written numerous follow up papers, including one examining the circumstances of March 2020 and more recently a discussion of Treasury market liquidity during 2022. The conclusion of his latest work was that, while liquidity has continued to decline over the long run, Treasuries weren't particularly illiquid given the extremely high level of volatility. With that in mind, the period 2014-16 might be considered relatively worse than today – liquidity was almost as bad as today, but with only half the volatility as an explanatory factor.

To illustrate this, Fleming plotted price volatility against price impact. The higher the volatility of the market, the greater price impact becomes. Liquidity may have deteriorated, but only in line with what might be expected given higher volatility. Fleming was mindful that liquidity, volatility and volume are different things. Treasury trading volume was high through 2022, but liquidity (as noted at the outset of this work) is the ability to transact any given volume without moving the price.

Fleming's 2022 note employed three measures of liquidity: the width of bid/ask spreads; the depth of the order book; and the price impact of transacting a large order. The latter two are the most interesting as there has been a clear deterioration in the last year.

Indeed in late 2022, order book depth in 2-year and 5-year notes were at a similar level to that seen in March 2020 at just one quarter of what prevailed prior to the pandemic. In fact, Fleming observed liquidity in the 2-year note as being on par with that seen during the GFC. Order-book depth in 10-year notes remains above the worst of the pandemic lows, but is still two-thirds less than in 2019.

MOVE Index of US Treasury volatility relative to Bloomberg's liquidity index



Source: Bloomberg, as of September 2023.

The width of bid/ask spreads provides an immediate sense of the willingness of market participants to trade, which in turn gives rise to the depth and friction of the market. When the pandemic hit the markets in early 2020, there was a marked widening of bid/offer spreads and, while each Treasury maturity has seen improvement, spreads remain much wider than anything seen over the preceding decade. The 2-year average spread has seen the greatest widening – which likely relates to the shocks the short end of the US market has taken as the Fed has repeatedly re-guided the markets to a steeper and higher interest rate profile.

All of this is brought together in an analysis that Fleming compiled in the above-mentioned paper on price vs impact which considers the price impact in 32nds of a point at transacting USD 100 million of Treasuries in the US 2-year, 5-year and 10-year. By definition, liquidity represents the ability to transact without impacting price. By late 2022, conditions for all three maturities were three times worse (or by price impact three times greater) than prior to the pandemic.

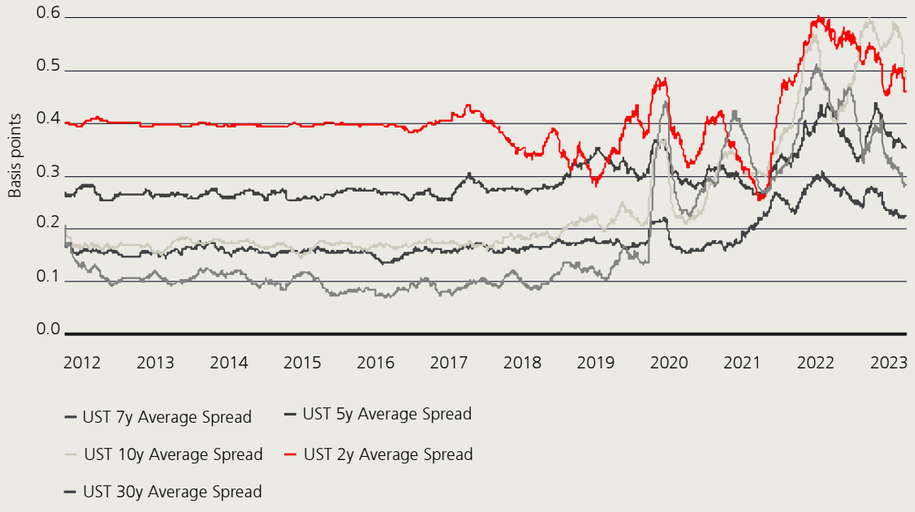
Fleming comes back to the volatility point in his conclusion and it must represent the conclusion here, also. Liquidity in all the measures considered has deteriorated markedly over the last decade or so, and especially since the on-set of the pandemic. But the cause of that deterioration is not a fundamental deterioration in the functionality of the Treasury market, but rather the result of exceptional volatility. Looking ahead, if volatility were to subside, then one would expect Treasury market liquidity to improve.

In conclusion, the deterioration in US Treasury market liquidity appears to be largely a consequence of high volatility. The Treasury market has lurched from the extreme environment of low interest rates and QE, to the fastest ever pace of rate hikes by the Federal Reserve and an accelerated switch from QE to QT. There has been an inflationary surge, compounded by war in Europe and more recently, worries about the health of the US regional banks and the US debt ceiling.

There is no technical reason why investors should find it harder to transact Treasuries – in fact there has been no regulatory change since the adjustments after the GFC. Rather, the market is less willing to transfer Treasury risk in an environment where so many moving parts have led to so much uncertainty.

No relief is likely any time soon. If poor liquidity is a function of high volatility, then there must be a large and sustained decline in volatility for stability and liquidity to return. That can only happen once the economic outlook becomes less uncertain, but there are still too many questions about the fate of the US economy and the outlook for interest rates, the extent of QT and its influence on Treasuries, and even the outcome of the US presidential election in November 2024.

US Treasury Historical Bid-Ask Spread



Source: US Treasury, as of February 2023.

Liquidity in private markets

Another defining feature of the pre-pandemic period of ultra-low interest rates and QE has been the "search for yield". As investors struggled to generate returns in fixed income markets they turned to riskier assets: equity and, more importantly from a liquidity perspective, alternatives.

QE has had a positive impact on equity multiples in both liquid equity and illiquid alternatives, contributing to the good returns in asset prices experienced in the pre-COVID years by global investors.

The rise in yields reduces the illiquidity premium that investors can generate by investing in alternative asset classes such as real estate and private equity. While public markets have already adjusted to the higher interest rate environment, alternative asset classes' NAVs adjust with a delay of sometimes several quarters. There is therefore a lot of interest from regulators and investors on the impact of higher yields and QT on liquidity in private markets.

Ultimately, while semi-liquid mechanisms have been developed for private assets, it is important to remember that these assets are, compared to listed assets, more difficult to dispose of. This is true whether it be an office building, an airport, or a stake in an unlisted start-up vehicle. Private assets can transact through a primary sale, which takes time, or on a secondary market where prices are adjusted up or down to reflect illiquidity. The challenge is that during periods of market stress the levels of activity in both primary and secondary markets reduce, extending the transaction time.

Our findings show that clients and market participants are more sanguine about the current situation than we had expected. While we are certainly in a phase of value discovery likely to continue over several quarters until the impact of higher rates is fully priced in, clients largely see markets as reacting as expected. They are confident that once prices and backward-looking valuation models have incorporated higher rates, bid-ask spreads will narrow and more active trading will start again.

The events of 2022 show that as yields started to rise and equity markets fell there was some pressure on institutional portfolios to sell illiquid assets. However, this was largely about portfolio rebalancing, the so-called denominator effect well known to asset allocators. For example, a sovereign wealth fund with 60% in listed equity, 20% in fixed income and 30% alternatives is likely to have overallocated to alternatives in response to falling listed asset prices in 2022.

Should such a fund have restrictions when it comes to the percentage share of illiquid assets, the denominator effect might have kicked in and could have forced a rebalancing of alternatives even though valuation models showed that these still held up well. This led to redemptions, the signs of which we saw starting in around May 2022.

Still, clients report that the situation did not feel like a big liquidity event; something confirmed by proprietary redemption data on UBS real estate funds.

Looking ahead, the biggest risk that could significantly worsen the situation again would be the perception of central banks losing control of inflation. We analyse why this could be the case using the example of the real estate and private equity sector.

Real estate

The real estate sector is known to have experienced episodes of strong illiquidity in the past. Examples are 2008, where illiquidity lasted 7 quarters; and 1991 might have been the longest-lasting episode in recent history, with some estimates suggesting it lasted 10 quarters due to less market efficiency and transparency.

Liquidity, and crucially, the perception of liquidity in real estate is cyclical and changes over the cycle. Periods of illiquidity are an inherent phenomenon.

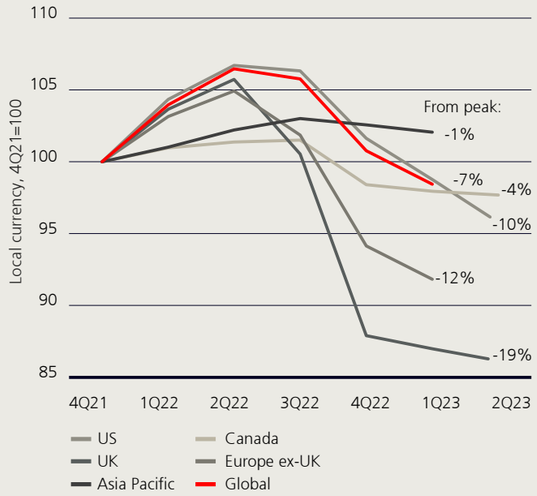
First, valuation methodologies in real estate are backward-looking and always reflect valuations as of the last measurement period. This value lag is an inherent part of the system which can become a problem at turning points and cause markets to freeze up. In such situations (i.e. when market fundamentals or sentiment change suddenly) markets can enter a period of value discovery where bid ask spreads widen considerably. Notably, differences exist between real estate markets. In the UK for example, valuers are encouraged to mark on sentiment, not only on evidence.

Second, funds do not usually hold enough cash to fulfill all the expected redemption requests at the start of such a period of value discovery. Holding excess amounts of cash is dilutive to real estate returns and thus not in the best interest of investors at most points of the cycle.

We are in such a period now. But unlike 2008, it is the impact of monetary policy on real estate, not the impact of real estate.

How has the perception of real estate as an asset class changed among our clients as a consequence of this illiquidity episode? Our feedback suggests that, while such a period is of course undesirable, real estate investments behaved largely as expected and within most models and risk parameters.

All property capital values by region



Sources: MSCI; NCREIF; UBS Asset Management, Real Estate & Private Markets (REPM), August 2023.

Real-estate specific worries currently reflect uncertainty about future investment regimes. Since many forms of real estate were seen as a higher-yielding asset in low-yielding world, an environment of higher rates might indeed be a challenge, but it depends where government and corporate yields settle in comparison. Should we end up in a world of persistently elevated inflation, real estate investors will need to refocus on assets with value preservation and inflation protection as their principal attributes.

Private equity

The concept of liquidity is different in private equity (PE) since the sector is driven by transactions in the primary market. We estimate that 99% of PE funds are still closed-end structures without defined redemption functions since semi-liquid PE fund structures only took off in the last few years.

A secondary market is only emerging and currently has a volume of about USD 100-USD 110 billion, compared with around USD 9 trillion in total PE market size. PE funds are also using this emerging secondary market to raise additional funds which means raised funds are ultimately flowing back to the partners.

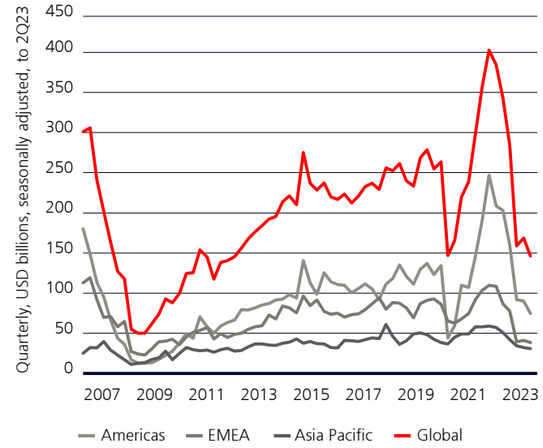
Secondary transactions are therefore often privately-negotiated, over-the-counter style transactions that often come with restrictions (e.g., GPs have to agree) and are subject to regulatory requirements. Crucially, rapid trading in and out of positions is often prohibited for tax reasons to ensure other LPs do not lose out to beneficial tax treatments.

How are valuations formed in private equity and what delays are caused by these methodologies? While valuation methodologies could be characterised as "Wild West" during the GFC, valuation frameworks have changed since then, stabilizing discount rates.

In most cases, valuations are based on a blend of private market transactions as the cornerstone of the valuation process and are then augmented by public market input in a second step. Finally, marketability discounts that can vary between 5-30% with considerable discretion for the valuator are applied to form a final price. This process also creates a delay, with valuations published at year-end often reflecting the status no later than 3Q, and final year-end valuations are often only available at the beginning of 1Q the next year.

We are currently seeing discounts to NAV of around 12-20% on average depending on the strategy (higher for Venture Capital, lower for Buyout) and expect more for the rest of the year. The difference to some areas of real estate which have seen a lot of retail inflows is that PE is still dominated by institutional and sophisticated investors who are aware of its highly illiquid nature. This, together with the closed-end structure of most vehicles, acts as a safeguard against market-driven (liquidity) accidents. However, GPs could become too aggressive in using capital call lines, which during a prolonged downturn could cause LPs to default, creating a problem for the PE funds. However, this is not wildly different from public companies taking on too much leverage.

All property real estate transaction volumes excluding land sales



Sources: MSCI; UBS Asset Management, Real Estate & Private Markets (REPM), August 2023 Note: Transaction volumes based on independent reports of income-generating properties and portfolios of USD 10 million and greater, converted to USD at prevailing rates in the relevant period. Prime cap rates and yields from a consistent sample of 309 city-sector markets across the main property types. Fast / expected performance is not a guarantee for future results.

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