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The Winds of Change:
The Transition from Quantitative Easing to Quantitative Tightening

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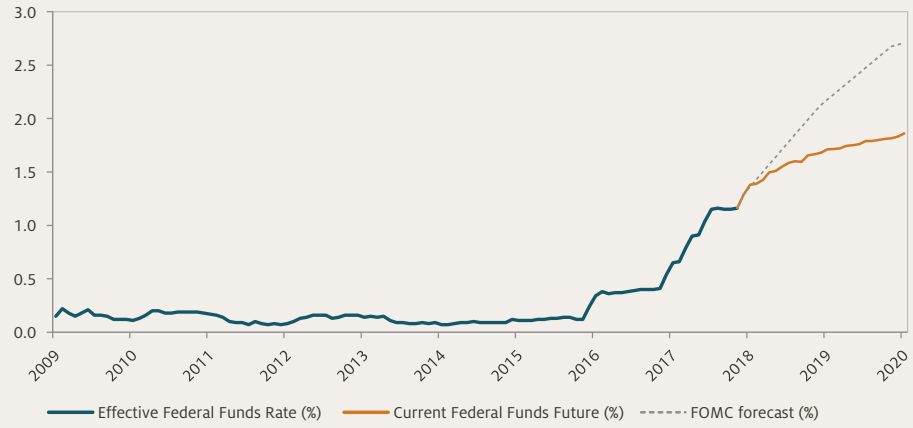
The world's major central banks are moving toward tighter monetary policies. Higher interest rates and waning liquidity are the most significant global macro risks, especially given that many assets are trading toward the high end of their historical ranges. In summary:

- While the economy and market are undoubtedly late cycle, we believe there is only a low probability of a recession over the next 12 months. The fed funds rate is still negative in real terms, profits are growing solidly, and 30 out of 33 global Purchasing Managers' Indexes are showing economic expansion.
- However, recessions are not rare. Since the late-1970s the U.S. has experienced five of them. Further, during that period there have been 11 financial crises globally. Leverage and liquidity risk are key prerequisites for a financial crisis. While regulators and many investors are focused on leverage, we are more concerned with liquidity risk, which was at the core of the 2007–2009 crisis and will likely be again at the next one.
- Although we do not see the next financial crisis as being imminent, there is a long list of potential candidates. This includes the usual suspects such as highly leveraged Chinese corporates, current account deficit countries like Turkey, and fragile Italian banks, as well as developed markets that escaped 2007–2009 relatively unscathed and have allowed imbalances to build (Australia, Canada).
- There are also more *au courant* threats, including the burgeoning prominence of passive and systematic strategies (many of which are designed to sell on "autopilot"), as well as the possibility of a destabilizing cyber-attack and aggressively priced high-yield markets across the globe.
- In this challenging environment it should prove even more important to favor companies with a demonstrated ability to produce free cash flow and allocate that cash flow wisely between return of capital options and reinvestment/acquisition opportunities.

Higher interest rates are especially worrisome given how much leverage has increased for many sovereigns and corporates over the last decade.

FIGURE 1: The FOMC and the Market Anticipate Significant Tightening



Source: Bloomberg, Federal Reserve, Epoch Investment Partners

Global monetary policy has been extraordinarily accommodative for almost a decade now, but an inflection point has clearly been reached. The Federal Reserve has already hiked the federal funds rate five times since late-2015, with their "dot plot" suggesting an additional 75 bps of hiking by the end of 2018 (**Figure 1**). Additionally, the market is anticipating higher short-term interest rates in the U.K., China, Canada, Australia, New Zealand, and South Korea, among others. Further, the Fed commenced shrinking its balance sheet in October, while the European Central Bank has already started tapering and anticipates ending its quantitative easing purchases next September. Many expect the Bank of Japan to begin tapering shortly thereafter.

The Unwinding of QE and the Next Financial Crisis

In spite of being so well telegraphed, we believe this policy transition constitutes the most significant global macro risk and is especially worrisome given that many assets are trading toward the high end of their historical ranges. It is especially difficult to reconcile the unwinding of central bank balance sheets at a time of record peacetime government debt and multi-century record low yields. Prior to Lehman Brothers' bankruptcy this trifecta would have been all but unimaginable.

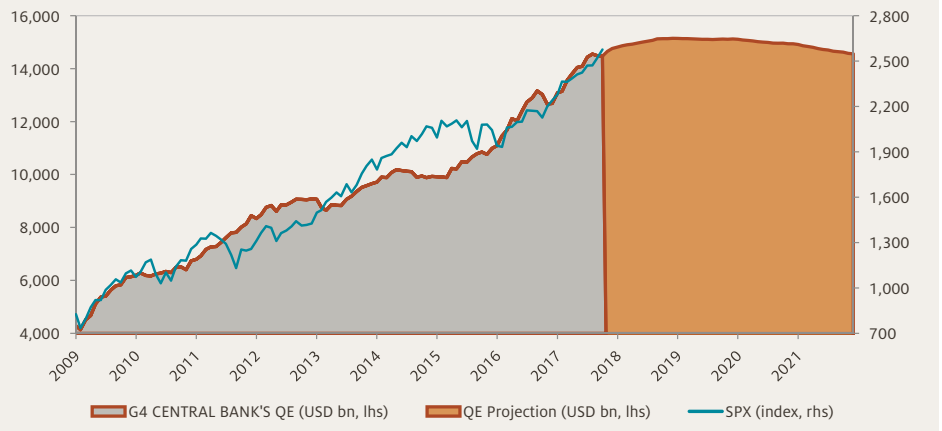
For equity investors, the unwinding of QE is important because there has been a 95% correlation between the level of the S&P 500 and the combined balance sheet of G4 central banks (**Figure 2**). In our projections, the combined balance sheet will keep expanding through December 2018, albeit at a much slower pace than witnessed over the last eight years. It will then begin to shrink but, to keep from unduly spooking markets, in an extremely gradual and predictable manner.

Why is the future size of the balance sheet so critical to the market outlook? QE has deluged markets with a torrent of liquidity, creating an incoming tide that has lifted PE multiples dramatically higher. For example, the S&P 500 has enjoyed a terrific run, from just under 1,200 in early-2012 to well over 2,500 today. However, 61% of this appreciation has resulted from multiple expansion, versus only 25% from earnings growth and 14% from dividends. To illustrate how unusual the QE period has been, we calculated the corresponding proportions for the S&P 500's growth since 1927, arriving at 1% from PE expansion, 73% from earnings growth and 26% from dividends. In our view that is what a "normal" equity market should look like, with dividends and earnings growth being by far the dominant drivers.

The key takeaway from this analysis is that additional multiple expansion appears unlikely as QE unwinds. The direction of the equity market is more likely to be determined by its traditional factors, earnings growth and dividends. The good news is this transition suggests annual equity returns in the 6 – 8% range over the next couple years. The bad news is that the unwinding of QE is likely to elicit greater market volatility and a somewhat higher probability of a financial crisis over the next couple years.

Since 2009, there has been a 95% correlation between the level of the S&P 500 and the combined balance sheet of the G4 central banks.

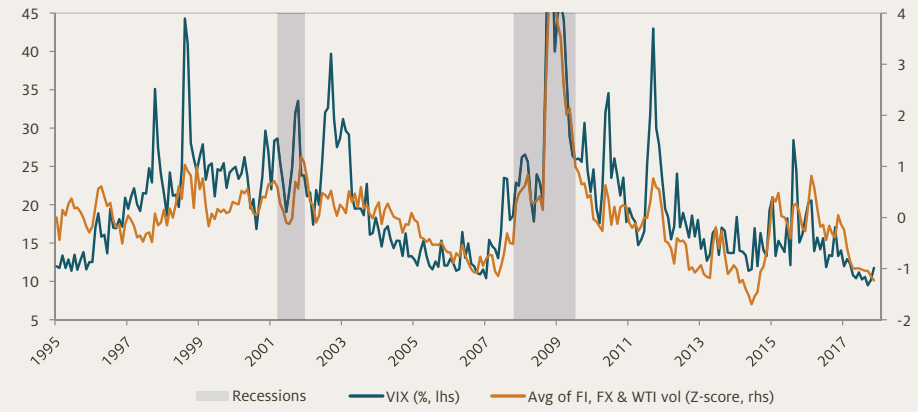
FIGURE 2: The Bigger They Come, the Harder They Fall?



Source: Bloomberg, Epoch Investment Partners

QE has been remarkably successful in suppressing market volatility.

FIGURE 3: Market Volatility is Close to its Multi-Decade Low



Source: Bloomberg, Epoch Investment Partners

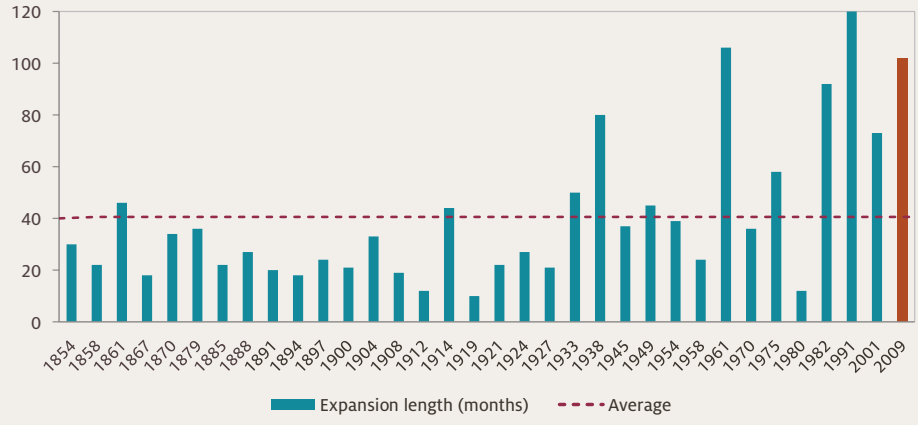
As previously mentioned, market volatility is likely to rise over the coming quarters. One of the main purposes of QE was to stabilize markets by suppressing volatility (**Figure 3**) and encouraging investors to move out on their respective risk curves. While one can debate the impact QE had on the real economy, its effect on financial markets has been indisputable. However, as the central bank "put" is withdrawn, investors will come to realize that "bad news" will no longer beget a forceful policy response. This augurs the return of two-way price dynamics, higher volatility and a greater likelihood of disruptive market movements.

All Good Things Must Come to an End

The current expansion is already the third-longest since 1850 and by the end of next quarter will move into second place (**Figure 4**). In spite of the lack of inflationary pressures (thanks to technology and trade), we are almost certainly late-cycle, as signaled by both central bank liquidity withdrawal and the plethora of market excesses. It is worth reminding ourselves that "this time is different" are the four most dangerous words in investing.

Since 1850 the average cycle has lasted 40 months. We have already more than doubled that.

FIGURE 4: The Current Expansion Will Soon Be the Second Longest in U.S. History



Source: NBER, Epoch Investment Partners

Further, during the post-Bretton Woods era, financial crises have been anything but rare (**Figure 5**). Since the early-1980s there have been eleven financial crises, including the European sovereign debt crisis of 2010–2014, the bursting of the dot-com bubble in 2000–2002 and the Asian financial crisis of 1997–1998. This experience suggests we should expect such dislocative events to occur every few years as they are an unfortunate byproduct of our increasingly leveraged, complex and interconnected finance-based economy. While it is extremely difficult to predict where or when the next crisis will occur, it is even more difficult to convincingly argue that the key ingredients are not currently in place in a variety of markets and in a host of geographies.

How Far Away is the (Inevitable) Storm?

"The US stock market today looks a lot like it did at the peak before all 13 previous price collapses. That doesn't mean that a bear market is imminent, but it does amount to a stark warning against complacency."

—Robert Shiller, September 2017

Since the 1970s, financial crises have been an unfortunate feature of our increasingly leveraged, complex and interconnected financial markets.

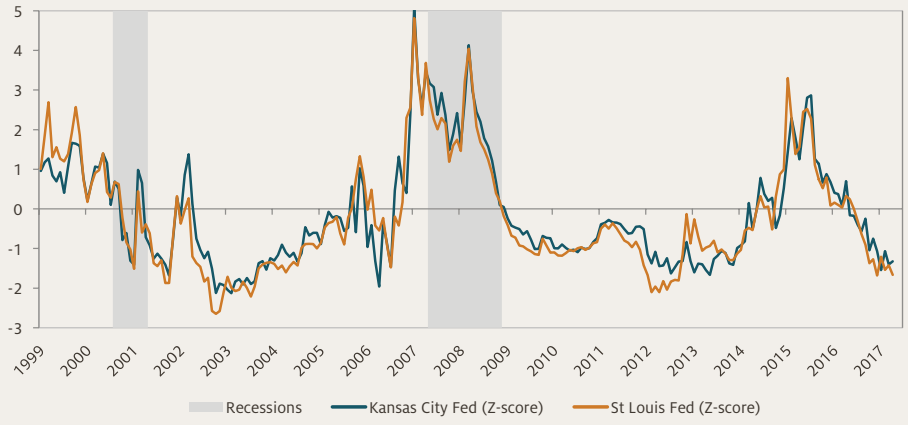
FIGURE 5: Selected Financial Crises

1973 - 1974	OPEC shock
1982 - 1985	Latin American debt crisis
1989 - 1991	U.S. Savings & Loan crisis
1990 - 1992	Japan asset price bubble bursts
Early 1990s	Various Nordic financial crises
1994 - 1995	Mexican debt crisis
1997 - 1998	Asian financial crisis
1998	Russian financial crisis
1999 - 2002	Argentine economic crisis
2000 - 2002	Bursting of dot-com bubble
2007 - 2009	Global financial crisis
2010 - 2014	European sovereign debt crisis

We are undoubtedly late in this economic and market cycle. Still we estimate only a 20% probability of a recession over the next 12 months. Reasons for holding this view include: 30 out of 33 global PMIs are showing economic expansion; profits are growing solidly; the fed funds rate is still negative in real terms; and the financial stress indicators constructed by the Federal Reserve are sending favorable signals, suggesting there is little to worry about, at least for the time being (**Figure 6**). Further, net interest costs for the U.S. non-financial sector are still low and have been declining (**Figure 7**). Such costs typically increase prior to a recession, squeezing profitability and leading firms to lay-off workers and slash capex. All this suggests the storm could still be some distance away, although there exists a range views on this issue, even at Epoch.

Financial Stress Indicators are benign, and well below normal levels.

FIGURE 6: Financial Stress Indicators Suggest Few Signs of Strain or Pressure



Source: Bloomberg, Epoch Investment Partners
Note: A lower value implies less financial stress. The indicators are constructed from a numerous variables including interest rate, yield spread, equity market indices, correlations and volatility data series.

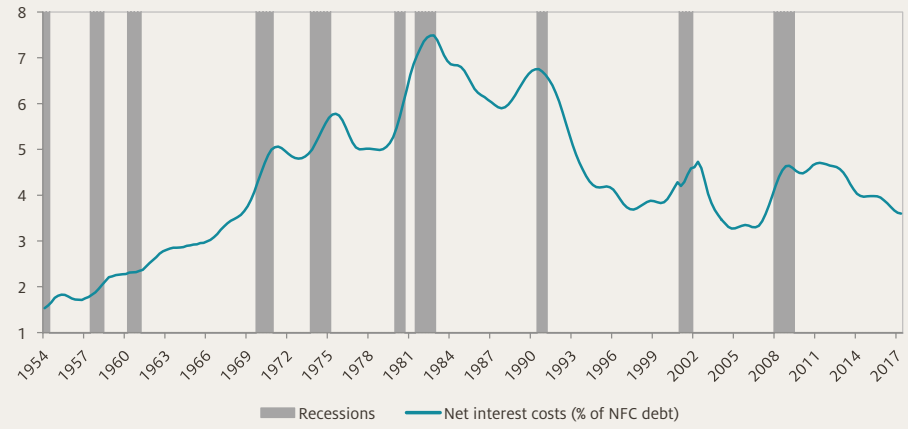
Leverage and Financial Stability

The Fed's emphasis is now firmly on financial stability and preventing a replay of the 2007–2009 crisis. To a large extent the Global Financial Crisis was the story of an over leveraged, interconnected banking system, just waiting for a shock significant enough to bring the whole system to a crisis point. The finance sector is naturally prone to such crises, which is why the sector is highly regulated and why financial stability was the focus of speeches delivered at the Fed's Jackson Hole conference in August by both Chair Janet Yellen and Vice Chair Stanley Fischer. The speeches underscored the importance of regulatory measures such as the 2010 Dodd-Frank Act and the 2011 Basel III Accord in strengthening bank capital requirements and decreasing bank leverage.

These measures have undoubtedly reduced financial system leverage and fragility (**Figures 8 and 9**), but by no means does this imply investors can relax. A decade of historically low interest rates and the tidal wave of QE-driven liquidity has encouraged many to gorge on debt. Leverage remains recklessly high for many sovereigns (especially Japan, Greece, Italy and Portugal, but also for the U.S., Spain, France and the U.K.). Similarly, households are excessively indebted in a number of countries (especially Australia and Canada among developed economies). Finally, non-financial debt levels are alarmingly high in several countries (for example, China, Canada and Australia) and, as we discuss in more detail below, we are especially worried about the high-yield market in Europe, the U.S. and EMs.

Each of the last three recessions was preceded by a climb in the ratio of net interest expense to corporate debt.

FIGURE 7: U.S. Non-Financial Corporates, in Aggregate, are Still Benefiting from Low Interest Costs



Source: Moody's, Epoch Investment Partners

Liquidity Risk: The Core of the Last Crisis and Likely the Next One

We believe severe liquidity disruptions will be a key attribute of the next crisis, reflecting several market trends over the last decade. One development is the roughly $2 trillion shift from active to passive and systematic strategies, which reduces the ability of the market to prevent

and recover from fire sales. For example, passive and quantitative investors are now 60% of the U.S. equity asset management industry, up from 30% a decade ago. As JP Morgan's investment strategist has emphasized, many of these strategies (e.g. volatility targeting and risk parity) are designed to sell on "autopilot," a situation that makes disruptive fire sales more likely. In fact, following even a moderate shock, programmatic strategies that rely on momentum and asset volatility to determine their appropriate level of risk-taking would sell into weakness, adding fuel and potentially triggering a fire sale. Such herd effects could easily overwhelm markets. Further, in a crisis, would any of these become suppliers of liquidity, helping markets find a bottom and begin to recover?

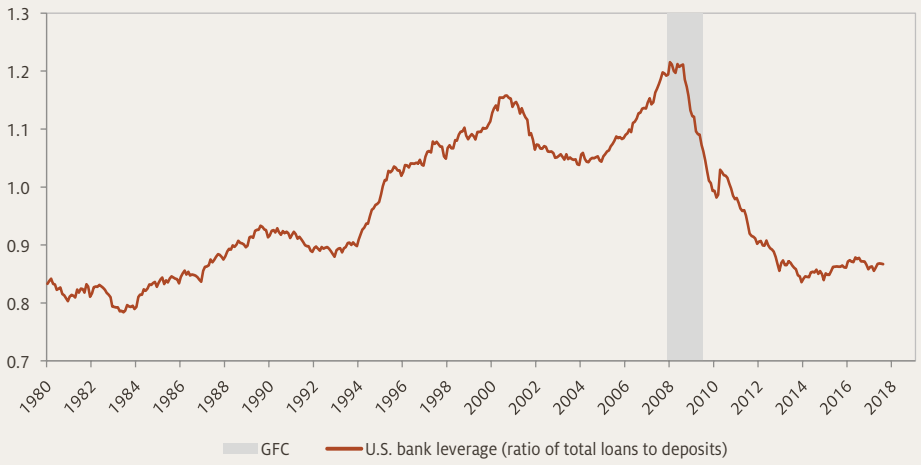
A second trend concerns the declining ability of traditional intermediaries to act as liquidity providers. Broker-dealers have been shifting from human market-makers to algorithmic or programmatic liquidity that is faster and relies on volatility-based VAR to quickly adjust the amount of risk taking or liquidity provision. Additionally, following the GFC and the passing of the Dodd-Frank Act, broker-dealers have dramatically reduced both their leverage as well as their inventories (**Figure 10**). While this has the advantage of reducing their riskiness, it also curtails their ability to act as providers of liquidity during a fire-sale event. The unintended result is likely to be less short-term volatility, but at the cost of more frequent liquidity disruptions.

Financial Crises, Liquidity Risk and the Failure of Conventional Economics

It is now widely acknowledged that one reason for the GFC was massive illiquidity, particularly in interbank markets. The crucial role played by illiquidity is especially unsettling since it is so poorly understood by investors, academics and regulators. In particular, conventional economic models assume a level of rationality and linearity that cannot explain how a run-of-the-mill shock propagates into a system-threatening financial crisis. A crisis is not an equilibrium, nor is it a slight nudge from that state.

Financial sector leverage increased markedly in the decades prior to 2007, but has since reverted to its level of the 1980s.

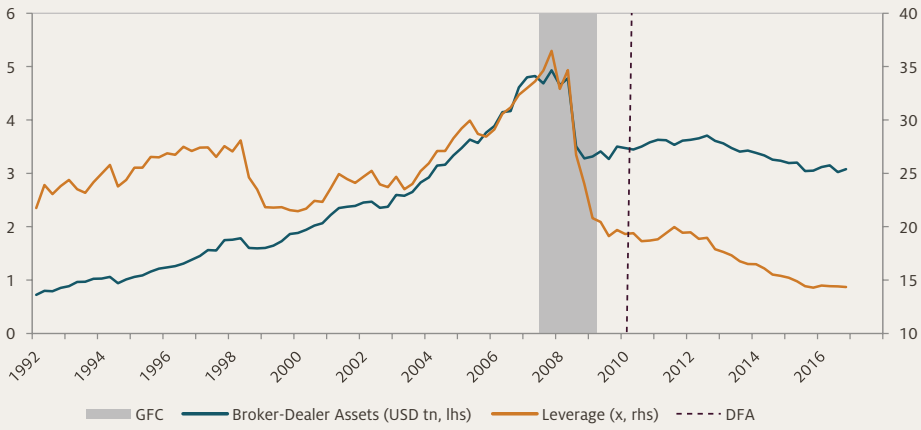
FIGURE 8: U.S. Bank Leverage has Declined Dramatically Since the Global Financial Crisis



Source: Bloomberg, NBER, NY Fed, Epoch Investment Partners

Leverage for broker-dealers is now the lowest it has been in decades.

FIGURE 9: U.S. Broker-Dealer Leverage Has Also Fallen Sharply



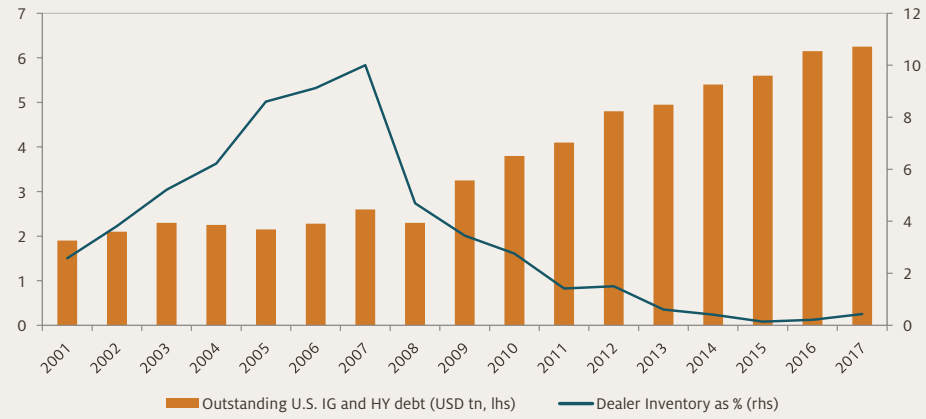
Source: FRB, Epoch Investment Partners
Note: GFC refers to the Global Financial Crisis, while DFA refers to the Dodd-Frank Act

The dearth of research on the crucial role played by liquidity prior to the GFC is a key contributor to this poor understanding. Since then, a great deal has been written on liquidity risk by finance academics, as well as by the Fed, the Bank for International Settlements and other regulatory authorities. To illustrate the change, a 2006 speech on banking supervision given by then Fed Chair Ben Bernanke mentioned capital requirements 38 times, but liquidity risks only once. By contrast, in a speech given at the Fed's August 2017 Jackson Hole conference, Chair Yellen mentioned liquidity 29 times. That's quite an improvement and demonstrates the increasing awareness of liquidity risk.

At Epoch, we are in agreement with this perspective. We contend that leverage and illiquidity are two key components of any market crisis, with leverage creating the

Liquidity disruptions and market dislocations are more likely, as dealer inventory has plummeted over the last decade.

FIGURE 10: U.S. Dealer Inventory Has Shrunk, Even as the Outstanding Size of U.S. Investment-Grade and High-Yield Market Has Surged



Source: Bloomberg, NY Fed, Deutsche Bank

potential for forced selling, which is then exacerbated by illiquidity. Even with some liquidity being gradually withdrawn by central banks, many investors may wonder why liquidity is a concern with the ample amounts already sloshing around in markets today. While true, the problem is that the level of liquidity during normal times provides little insight into what happens during crises. To illustrate this point, take the following metaphor: a snowshoe hare may be able to scurry across a frozen lake, but will the ice support a man? Similarly, most research on market liquidity focuses on day-to-day behavior (bid-ask spreads, price elasticities, volumes) during non-crisis periods. However, this provides little insight regarding large, forced liquidations during periods of sharp price declines and related fire-sale dynamics. This dichotomy helps explain why liquidity risk was largely neglected prior to the GFC and why still, ten years later, there remains little agreement regarding this risk and how it is best managed and regulated.

A second issue concerns the timing gap between the demanders and the suppliers of liquidity. When the market is in crisis mode, the demanders of liquidity urgently need to sell; they care more about timing and immediacy than about price. Their urgency may result from an aggressive margin call (possibly in response to sharp price declines in other assets or collateral increases) or an acute rise in volatility that leads VAR-type models and systemic strategies to aggressively rebalance and retreat.

While a falling price is normally the dinner bell for buyers, this is not what occurs during a crisis. Typically a shock leads to lower prices, which forces more selling, accelerating as liquidity dries up. While there may be plenty of capital around, the suppliers of liquidity are wary of "catching a falling knife," so they stay on the sidelines waiting until calm is restored. Some market participants, such as tactical hedge funds, may aim to profit from their role as short-term liquidity providers, but a longer time frame has been adopted by most investors (asset managers, pension funds, SWFs). This problem is exacerbated when faced with the possibility of solvency risk (always a factor during crises). This suggests that, when the market is in crisis mode, it might be some time before the liquidity suppliers provide such a sufficient force to put a floor on prices. The lack of liquidity means dislocative price movements are likely, which could have negative implications for the real economy. This is why central banks are often called in to fulfil this role, supplying liquidity to well-collateralized institutions and thereby, helping to stabilize markets.

The Core Of A Financial Crisis: Liquidity Demand Outruns Liquidity Supply

The most insightful analysis of liquidity crises that we have come across is Richard Bookstaber's *The End of Theory: Financial Crises, the Failure of Economics, and the Sweep of Human Interaction* (Princeton University Press, 2017). He is especially good at explaining the detailed plumbing of financial markets and clarifying how excessive leverage and stretched asset values create vulnerabilities. We especially recommend a careful read of chapters 12 on "Liquidity and Crashes" and 13, "The 2008 Crisis with an Agent-Based View." By specifying decision rules for "agents" such as banks, broker-dealers and hedge funds, he is able to demonstrate how a moderate price decline or increase in volatility can trigger forced selling, create a fire sale and, if liquidity channels are impaired, provoke a financial crises.

Bookstaber's agent-based models (ABMs) can be used to simulate a virtual financial system in which banks, broker-dealers and hedge funds interact in complex and realistic ways, with the aim of better understanding how crises are generated. Further, such models can be run under different scenarios, to quantitatively and qualitatively explore the consequences of a host of financial shocks. For example, models can be subject to a variety of negative shocks such as sharp price declines for certain financial assets, forced redemptions, increased collateral haircuts and bankruptcies of varying intensity. Further, modelers can test various regulatory measures and policy responses (e.g., providing liquidity or implementing Basel III-type regulations), to see which are most effective for preventing and defusing potential crises. Presently, the research has demonstrated that most liquidity regulations have little theoretical or empirical support. Consequently, policy makers should act warily until such mechanisms are better understood.

With that perspective in mind, we especially liked Bookstaber's ABM-approach, which is particularly useful

for demonstrating that the core of a financial crisis always involves liquidity demand outrunning liquidity supply. Further, ABMs can add insight into how market participants are likely to interact during a financial crisis, allowing investors to identify early warning indicators. Among other things, ABMs provide powerful ammunition for those who call for a simpler financial system, because complexity allows shocks to be transmitted across too many layers of the system, too quickly, resulting in financial contagion and possibly a crisis.

However, the major challenges in designing ABMs lie in specifying how the agents behave and in choosing the rules they use to make decisions. In particular, the decision-rules need to be based upon empirical analysis, behavioral knowledge and real market experience. One caveat though is that attempts to model all the details realistically, can rapidly lead to an overly complicated simulation, where it is difficult to determine what causes what.

Although the use of ABMs is still a nascent field, they will likely come to be used routinely by economists as a useful, complementary modelling tool and for designing regulatory policy. Such models should also help investors better understand crisis dynamics, so they can manage portfolio risks more effectively and, hopefully, get out of harm's way more promptly.

Late-Cycle Imbalances: Illiquidity is the New Leverage

The late-cycle search for yield often leads to imbalances and valuation excesses. A decade ago, the search for yield resulted in enormous leverage, often through structured products. As Bookstaber demonstrates, when runs on funding sources forced an unwind of those positions, it set in motion a downward spiral in prices. This time around the search for yield has been equally intense, but investors have deployed far less leverage than in the last cycle. As emphasized in a recent note by Goldman Sachs ("Top Ten Market Themes for 2018"), in the current expansion "Illiquidity is the New Leverage" (the name of their tenth theme).

While the Next Financial Crisis is Not Imminent, There is a Long List of Potential Candidates

After a decade of exceptionally loose monetary policy, there is no shortage of candidates to trigger the next crisis. This includes the usual suspects such as China's highly indebted corporates, Turkey's current account deficit and Italian banks, as well developed markets that escaped 2007–2009 relatively unscathed and have allowed imbalances to build (e.g., Australia, Canada). However, this section will focus on a couple more *au courant* threats, such as the burgeoning prominence of passive and systematic strategies (many of which are designed to sell on "autopilot") and the possibility of a destabilizing cyber-attack, as well as aggressively priced high-yield markets.

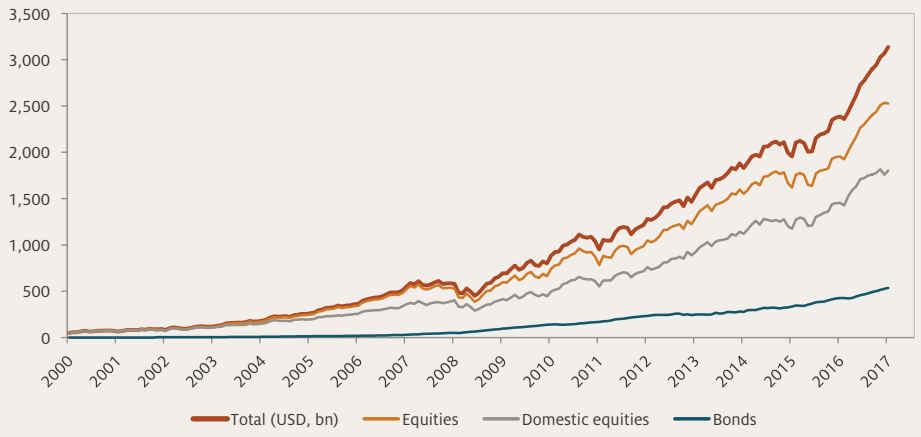
Earlier, we highlighted the huge shift from active to passive and systematic strategies, emphasizing that such investors now account for 60% of U.S. equity assets (**Figure 11**). The phenomenon of machines running significant amounts of money is in many respects new to this cycle. As emphasized by CSLA's Christopher Wood, "The machines are all trading portfolios around the same criteria. This means that any cascade of selling is likely to be amplified on the downside in a higher-tech repeat of the 'portfolio insurance'-triggered meltdown of October 1987."

Further, a recent article by Professor Jon Danielsson,Director of the Systemic Risk Centre, London School of Economics, emphasizes how Artificial Intelligence (AI) is useful in preventing historical failures from repeating and will increasingly take over financial supervision and risk management functions. However, this is dangerous from the point of view of financial stability. This approach may miss out on the most dangerous types of risk-taking, and such systems can make it easier to game the system. Most importantly, AI is also likely to result in increased homogeneity in signals, models and their response, further amplifying pro-cyclicality and systemic risk. As Danielsson concludes, "The end result of the use of AI for managing financial risk and supervision is likely to be lower volatility but fatter tails; that is, lower day-to-day risk but more systemic risk." This sounds like an apt description of the world we live in today.

Cyber risk, which the IMF refers to as a textbook example of a systemic risk, is an additional development, as cyber-attacks can access vulnerabilities, target risk concentrations and induce contagion effects. As has been well reported, cyber-attacks on financial institutions are becoming more common and increasingly

Passive investing has become especially prominent in U.S. equities.

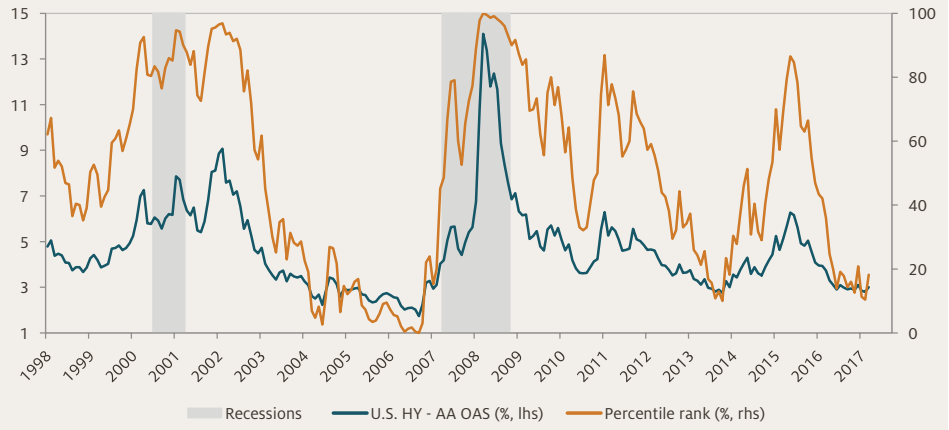
FIGURE 11: The Rush to Passive Investing



Source: Bloomberg

The spread is close to its tightest in ten years and is currently in the 18th percentile (relative to where it has traded since 1998).

FIGURE 12: U.S High-Yield Spread Over AAs is Very Tight



Source: Bloomberg, Epoch Investment Partners

sophisticated. That the finance sector receives the lion's share of attacks should not come as too big a surprise as, to quote Willie Sutton, "That's where the money is."

Next, we now turn to an analysis of risks emanating from the aggressively priced high-yield market. During the QE era, huge sums of money have been flowing into the corporate bond market. From 2000–2007, U.S. investment-grade issuance averaged just over $700 billion per year, but this increased to an average of almost $1,100 billion from 2010–2017 (marking a 54% increase). The corresponding numbers for high yield are even more impressive, averaging $100 billion prior to the GCF, but $280 billion since 2010 (representing an impressive 178% rise). Further, this increase in supply has been associated with a dramatic decline in yields, with the high-yield spread over AA-rated bonds now close to its lowest level since 2007 (**Figure 12**).

A key objective of the QE policies introduced subsequent to the Global Financial Crisis was to provide a deep-pocketed supplier of liquidity to put a floor under markets, suppress volatility and encourage investors to move out on the risk curve, including into assets such as high yield. On this basis, QE has been an enormous success, with both equity market volatility and high-yield spreads declining to ten-year lows (**Figure 13**).

In the face of such cheap funding, corporations naturally replied by ramping up their issuance. However, excessive debt levels are now becoming a concern. A survey released in November by BAML showed that 23% of investors believe corporate balance sheets globally are overleveraged, a record high for this poll (it commenced in early 2005). Many U.S. high-yield firms are particularly highly leveraged, which exposes them to significant interest rate risk (**Figure 14**). However, this is not yet being priced into their spreads.

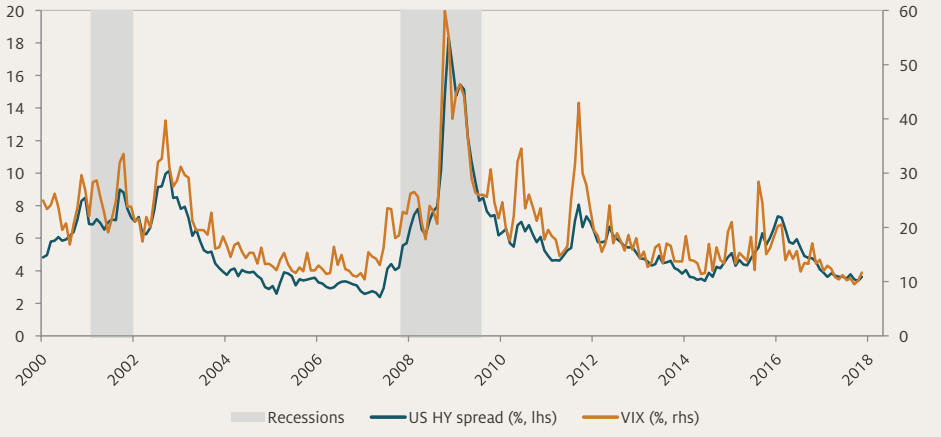
As troublesome as the U.S. high yield market may appear, the situation in Europe looks even more problematic. Not only are high-yield spreads very tight (**Figure 15**), but the European HY index provides a yield that is roughly the same as that on U.S. 10-year Treasuries (**Figure 16**). This is extremely difficult to justify from a fundamental risk-return perspective.

One reason why European corporate yields are so low is that the ECB has been buying sizeable quantities under the corporate sector purchase program (CSPP) of its QE policy. The ECB now owns €124 billion of investment-grade corporate bonds and is estimated to be hoovering up about 15% of new bond issuances. Further, even though the ECB announced in October 2017 that it will cut back on its QE program at the start of 2018, it has stressed that it will continue to buy "sizable quantities" of investment-grade corporate debt.

Such extremely cheap borrowing costs, combined with the huge demand offered by the ECB, has propelled companies

Since 2000 the two series have been 89.6% correlated. If volatility rises with the end of QE, we expect high-yield spreads to do likewise.

FIGURE 13: There is an Extremely Close Relationship Between U.S. High Yield Spreads and the VIX



Source: Bloomberg, Epoch Investment Partners

into the capital markets. Unsurprisingly, European corporate bond issuance is set for a record year in 2017, as companies are tapping debt markets even more aggressively than last year's record of €345 billion. Similar to the situation in the U.S., corporate issuance in euros is more than twice its level from a decade ago. This may all be fine as long as the ECB keeps buying in scale, but we expect tapering to begin early next year, which could well result in higher corporate bond yields and greater interest rate volatility.

In addition to advanced economies like the U.S. and Europe, the corporate bond market has also been exuberant in emerging markets (**Figure 17**). Especially worrisome is that, as investors reach for yield in a world of historically low returns, even the riskiest countries are issuing debt at a record rate. Junk-rated emerging market sovereigns have raised $75 billion in syndicated bonds so far this year, up 50% yoy to the highest total on record. It is particularly notable that non-investment-grade issuance has made up 40% of the new debt syndicated in emerging markets year-to-date. One problem with this record issuance, especially when much has been bought by "tourist" investors who have flooded into emerging markets debt without a great deal of experience, concerns assumptions about liquidity. When you need it most, it is least available, and that problem can be particularly pronounced in these junk-rated emerging markets names.

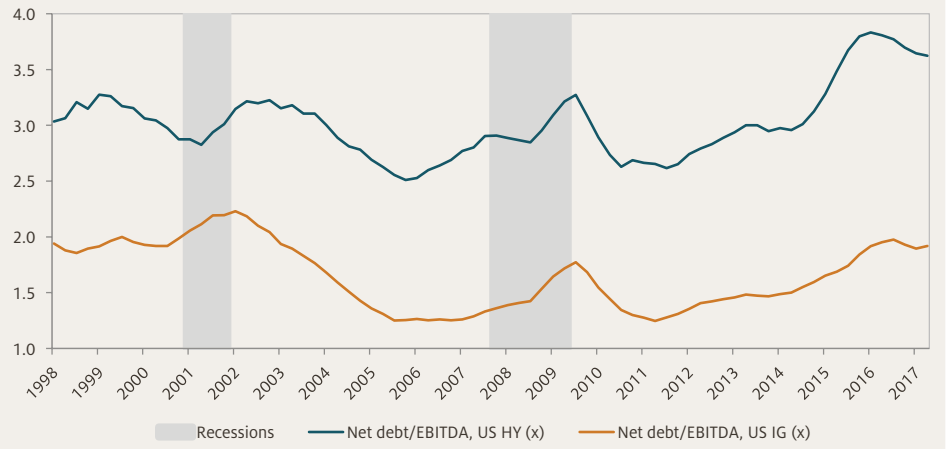
The key takeaway from this section is that QE has deluged corporate bond markets with a torrent of liquidity (**Figure 18**) that has driven investment-grade and high-yield spreads dramatically lower. With the unwinding of QE, additional high-yield spread compression appears unlikely. Rather, we expect increased yields, greater market volatility and a somewhat higher probability of a financial crisis over the next couple years.

Investment Implications

We have demonstrated that QE has had an enormously positive impact on markets in the post-GFC period. However, as QE is slowly withdrawn, we expect equity market volatility to gradually rise and the dispersion of returns across sectors and stocks to increase. This is worrisome given that many assets are trading toward the high end of their historical ranges. In this environment, it should prove even more important to favor companies with a demonstrated ability to produce free cash flow and allocate that cash flow wisely between return of capital options and reinvestment/acquisition opportunities. Epoch has always favored such companies, believing they are the most probable winners. These attributes are likely to reward investors going forward as the unprecedented monetary experiment of the last decade is unwound.

With a net debt to EBITDA ratio of over 3.5x, many high-yield firms are especially vulnerable to a rise in interest rates.

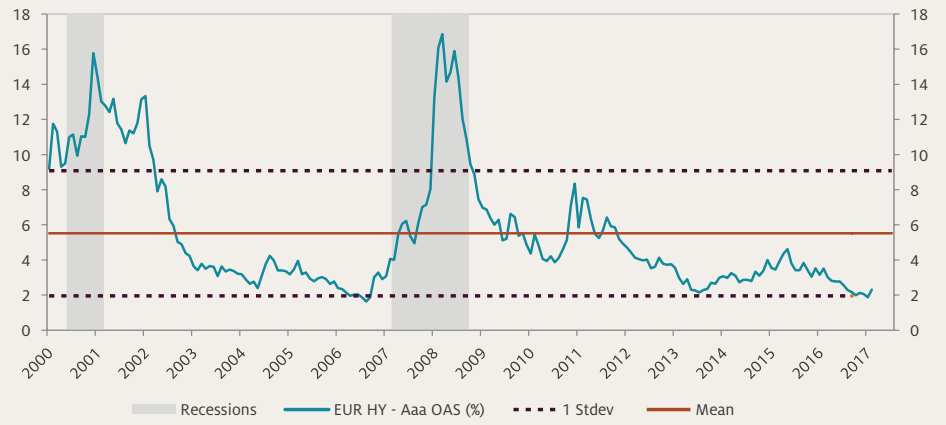
FIGURE 14: U.S. High-Yield Firms are Inordinately Leveraged Relative to their History



Source: Goldman Sachs, Epoch Investment Partners

The spread is close to its tightest in ten years and is currently about one standard deviation below its long-term average.

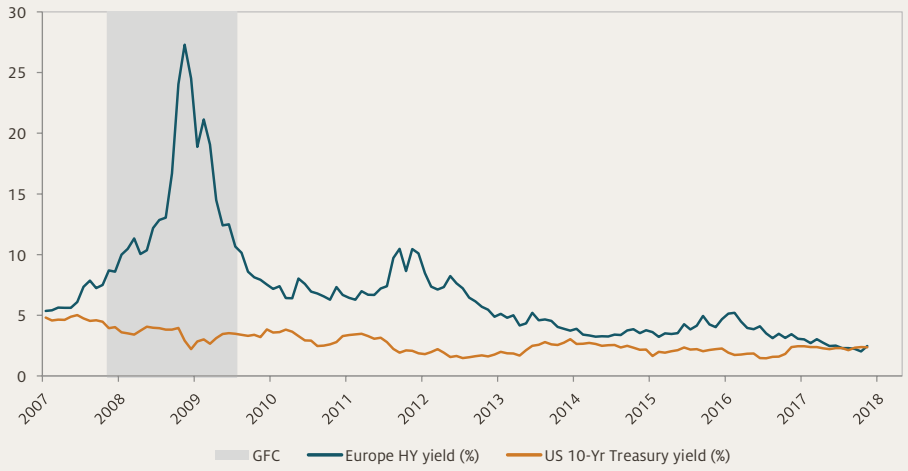
FIGURE 15: European High-Yield Spread Over AAAs has been Extremely Tight



Source: Bloomberg, Epoch Investment Partners

It is difficult to see the attraction of European high yield from a fundamental perspective.

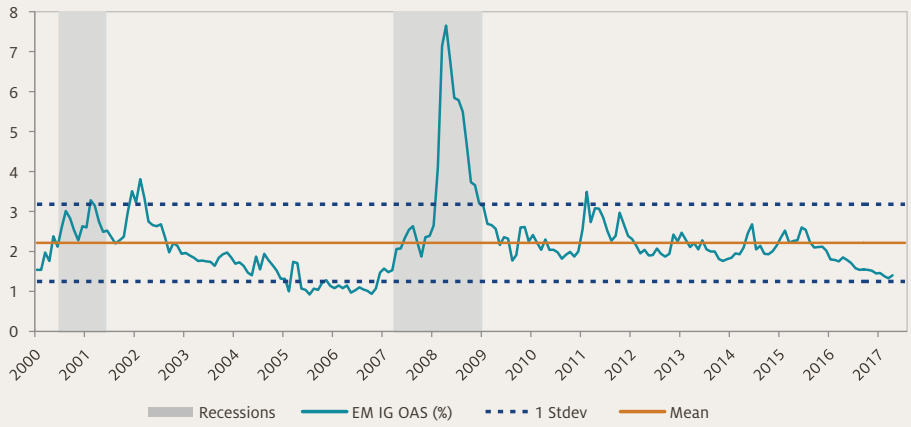
FIGURE 16: The Yield on European High-Yield is Similar to that on U.S. Treasuries



Source: Bloomberg, Epoch Investment Partners

The spread is close to its tightest since before the GFC and is currently about one standard deviation below "normal."

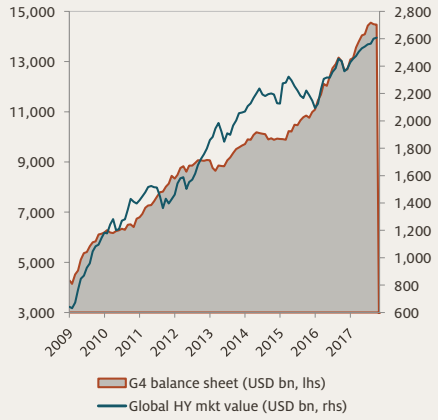
FIGURE 17: Emerging Market Investment Grade Spread is also Very Tight



Source: Bloomberg, Epoch Investment Partners

Since 2009, the size of the high-yield market has increased by over 300%. The two series are 95% correlated.

FIGURE 18: The Global High-Yield Market Has Soared with QE



Source: Bloomberg, Barclays, Epoch Investment Partners

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