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THE NEXT CRISIS WILL BE DIFFERENT (PART TWO)

Opportunities to Continue Enhancing Financial Stability 10 Years after Lehman's Insolvency

DTCC

Macroeconomic risks

Key takeaways

- While the short-term global macroeconomic outlook remains positive, several medium-term areas of concern are emerging with respect to trade tensions, rising geopolitical risks and high levels of global debt.
- Stretched asset valuations add to the risk of sudden price drops.

The past several years have been characterised by a worldwide economic expansion that is broadly synchronised between the U.S., Europe and Asia. In 2017, the global economy grew by 3.7%, the fastest increase seen in seven years. Asia, which currently accounts for more than 60% of global growth, remains the most significant driving factor behind the world's economic expansion.

While Japan continues to battle deflation, inflationary risks have been successfully contained in most advanced economies so far. Even in most Asian countries, inflation has remained subdued in spite of solid growth, relatively tight labor markets and rising domestic consumption. That said, vigilance is warranted as the convergence of low commodity prices, low yields in the capital markets and consistent underestimation of inflation expectations in Asia may soon come to an end. Additionally, foreign monetary policy decisions may also have a considerable direct or indirect effect on Asian economies.

Even though the short-term macroeconomic outlook remains generally positive, the expansion is starting to diverge geographically and growth rates seem to be peaking in several countries. Additionally, while financial conditions remain generally favorable across most economies worldwide, several risks are starting to mount, most notably escalating tensions and uncertainty around international trade, rising geopolitical risks, high levels of global debt and stretched valuations in certain markets.

Trade tensions

Tensions and uncertainty around international trade have increased for several years as part of a global trend towards increased protectionism. This trend has escalated considerably by recent tariff announcements made by the U.S. and retaliatory measures from its trading partners.

The quote

Risk management organisations should become increasingly holistic and include cross-disciplinary experts to address an ever-widening array of interconnected risks.

In addition to impacting international trade and global output directly, the effect of tariffs through non-trade channels could be even more damaging. According to studies by the IMF, they could also impact financial markets, business and consumer confidence as well as foreign and domestic direct investment.

Continued uncertainty surrounding the U.K.'s post-Brexit trade relationship with the EU is another significant source of concern even though the ultimate macroeconomic impact of the U.K.'s decision to leave the European Union remains hard to predict at this point. A further escalation of tensions and uncertainty with respect to international trade is arguably the greatest near-term threat to global growth.

Rising geopolitical risks

Geopolitical risks seem to be growing on different fronts, driven by rising nationalism and tectonic shifts in global order.

The situation on the Korean peninsula remains a source of potential concern in this respect, even though tensions in the region have de-escalated in recent months. Other areas of geopolitical tension include Russia's use of military action in Ukraine and its role in the Syrian Civil War, as well as China's claim over most of the South China Sea. The U.S. decision to withdraw from the multilateral Iran nuclear deal and impose new sanctions on the regime may increase tensions in the Middle East, in addition to straining U.S. alliances and affecting oil markets.

More broadly, long-standing international partnerships and alliances are increasingly being challenged or called into question – from strategic alliances such as NATO to the cohesion of the European Union itself. While indications of a profoundly shifting world order abound, it is unclear at this point how the geopolitical ambitions of countries such as China and Russia will ultimately play out and which new geopolitical equilibria will eventually emerge.

High levels of global debt

Global debt continues to hit record highs, reaching a peak of US$164 trillion (equivalent to 225% of global GDP) according to the most recent IMF data. This level is 12% higher than the previous peak in 2009, with China as a driving force. China, Japan and the U.S. account for more than half of global debt, while their collective share of global output is significantly smaller. Debt-to-GDP ratios for advanced economies have reached levels not seen since World War II and are expected to fall only marginally over the medium term.

The rise of public debt is an important factor in the overall growth of global debt. Over the last 10 years, government debt more than doubled in the U.S., as it did in other economies. In addition to making countries more vulnerable to interest rate hikes and rollover risk, excessive government debt levels also leave countries more susceptible to political risk, as demonstrated earlier this year in the wake of the Italian elections. Additionally, high levels of public debt make it harder for authorities to implement countercyclical policies to combat a financial crisis. As a result, even in cases where excessive debt levels do not trigger a financial crisis directly, they can exacerbate economic downturns and prolong recessions.

According to a model developed by the IMF, if equity and housing prices continue to rise, the ongoing buildup of debt could breach critical limits as soon as 2020 – and reach a tipping point where debt sustainability concerns could trigger a 15% drop in stock prices and a 9% decline in housing prices.

Stretched asset valuations

This may lead to sudden price corrections if growth expectations were to prove unrealistic or if an unrelated shock were to materialise.

A prolonged bull market in both bonds and equities over the past decade has pushed asset valuations to levels that can generally be qualified as elevated. While valuation levels by themselves cannot be used to reliably predict future price trajectories, they do increase the potential for sudden re-pricing in case of a systemic shock or other negative developments. The increased popularity of passive investment strategies and the associated risk of herd behavior further add to this potential risk.

U.S. real estate prices (as measured by the Case-Shiller U.S. National Home Price Index) have recovered to the point where they have exceeded their pre-crisis historical peaks. While this may seem indicative of another bubble, mortgage debt levels have not yet exceeded their peak, suggesting that the growth in real estate prices does not carry the same level of underlying risk that led to the financial crisis.

The continued and rapid increase in Chinese real estate prices is causing many analysts to be concerned about a genuine asset bubble. Given that more than 25% of China's GDP is estimated to be connected to demand from the property and construction sectors, even slight fluctuations in real estate demand can have a considerable impact on the country's economy.

Opportunities to enhance financial stability

Risk management organisations should become increasingly holistic and include cross-disciplinary experts to address an ever-widening array of interconnected risks

The scope of the risk management function has grown considerably over the past decade, driven by the fallout of the financial crisis and the accompanying regulatory response, new technology and the growing interconnectedness of global markets – just to name a few factors.

Given the wide variety of threats facing the industry and the fact that most risks are interdependent, a holistic approach that includes cross-disciplinary experts is more important than ever. Organisations need to look

beyond credit, market and liquidity risk and include experts in areas as diverse as operational, systemic, technology, information security, data management, vendor, geopolitical and physical security risks. In the same spirit, industry-wide tabletops and simulation exercises are a crucial component of a truly comprehensive risk management discipline.

Market-related risks

Key takeaways

- The rising popularity of ETFs may become a growing source of concern, especially if these offerings continue to evolve towards increasingly esoteric and opaque products with highly complex risk profiles.
- While there is agreement on the observation that the provision of liquidity has changed considerably since the financial crisis, the current level and robustness of market liquidity continues to be debated.

The rapid rise of exchange-traded funds and the changing nature of liquidity are two of the most significant post-crisis evolutions that could be potential sources of systemic market-related risks.

Rapid rise of exchange-traded funds

The growing popularity of exchange-traded funds (ETFs) has arguably been the most significant development in the investment management industry over the past decade as ETF assets under management have risen from roughly $0.5 trillion in 2008 to over $3 trillion by the end of 2017. The success of ETFs is driven by several factors – in addition to offering lower fees than those charged by other investment funds, they provide an additional source of liquidity, they can be used to hedge and diversify exposures and they can also contribute to price discovery.

At the same time, the growth of ETFs – especially those invested in less liquid assets – has also raised concerns with respect to two potential sources of risk:

- **There could be a mismatch between the liquidity of the ETF itself and the liquidity of the underlying assets.** Concerns typically focus on ETFs that invest in less liquid asset classes, such as corporate bonds and emerging markets. Some analysts assert that ETFs have become so large in certain markets that the underlying securities may no longer be sufficiently liquid to facilitate ETF creation/redemption activity during periods of stress and could result in price dislocations.
- **Certain ETFs could increase contagion risk and possibly amplify price moves in stressed markets.** In its most recent Global Financial Stability Report, the IMF included an analysis suggesting that ETFs, particularly those investing in relatively illiquid assets, may heighten contagion risk and possibly amplify price moves across asset classes during periods of stress. The rise in cross-asset correlations during periods of stress, one of the main attributes of contagion, may also be related to the growing popularity of ETFs and other passive investment vehicles.

Given that the risks described above are particularly relevant for ETFs invested in less liquid assets, it should be noted that some of these ETF subsectors, while still small in relative terms, are growing rapidly.

Complexity risk and opacity are other sources of increasing concern as the universe of exchange-traded products expands to encompass more esoteric and hard-to-price asset classes, sometimes in combination with leveraged and/or inverted payoff structures. The overnight collapse of several short-VIX futures ETFs in February 2018 illustrated the extreme volatility of these products. Given the important lessons about the risks associated with complex and opaque financial products that were hard-learned in the wake of the financial crisis, this evolution should be closely monitored.

In conclusion, while we do not think that ETFs currently pose a major systemic threat, we do believe that the emerging risks associated with the proliferation and increasingly esoteric nature of some of these products should be managed more closely, given their growing potential to create or exacerbate market disruptions.

Changing nature of liquidity

Insufficient funding and market liquidity was a major force driving contagion during the 2008 financial crisis. While it appears that funding liquidity risk has been adequately mitigated by higher liquidity requirements and other measures, concerns around market liquidity continue to persist 10 years after the Lehman insolvency.

Even though certain measures of U.S. bond market liquidity have deteriorated since the financial crisis, evidence that supports claims of diminished market liquidity is inconclusive. While there seems to be a general consensus that stricter capital rules are an important driver in the decrease in bond dealer inventories, there appears to be less agreement on the extent to which this change has affected liquidity.

Regulators generally seem to have a more positive view of market liquidity than market practitioners – even after examining the perplexing Treasury market "flash rally" on October 15, 2014, which raised new questions about the nature of liquidity in markets that have been profoundly impacted by electronic trading and other structural changes.

Regardless of the levels of liquidity observed during normal market circumstances, the key question that remains is to what extent liquidity is robust enough to hold up when it is most needed, i.e., during periods of prolonged stress. Absent another systemic crisis, that question may remain unanswered.

Opportunities to enhance financial stability

The exposure associated with the proliferation and increasingly esoteric nature of certain ETFs should be managed more closely to match their specific risk profiles

Over the past decade, the range of underlying ETF assets has expanded significantly and now includes commodities, cryptocurrencies and a host of other non-traditional asset classes. At the same time, ETFs with leveraged and/or inverted structures have come to market, further expanding and diversifying the risk profile of these types of products.

As a result of this evolution, concerns have been raised about potential mismatches between the liquidity of ETFs and their underlying assets – particularly with respect to less liquid asset classes. Other concerns focus on the impact of ETFs on pricing mechanisms and the risk of sudden sharp price drops.

In light of the above, we support the development of an industry-wide classification system for the broad category of Exchange Traded

Products that identifies the unique attributes of products and that will help investors better differentiate between the risk/return profiles of "plain vanilla" versus more complicated products.

Opportunities to optimise and accelerate the U.S. equity settlement cycle beyond T+2 should be pursued to further reduce the exposure associated with unsettled trades

In September 2017, the standard settlement cycle for U.S.-based transactions in equities, corporate bonds, municipal bonds, unit investment trusts, and financial instruments comprised of these security types (e.g., ADRs and ETFs) was shortened from T+3 to T+2. This change greatly reduced counterparty risk and cut capital requirements for financial firms by approximately 25%, or $1.36 billion. In addition to aligning the U.S. with European settlement practices and other T+2 markets around the world, the move to T+2 settlement has significantly reduced systemic risk.

While the industry continues to analyze the longer-term feasibility of a potential industry-wide move to a T+1 U.S. equity settlement cycle, DTCC sees other opportunities to achieve a further settlement cycle reduction that would have less impact on the industry and that could be implemented sooner.

Technology-related risks

Key takeaways

- Potential risks associated with fintech applications can be considered a new area of concern that has only emerged over the last decade.
- While there is widespread agreement that fintech developments do not threaten financial stability at present, there is also a growing consensus that the use of fintech should be carefully monitored and thoughtfully supervised to balance the associated risks and rewards.
- By contrast, cybersecurity concerns, while not new, have grown exponentially to the point where they may be the most important near-term threat to financial stability.

Whether fintech applications existed a decade ago is a definitional question that may be up for debate. That said, the wave of fintech developments that has emerged over the last 10 years is too significant to ignore. While these applications hold tremendous potential to enhance many parts of the financial ecosystem, they also have the potential to become a new source of risks.

Policymakers and standard-setting bodies around the globe have taken a significant interest in fintech, seeking to understand the associated benefits and risks, and analyzing how to support the development of innovative solutions in a way that ensures adequate oversight and controls.

In November 2017, the FSB released a report that focuses specifically on the financial stability implications of the growing use of artificial intelligence (AI) and machine learning in financial services. Earlier this year, the European Commission published a paper that proposes a three-pronged approach to the use of AI and machine learning, based on increasing public and private investments; preparing for socio-economic changes brought about by AI; and ensuring an appropriate ethical and legal framework.

The range of fintech applications is so vast that the related risks must be assessed on a case-by-case basis. Cryptocurrencies and cloud-based computing are two well-documented examples of specific fintech applications that warrant a closer analysis:

Cryptocurrencies

Given their nature and their relative novelty, cryptocurrencies are exceptionally difficult to value. While history may show that cryptocurrencies are presently overvalued, overall volumes are relatively modest from a systemic risk point of view. As a result, unless system-wide adoption and outstanding volumes increase significantly from current levels, the potential for a cryptocurrency crash or operational incidents to affect financial stability remains fairly limited.

While regulators around the world are responding to the growth of crypto-assets in a variety of ways, it should be noted that the issuance of central bank digital currency is actively being investigated.

On July 16, 2018, the FSB reported to the G20 Finance Ministers and Central Bank Governors on its work with respect to crypto-assets. While the FSB believes that crypto-assets do not pose a material risk to global financial stability at this time, it has developed a framework, in collaboration with the Committee on Payments and Market Infrastructures (CPMI), to monitor the financial stability implications of developments in crypto-asset markets.

Cloud-based computing

The growing importance of cloud-based computer services and the increasing interest for the use of cloud outsourcing solutions within the banking industry have prompted the European Banking Authority (EBA) to develop a set of recommendations for the use of cloud service providers by financial institutions. These recommendations address five key areas of concern: the security of data and systems; the location of data and data processing; access and audit rights; chain outsourcing; and contingency plans and exit strategies.

Even though cybersecurity concerns predate the Lehman insolvency, they undoubtedly pose a much more serious risk now than they did a decade ago. The scale and sophistication of cyberattacks has grown exponentially, and it is not surprising that cyber threats have consistently been ranked as the number one concern by respondents to DTCC's Systemic Risk Barometer since the inception of this survey in 2013.

In line with this evolution, regulators around the world have considerably heightened their focus on this type of risk and have issued a wide variety of rules, guidelines and standards designed to enhance cyber resilience. This increased regulatory attention will likely continue; in a survey published in October 2017 by the Financial Stability Board (FSB), 72% of FSB member jurisdictions reported publicly released plans to issue new regulations, guidance or supervisory practices that address cybersecurity for the financial sector within the next year.

The most alarming evolution over the past 10 years is the shift from cyber-thefts and other cybercrimes motivated by monetary gains to the use of cyberattacks as a geopolitical weapon, developed by state-sponsored actors and specifically targeted to compromise vital infrastructure components. Even central banks and other critical public-sector organisations have been hit by data breaches, with several incidents described internally as "espionage."

Several cyberattacks have also exposed potential threats associated with vendors, contractors and other service providers – adding another challenging dimension to third-party risk management.

While the resources that are allocated to combat this threat have grown dramatically, additional efforts are required to create new and strengthen existing cybersecurity public-private partnerships.

Opportunities to enhance financial stability

Cybersecurity capabilities and plans should continue to be prioritised, emphasising resilience and recovery as much as prevention, incorporating tabletop exercises and promoting public-private partnerships

Cyber-attacks on financial institutions have become more frequent, complex, and sophisticated, with an unprecedented potential for far-reaching, systemic impacts. The motivation of cyber-attackers is shifting from purely achieving financial gains to disrupting critical infrastructures, which threatens the basis for confidence in the financial system and even national or international stability. In today's world of geopolitical turmoil and the ever-increasing speed of technological innovation, the occurrence of a successful large-scale cyber-attack is likely a matter of "when", not "if."

In response to this ever-increasing threat, it is more crucial than ever to continue developing and promoting public-private partnerships that effectively leverage the complementary strengths of both sectors. DTCC and Oliver Wyman have made a joint effort to bring together financial services and non-financial services practitioners to investigate cross-industry coordination on response and recovery mechanisms to mitigate the systemic consequences of a large-scale cyber-attack.

Supervisors should continue to focus on harmonising regulatory requirements and encouraging innovation in a way that carefully balances the associated risks while ensuring a level playing field

There is broad agreement that more stringent post-crisis rules and regulations have effectively helped mitigate systemic risk. That said, more work is required to achieve the level of transparency and risk reduction sought by policymakers almost a decade ago. In addition to the lack of standardisation with respect to derivatives trade repositories mentioned above, there continues to be a need for greater harmonisation and coherence in other post-trade services such as collateral management, clearing and settlement.

Specifically with respect to fintech developments, we feel it is imperative for policymakers to create a regulatory framework that encourages responsible innovation by allowing the potential of these new technologies to materialise while providing the level of oversight that is necessary to ensure financial stability. As part of this balancing act, supervisors should coordinate internationally to ensure a level playing field and avoid opportunities for regulatory arbitrage.

Conclusion

Regulators and policymakers, as well as the financial services industry at large, have made substantial efforts over the last decade to mitigate many of the key systemic risks that materialised in the wake of the Lehman insolvency. While these efforts have considerably enhanced the financial sector's resilience, further work remains to be done to fully address some of the vulnerabilities that triggered or exacerbated the financial crisis as well as new risks that have emerged over the past decade.

Despite the progress that has been made, we as an industry cannot become complacent. The sheer unpredictability of financial crises, as well as their myriad potential causes and effects, warrant continued vigilance and caution above anything else.

Additionally, the financial ecosystem – and the world at large – has changed considerably over the last 10 years, giving rise to new and ever-changing threats. As such, we feel that the best defense against these risks is to take a forward-looking approach that anticipates and mitigates threats that have not materialised yet.

In that spirit, this paper has outlined a series of forward-looking opportunities to further increase financial stability. While the tools to implement these opportunities are not all under DTCC's control, we are developing several initiatives that are designed to promote or support some of their underlying objectives.

This paper is designed to foster dialogue and discussion rather than provide definitive answers. As such, we encourage you to share your comments and feedback with us. **FS**

The quote

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