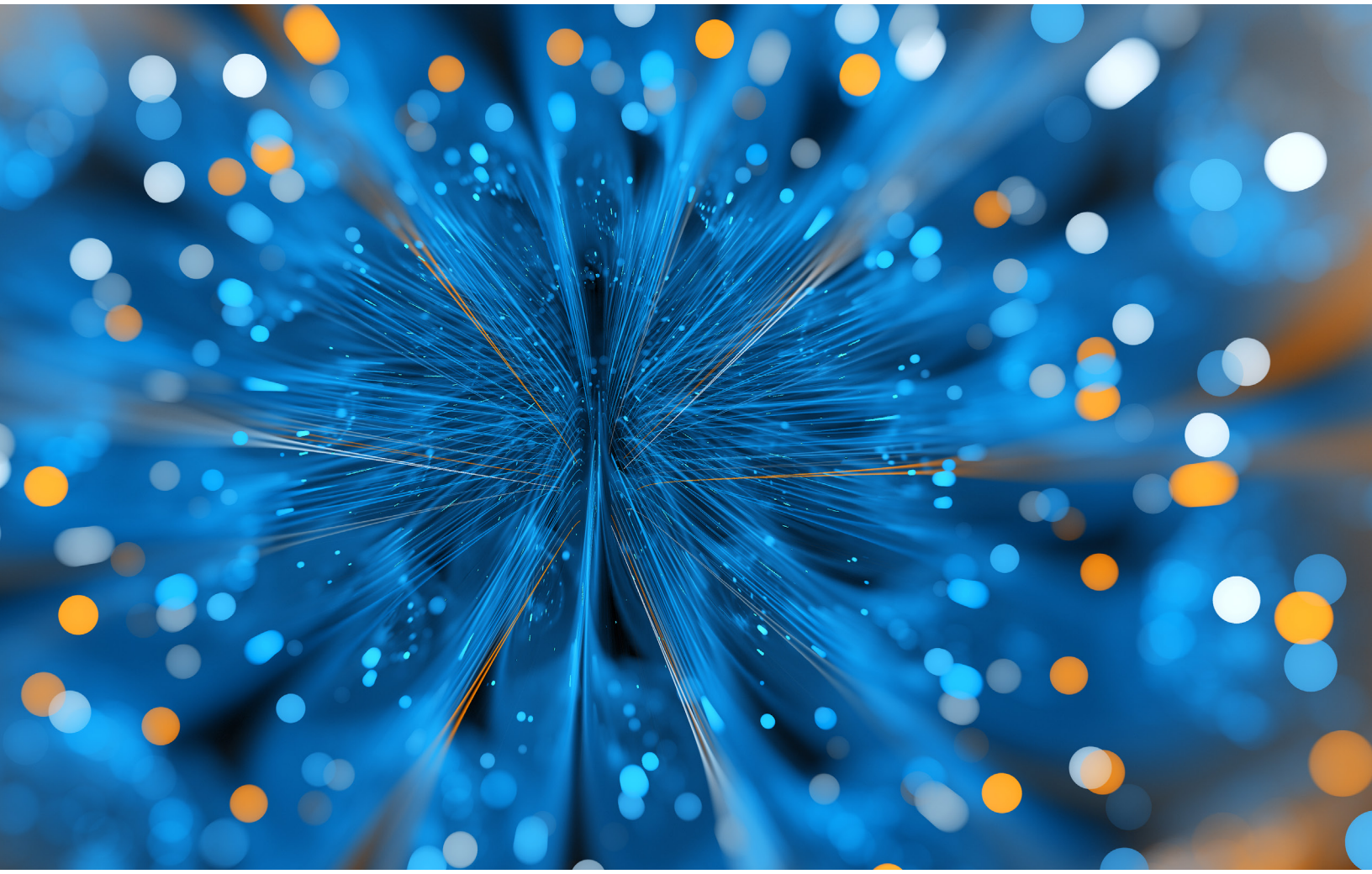


2008–2018–2028

The Dissolving Divides that Will Shape the Post-Crisis Investment Era

A decade has passed since the events of 2008. We called upon Neuberger Berman practitioners to talk about how the financial crisis changed the world for investors, and to identify what we see as the key investment implications for the next 10 years. There was broad agreement that there are four lasting megatrends: the explosion of **debt** in the world, the challenging transition to a new **global order**, the restructuring of **capital markets** and the growing economic importance of **technology**. We argue that these megatrends are dissolving some longstanding divides: between **governments and markets**, between **the emerging world and the developed world**, between **the public markets and the private markets**, between **human and machine**. Such profound economic and social change will demand equally profound changes to long-term investing. Here, we suggest what some of those changes might look like.

NEUBERGER | BERMAN

JOSEPH V. AMATO
President and Chief Investment Officer—Equities

ERIK L. KNUTZEN, CFA, CAIA
Chief Investment Officer—Multi-Asset Class

OVERVIEW

Dissolving Divides

Investment managers tend to think about the future more than the past, trying to anticipate how the economic and market sands will shift over the next few quarters and the next few years. Nonetheless, there are events in the past that were more like earthquakes than shifting sands. It is difficult to imagine the future without understanding what those events mean.

As the summer of 2018 progresses, our minds turn back to the financial crisis of a decade ago. Those events were so momentous in their impact on the global financial markets, economy and society that we still feel the aftershocks today. Investors and policymakers are still grappling with the effects of the crisis and the unprecedented response.

That is why we used this anniversary as an opportunity to engage with colleagues from across Neuberger Berman, not just to reflect upon the crisis and its aftermath, but more importantly to draw upon the countless conversations we have had with clients and company management teams from around the world to look to the future.

Our 10 Investment Implications

1. Readying for the cyclical opportunity in corporate-debt downgrades
2. Rethinking risk diversification in long-term investment portfolios
3. Sharper distinctions between passive, smart beta, quantitative and active management
4. Emerging markets will go mainstream
5. The Great Disinflation is likely over
6. Private assets are becoming more essential—and more flexible
7. Diminished banks mean more opportunities for investors
8. Thematic analysis will be more important for active investors
9. Big data will define our economic ecosystem and transform investing
10. ESG analysis will be more fully integrated into investment processes

We imagined ourselves 10 years from now. What are the forces that would still be driving the investment world, and what would have been dismissed as mere noise? We agreed that four big trends will still be shaping the economic and financial landscape.

The first is the **explosion of debt** throughout the world, taken on by both sovereign and corporate borrowers. The second is the challenging, and in many ways painful transition from the east-west world order of the 20th century, and the north-south arrangement of the past 30 years, to the genuinely global, and yet also more fractious **multipolar world order of the future.** The third is the **restructuring of financial and capital markets**, a wave of disintermediation of the banks and public equity and bond markets that dominated the past century. And the fourth is the **growing economic importance of technology.**

The first three of these are intimately linked to the financial crisis itself.

The 2008 – 09 crisis shocked stock markets, but its impact on debt markets was unprecedented. The 55% plunge in world equity markets was extremely painful, but within historical experience. By contrast, the catastrophe in credit markets—beginning in U.S. subprime mortgages, sending high-yield credit spreads above 2,000 basis points, and culminating in a European sovereign defaulting on an IMF payment—was an unparalleled and scarring experience.

Policymakers' responses to the crisis were equally unprecedented. Major central banks adopted vast quantitative easing programs and, in some cases, negative interest rates. Regulatory authorities overhauled swaths of banking and market regulation. Government balance sheets groaned under the weight of trillions of dollars of debt taken on from the imperiled private sector. Some, such as the U.S. and China, added substantial fiscal stimulus. Others implemented austerity measures, which in the case of the euro zone revealed structural weaknesses that remain unaddressed.

U.S. GDP contracted by more than 4% in the 12 months to the second quarter of 2009. Even the global economy shrank by 2% that year. Over the next five years unemployment peaked at 10% in the U.S. and 11% in the European Union. Youth unemployment in the EU hit 24%.

This unleashed significant social tensions. As the emerging economies opened to trade through the 1980s, '90s and 2000s and became the workshop for the world, cheap goods and cheap credit disguised the fact that the developed world had exported many of its manufacturing jobs. Inequality within countries grew even as global inequality diminished. The financial crisis revealed how unsustainable it was to use consumer credit to paper over the widening cracks.

As if all of this were not enough, the financial crisis and its aftermath coincided with an epochal change in the technological environment, from the arrival of smartphones and social media, to the spread of automation, artificial intelligence and "big data." This unleashed a wave of disruption as nearly every business model in every industry, from retail to media, from transport to finance itself, came under tremendous pressure to reinvent itself or die.

We argue that all of this has propelled us into a new era in which some longstanding divides are being dissolved: divides between **governments and markets**, between **the emerging world and the developed world**, between **the public markets and the private markets**, between **human and machine**. Those dynamics lead us to our 10 key investment implications and five guiding principles for investors that we set out at the end of this project.

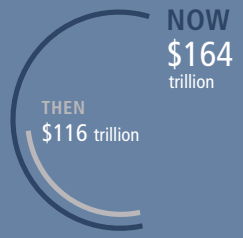
"Many books will be written about this period," as one of our colleagues put it. The world has rarely been through such a confluence of social, political, geopolitical, technological, economic and financial-system change.

Such profound economic and social disruption will demand equally profound changes to long-term investment programs. Here, we suggest what some of those changes might look like.

That Was Then, This Is Now: The Four Themes in 22 Numbers

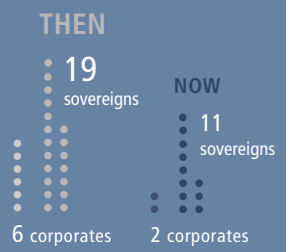
GOVERNMENT / MARKET

Global Debt[1]

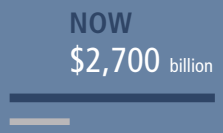


Federal Reserve, ECB and Bank of Japan balance sheets

Number of AAA bond issuers



Value of outstanding U.S. BBB corporate bonds



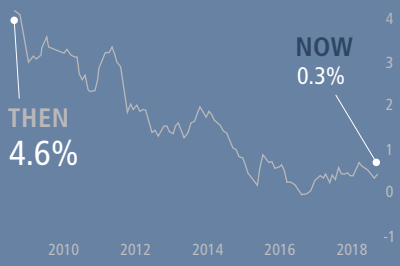
EMERGING WORLD / DEVELOPED WORLD

GDP of Brazil, Russia, India and China
(current U.S. dollars)[2]

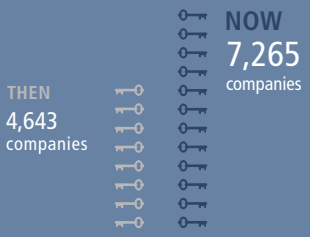
PUBLIC MARKET / PRIVATE MARKET

U.S. primary dealers corporate debt net positions

German Bund 10-year yield[3]



Number of U.S. private equity owned companies

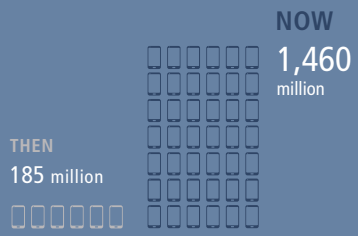


HUMAN / MACHINE

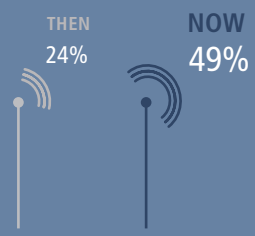
World's six biggest companies by market cap[4]

THEN	NOW
ExxonMobil	Alphabet
中国移动 China Mobile	amazon
Microsoft	Tencent 腾讯
PetroChina	facebook
GE	Microsoft
中国工商银行 INDUSTRIAL AND COMMERCIAL BANK OF CHINA	

New smartphone shipments worldwide



Global internet penetration
(users as a percentage of the population)



[1]Total private and public debt of 190 countries, as of December 31, 2007, and December 31, 2016.
[2]As of December 31, 2007, and December 31, 2016.
[3]Tradingeconomics.com / Germany Department of Treasury. As of August 8, 2008 to August 8, 2018.
[4]As of December 31, 2007, and December 31, 2017.
Source: International Monetary Fund, Federal Reserve, European Central Bank, Bank of Japan, Standard & Poor's, Federal Reserve Bank of New York, World Bank, Bloomberg, Kleiner Perkins, PitchBook. Data as of 2008 and 2017 unless stated otherwise.

TRENDS

DEBT: GOVERNMENT / MARKET
Policymakers Try to Cancel Capitalism

Official intervention in the economy and markets as the financial crisis hit probably averted a second Great Depression. Nonetheless, some argue that the emergency treatment shares as much blame for the subsequent shallow economic recovery as the initial shock. If negative rates, quantitative easing and fiscal deficits are now a permanent part of the policy toolbox, what does this mean for the creative destruction of the capital cycle, the sustainability of economic growth and financial risk, return outlooks and risk over the next decade, and the role of active portfolio management?

GLOBAL ORDER: EMERGING WORLD / DEVELOPED WORLD
Toward a Multipolar Global Order

The new prominence of China and the emerging world and rising inequality in the developed world could demand a new consensus on politics and trade, with a potentially profound effect on global growth and inflation. What does this mean for emerging markets investing? How will a transition in the global inflation dynamic affect fixed income returns, how we think about "low-risk" assets, and how we go about balancing risk in long-term investment portfolios?

CAPITAL MARKETS: PUBLIC MARKET / PRIVATE MARKET
Capital Raising Goes Back to the Future

As regulation changes the way that public bond and equity markets trade, the growing size, depth and breadth of private markets is opening up more liquidity options for investors. At the same time the changing nature of business and capital flows require private markets to play a more important role in financing growth. Will private markets become as important, and as liquid, as public markets? What opportunities and risks await investors as banks lose their dominance in lending and market-liquidity provision?

TECHNOLOGY: HUMAN / MACHINE
Creative Destruction at the Speed of Light

The blistering pace of technological change presents both opportunity and risk to economies, society and jobs. The megatrends it unleashes imply a wealth of investment themes, as well as a transformation in the way we research, trade and select our investments. How will investors incorporate technology themes into their research, exploit the new ecology of big data, and redefine active portfolio management by marrying the two disciplines of quantitative and fundamental investing?

OUR INVESTMENT IMPLICATIONS

- Readying for the cyclical opportunity in corporate-debt downgrades
- Rethinking risk diversification in long-term investment portfolios
- Sharper distinctions between passive, smart beta, quantitative and active management
- Emerging markets will go mainstream
- The Great Disinflation is likely over
- Private assets are becoming more essential—and more flexible
- Diminished banks mean more opportunities for long-term investors
- Thematic analysis will be more important for active investors
- Big data will define our economic ecosystem and transform investing
- ESG analysis will be more fully integrated into investment processes

GUIDING PRINCIPLES

- Accept the new reality of lower market return outlooks, higher volatility and higher correlations
- Pursue the full passive-to-active spectrum
- Embrace private as well as public markets
- Create an institutional governance structure that enables nimble opportunism
- Look for more from asset managers

"IT'S NOT OVERSTATEMENT TO SAY THAT CAPITALISM AS WE KNOW IT WAS CANCELLED BY THE MAJOR CENTRAL BANKS."

ROBERT W. D'ALELIO, *Co-Portfolio Manager—Small Cap Team*

Government / Market
Policymakers Try to Cancel Capitalism

For all of its flaws, global capitalism plays a critical role in the efficient allocation of scarce resources. The main mechanism for this function is the pricing of capital. While it may take years to show up, when capital is mispriced, bad things happen. Policymakers' responses to the financial crisis, especially the significant role played by the major central banks in suppressing interest rates, will have long-term implications for the global economy. How quickly—or whether—debt and equity markets move back to a normalization of the pricing mechanism for capital will shape economic performance in the years to come.

In addition to adopting extraordinary monetary policy to suppress interest rates, the most significant responses to the financial crisis were moving debt from the private sector to government balance sheets, a substantial public-sector fiscal stimulus, and an overhaul of swaths of banking and financial market regulation.

These responses are causing blockages and gaps in the systems of financial-market liquidity and credit transmission, and have evolved into permanent deficit policies in the developed world and higher sovereign debt levels in the emerging world. The financial crisis may have been caused by debt, but that hasn't stopped global government and corporate debt from increasing by 40% since, to the mind-bending total of $164 trillion as of end-2016.

Some of those responsive measures probably helped avert a second Great Depression. They also continue to support risk appetite by artificially suppressing the volatility of the economic cycle and distorting the creative destruction of the business cycle and the price of capital. While some individuals and smaller companies have struggled to borrow and raise capital, the corporate sector in general has taken advantage of an unusually extended economic cycle and artificially low interest rates to borrow more, leading to huge growth in the corporate bond and loan markets.

Deeper Insight

"Voters may be reminding governments that they cannot leave the business of growth and job creation to central banks alone."
"The World Turned Upside Down"

JOSEPH V. AMATO, *President and Chief Investment Officer—Equities*

"The transition from economies being driven by central-bank technocrats with their forward guidance, to economies being driven by politicians with their restless constituents, represents a meaningful increase in market risk."
"Populist Fears, Globalist Tears"

BRAD TANK, *Chief Investment Officer and Global Head of Fixed Income*

While governments, central banks and regulatory authorities in the major developed economies have been intervening more purposefully in markets, we have also witnessed the rapid growth in the size and influence of the centrally planned and still relatively closed economy of China. Overall, governments are touching and steering a growing proportion of the world's economic activity.

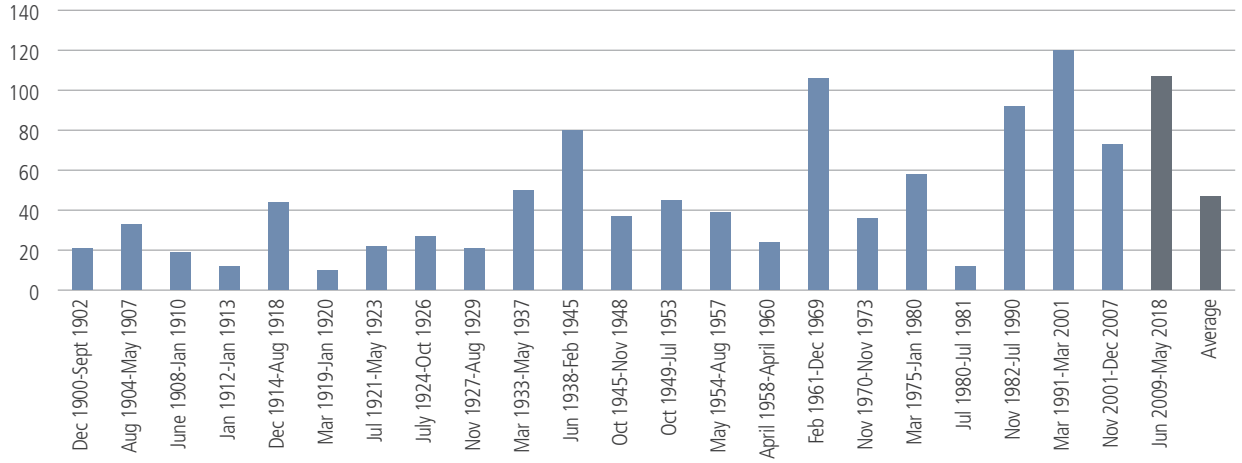
All of these phenomena, together with lingering questions about the sustainability of pre-crisis growth rates, could add up to substantial headwinds to economic growth and investment returns. A newly constrained banking system balks at very tight private-sector risk premia and lends only to sovereigns, crowding out productive investment. It no longer provides sufficient liquidity to capital markets to facilitate the smooth repricing of risk. Zombie companies set the marginal prices in the economy, exerting deflationary pressures. In the meantime, inequality grows between the individual saver who owns assets inflated by central bank policy and the individual saver with no assets who earns very little disposable or investable income above inflation.

We anticipate that the normalization of the pricing mechanism for capital in the developed world, not to mention the transition toward a more open and liberal market economy in China, will be a very gradual process.

Following a decade of official intervention to hold up asset markets, return outlooks are likely to be lower over the next decade while risk is likely to be higher.

Are We Making Business Cycles Last Longer?

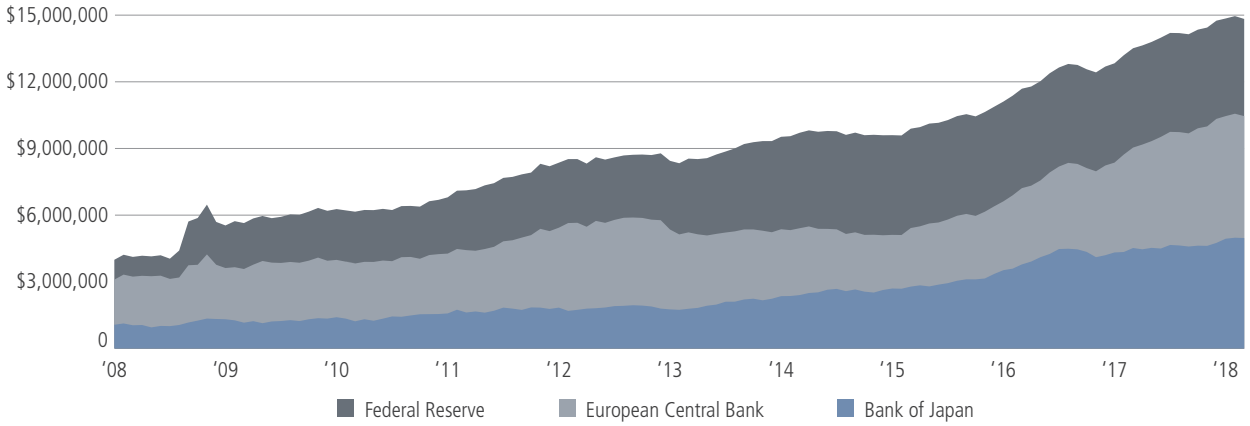
Number of months from growth trough to growth peak in U.S. cycles since 1900



Source: National Bureau of Economic Research.

Central Banks Binge on Bonds

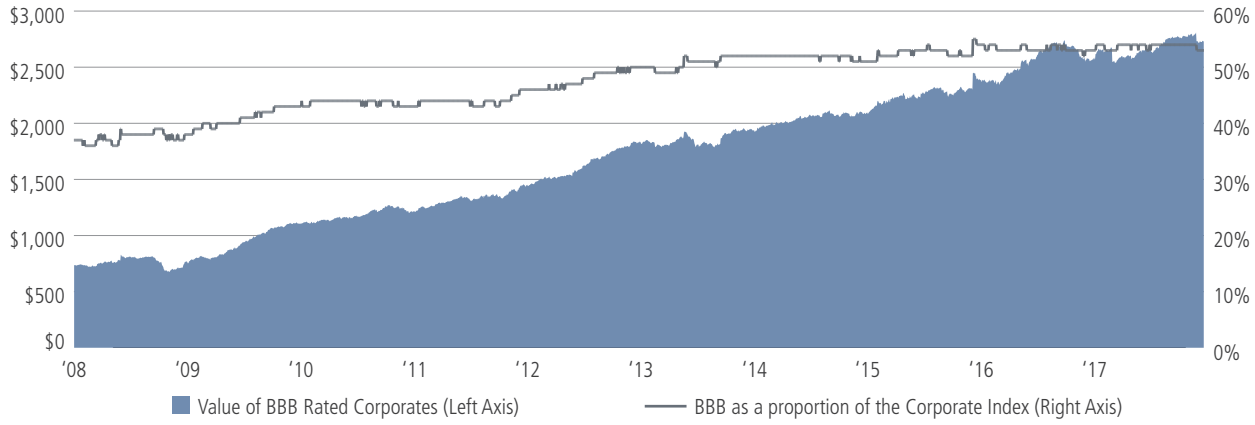
Balance sheet size (USD millions)



Source: Federal Reserve, European Central Bank, Bank of Japan.

A Swarm of BBBs

Market value (USD millions) and proportion of BBB rated debt in the Bloomberg Barclays U.S. Corporate Bond Index



Source: Bloomberg.

Regulatory Sand in the Wheels of Market Liquidity

Primary dealers corporate debt net position (USD millions)

Source: Federal Reserve Bank of New York.

Deeper Insight

"The Bank of Japan owns approximately two-thirds of all Japan ETF assets. The Swiss National Bank (SNB) has bought $80 billion of U.S. equities as of the first quarter. These anomalies, which few would have imagined when the Fed kicked this off in 2008, barely merit a column inch in the press."

"These Are Not Normal Markets"

DAVID KUPPERMAN, PhD, *Co-Head—Neuberger Berman Alternative Investment Management*

"BBB rated corporate debt in the Bloomberg Barclays U.S. Corporate Index has risen by about 250% in dollar terms since 2007 and now accounts for 52% of the index."

"A Changing Landscape for Multi-Sector Fixed Income Investing"

ASHOK K. BHATIA, CFA, *Senior Portfolio Manager—Multi-Sector Fixed Income*

"IN THE AFTERMATH OF THE FINANCIAL CRISIS BOND MARKETS WERE TOO BIG. THEY BECAME SUBSTANTIALLY SMALLER BY VIRTUE OF CENTRAL BANK INTERVENTION, BUT NOW WE NEED TO RECOGNIZE THAT THEY'RE ABOUT TO BECOME TOO BIG AGAIN AND THAT CREDIT QUALITY HAS DETERIORATED IN THE MEANTIME."

BRAD TANK, *Chief Investment Officer and Global Head of Fixed Income*

Our Three Investment Implications

1 Readying for the cyclical opportunity in corporate-debt downgrades

We think governments will try to monetize and inflate their debt away over time. Corporate borrowers have no such luxury. As the cycle matures over the next couple of years, growth is likely to slow down and interest rates are likely to rise. That could put pressure on companies that have exploited a long period of low volatility and low rates by taking on more debt.

Credit markets have deteriorated in quality even as they have grown. Over the past 20 years the average credit rating has fallen from A to BBB as more and more companies have succumbed to the attractions of cheap debt. The search for yield by investors has fed exceptional growth in BBB rated bonds as well as high-yield loans, European corporate debt and emerging markets debt.

We expect the credit cycle to turn at some point over the next two to three years. When that happens, a considerable "threshold risk" could be realized as a substantial proportion of the bloated BBB market is downgraded from investment grade to high yield. Many credit investors are able to hold only a limited amount of non-investment grade debt. They have been joined by institutional investors facing post-crisis capital-requirement regulations, such as Solvency II, that make it prohibitively capital-intensive to hold onto bonds that have been downgraded to high yield.

Yet another set of post-crisis regulatory interventions—in the form of the Basel III banking accord and the U.S. Dodd-Frank Act—has made it much more capital-intensive for investment bank broker dealers to "warehouse" securities on their balance sheets. Those inventories are used to make markets and provide liquidity to clients as they buy and sell stocks and bonds; as they shrink, the liquidity of the public markets dries up and the potential for gaps in pricing, and higher volatility, rises.

The wave of forced selling of downgraded bonds is therefore likely to be larger than in previous cycles, and the capacity to bear risk much lower at broker dealers. Specialist high yield investors struggling to absorb all of this new supply are likely to demand substantial discounts.

Credit markets got a small taste of that dynamic in 2015, when a number of BBB rated bonds from the commodity sectors had to be discounted as low as 50 cents on the dollar to be absorbed into the high yield universe, before heading back toward par over the next 12 months. We anticipate a large opportunity for high yield investors in the more stressed parts of the market, beginning as the credit cycle turns in two to three years and lasting for perhaps a year or two thereafter. That could be an opportune time to establish some core positions to carry through the ensuing recovery, taking us toward the 20th anniversary of the financial crisis in 2028.

"WHEN THERE IS FORCED SELLING, IT IS NOT CLEAR WHERE THE BUYERS ARE GOING TO STEP UP FROM: THAT SUGGESTS THAT REPRICING WILL HAVE TO OCCUR FASTER AND PERHAPS MORE DEEPLY THAN IN THE PAST."

THOMAS O'REILLY, CFA, *Global Head of Non-Investment Grade Fixed Income*

2 Rethinking risk diversification in long-term investment portfolios

The financial crisis was, above all, a credit event, and a good reminder that fixed income and credit can be subject to major loss events and long periods of poor real-terms performance. In fact, three decades of declining interest rates may have allowed investors to forget that, before the 1980s, the number of long-term periods of poor total returns for bonds is far greater than for equities. Of the 81 rolling 10-year periods since 1927, the total return to the 10-year U.S. Treasury bond was greater than the total return of the S&P500 Index in only 13. Long-term bond outperformance was seen during only three periods: from the late 1920s through the '30s, from the late 1960s to the late '70s, and between the late 1990s and 2011.

Since the financial crisis debt has exploded in both the sovereign and corporate sectors. The Great Disinflation of the past 30 years, and its attendant bond bull market, may be coming to an end. As yields have fallen they have caused a mechanical lengthening of duration, increasing the interest rate sensitivity in bond markets. All of these phenomena raise important questions about what constitutes a "low-risk" asset and how to balance risk in a long-term investment portfolio.

We believe a viable solution for income investors has three elements. First, it involves seeking higher yields from alternative sources of income, from emerging markets debt to loans, real estate securities, high-dividend equities and options-writing strategies. Second, it requires investors to exploit the risk-reducing power of diversification to the fullest. Finally, it calls for dynamic asset allocation to recognize the very cyclical nature of the performance of alternative income investments.

Alternative sources of income undeniably can be less secure than the income from investment grade bonds—but it is important to understand that steps likes these do not simply add risk to portfolios, but rather exchange one type of risk (that is, interest rate risk) for a range of others. Thoughtfully combined, alternative sources of income can diversify away a lot of the extra risk associated with holding them individually.

In a new era of low income from traditional sources, higher interest rate downside risk, higher volatility and higher cross-asset correlations, rethinking the best way to get both income and diversification in long-term investment portfolios will be a signature challenge.

Deeper Insight

"It is vital that investors reconsider what is going on in their so-called 'low-risk' income portfolios. In the past these portfolios have relied on investment-grade bonds to generate stable income with low price volatility. But today, investment grade bond yields are simply too low to allow most individual savers to maintain their incomes and lifestyles. Those low yields also increase investors' exposure to the risk of substantial capital loss: The higher bond prices are, the further they can fall and the more sensitive they become to changes in interest rates."

"Multi-Asset Income: Re-thinking Risk"

ERIK L. KNUTZEN, CFA, CAIA, *Chief Investment Officer—Multi-Asset Class*

"Approaches to multi-sector fixed income investing that worked over the past five years are unlikely to work over the next five years. We see portfolios confronting a number of challenges in the medium term, including how to maintain income without significant increases in credit allocations or a deterioration in the quality of those allocations; how to generate positive total returns in an environment of low rates, tight spreads and relatively high correlations; and how to ensure that fixed income exposures contribute to portfolio diversification rather than detract from it."

"A Changing Landscape for Multi-Sector Fixed Income Investing"

ASHOK K. BHATIA, CFA, *Senior Portfolio Manager—Multi-Sector Fixed Income*

3 Sharper distinctions between passive, smart beta, quantitative and active management

When the capital cycle is suppressed and authorities intervene more in the pricing of risk and the allocation of capital, the role of active asset managers comes into question. At the same time, the prevailing global debt burden is likely to suppress global growth and market-level returns, putting more pressure on investors to generate excess returns at lower overall cost.

Cost-effective does not always mean "cheapest." As asset management fees become more competitive, investors will increasingly focus on the alignment of interest embedded in fees and fee structures. That means active managers will need to be clearer about their value proposition—the risks they take to generate meaningful excess returns, and the resources they dedicate to researching and taking those risks prudently. We believe that a process behind a good track record can and should command a premium even from cost-conscious investors. Those processes may involve deeper research and analytical resources, more active and engaged ownership of portfolio companies to add value over time, and full integration of the big data that companies and their customers leave behind them in our increasingly digitized age.

These developments will continue to blur the dichotomy between passive and benchmarked-active strategies. We will move toward a more considered differentiation between commoditized passive and smart beta, scalable active quantitative strategies, genuine high-conviction and engagement-based active management, and the increasingly important private markets.

Taking market risk more purely and cost-effectively should free investors' cost and risk budgets for more focused alpha generation. Sharper distinctions between alpha- and beta-focused strategies should also enable investors to manage their risk budgets more tactically, recognizing that the balance between market risk and idiosyncratic risk can be dialled up and down with the perceived "alpha richness" of the environment through time.

"EFFECTIVE ACTIVE MANAGEMENT WILL BECOME MORE RESOURCE-INTENSIVE EVEN AS INVESTORS SEEK CLEARER VALUE FOR MONEY. INTRODUCING MORE DATA TO THE RESEARCH PROCESS, GATHERED MORE EFFICIENTLY AND ANALYZED IN MORE SOPHISTICATED WAYS, WILL BE AMONG THE MOST IMPORTANT CHANGES TO THE WAY ACTIVE MANAGERS WORK."

JOSEPH V. AMATO, *President and Chief Investment Officer—Equities*

Emerging World / Developed World
Toward a Multipolar Global Order

In the Western world since the collapse of the Soviet Union, a consensus emerged around the favorability of liberal democracy, market capitalism and free global trade under the auspices of the World Trade Organization, oiled by the liquidity of the U.S. dollar. The emerging world opened to global markets and established orthodox political and financial institutions, and the developed world accepted changes to its own economies in return for access to new, fast-growing markets and cheaper goods and credit.

That consensus has come under strain for a number of reasons. China will soon emerge as the world's largest economy and is increasingly a competitor against as well as a complement to the developed world's economic and political interests. The emerging world in general is likely to leverage its demographic advantages to become the major growth engine for the world economy.

The spread of markets and the liberalization of economies, while delivering growing equality globally, has exacerbated inequality at the local level, especially in the developed world. The financial crisis may have revealed the unsustainability of the global economic imbalances that the old, north-south global order created. It has certainly led to a rise in the electoral success of populist and nationalist platforms and

Deeper Insight

"China's prospects are bright, but its challenges—rapid aging, low productivity growth, income inequality, low consumption and a limited social safety net—are grave. Nonetheless, its ability to look through that volatility is unique. As the U.S. struggles with division in Washington, and Europe faces Brexit to the west and rising populism almost everywhere, President Xi articulates a vision for 2050. The scope and potential impact of that vision is why investors should turn their eyes from Twitter to Beijing."

"China Charts Its Future"

JOSEPH V. AMATO, *President and Chief Investment Officer—Equities*

"If you want a picture to sum up how the politics of globalization have changed since the financial crisis, watch Canada's trade minister, Chrystia Freeland, holding back tears as the Parliament of Wallonia refused to ratify the Comprehensive Economic and Trade Agreement between her country and the European Union."

"Populist Fears, Globalist Tears"

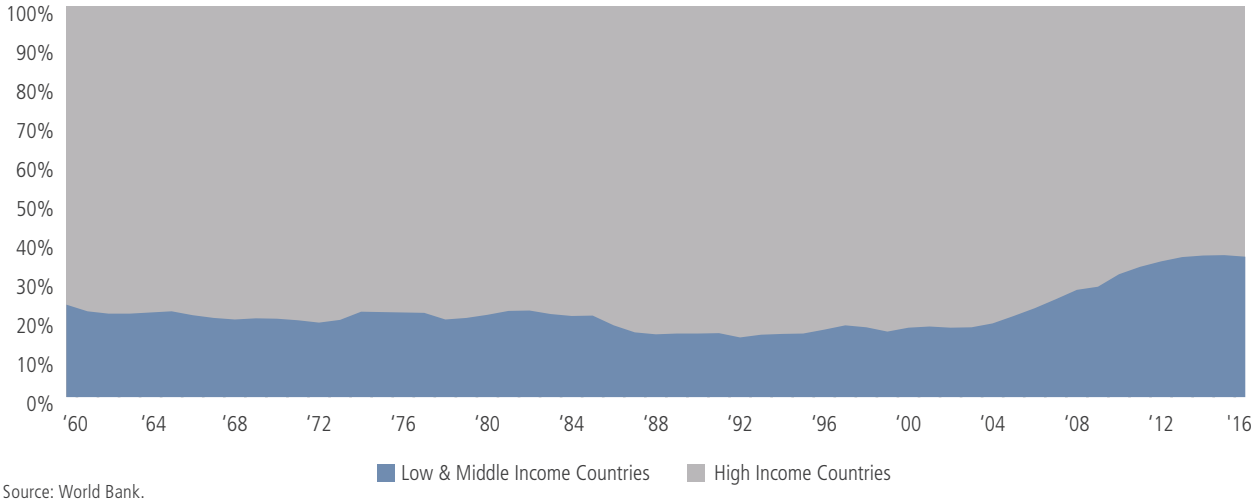
BRAD TANK, *Chief Investment Officer and Global Head of Fixed Income*

criticism of the institutions of market capitalism and global trade. According to Global Trade Alert, the world has seen more than 11,000 trade interventions since the financial crisis, and of those it has classified almost 7,500 as "harmful" to global trade.

The east-west global order of the 20th century has passed through the north-south global order of the 1990s and 2000s, toward a truly global—but fractious—multipolar order of the future.

The Emerging World Takes Its Share

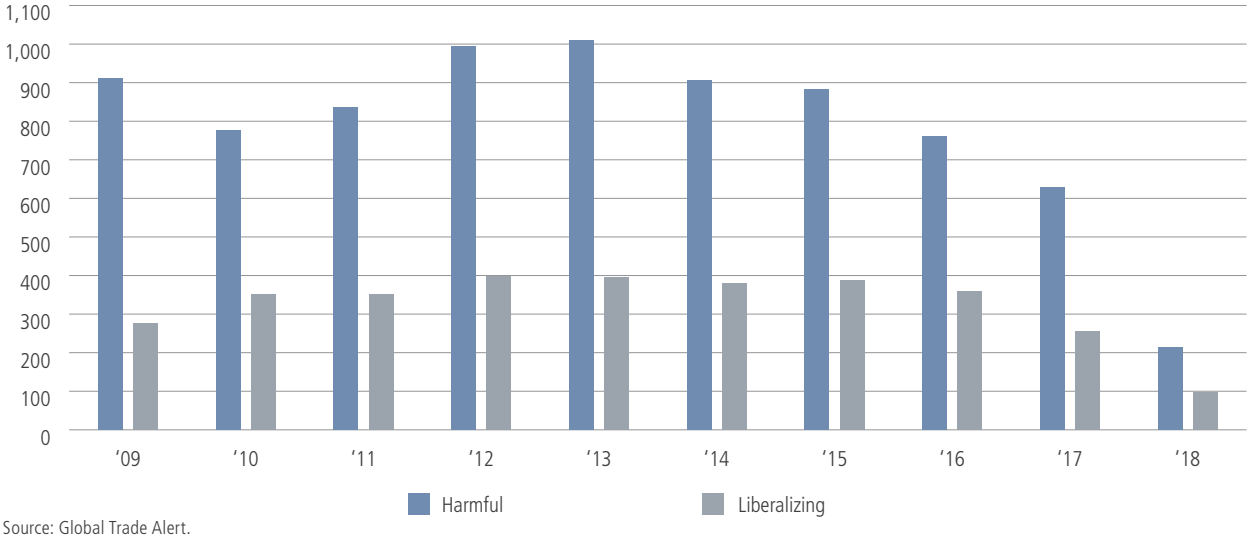
Share of global GDP in current U.S. dollars



Source: World Bank.

Even Before the Trump Tariffs, Globalization Was Under Stress

Number of harmful and liberalizing trade interventions worldwide since 2009



Source: Global Trade Alert.

Our Two Investment Implications

1 Emerging markets will go mainstream

Investors remain underinvested in emerging markets, if we consider portfolios on a GDP-weighted basis: the MSCI All Country World Index allocates around 13% to emerging markets, and the emerging world accounts for about one quarter of the world's total public and private debt, but its share of global GDP is close to 40% and rising. That underinvestment is likely to continue to correct, especially as the emerging world becomes the main source of global economic activity in addition to just being the marginal driver of global growth.

Recent developments, from China's "Belt and Road" initiative to the expansion of local-currency debt markets since the financial crisis and the inclusion of China's huge onshore equity and bond markets in global benchmark indexes, already point to this transition.

It is worth remembering the sheer scale of what is implied by the liberalization of China's onshore securities markets for international investors. In accordance with its sizable economy China has the world's second largest equity market by value. More than 4,000 publicly traded "A shares" are listed across various markets, with a total market capitalization of $12 trillion. The market in renminbi-denominated bonds that are traded and cleared onshore (the "CNY" market) is also worth almost $12 trillion, compared with just $82 billion worth of bonds in the U.S. dollar and offshore "dim sum" CNH markets combined. The renminbi is now the sixth most traded currency in the world, its share of global FX turnover having doubled since 2013.

Chinese A shares were included in the MSCI Emerging Market Index for the first time in June 2018, and following the launch of the "Bond Connect" trading channel in 2017, government bonds and policy-bank notes are set to be included in the Bloomberg Barclays Global Aggregate Index from April 2019. This will make it much easier for international investors to take exposure—indeed, it will mean additional benchmark tracking risk if they do not take exposure—and as such these moves are expected to attract billions of dollars of inflows.

We expect international investors' engagement with emerging markets to become deeper as well as broader. As private markets begin to represent a greater proportion of economic activity in general, we also expect investment in public emerging markets to be complemented by bigger allocations to private assets. In fact, investors may perceive that genuine economic exposure to some emerging and frontier countries can be gained more easily through more domestically focused private companies than through public markets that can be extremely small and sometimes dominated by local champions that trade globally. Similarly, active managers' environmental, social and governance (ESG) analysis is likely to penetrate deeper into securities research in emerging markets, not least because the major emerging countries' stock exchanges often have stricter reporting requirements than those in the U.S.

Over the coming decade, as lower return outlooks incentivize allocations to high-growth, high-return markets, we fully expect the current distinctions between the developed and emerging worlds to dissolve; investors are increasingly likely to reject this somewhat arbitrary division in favor of pursuing the best investment opportunities across the multipolar world.

Deeper Insight

"The 600 or so Hong Kong-listed H shares and approximately 100 U.S.-listed ADRs are the most familiar China stocks. But the onshore A share market is bigger, deeper and faster-growing: the most dynamic emerging Chinese companies in the consumer, health care and industrial sectors are almost always listed as A shares."

"China: The Anatomy of an Equity Market"

BIN YU, *Senior Portfolio Manager and Head of China Equity*

"As well as having proportionately more representation of corporate China, the onshore corporate bonds market, worth more than $5 trillion, is simply 10 times larger than the offshore dollar- and renminbi-denominated markets combined. It currently has more than 5,000 issuers, against 119 in the 'dim sum' CNH market and 124 in the USD market. China's onshore, local-currency bond market is fast becoming a vital new component not only in the emerging market investor's toolkit, but in the global bond market at large."

"Welcome to the Real China Bond Market"

PETER RU, PhD, *Senior Portfolio Manager—Emerging Markets Debt*
IAN CHONG, CFA, *Portfolio Manager—Emerging Markets Debt*

2 The Great Disinflation is likely over

The financial crisis exacerbated existing disinflationary trends of globalization, technological change and aging demographics—but now we anticipate something more balanced.

The Digital Price Index of online inflation maintained by customer-trends specialist Adobe Analytics shows that online deflation is significantly outpacing deflation at large, with clear implications as e-commerce gains a greater share of the retail market. The related phenomenon of the so-called sharing economy has employed underutilized assets such as spare rooms (Airbnb) and cars (Uber, Lyft), thereby driving down prices. Knock-on effects—such as the tendency for millennials to buy fewer used cars—spread that disinflation into other parts of the economy.

At the same time, wages and productivity appear to be rising more slowly than historically due to a rapidly aging and retiring workforce; automation of manufacturing and even some lower-level service jobs; the disempowerment of labor unions; a lack of corporate and government investment in capital assets due to economic uncertainty in the private sector and burdensome indebtedness in the public sector; and an increasing burden of economically significant regulation.

Nonetheless, while the disinflationary effects of technology are real, they remain limited in scope and potentially hemmed in by social constraints. Demographic aging and the fact that the average lifelong salary tends to be lower for those who graduate during a recession will likely be partly balanced out as millennials in both the developed and developing economies enter their most productive years and potentially generate upward pressure on wages.

China, which for decades has exported disinflation as the low-cost factory for the globe, is now experiencing a rapid transition toward being a more self-sufficient, consumption-led economy, while the rate of urbanization is likely to slow—making its inflationary influence on the rest of the world more balanced. The increasing self-sufficiency of China is part of the broader trend toward a slower pace of globalization, which may be exacerbated by populist and nationalist political pressure in the developed world. Should that translate into more protectionism, consumer prices are likely to rise.

The past 10 years may have created a psychological bias toward expecting low inflation to persist forever. While we might not see a definite trend for higher inflation, we do expect more of a "two-way" dynamic—and volatility and higher correlations may result as investors slowly adapt to this new reality. Alongside the heavy global debt burden, the end of the Great Disinflation and bond bull market of the past 30 years raises profound questions about what constitutes a "low-risk" asset, how to balance risk in a long-term investment portfolio, and the relative attractiveness of inflation-sensitive assets.

Deeper Insight

"While measures of financial stability have deteriorated since 2007, they remain substantially better than in the late 1990s, and better than the developed world's today. Similarly, we may not have seen the middle-class expansion that we hoped for 10 – 15 years ago, but more than 600 million people have lifted themselves out of poverty this century, and in doing so they have crossed significant income and consumption thresholds."

"Emerging Markets: The Fear, The Facts and The Future"

ROB DRIJKONINGEN, *Global Co-Head of Emerging Markets Debt*
CONRAD A. SALDANHA, CFA, *Senior Portfolio Manager—Emerging Markets Equity*

"However they are positioned, we believe that investors are well advised to assume that global inflation is a sleeping giant rather than a slain dragon. Its comeback is unlikely to be as dramatic as it was back in the 1970s and 80s, but with fixed income valuations at their current levels it could still cause a lot of damage—and the risks associated with preparing for it are asymmetric."

"Inflation: Slain Dragon or Sleeping Giant?"

THANOS BARDAS, PhD, *Head of Global Rates*
JON JONSSON, *Senior Portfolio Manager—Global Investment Grade and Multi-Sector Fixed Income*

"IN 10 YEARS THE LINE BETWEEN PUBLIC AND PRIVATE MARKETS WILL HAVE BLURRED; INVESTMENTS WILL BE VIEWED ACROSS A LIQUIDITY SPECTRUM."

ANTHONY D. TUTRONE, *Global Head of Alternatives*

Public Market / Private Market
Capital Raising Goes Back to the Future

The universe of U.S. publicly owned companies has been shrinking since the turn of the millennium. Fewer companies are choosing to list, and those that are listed have been issuing debt to finance share buybacks at unprecedented levels since the financial crisis.

Public markets have also been getting less liquid. Regulation, in the form of Basel III and the Dodd-Frank Act, has made it much more capital-intensive for investment bank broker dealers to "warehouse" securities on their balance sheets. Those inventories are used to make markets and provide liquidity to clients as they buy and sell stocks and bonds; as they shrink, the liquidity of the public markets dries up and the potential for gaps in pricing and higher volatility rises. Brokers, alongside alternative liquidity providers such as high-frequency and algorithmic traders, have turned to providing more "risk-based" market-making, but this can turn out to be illusory liquidity that disappears during bouts of risk aversion, just when it is needed the most.

The opposite trends are evident in private assets. These are still most certainly long-term assets, but the secondary market in private-asset fund interests has grown and deepened rapidly since the financial crisis, bringing a completely new level of liquidity to investors. Meanwhile, as the number of public companies has declined, an increasing number of companies has been going private or staying in private hands indefinitely.

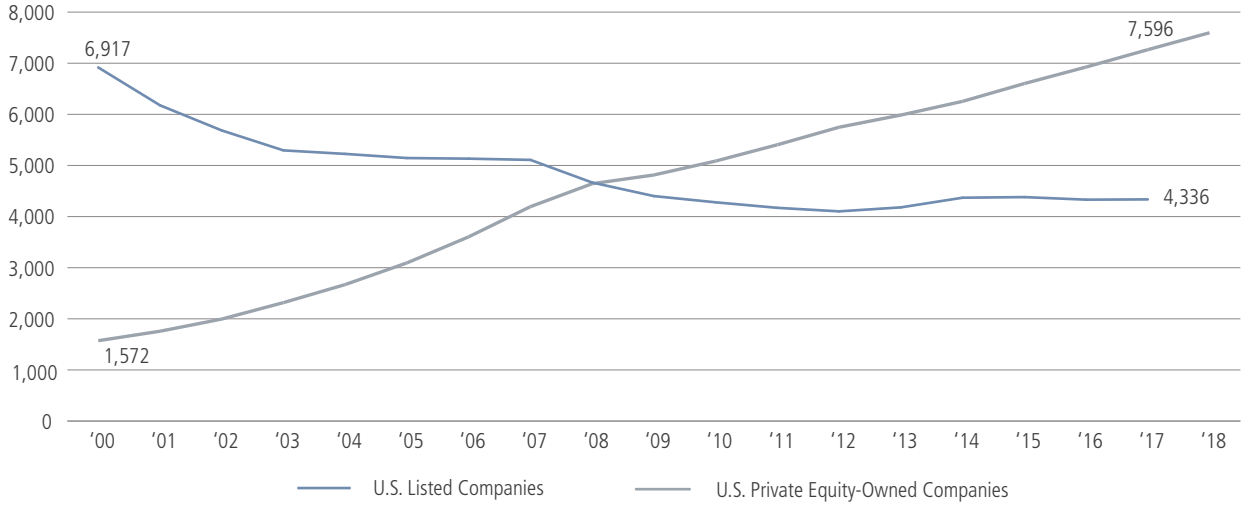
The flow of capital to businesses and individuals is privatizing and fragmenting in other important ways. The dominance of the banking system in credit flows is giving way to capital markets, private debt funds, crowdfunding and lending-platform technologies, as the same post-crisis regulation that has cut investment banks' securities warehouses raises the capital-intensiveness of making loans. In some ways, the way savings flow into investments is going back to the 19th century, but with 21st century technology and legal structures.

The multi-generational, multi-skilled teams nurtured by the longest-established private equity firms are facilitating this shift of influence toward the private markets. These teams are able to take advantage of the opportunities opening up beyond the classic leveraged buyout transactions of the past, which used to represent 85% of the private equity industry and now make up just over one-third. As a result, the entire private markets ecosystem is deepening to include everything from direct lending and mezzanine financing, through secondaries and co-investment, to investing in the equity of alternative investment firms themselves. The breadth of this talent will be important as investor capital continues to flow into private markets and competition for assets rises.

For 200 years, we lived in an age of merchant banks, investment banks and public stock exchanges. The financial crisis may have marked the peak of that era, and capital raising may be going back to the future.

The Private Economy Grows in Importance

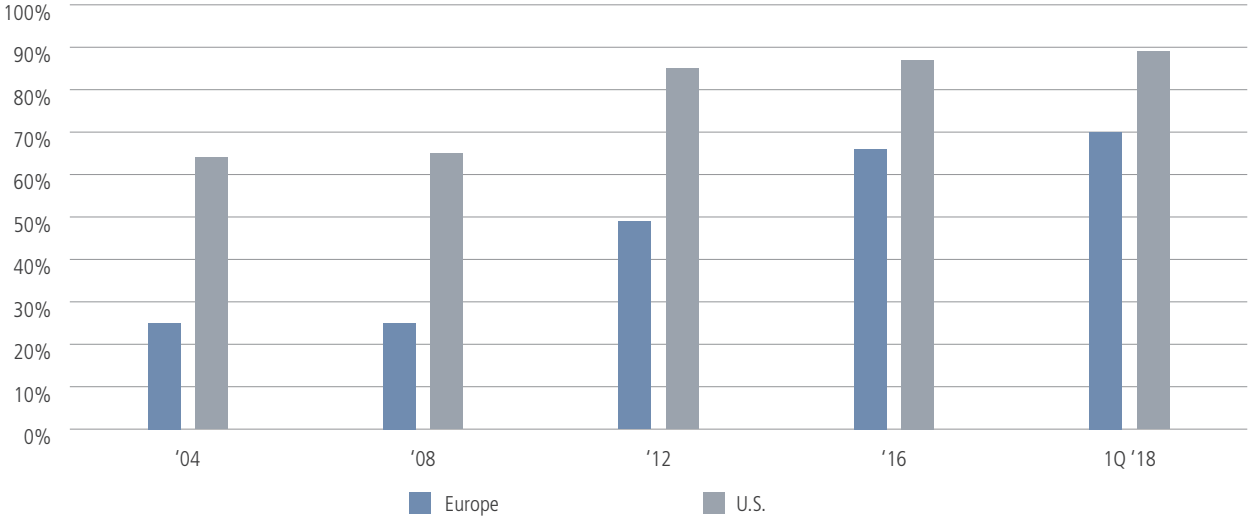
Number of U.S. listed companies and U.S. private equity-owned companies



Source: World Bank, World Federation of Exchanges, PitchBook, Credit Suisse. Data as of December 31, 2017, for listed companies and March 31, 2018, for private equity.

Investors Are Displacing Banks

Share of primary debt leveraged loan market taken by institutional investors



Source: S&P LCD Global Leveraged Lending Report, as of March 31, 2018.

Our Two Investment Implications

1 Private assets are becoming more essential—and more flexible

Globally, private investments may still account for just 2.5% of the world's market capitalization. Nonetheless, the number of private companies exceeds the number of public companies, they are among the world's fastest-growing businesses, and the probability that they are engaged in the important industries and markets of tomorrow is high.

As private markets represent a greater proportion of economic activity, investors will miss out on the full return opportunity if they do not participate in them. In fact, we would argue that private equity, in particular, is rapidly becoming an essential exposure to capture the true long-term equity risk premium. They tend to outperform, on average, because private equity investors have deeper access to information, more direct and transparent governance control, and the ability to create value through strategic and operational improvements. Because private equity managers are expected to spend months sourcing and completing investments, and can choose between trade sales, sales to other private equity funds and IPOs, they also benefit from a lot of flexibility around both their entry into and exit from positions. Moreover, the quality, as well as the liquidity, of listed companies is often overestimated: more than a third of the smaller U.S. companies listed in the Russell 2000 Index are loss making, for example, while broker dealers are less willing or able to use their balance sheets to support public market liquidity.

Private companies are very different from the larger firms that can cope with and thrive on the demands of public ownership. It is much more difficult for a company in an industry in transition or early in its growth cycle to thrive in the public markets, where investors increasingly demand more predictable revenues. We find many private companies do not have a publicly investable equivalent; they might not be engaged in a completely exclusive business, but at a public corporation they would very likely be small divisions generating a negligible proportion of overall revenue.

Private debt and equity are increasingly important for financing a broad range of companies of varying size across a broad array of sectors. Investors used to focus on leveraged buyouts of low-growth, asset-intensive businesses at depressed valuations. Today, the opportunity set includes high-growth technology companies that used to go public at an early stage in their life cycles; examples such as Uber and Lyft show that some of these are now being financed privately up to multibillions of dollars, with billions in revenue.

While public markets grow smaller and less liquid, the private markets are becoming larger, more mainstream, more diverse and more liquid. Liquidity in private markets means secondary-market transactions in fund interests. Volumes were low before the financial crisis, but have steadily increased since. The first wave was fed by institutional limited partners who wanted to sell in order to adjust asset allocation or cut

Deeper Insight

"Today, the public markets spurn companies with volatile earnings, even when that volatility is a symptom of activity that can ultimately benefit the company, such as rapid growth, investments in new markets and products, acquisitions or strategic reorientation. These are precisely the opportunities that long-term private equity investors seek out—and create."

"The Power of Going Private"

ANTHONY D. TUTRONE, *Global Head of Alternatives*

down on their general partner relationships. That has evolved into a more general liquidity-management tool for limited partners.

More recently, we have begun to see general partners taking advantage of the secondary market, too, working with dedicated secondary buyers to create offers to limited partners in older funds that hold locked-up, unrealized value in still-maturing assets. This enables investors to refresh their portfolios should they wish to, even as others alongside them elect to hold the assets. This is an increasingly useful service as funds hold onto companies for longer and longer periods—almost a third of private equity positions are now more than five years old.

Evidence suggests that reassurance that liquidity can be made available to those who want or need it actually lengthens private-asset owners' investment horizons—indeed, this is one reason why investors are holding a greater variety of companies further into their growth cycles.

2 Diminished banks mean more opportunities for long-term investors

A combination of regulatory constraints on traditional financial intermediators and the appearance of technological solutions is reducing the role of banks, in particular, when it comes to lending to the real economy and providing liquidity to the financial markets.

Opportunities are growing for institutional investors to transfer risks from bank balance sheets, step in where banks are withdrawing from lending markets, and take advantage of higher volatility and market liquidity gaps as broker dealers hold smaller securities inventories.

Those opportunities are growing and varied. Institutional direct mortgage lending is increasing as high-quality borrowers, such as many of the self-employed, fail to meet new underwriting standards for bank loans. Private equity managers increasingly turn to private debt funds because, in addition to greater privacy, flexibility and timeliness, these debt funds now offer more certainty than banks. When a deal does need bank financing, providers of mezzanine and preferred stock financing as well as co-investment structures can help to build the lower layer of the capital structure that is often needed to get the leverage low enough for banks to be able to lend under post-financial crisis rules.

Beyond institutional direct lending we are also seeing the rise of disruptive platform-based lending and finance-disintermediation technologies for individuals and small businesses alike. These range from crowdfunding and non-bank payments systems to the utilization of blockchain technology to enable partial, "tokenized" ownership of illiquid assets by a broader group of small investors. Many of these enterprises are themselves funded through the private equity markets.

The new importance of private investing in the economy is not only about more and more companies being held privately and fewer and fewer being held publicly; it is also about more and more of the credit in our economy coming from investment funds and businesses backed by private equity.

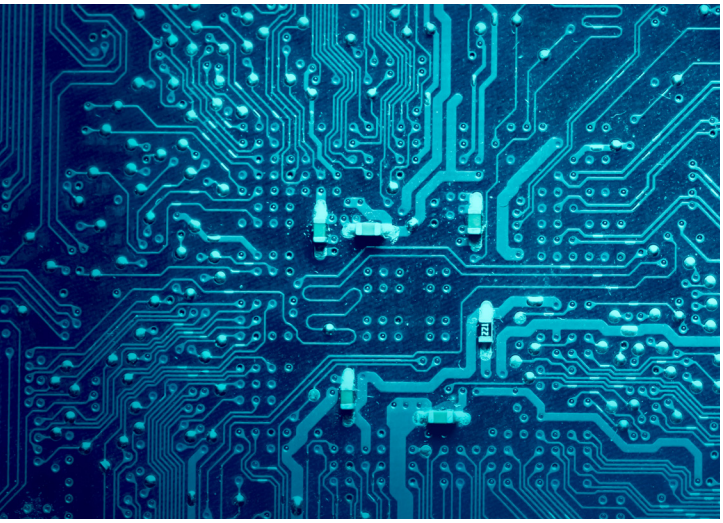
Deeper Insight

"New regulation is intended to stop mortgages being provided to consumers who may not be able to afford them. But there have been unintended consequences: as many as one million people that would get mortgages under sensible underwriting standards are unable to in the U.S. today. That represents a huge potential market for non-bank lenders."
"The Changing Banking Landscape: Opportunities and Risks For Investors"

TERRENCE J. GLOMSKI, *Head of Residential Finance*

"Institutional lenders cannot win competing on price against banks: they have to find opportunities where there is another reason for the borrower to turn to them. They might be looking for timeliness, more flexibility or simply more certainty than their bank can offer nowadays."
"The Changing Banking Landscape: Opportunities and Risks For Investors"

SUSAN KASSER, CFA, *Co-Head of the Private Credit Business for Neuberger Berman Private Equity*



Human / Machine
Creative Destruction at the Speed of Light

The world's largest companies today are very different from the world's largest companies a decade ago. The change reflects the increased importance of technology in the economy. If we include Amazon, the six biggest corporations on the planet are all technology-related businesses; one of those did not exist before 2004, and only two were around before 1994.

The technology sector accounts for one-fifth of the market capitalization of the MSCI All Country World Index. It is once again bigger even than the financials sector, even without including the many tech businesses categorized in the consumer or communications services sectors. The market cap of Facebook, Apple, Amazon, Microsoft, Alphabet, Baidu, Alibaba and Tencent combined is greater than that of the entire stock markets of the euro zone or Japan.

Powerful economic and indeed technological forces are fuelling this dominance. Since 2007, spending on research and development and capex in the U.S. technology sector has surged by 9% per year, more than twice as fast as any other sector, according to Morgan Stanley research. Moreover, that spending has gone from 13% of revenues to 18% of revenues, and the rate of growth appears to be getting faster. At the same time, technology enterprises are getting more and more bang for their buck: thanks to technology-infrastructure outsourcing and cloud computing, the average tech start-up costs less than $5,000 today, according to CB Insights, a thousand times less than in 2000.

Deeper Insight

"At the end of 2007, energy (18%) and materials (15%) accounted for fully one-third of the MSCI Emerging Markets Index. Fast-forward to 2017, and those two sectors account for only 14%. Information technology has risen from 10% of the index to 28%."

"From Commodities to Computers"

CONRAD A. SALDANHA, CFA, *Senior Portfolio Manager—Emerging Markets Equity*

"Occasionally a company exerts such a profound and widespread gravitational pull on society that our language bends to accommodate it. Amazon is among those companies. We no longer search online for facts. We 'Google' them. Similarly, we no longer talk about the impact of e-commerce on the world, but about 'Amazonification'."

"Shopping Maul"

STEVE SHIGEKAWA, *Co-Senior Portfolio Manager—Real Estate Securities*
BRIAN C. JONES, CFA, *Co-Portfolio Manager— Real Estate Securities*

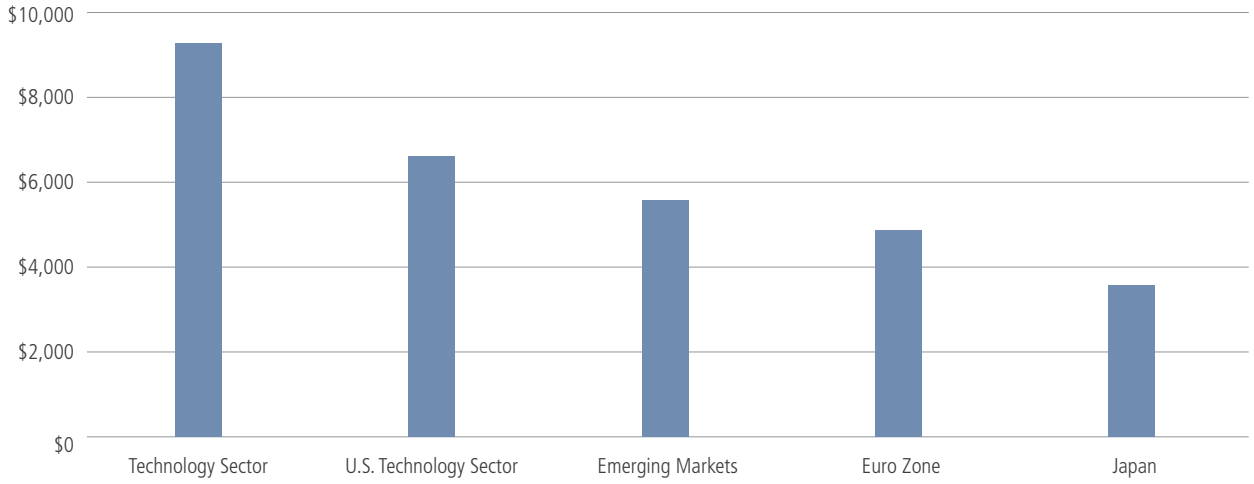
Once a concept is proven, it is adopted faster and more widely than an entrepreneur could have dreamed 50 years ago. Television took almost 15 years to be adopted by 50 million households, while Facebook got 50 million users within 12 months. Today, a successful internet-based service can cross that threshold in three to six months. The blistering pace of technological change presents both opportunity and risk to economies, society and jobs—adding to the pressure on governments to be more interventionist as capital threatens to take an even greater share of growth than labor.

Disruptive technological revolutions are occurring in several sectors, from transport and finance to manufacturing, medicine and retail. These disruptions promise a wealth of investment megatrends, but also, in Neuberger Berman's own industry, a transformation in the way we research, trade and select our investments. Navigating the tensions between investment opportunities and societal disruption will be an important test for long-term investors and a key challenge for active managers seeking to analyze the true social and political risks associated with their investments.

Technology will continue to transform Main Street and Wall Street, and be a source of disruption and opportunity for both.

U.S. Technology Dominates: Bigger than Emerging Markets, Euro Zone or Japan

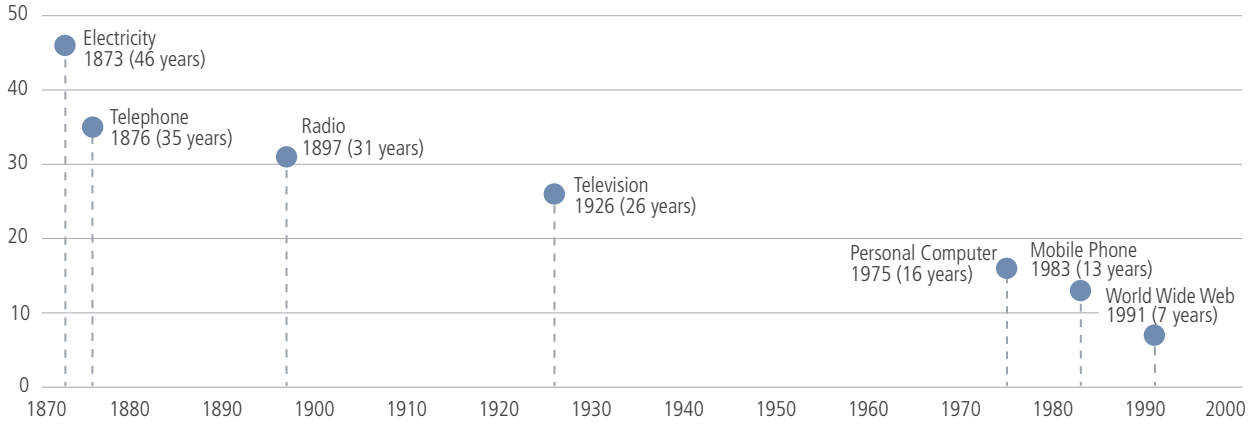
Market capitalization in the MSCI All Country World Index (USD billions)



Source: Bank of America Merrill Lynch, MSCI. Data as of June 12, 2018.

New Technology Gets Adopted Increasingly Quickly

Number of years until a new technology was used by 25% of the U.S. population



Source: Ray Kurzweil, singularity.com, U.S. Census Bureau.

"TECHNOLOGICAL DISRUPTION IS HAPPENING AT AN ACCELERATING PACE, DRIVEN BY THE GROWTH OF BIG DATA AND CLOUD COMPUTING. WE BELIEVE WE ARE APPROACHING AN INFLECTION POINT IN A NUMBER OF KEY THEMES, SUCH AS AUTONOMOUS DRIVING, FINTECH AND PERSONALIZED MEDICINE, THAT WILL EMERGE AS MEGATRENDS OVER THE COMING DECADE, RESHAPING THE WINNERS AND LOSERS ACROSS A WIDE SWATH OF INDUSTRIES."

TIMOTHY CREEDON, CFA, *Director of Research—Global Equity Research*

Our Three Investment Implications

1 Thematic analysis will be more important for active investors

We believe that the asset management industry is still early into the move away from the dichotomy between passive and benchmarked-active strategies toward a more considered differentiation between commoditized passive and smart beta, scalable active quantitative strategies, and genuine high-conviction and engagement-based active management. An important way research will inform the high-conviction positions held by genuine bottom-up, fundamental active managers will be through the development of thematic frameworks. These frameworks are likely to be much more important as technological revolutions—the megatrends in society and the economy that shape our world over the long term—become more disruptive, far-reaching and frequent.

Thematic investing requires nuance and deep sectoral expertise to help identify genuine megatrends with higher conviction, but also to identify the true, actionable investment opportunities that are leveraged to those trends and themes.

Autonomous driving provides a powerful example of the challenge and the opportunity. At first glance, this may seem like a theme for the auto sector. Which company will build the most successful first-generation self-driving vehicle? Will it be a traditional auto manufacturer, or a technology company such as Google? In reality, picking the winners in the race to implement this technology probably isn't possible. It makes more sense to recognize that self-driving cars will become an accepted mode of transport and that businesses that already manufacture sensors, semiconductors and software for other applications will benefit most clearly from this new market opening up to them, alongside secondary beneficiaries such as cloud service providers and wireless telecom operators. Investment themes often resonate most powerfully deep within supply chains.

Deeper Insight

"A more transparent, and direct, way to access the transformation in autos is in companies that are supplying the new technology. If a given company is able to put a camera in a car, that could constitute a real win that would potentially be reflected in the stock price. Separating the winners from losers in this area may be much more akin to traditional tech investing—with its corresponding volatility—than it is to blue chip auto investing."

"Autos Steer Toward Tech"

MICHAEL BARR, *Senior Research Analyst—Global Equity Research*
YAN TAW BOON, *Senior Research Analyst—Global Equity Research*

As well as looking through supply chains and across sectors for the businesses that are leveraged to megatrends, the growing importance of technology is yet another reason why investors are likely to miss out on a substantial share of economic activity if they do not participate in the full menu of private as well as public markets. Technological innovation does not happen solely, or even primarily, at large, listed companies. The investment risks and volatile revenues of truly disruptive businesses can be ill-suited to the constraints on a public company and the risk appetite of public-market investors, but they are increasingly the characteristics sought after by the new generation of private equity practitioners.

2 Big data will define our economic ecosystem and transform investing

The monetary interventions of the major central banks and expansive fiscal policies loom largest in people's perceptions of how the boundaries between governments and markets have dissolved since the financial crisis, while Basel III and Dodd-Frank will be familiar to anyone who works in banking and finance. Less well-known, but arguably just as far-reaching, is the European Union's newly amended Markets in Financial Instruments Directive (MiFID II), which came into force in January 2018.

Among other things, MiFID II bans the practice of brokerages giving research away to asset managers as a perk for trading securities through them. That is likely to accelerate the ongoing cutback in securities-research resources within sell-side institutions, as they lose their ability to attract transactional business. As such, we expect more research to be conducted within asset management firms, as the external supply diminishes and the newly internalized costs incentivize more exclusive, proprietary and actionable insights.

We believe active managers will respond by seeking more efficient ways to gather increasingly granular and timely information about how companies are performing, often in a raw form that can be sliced-and-diced to generate genuinely proprietary insights. They will be able to do this because, for the first time, that information exists and is accessible. It is called big data, and we think it will be the battleground for alpha over the coming years.

"IF YOU KNOW WHAT AD TO SHOW SOMEONE, YOU KNOW WHAT THEY'RE INTERESTED IN. IF YOU KNOW WHAT THEY'RE INTERESTED IN ACROSS ALL PRODUCTS AND ACROSS THE WHOLE POPULATION, YOU KNOW WHO'S WINNING IN THE MARKETPLACE. IT'S NOT A STRETCH TO ARGUE THAT SUCH INFORMATION CAN PROVIDE A LEG UP FOR INVESTORS."

MICHAEL RECCE, *Chief Data Scientist*

Deeper Insight

"The big data Holy Grail in investment management will be the combination of good, old-fashioned fundamental analysis with quantitative investment techniques—what we call the 'quantamental' approach."
"Big Data = Big Opportunity"

JOSEPH V. AMATO, *President and Chief Investment Officer—Equities*

IBM has claimed that human beings, with their new devices, sensors and other technologies, generate 2.5 quintillion bytes of data every day. To put it another way, 90% of all the data that has been created since the beginning of human history has been created in the past two years. Neuberger Berman's Chief Data Scientist refers to this as our "digital residue."

Insights gleaned from quarterly accounting statements can be dramatically enhanced with the digital residue left—often in real time—by a company, its partners in the supply chain, its customers and the media (both social and otherwise). Properly collected, monitored and analyzed, it can uncover unseen patterns at the macroeconomic, industry and company level.

This ongoing data revolution has already created several waves of quantitative and systematic investment since the 1990s. In our view, the big data Holy Grail in investment management will be the combination of traditional analysis based on intermediate- to longer-term fundamentals (where this data resource remains virtually untapped) with quantitative investment techniques.

We call this the "quantamental" approach. Fundamental managers focus much more on forward-looking analysis, such as trying to predict the future course of earnings growth. Think of fundamental analysts looking through the windscreen, while quantitative techniques look in the rear-view mirror. Neither gets the full, 360-degree view of the road—but they become a formidable driver when they work together, and big data can enhance them both.

3 ESG will be more fully integrated into investment processes

We believe that the technology revolution will not only require environmental, social and governance (ESG) analysis to be more fully integrated into active investment processes, but also make that integration possible at last.

Some of our most pressing social challenges, such as rising inequality, have their roots in, and the potential to be exacerbated by, the automation of our economy. As returns to capital (including robots, software and educational capital) continue to outstrip returns to an ever-decreasing pool of skilled labor, providers of capital will need to become more sensitive to the potential social disruption of their investments, and mindful of the risks of government and regulatory interventions in response to social and political tensions. At the same time, some of our most pressing environmental challenges are likely to have technological solutions—another reason why thematic thinking is likely to become a more important component of active management over the next decade.

When it comes to governance, we feel that shareholder engagement on genuinely material questions is going to be an important differentiator between genuinely active management and passive investing, and part of the trend of convergence between private markets and public markets. We think that bottom-up fundamental active managers, which often harness decades of experience and sector expertise,

Deeper Insight

"Growth can increase inequality as long as returns to capital (including human and educational capital) outstrip returns to labor. Manufacturing is coming back to the developed world, but it looks quite different from the manufacturing that got offshored to Asia 30 years ago. Today, you don't build a steel plant in Pennsylvania and fill it with 5,000 steelworkers; you put it in South Carolina and run it with five technologists."

"Fixing the Foundations"

BRAD TANK, *Chief Investment Officer and Global Head of Fixed Income*

"Much has been said about active and passive management in the past few years—but the debate has almost solely focused on relative performance and the factors driving it. One important aspect of this debate that doesn't come up so often is shareholder engagement. In my mind, that's a big hole in the debate, because we believe that engagement is one of the core value-added propositions of active management and is critical in driving long-term value for investors."

"Engagement and Judgment Matter"

JOSEPH V. AMATO, *President and Chief Investment Officer—Equities*

are among the few financial market participants that are genuinely informed about whether a company is well governed—and about the actions that can be taken when it is not. But that kind of genuine shareholder engagement requires judgment, not box-checking, and judgment requires robust and reliable data. We believe the quality of environmental and social risk reporting and data is a corporate governance issue that could be swept up in the big data revolution in investment research.

Survey evidence from institutional investors suggests that only a fifth of those that claim to be doing ESG investing feel that they are integrating ESG fully into their processes. Asked what the barriers were, some two-thirds cite the lack of standards for measuring ESG performance—essentially a data issue—and half point to the lack of ESG performance data reported by companies.[1] Many others observe that there is plenty of data in the marketplace, but much of it is not financially material or useful for investors' decision-making. While data gathering, data standardization and data reporting by companies can and should be improved, active asset managers are increasingly likely to scour the big data digital residue for independent or unprocessed insights into social and environmental risks and performance—not least because a more proprietary view of these risks is better able to inform the search for alpha.

[1]See Jonathan Bailey, "What Institutional Investors Are Saying About Sustainable Investing" (May 2018).

Deeper Insight

"Majdi Chammas, Head of External Asset Management at the Swedish public pension fund AP1, prefers to see managers and analysts do their ESG research themselves, and ideally gathering proprietary data for full integration into investment processes: 'To beat the market you have to be different from the market. As an investor, you should think for yourself and look for a data edge yourself.'"

"What Institutional Investors Are Saying About Sustainable Investing"

JONATHAN BAILEY, *Head of ESG Investing*

Asset Owner / Asset Manager
Toward Deeper Engagement

We started out by identifying four megatrends: debt, the changing global order, capital markets evolution and the growing importance of technology. We examined them through the analytical lens of the divides that are dissolving between governments/markets, emerging world/developed world, public markets/private markets, and human/machine. That led us to our 10 key implications for long-term investors—from getting ready for the cyclical opportunity in stressed credit markets, to adopting a research and risk-management approach that fully integrates the insights of ESG analysis and big data.

From these specifics, we believe that there are **five guiding principles** to take away:

Our Five Guiding Principles

1. **Accept the new reality of lower market return outlooks, higher volatility and higher correlations**
2. **Pursue the full passive-to-active spectrum**
3. **Embrace private as well as public markets**
4. **Create an institutional governance structure that enables nimble opportunism**
5. **Look for more from asset managers**

1 Accept the new reality of lower market return outlooks, higher volatility and higher correlations

Cyclically, equity valuations and debt levels are high, interest rates are low and rising, and more credits are likely to default. A period of low inflation may be giving way to a period of higher inflation. Structurally, the global population is aging, the fastest period of catch-up growth from the emerging world is over, and China is transitioning from an investment-led to a consumption-led economy. All of these factors suggest that the next decade will be one of lower market return outlooks, higher volatility and higher cross-asset correlations. Investors may need to rethink the assumption that traditional fixed income constitutes the "low-risk" part of a portfolio and seek exposure to more alternative, non-market sources of return.

2 Pursue the full passive-to-active spectrum

To free the necessary risk and cost budget to make a broader set of allocations, investors may draw a sharper distinction between passive and active strategies in order to implement market exposures as cost-effectively as possible. Quantitative approaches can be a cost-effective way to open up alternative risk premia. With more risk budget at their disposal, active management—including thematic, long/short, high-engagement and other alternative strategies—can become truly active, seeking returns unconstrained by a low-return environment. In addition, investors are likely to recognize that the market's "alpha richness" is cyclical and begin to manage their risk budget allocations more tactically.

3 Embrace private as well as public markets

Private markets can be an important part of the search for alternative sources of return, but they will also constitute an increasingly important part of global economic activity as growing companies stay in private ownership for longer, public markets become less liquid, and private debt becomes a mainstream source of financing. To reflect this, the range of strategies is also broadening, from crowdfunding and venture capital to private debt, secondaries, co-investments and direct investments in general-partner equity.

4 Create an institutional governance structure that enables nimble opportunism

When market return outlooks are low, investors can benefit from being opportunistic in establishing their long-term holdings. In private markets, they can take advantage of secondary, co-investment and lending opportunities. In public markets, they can move fast to exploit periodic price dislocations and liquidity or credit crunches. But they can only do these things successfully with a suitable decision-making structure in place.

5 Look for more from asset managers

To meet the challenges of the coming decade, asset owners may need to reassess the traditional product-provider relationship they have had with asset managers. Long-term investors will need access to the full spectrum of strategies, from passive to active, across public and private markets, while being nimble and opportunistic within an increasingly thematic framework. Investment mandates are likely to become far more bespoke, loosening constraints and seeking specific outcomes. We believe that deepened relationships with a focused group of asset managers, often called strategic partnerships, will become more common. When investors seek access to the broadest range of strategies, including niche strategies, it helps to partner with managers with time-tested track records or good relationships with specialists in those strategies. To be genuinely opportunistic, it can help to preapprove certain activities and delegate the implementation decision to these partners.

That is why we believe the final longstanding divide set to be dissolved over the coming decade is that of asset owner/asset manager. The investing environment established in the decade since the financial crisis has arguably made achieving long-term objectives more challenging than ever. Everyone, from the individual retirement saver to the largest institutional endowment, will need to draw upon as wide a range of markets and strategies as are available to them. Investment decision-making can be enhanced in many ways, from outcome-oriented advice for the individual to strategic-partnership governance models for institutions. And the asset management industry will need to respond creatively and transparently to its more demanding and hard-pressed clientele.

We face the coming decade's challenges, and seek its opportunities, together. We can do so successfully only with true alignment of interests and goals.

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