

FIVE-YEAR OUTLOOK

Global equity returns are expected to remain below long-term historical averages. Still, stocks will not be overly burdened by elevated valuations and remain attractive next to low-yielding fixed income asset classes. The populist movement over the past year has not dramatically changed the global economic outlook.

Despite the ongoing trend of populist earthquakes – punctuated by Brexit and the U.S. election – global economic growth will not materially move from its established channel. Instead, we expect **Entrenched Growth** over the next five years, moderated by high debt burdens, aging developed market populations and transitioning emerging economies; but supported by continued **Stuckflation**. With global growth still subdued and inflation struggling to get back to central bank targets, investors are **Waiting for Monetary Godot** – a normalization of monetary policy that will likely never occur. Meanwhile, we are experiencing **Populist Catharsis**. The resulting environment seems chaotic, but is actually a necessary step toward confronting problems caused by tired political and economic structures and identifying paths to improvement. As the associated democratic quagmire is worked through, we expect to see **Regulation in the Limelight** – with both federal and nonfederal agents shaping “smart” regulations for the new economy. Fundamentals – and other factors – are creating a **Valuation Superstructure**, keeping asset prices elevated. These themes – combined with a historical analysis of financial market return drivers and asset class relationships – result in the five-year capital market assumptions summarized in Exhibit 1 and detailed on the pages that follow, culminating in our five-year return forecasts on page 15.

Northern Trust
Investment Strategy

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EXHIBIT 1: THINGS ARE LOOKING UP

Modest growth, benign inflation and slowly increasing interest rates provide a constructive backdrop.

<p>Fixed Income</p>	<p>Investment grade forecasts benefit from a higher yield starting point and will be helped by the controlled shift higher in interest rates. Normalized high yield credit spreads (versus 2016’s widening trend driven by oil price weakness) suggest lower returns. Cash returns are still likely to underperform inflation.</p>	<p>Equities</p>	<p>Developed market equities find themselves in a sweet spot of modest growth and low inflation, underpinning earnings and supporting elevated valuations. Emerging market equities still appear attractive; valuations are too low for the stable economic environment we expect.</p>
<p>Real Assets</p>	<p>Factors underpinning real assets have softly faded over the past year. Natural resource equities bounced back from an oversold position; global real estate and listed infrastructure face increased competition from slowly rising interest rates. All retain key roles in a multi-asset class portfolio.</p>	<p>Alternatives</p>	<p>Broad industry hedge fund alpha ticked up slightly (0.5 to 0.6%). Alpha varies significantly by strategy and manager skill level, making the selection process paramount. Our 2.0% private equity illiquidity premium forecast is below the 2.5% long-term average as managers navigate crowded markets.</p>

FIVE-YEAR THEMES

Entrenched Growth

The global economic expansion will continue at a modest but steady pace throughout our five-year horizon.

Populist upheavals have failed to shift the economic growth trajectory from its established channel – neither propelling growth higher nor pushing the global economy into disarray. Instead, modest economic growth prevails. High debt levels, aging developed market populations and transitioning emerging economies now serve as a governor on global demand. Meanwhile, legacy political parties in the West appear out of synch with their constituents, who have used the voting booth to expand the conversation to new players and economic models.

Stuckflation

The bigger risk to the global economy continues to be too little – not too much – inflation.

Inflation will remain subdued as automation-enabled supply easily meets demographic-hobbled demand. The stuckflation environment of today lies in stark contrast to the 1970s era of stagflation. Whereas the latter was much too optimistic about the ability of supply to meet demand, the former is too pessimistic and lacks a full understanding of current productivity levels. Pockets of sustained inflationary pressures (e.g., healthcare, education) will be addressed through innovation. Meanwhile, a shrinking labor force will likely impact demand more than supply.

Waiting for Monetary Godot

Patience, gradualism and communication are monetary watchwords going forward.

Much speculation has occurred about the timeline for monetary policy to revert to pre-financial crisis levels. This is not expected over our forecast horizon. After nearly 10 years of unconventional policies, a return to traditional monetary behaviors may never occur. Instead, political scrutiny has pushed central banks to lower their profiles – woe unto the monetary authority that causes an economic or market dislocation. A successful unwinding of huge central bank balance sheets – likely to remain larger than historical levels – will be the focus.

Populist Catharsis

Markets prefer policy stability but, when change is required, reward policies that move toward new solutions.

Responding to a sizable dissatisfied citizenry, the post-World War II model of democracy, free trade and globalism is transitioning to something new. China's rise to power and the global economy's digital transformation are key catalysts upending established political and economic norms. Especially during populist waves, dealing with change is better than avoiding it, no matter how uncomfortable and disorienting it may be. Leaders able to successfully navigate populist environments will come out stronger on the other side.

Regulation in the Limelight

Amid a new type of political gridlock, regulations are driving the global business and investing environment.

The regulatory policy lever has gained importance and power amid churning political gridlock. U.S. regulatory policies have quickly shifted from headwinds to tailwinds. The European Union has its best shot in decades at real reform. A focus on reducing regulations – combined with synchronized global growth – has ameliorated legislative failures. Local government and corporate entities are also gaining clout, dictating policy changes that draw support from smaller constituencies. These “smart” regulatory adjustments will support ongoing global growth.

Valuation Superstructure

Valuations have entered a higher regime supported by fundamental, behavioral and industry drivers.

Steady economic growth and benign inflation provide a solid foundation for elevated valuations versus historical levels. However, current valuations are underpinned by more than just fundamentals. Significant changes to financial markets' structure, players and investment vehicles advance the case for today's valuations to endure. Importantly, global equity markets benefit from a healthy degree of investor skepticism. As long as market sentiment remains in check, stock market valuations – paradoxically – will find support.

ENTRENCHED GROWTH

We expect the global economy to experience annualized real (removing inflationary effects) growth of 2.4% over the next five years, a modest increase from last year's five-year forecast of 2.2%. By comparison, our 2.4% forecast is notably below the 3.8% annual growth achieved in the post-financial crisis period, as measured by the International Monetary Fund (IMF). However, keep these two caveats in mind: 1) IMF global growth data is measured using purchasing power parity, which increases the influence of emerging market economies; our forecasts use current market exchange rates; 2) we believe the Chinese economy is growing at a slower rate than the official figures suggest (IMF recorded 7.3% average annual growth the past five years). Controlling for these two factors, the global economy grew at 2.7% the last five years vs. our 2.4% forward-looking view.

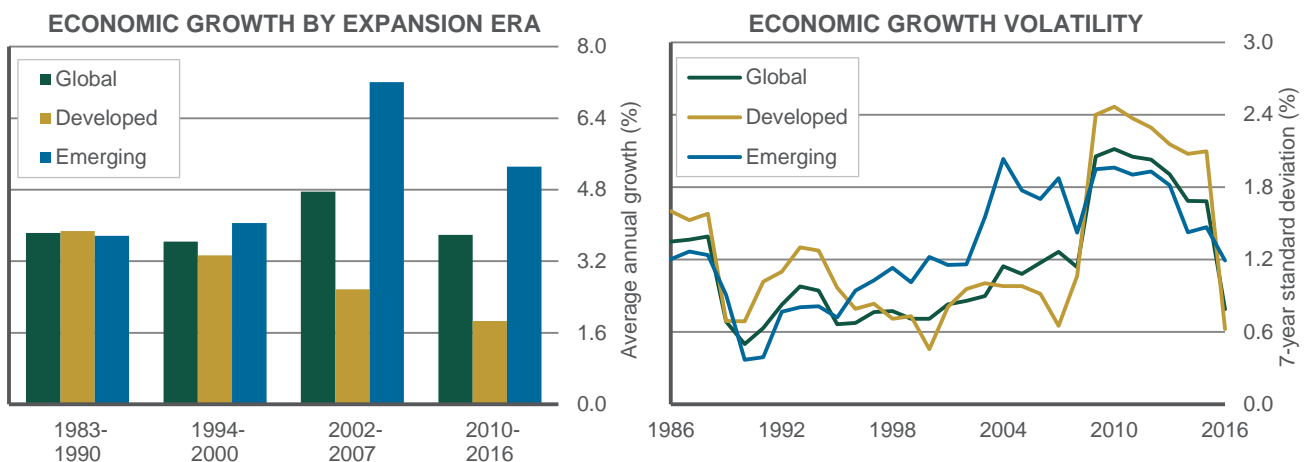
The above caveats also provide some instruction for analyzing the four global economic expansions of the past four decades. While the current global expansion is comparable to the expansions of the 80s, 90s and 2000s (green bars below), developed economies – not affected as much by the previously mentioned caveats – have seen steady declines in expansion growth rates (gold bars). The seven-year expansion in developed market economies has been stable (as measured by volatility), but not unprecedentedly so. As seen in the right-hand panel of Exhibit 2, the period from 1994-2000 was a slightly smoother ride. Worth noting, the two previous troughs in seven-year economic volatility – 2000 and 2007 – occurred just ahead of the last two recessions.

So why do we still believe this is still the calm after the previous storm rather than the calm before the next one? First, demand is constrained by natural regulators – including aging populations in developed markets and transitioning emerging market economies – which are preventing overheating. These natural regulators are now teaming up with better-calibrated government-enacted regulations (*Regulation in the Limelight*, page 7), reducing the risk and impact of financial market bubbles (e.g., stocks in 2000, housing in 2007). Second, inflation is low and is expected to remain that way (*Stuckflation*, page 3) allowing easy monetary policy to persist (*Waiting for Monetary Godot*, page 4).

Readers of our work will recall our previous themes of *Enduring and Maturing Global Growth* (2014) and *Slow Growth Angst* (2016); the former remains in play, while the latter has received relief with the shift from *Populist Roulette* (2016) to *Populist Catharsis* (page 6). The bigger risk to the global economy is the pace of growing Chinese debt. But we believe China has the tools to confront its debt issues head on. Beyond the benefits of a command/control economic system, China also has the luxury of a large domestic debt ownership (~95%). This domestic support should assist China in managing its debt load (~240% of GDP); just as domestic support allows Japan to manage its large debt load (~235% of GDP in government debt alone, of which ~88% is owned domestically). We expect a China soft landing that weighs on global demand; we don't expect a hard landing that ends the current global expansion.

EXHIBIT 2: SEVEN YEARS OF CALM AFTER THE 100-YEAR STORM

Global economic growth after the global financial crisis has settled into a slow-but-steady channel.



Source: Northern Trust Investment Strategy, IMF.

STUCKFLATION

Inflation will remain well behaved over the next five years, with most developed economies at or below the 2% level their central banks generally target. We expect inflation in the United States to average 2.1% followed by Australia (2.0%), the United Kingdom (2.0%), Canada (1.5%) and Europe (1.2%). Japan is expected to remain the laggard, at 0.5%. Inflation assumptions for each economy vary depending on the stage of its economic cycle and level of excess capacity (labor and capital). However, the common denominator across all developed regions is the way in which automation-enabled supply is expected to easily meet demographic-hobbled demand.

The productivity debate rages on. Our official stance remains unchanged since we first addressed the issue in our theme of *Productivity Paradox* (2015), wherein we noted the paradox of how low official productivity numbers contrasted with persistently high profit margins and stubbornly low inflation. Since then, further evidence has come out in support of our view that productivity is being incorrectly measured. Noted economist Martin Feldstein has highlighted two primary issues with the U.S. government’s methodology for calculating output that may be causing productivity to be underestimated:

1. While an attempt is made to adjust increased costs in the event of increased product/service quality (getting more for more is not necessarily inflationary); the same practice is not applied to products/services with increased quality but decreased/steady costs (getting more for the same/less is likely deflationary, but those deflationary benefits are not captured).

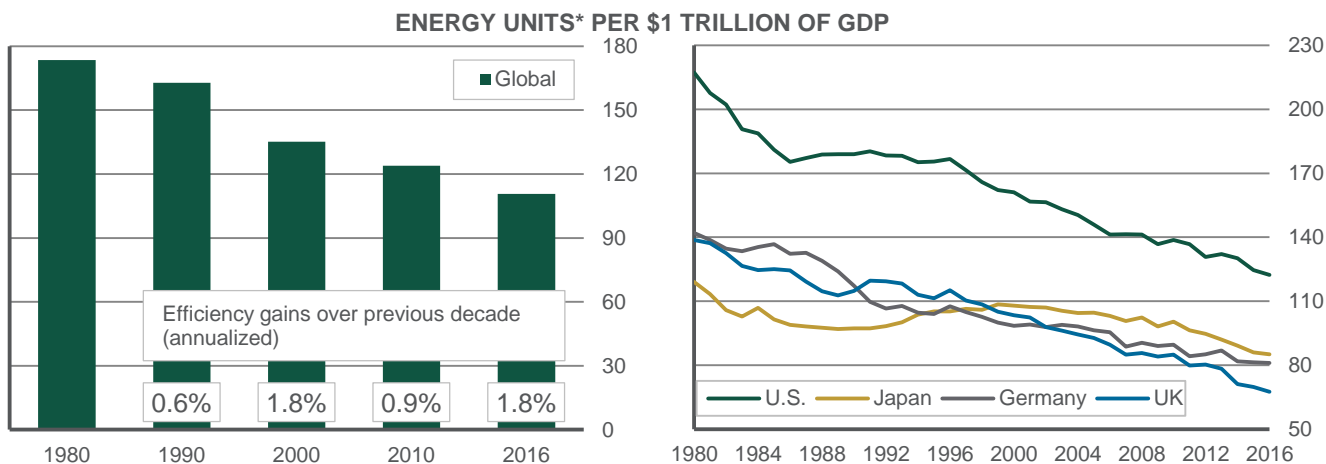
2. New products/services have the greatest impact on quality of life at the time of introduction. However, the current approach only measures improvements in those products/services after introduction, not the introduction of the products/services themselves.

Measuring productivity is subjective and assessing the degree of impact over time is difficult (one could argue Feldstein’s points have always been present). However, other quantitative measures suggest that efficiency gains are occurring, even if the official productivity statistics say otherwise. For example, global energy efficiency – energy units per \$1 trillion of output (inflation adjusted, and possibly understated as discussed above) – has increased by 36% in the past four decades (see left-hand panel of Exhibit 3). Further, the pace of energy efficiency gains has been accelerating – from 0.9% in the 2000s to 1.8% thus far this decade. A big contributor has been improved efficiency in the United States benefiting from more fuel-efficient vehicles on its vast network of roads. But all economies have seen efficiency gains, aided by accelerating technological advancement.

If stagflation was a result of too much optimism about supply’s ability to meet demand, *Stuckflation* is the opposite – it is the inability to fully grasp the productive capacity of the new economy. Tight labor markets can be ameliorated by automation; inflationary problem areas (e.g., healthcare, higher education) can leverage new delivery models in the digital age. The challenge ahead will be to maintain inflation, not control it.

EXHIBIT 3: ENERGIZED PRODUCTIVITY

Despite the controversy of the level of global productivity, it is clear that energy efficiency continues to improve.



Source: Northern Trust Investment Strategy, BP Statistical Review, IMF. *One million tons of oil equivalent.

WAITING FOR MONETARY GODOT

Central banks will be slow to remove unprecedented monetary accommodation as they deal with conflicting cross currents. Pushing one way is the more-certain global economic environment and the goal to move monetary policy back to something more conventional; pushing the other way is the lack of inflationary pressure and the desire to move cautiously so as not to move back under investor and politician scrutiny. The latter may be difficult to achieve with the Federal Reserve, European Central Bank (ECB) and Bank of Japan each in control of \$4 trillion-plus of financial assets. The aggregate sum – \$13.6 trillion – is more than \$10 trillion larger than their combined holdings at the end of 2006. Central banks are now the primary “systemically important financial institutions” in the global economy; unwinding their holdings will be very gradual and over-communicated. Of the three major central banks, only the Fed is expected to have a smaller balance sheet at the end of our five-year horizon vs. today.

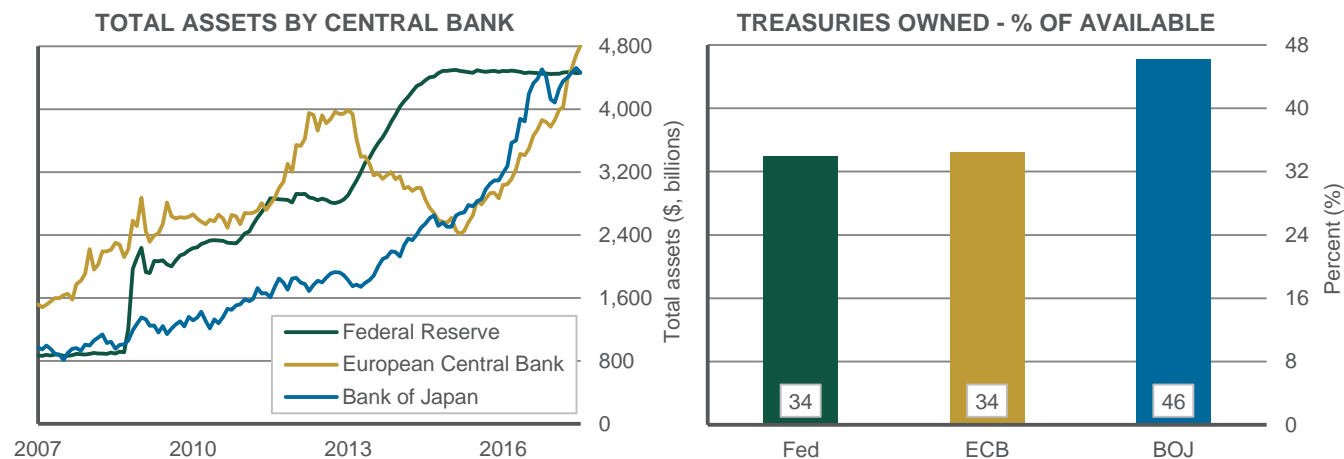
To give an example of the gradual and over-communicated approach, the Fed announced how it plans to unwind the balance sheet (at its June meeting), but has not actually started yet. When it does begin to unwind (likely later this year), it will not be through outright sales of its assets; rather, it will allow assets to “roll off” the balance sheet by no longer reinvesting the proceeds from current asset coupon payments and maturities. Even then, the Fed has decided to cap how many assets can roll off in any one month (starting with \$6 billion in Treasuries and \$4 billion in mortgage-backed

securities); the Fed will reinvest any cash flows received on current assets above those thresholds to avoid putting too much stress on the financial markets. While the Fed will gradually raise these caps, it will take time to reduce the \$4.5 trillion balance sheet to more normalized levels. It is also likely that the Fed’s ultimate balance sheet level will be higher than it was before the financial crisis. Both current Fed Chair Janet Yellen and former Fed Chair Ben Bernanke (amongst others) have acknowledged that the balance sheet likely will not return to previous levels for both practical and operational reasons.

Meanwhile, the Fed will also look for windows of opportunity to raise policy rates – we expect an average of one rate hike a year over the next five years, converging on a new, lower terminal level. Until other central banks are able to confidently exit monetary accommodation programs, the Fed will be constrained in its ability to move policy rates higher or more quickly. We expect the ECB to move policy rates back to positive territory by the end of the five-year horizon (viewed as a necessary first step before any discussion on balance sheet reduction) while the Bank of Japan will likely remain stuck at 0%. The upshot is that those waiting for monetary policy normalization – regardless of economic region – are anticipating something that will likely never come, much like Vladimir and Estragon in Samuel Beckett’s play. We have entered a brave new world of monetary policy. With fewer guideposts to follow and less urgency to act, central bankers will err on the side of patience so as not to induce needless market unease.

EXHIBIT 4: LARGE AND COMPLEX CENTRAL BANK BALANCE SHEETS

The major central banks have amassed nearly \$14 trillion of assets, holding sizable portions of the market.



Source: Northern Trust Investment Strategy, Bloomberg, central bank reports.

POPULIST CATHARSIS

We addressed the populist movement in our theme of *Populist Roulette* (2016) – stating that populism was not necessarily good or bad, but definitely uncertain. The roulette wheel has yet to turn up double-zero. In fact, thus far betting on political events has been a profitable venture. The day after the U.S. presidential election, the S&P 500 was up 1.1%. In the wake of India Prime Minister Narendra Modi’s Bharatiya Janata Party scoring a big election victory in India’s largest state, the SENSEX (India’s primary equity index) was up 1.8% (3.0% in U.S. dollars). After voters registered resounding support for Emmanuel Macron in the first round of the French presidential elections, the MSCI Europe Index gained 2.2% (3.6% in U.S. dollars). Underpinning these market reactions was the transition from the fear of uncertainty to the hope for reform – accordingly, we have moved from *Populist Roulette* to *Populist Catharsis*.

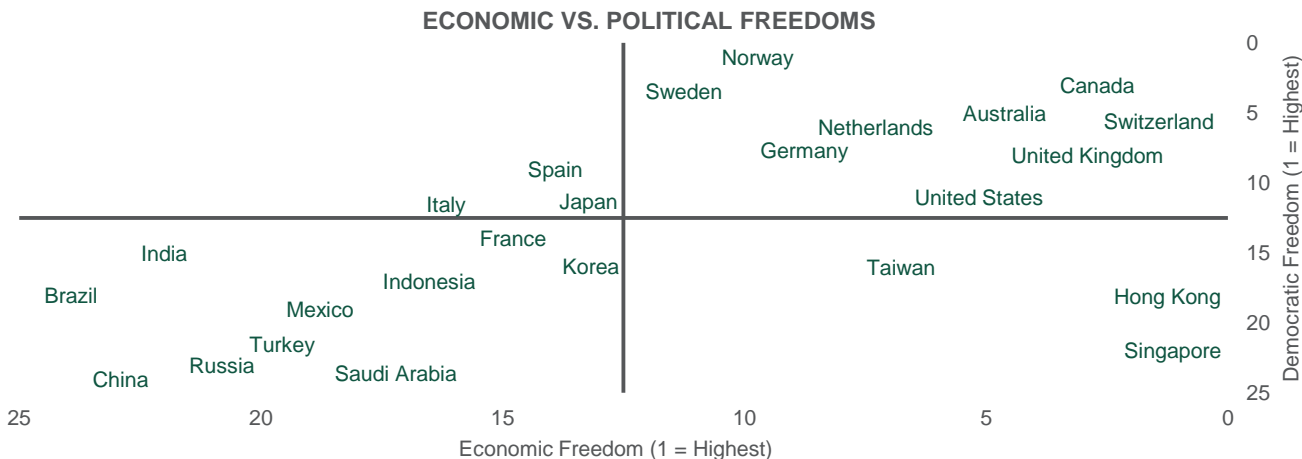
In the U.S., existing democratic structures have successfully provided a release valve for populist venting, while political system checks and balances have prevented impulsive changes in government policy (e.g., protectionism). The flipside is that democratic structures have also led to democratic quagmires, with few reform initiatives surviving the legislative process. We recognize that investors appreciate policy stability (and quagmire is certainly a form of stability); but investors – those who drove the U.S., Indian and European equity markets higher – are also expecting change. In this regard, the churn of populist pressures should continue to draw new players into the political mix until progress is achieved.

The mix of investor and voter demands seems daunting and incongruent, but we believe it is all part of *Populist Catharsis* as we transition to new economic and political models. Traditionally, political and economic freedom went hand in hand. Using Exhibit 5 as the template, utopia was to be as far into the upper-right quadrant as possible. Today, democratic quagmires in the populist era have some political leaders envious of China’s ability to get things done and looking for more political balance. Hong Kong – under China’s control but with a liberal economic model – historically provided a blueprint but is not the silver bullet. Efficient and effective governing must be balanced with individual freedom preservation. Tweaks to current government models will occur through legislative rule changes (e.g., United States moving to a majority – vs. supermajority – requirement for passing bills; France seeking government consolidation).

Meanwhile, the global economy’s digital transformation – partially responsible for the job losses that originally spurred the populist movement – can assist in the move to new economic models. For instance, automation can dampen the longer-term inflationary effects of any “fair trade” policies designed to level the playing field. More broadly, automation-enabled supply caps inflation – and interest rates – easing pressures on entitlement programs until new solutions are developed. Transitions – both political and economic – are never without risks; but investors will show patience in a modest growth/low inflation environment and will reward leaders who look to embrace – and drive – change when change is needed.

EXHIBIT 5: AVOIDING A DEMOCRATIC QUAGMIRE

Economic freedom is generally correlated with political freedom – but some exceptions exist.



Source: Northern Trust Investment Strategy, Economist Intelligence Unit, Heritage Foundation.

REGULATION IN THE LIMELIGHT

Regulation has become a more important policy lever amid U.S. political gridlock. Regulatory relief has been one of the few agenda items the Trump administration has been able to achieve. The large infrastructure program promised to voters remains complicated by high government debt levels and tax reform has gotten lost in the maze of legislation. But paring back regulations has been – and remains – a quick and relatively easy way to advance the ball. In many situations regulations are relaxed simply by easing back on enforcement, a prerogative of the executive branch. President Donald Trump has resorted to executive actions quite often. In his first 100 days in office, he issued 32 – the most since Harry S. Truman, who was ending a world war (see Exhibit 6). The lightening of regulatory burdens – combined with reaccelerating global growth – has helped move the U.S. economy to a moderate and sustainable growth trajectory, despite frequent legislative setbacks. Regulatory policy must strike the right balance between being too onerous, choking off economic activity, and too lax, exposing the economy to unnecessary risks. Post-financial crisis, the pendulum shifted too far to the former, especially in the financial sector. The combination of greater regulations and higher capital requirements resulted in unnecessary costs – both explicit (additional resource requirements) and implicit (excess capital accumulation and inefficient capital allocation). For some perspective: Banks subjected to the Fed’s annual stress tests had ~\$500 billion in capital

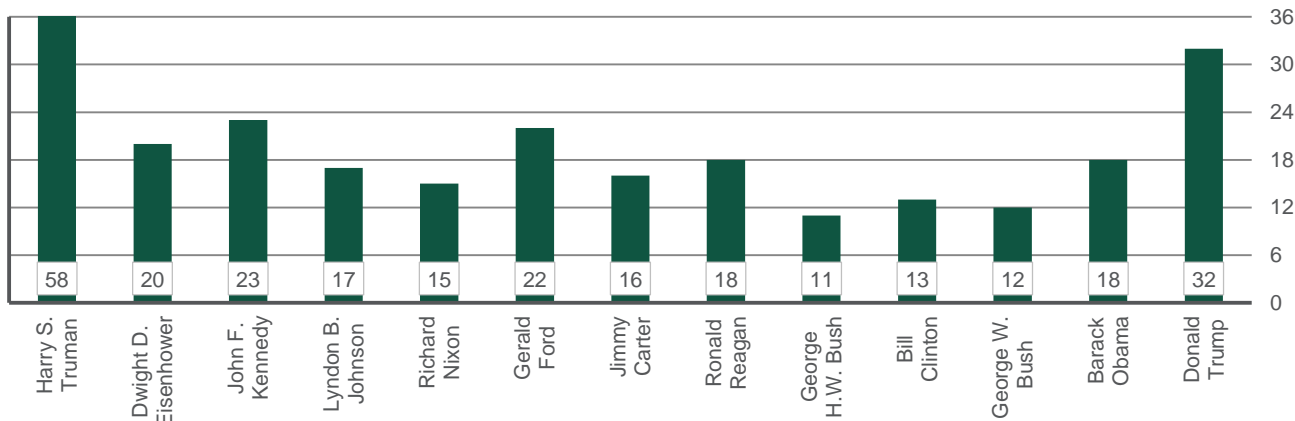
in 2009; they have ~\$1.2 trillion today. The U.S. financial regulation outlook is brightening, while the situation in Europe remains uncertain (including confusion around where euro clearing ultimately resides post-Brexit). Elsewhere in Europe, French President Macron’s recent election victory and subsequent winning of a solid parliamentary majority (for his newly founded and centrist En Marche! political party) gives France its best chance in decades to reform economically-harmful labor laws. Further, Macron’s strong rapport with German Chancellor Angela Merkel may open the door to increased European Union (EU) integration, which would be a highly constructive development for a post-Brexit EU.

Along with Japanese Prime Minister Shinzo Abe’s persistent structural reform efforts, all three major developed market economies are pursuing market-positive regulatory efforts – even amid ongoing populist pressures. The success of these various initiatives is far from guaranteed, but even the removal of anti-growth initiatives, including the overload of post-crisis regulations, is an improvement. Offsetting some of the policy changes wrought by relaxed or reduced federal regulations has been a ramp up of regulations on behalf of various state/local governments (e.g. minimum wage increases) as well as corporate entities (Paris accord allegiance). These initiatives show how an expanded menu of players is dictating which regulations make sense in the new economy, and heightening the importance and impact of regulatory policy.

EXHIBIT 6: GOVERNING BY FIAT

President Donald Trump signed the most executive actions in his first 100 days as president since Truman.

NUMBER OF EXECUTIVE ACTIONS IN FIRST 100 DAYS AS PRESIDENT



Source: Northern Trust Investment Strategy, Office of the Federal Register.

VALUATION SUPERSTRUCTURE

Global equity market valuations have been rising steadily since stabilizing in the aftermath of the global financial crisis. Over the past five years, developed market valuations (as proxied by the MSCI World Index) have risen from 13.7 to 21.5 times trailing 12-month earnings. This rise in valuations represents a 9.3% annualized return, accounting for approximately two-thirds of the index’s 13.8% annual gains. Many investors are bracing for the other shoe to drop – believing what goes up, must come down. But real-world physics may not apply to current equity market valuations. For starters, the expected *Entrenched Growth* and *Stuckflation* environment – and the resulting cap on interest rates – should keep valuations elevated. Steady growth and subdued inflation increase the consistency of future earnings, allowing that future earnings stream to be valued at higher levels. At the same time, low interest rates have reduced the income opportunity cost of holding stocks over bonds. Broad U.S. equity markets have a 1.9% dividend yield vs. the 2.3% U.S. 10-year Treasury yield. The relationship is even more dramatic in Europe, where stocks yield 3.1% and the German 10-year yields 0.5%. In Japan, investors are deciding between 2.0% and 0.1%. As interest rates are slow to move up, equity valuations will be slow to move down. Beyond the fundamental foundation for higher equity valuations, other support structures are also in place. Top-down strategists often look at equity market valuations in aggregate and in comparison to history – noting the mean-reversion properties of valuations over

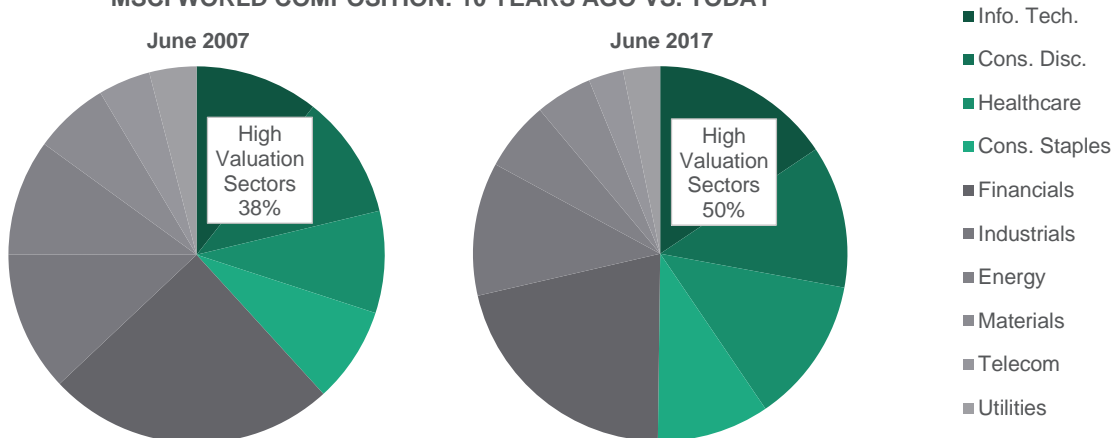
time. But what if the appropriate long-term “mean” has shifted due to changing sector weights? As seen in Exhibit 7, “high valuation” sectors (technology, consumer and healthcare) have gone from representing 38% of the MSCI World Index to 50% in the past decade. In the United States, where valuations are most elevated vs. history, the technology sector represents ~22% of the S&P 500. Prior to tech’s run up in the late 90s – briefly comprising more than 30% of the market – the sector had an index weight that was consistently in the single digits. Studies on the topic suggest that sector shifts could account for ~1.5 price-to-earnings “points.” By this argument, the current MSCI price-to-earnings valuations (21.5x) should be compared to a sector-adjusted long-term average of ~19x instead of the “true” long-term average of 17.6x; the current 22% overvaluation falls to 13% on the sector shift alone.

The ongoing evolution of the asset management industry could be another support beam. The movement toward exchange traded funds (ETFs) can provide diversification benefits that may keep retail investors in the markets during times of volatility. Some argue that broad ETF adoption is only fueling bubbles. But investment vehicles don’t create bubbles, investors create bubbles. And market sentiment indicators – including institutional investor surveys, equity put/call ratios and short interest ratios – currently lean toward pessimism. Anecdotal accounts also suggest investors are skeptical of the ongoing market rally. The greater pushback we get on *Valuation Superstructure*, the more confident we will be.

EXHIBIT 7: SECTOR ROTATION

Larger allocations to higher-valuation sectors suggest prices are not as stretched as they seem.

MSCI WORLD COMPOSITION: 10 YEARS AGO VS. TODAY



Source: Northern Trust Investment Strategy, Bloomberg, MSCI. Note: Real Estate included in Financials.

FIXED INCOME

Forecasting fixed income returns is an exercise in understanding the effects of two primary variables:

1. *Term structure*: The expected progression of interest rates on “risk-free” bonds as maturity (term) increases, driven by the compensation required to commit funds over various periods (term risk).
2. *Credit spreads*: The extra yield (spread) required to assume the risk that funds originally committed could be lost due to issuer insolvency (credit risk).

Term structure is heavily dependent on future expectations for inflation and central bank policy. Growth and inflation influence central bank decisions on short-term rates, and the expected progression of short-term rates dictates what interest rates lenders are willing to accept on longer-term debt. Keeping those influencers in mind, *Entrenched Growth* sets the stage for interest rates to move only modestly higher, while *Stuckflation* will prevent yield curves from materially steepening. Our five-year-forward interest rate forecasts (vs. market expectations) for the sovereign debt of the United States, Europe (proxied by Germany), Japan and the United Kingdom are listed below:

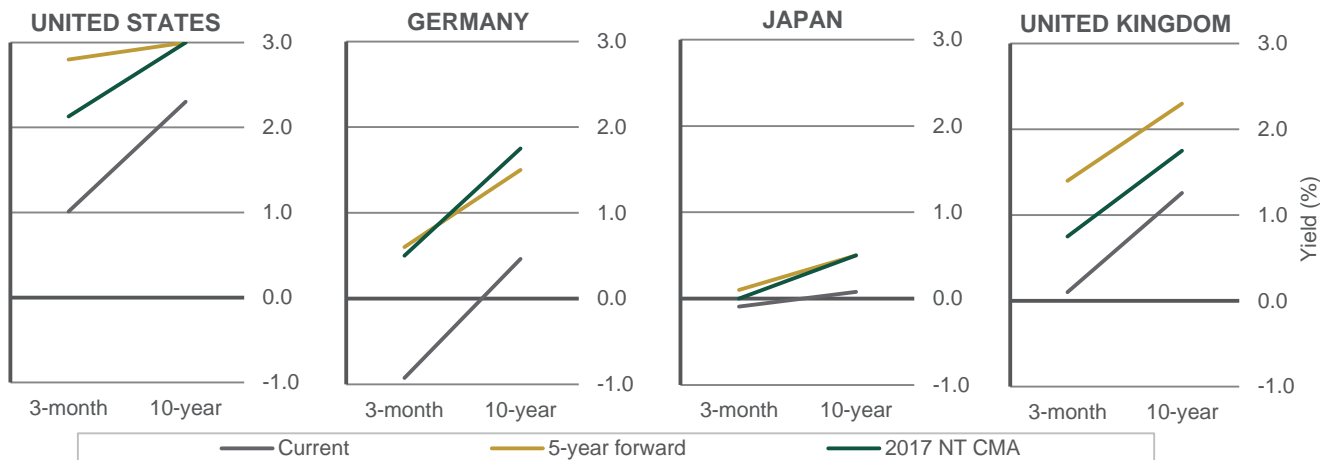
Country	3-month	10-year
United States	2.1% (2.8%)	3.0% (3.0%)
Europe (Germany)	0.5% (0.6%)	1.8% (1.5%)
Japan	0.0% (0.1%)	0.5% (0.5%)
United Kingdom	0.8% (1.4%)	1.8% (2.3%)

The United States will continue to have higher rates across the curve than most developed markets (except Australia), while Japan will remain stuck very close to 0% across the curve. Notably, however, all developed economies (even Japan) are expected to move out of negative territory (ending, at least for now, a strange and confusing chapter in financial market history).

Our short-term interest rate forecasts this year represent a step up from the expectations found in last year’s report, which was published in the immediate aftermath of the United Kingdom’s “Brexit” decision. At the time, we thought it unlikely that the Fed would be able to implement a sustained rate hike campaign; instead we thought it would have to rely on windows of opportunity to push through quarter-point rate hikes from time to time. “Animal spirits” unleashed by the U.S. presidential election and overall global growth acceleration opened a rather large window of opportunity that has allowed the Fed to raise rates three times in the past six months. But without stronger growth and higher inflation, financial markets will close that window soon. Further detail on our central bank expectations can be found on page 5, but our general expectation for short-term interest rates to move intermittently higher means cash returns will range from 2.4% in Australia to still slightly below 0% in Japan and Europe as they dig out from their negative rate holes. Canada and the United Kingdom sit in the middle at 1.3% and 0.5%, respectively. The United States is expected to have a cash return of 1.7%.

EXHIBIT 8: A GRADUAL SHIFT HIGHER

Higher interest rates will occur gradually and have been priced in across most regions.



Source: Northern Trust Investment Strategy, Bloomberg. NT CMA = Northern Trust Capital Market Assumption forecasts

Forecasting the returns for longer-duration fixed income indexes becomes more involved because it incorporates market expectations and fixed income index dynamics, which can result in differences between actual five-year returns and starting point yields (although the two are highly correlated). For global Treasuries and global investment-grade fixed income, this annualized difference has averaged 1.4% and 1.1%, respectively, during the past 30 years (see Exhibit 9). This “outperformance” was made possible by the combination of interest rates persistently undershooting market expectations (positively sloping yield curves helped) and the index’s evergreen structure (new bonds are continually being added to the index as old bonds mature). The former provided price appreciation while the latter allowed that price appreciation to persist through time. This “outperformance” has been fairly constant throughout history. One exception was in the late 1970s, when interest rates moved materially higher over the subsequent five-year period. However, it is not enough for interest rates to just go higher; they must go higher than what is priced into the forward curves (market participant expectations for future interest rates). For example, in the five-year period starting May 2003, interest rates went up by 1.6%, yet the global investment grade index still outperformed the starting point yield by 0.8%. Today, the global investment-grade index yields 1.6%, but our return forecast is 2.2%. A similar dynamic is at play for other regional fixed income forecasts. Generally speaking, constrained increases in yields will support fixed income prices.

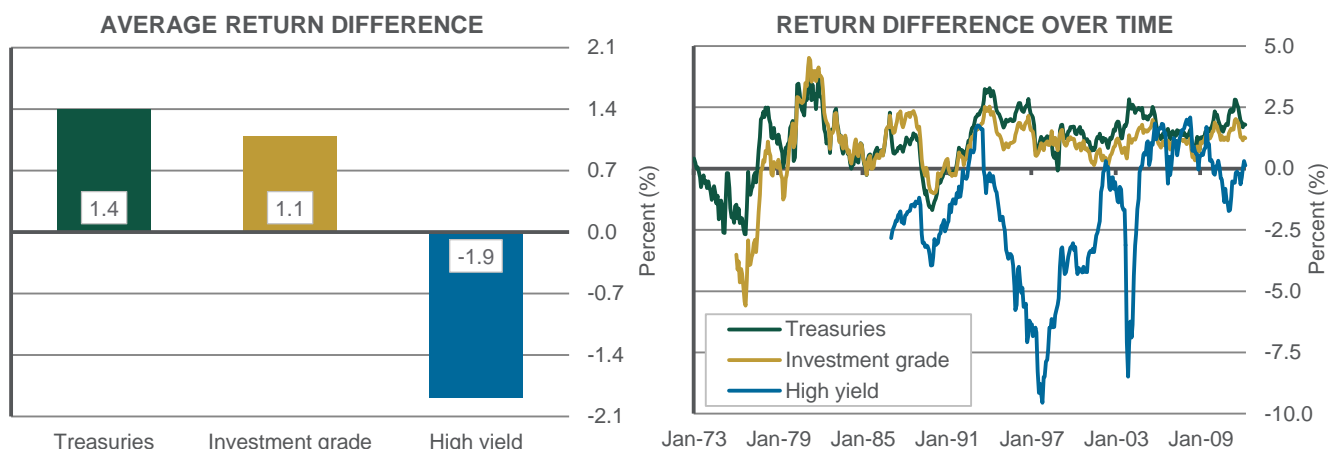
Credit impacts on total return are most noticeable within high yield. Referring back to Exhibit 9, global high yield’s credit element (in the form of defaults) leads to five-year annualized returns below starting point yields, on average. The difference between starting point yield and annualized total return can be quite volatile, ranging from 2.1% outperformance in the period bracketing the global financial crisis to 9.5% underperformance during the dot com era (still providing a 1.6% annualized total return). Today, we believe default pressures are shrinking, given the positive fundamental outlook, but their impact is still enough to offset the benign interest rate environment. Our 4.5% global high yield forecast is a 1.0% reduction from the index’s 5.5% yield.

Specific comments on other fixed income asset classes:

- *Emerging market debt:* Historically highly correlated to high yield, emerging market debt will also benefit from stabilizing emerging economies (i.e., no hard landing). Combined with a higher yield starting point, emerging market debt is an attractive complement to global high yield in a well-diversified portfolio.
- *U.S. municipals:* Despite high-profile credit concerns – including Puerto Rico’s bankruptcy and Illinois’ budget issues – municipals are broadly benefiting from increasing tax revenues and healthy investor demand. Pension obligations will require close attention, but will be largely manageable over our five-year horizon, helped by continued low interest rates. With no expected changes to tax deductibility and no broad default concerns, the municipal index will continue its general relationship to Treasuries.

EXHIBIT 9: HOW A YIELD BECOMES A RETURN

Five-year annualized returns differ from starting point yields due to term structure and credit impacts.



Source: Northern Trust Investment Strategy, Bloomberg Barclays Live.

EQUITIES

Our equity forecasting process begins by understanding historical quantitative relationships, analyzing various financial and economic metrics and the relationships between them. Developed market equity valuations have historically provided a solid foundation for forecasting long-term returns, explaining more than 40% of next-five-year – and more than 80% of next-10-year – return variability. Given current above-average valuations (8.2% cash flow yield vs. the 12.6% long-term average), the model predicts a below-average long-term return (3.8%). However, this model implicitly assumes valuations revert to the mean, which we believe is unlikely. Of the reasons identified in our *Valuation Superstructure* theme (page 8), the most tangible is the impact of interest rates on valuations. The left hand panel of Exhibit 10 shows the relationship between 10-year Treasury yields and developed market equity cash flow yields (our preferred valuation metric when performing quantitative analysis). Over the past 50 years, there has been a clear relationship between global equity market valuations and the prevailing interest rate environment; lower interest rates mean lower cash flow yields (higher valuations). As such, if interest rates remain low as we expect, we may be reverting to a lower “mean.” The blue bar in Exhibit 10 represents the long-term average cash flow yield; the green bars represent the predicted cash flow yields based on the current 10-year Treasury (2.3%) and our five-year-ahead forecast for the 10-year Treasury (3.0%). Key conclusion: current valuations look much less stretched when taking into account current interest rates.

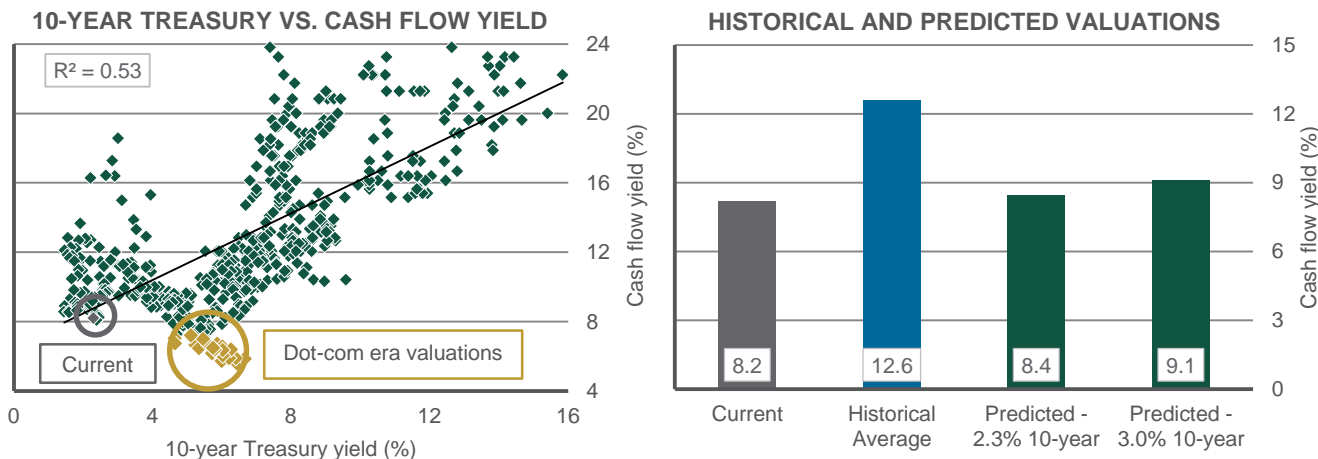
Quantitatively analyzing emerging market equities is made more difficult by the lack of a robust data set (the MSCI Emerging Markets Index only goes back to 1987). For the 30 years of data we do have, emerging market equities have shown a 0.88 correlation to developed market equities with a 1.21 beta and a 3.1% annualized return premium. However, this return premium has not been constant; even with the 5.3% outperformance in the past year, emerging markets have underperformed developed markets by 7.8% annually over the past five. More attractive valuations (10.8% cash flow yield) and our expectation for stable emerging economic growth (no China hard landing) should allow the return premium to resume during the next five years, but slower emerging market growth may constrain its magnitude.

We factor this quantitative analysis into our building block approach, involving four primary forecasts:

1. *Revenue growth*: Expected opportunity set; based on nominal economic growth forecasts weighted by geographical exposure of the underlying index.
2. *Profit translation*: Ability to turn revenue into per-share earnings, through profit margins or changing share counts (repurchases/share issuance).
3. *Valuations*: Level at which investors will value profits; forecast as a percent change in the price-to-earnings ratio of the underlying index.
4. *Dividend yield*: Profits returned to shareholders; measured as a percentage of index prices, using the current index dividend yield as the starting point.

EXHIBIT 10: NOT SO IRRATIONAL

The low interest rate environment may require a rethink of equity market “fair value.”



Source: Northern Trust Investment Strategy, Bloomberg, MSCI.

NORTHERN TRUST CAPITAL MARKET ASSUMPTIONS: 2017 EDITION

The table below outlines our building block expectations for developed markets (DM), emerging markets (EM) and global equity markets as a whole (AC).

Building Block	DM	EM	AC
Revenue growth (%)	4.1	6.7	4.4
Profit translation (%Δ)	0.7	-2.0	0.4
Valuations (%Δ)	-0.8	1.3	-0.4
Dividend yield (%)	2.3	2.3	2.3
Total Return (%)	6.4	8.4	6.9

DM = developed market equities (MSCI World); EM = emerging market equities (MSCI EM); AC = all country world equities (MSCI ACWI). Components may not exactly equal total return due to compounding.

Entrenched Growth and *Stuckflation* drive the 4.1% developed market revenue forecast. Developed market equities receive 44% of their revenues from North America (expected to provide nominal growth of 3.9%); 24% from Europe (3.0%); 15% from Asia (1.9%); and 17% from emerging markets (7.6%). We expect further gains from profit translation, expecting profit margins to remain high in Europe and Japan and share repurchases to continue in the United States. We conservatively estimate some valuation contraction (the risk case is that they go higher, per our *Valuation Superstructure* theme). Emerging market equities are expected to enjoy 6.7% revenue growth (77% of which comes from emerging economies themselves) but give up 2.0% of that through the translation to per-share profits (emerging market companies are notorious share issuers). Low valuations and a stable economic outlook allow for some valuation expansion. Contribution for the major equity regions is in Exhibit 11 (further detail is available on request).

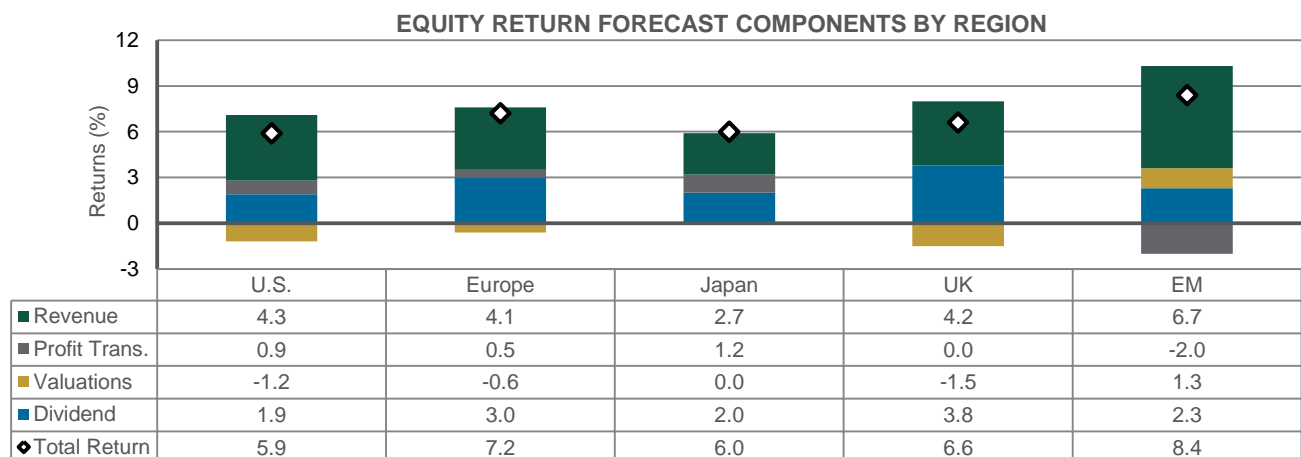
Segmenting global equity markets by geography can be complemented by a factor-based approach – dissecting the equity universe into collections of stocks with common characteristics that provide persistent return premiums. Broadly recognized factors include: size (small capitalization stocks); value (inexpensive stocks); momentum (stocks recently outperforming the market); as well as low volatility and dividend yield (self-explanatory). Other factors, such as quality, are being researched but definitions vary.

Forecasting equity factor returns is beyond the scope of our annual effort, given varying portfolio implementation procedures (e.g., the degree of “tilt” toward individual factors, the potential combination of factors, etc.). However, we’ve summarized below potential long-term return implications for factor returns based on research from our quantitative research team:

- When analyzing relative factor valuations on a price-to-book basis (relative to history), value continues to stand out as attractively priced. Low volatility seems richly valued; this does not necessarily mean it cannot outperform, but its outperformance may be lower than historically experienced.
- The factors we focus on tend to perform well in contractionary stages of the economic cycle, while value and low volatility have performed best during Fed rate hikes. The flattening of the current economic cycle and the expectation for continued accommodative monetary policy may affect this historical pattern.

EXHIBIT 11: BUILDING BLOCKS TO TOTAL RETURN FORECASTS

Modestly constructive fundamentals and fairly stable valuations will result in mid-to-upper-single digit total returns.



Source: Northern Trust Investment Strategy, Bloomberg, MSCI. Components may not exactly equal total return due to compounding.

REAL ASSETS

As with equities, we start our real asset forecast process with a review of historical quantitative relationships, identifying risk exposures. Our primary “real asset” asset classes – natural resources, global real estate and global listed infrastructure – all have equity market exposure. Natural resources also has emerging market equity and commodity exposure; real estate and listed infrastructure have term (interest rate) exposure, and real estate has credit exposure. Multiplying asset class exposures to these factors by our return expectations for these factors provides a baseline. We then conduct a qualitative review based on forward-looking themes (captured in the adjustment). Forecasts are listed below, along with the contribution from each relevant factor and the qualitative adjustment (if any). For instance, the 7.4% natural resources forecast comprises contributions from global equity, emerging market equity and commodity risk exposures of 4.7%, 1.2% and 0.4%, respectively – along with the 1.7% cash return and an adjustment of -0.5%.

Contribution (%)	NR	RE	LI
Cash return	1.7	1.7	1.7
Market	4.7	3.6	3.9
Term	-	0.3	0.1
Credit	-	1.4	-
Emerging market	1.2	-	-
Commodity	0.4	-	-
Adjustment	-0.5	-1.0	0.0
Total Return (%)	7.4	6.1	5.8

NR = natural resources; RE = real estate; LI = listed infrastructure
 Components may not exactly equal total return due to compounding.

Natural Resources

We continue to expect the modest growth environment to temper natural resource demand. Also, the continued emerging market shift to the consumer, away from investment-driven growth, has reduced the link to emerging market equity returns after a long period of tight correlation (see Exhibit 12). However, natural resource demand is not dead, and underinvestment will eventually pressure supply. We modestly adjusted our quantitative baseline downward to a 7.4% total return.

Global Real Estate

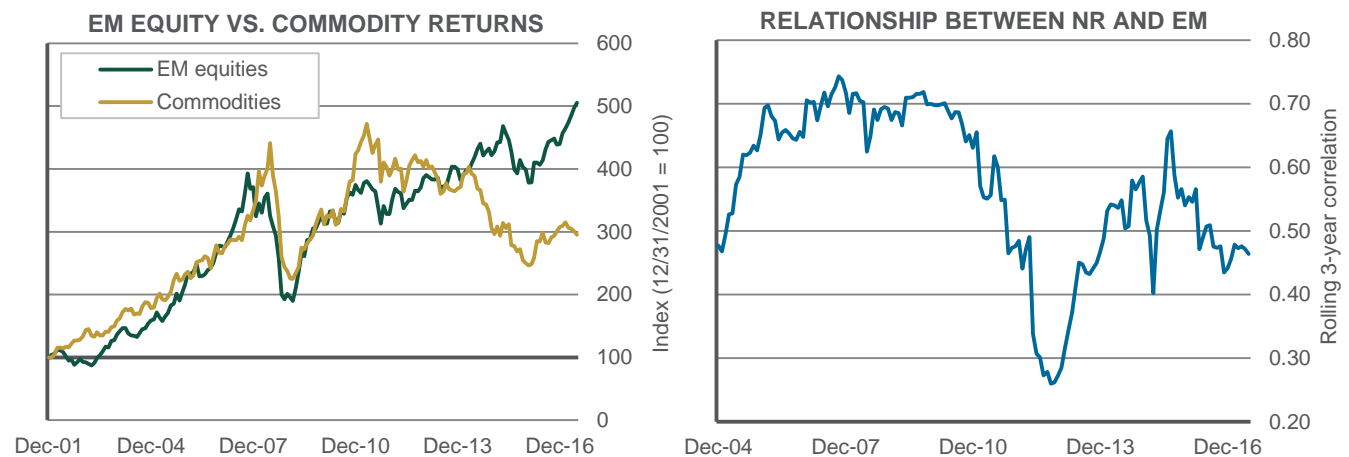
Term and credit risk exposures provide continued support, though less than in the past. Fundamentals are mixed; traditional supply is growing slower than in past cycles but demand pressures likely will continue as shoppers move online and office space is rationalized. These are not new issues; nevertheless, they remain a drag on demand. We have moderated our quantitative forecast by 1.0%, resulting in a 6.1% total return.

Global Listed Infrastructure

Term exposure will provide continued – but reduced – support to listed infrastructure. However, investors may view the asset class as a purer bond proxy than global real estate, without some of global real estate’s fundamental challenges. Developed economy infrastructure needs provide longer-term opportunities as cash-strapped governments look to the private sector for help. We made no adjustments to the quantitative baseline, expecting a 5.8% total return.

EXHIBIT 12: ESTRANGED RELATIONSHIP

The tight correlation between commodities and emerging market equities has been fading of late.



Source: Northern Trust Investment Strategy, Bloomberg. EM = emerging markets

ALTERNATIVES

We define alternative investments as asset classes that enhance risk-adjusted portfolio returns by introducing nontraditional risks. We focus on two primary asset classes – hedge funds and private equity investments.

Hedge Funds

The primary benefit of hedge fund strategies is the ability to provide nontraditional and uncorrelated return premiums to the traditional portfolio, generally by producing alpha – returns not explained by risk exposures. Our hedge fund benchmark is the HFRI Fund Weighted Composite Index – a vast collection of hedge fund strategies. Our 4.4% hedge fund return forecast represents the combination of expected alpha (0.6%) and expected returns from risk exposures (3.8%) – all based on our risk factor model, which includes market, term, credit, size, value, momentum, emerging market, commodity and currency risk. We add an additional market factor (lagged by one month) to capture any accounting issues that might delay asset price “marks.”

Exhibit 13 shows rolling 10-year hedge fund returns bifurcated between the risk (green area) and alpha contribution (gold area) – all based on the model described above. The hedge fund risk contribution has been fairly steady – though slowly declining – over time, largely tracking a balanced portfolio (50% global equities/50% global fixed income). This makes sense; hedge funds in aggregate are really just one large multi-asset class portfolio, with notable exposure to equities (market risk). The primary way hedge funds add value – and earn their fees – is by generating alpha, returns not

driven by risk exposures. Alpha generation of the broad HFRI Index has been persistently deteriorating over time, from an annualized 8.2% in the 10-year period ending December 31, 2000, to 0.6%, annualized, over the past 10 years. This also represents our five-year forecast for index alpha. However, we acknowledge that individual strategies will vary greatly around that average alpha depending on manager skill. Hedge funds can also add value through nontraditional risk exposures, those not available to ordinary investors (and not included in our model, thus indistinguishable from alpha).

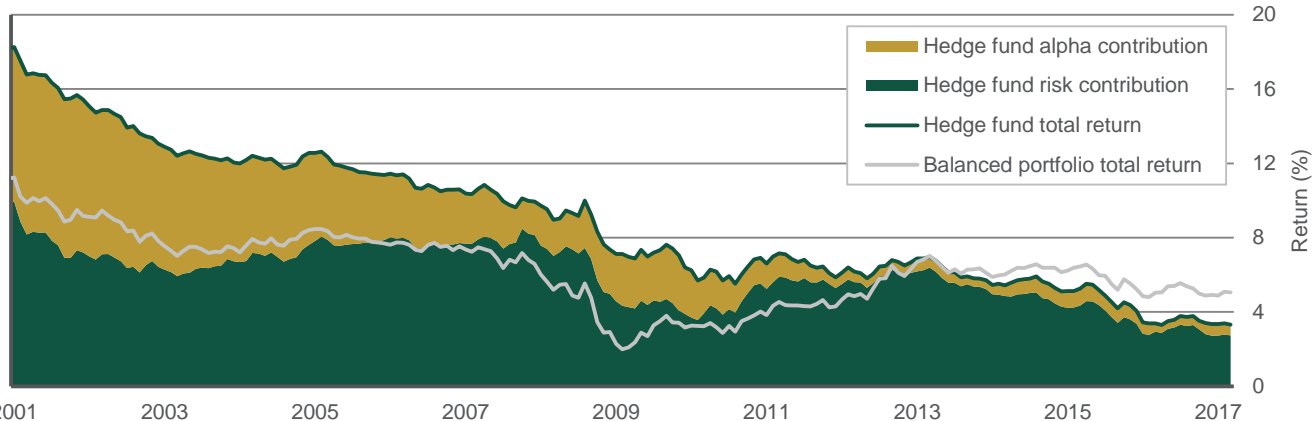
Private Equity

Forecasting private equity returns is difficult; the absence of public pricing inhibits quantitative analysis. But it is intuitive to expect equity-like returns with a return premium to compensate for asset class illiquidity. Academic research, using public market equivalent returns (converting private equity internal rates of return into traditional return streams) supports this intuition, suggesting a historical return premium of 2.5% (this figure also includes alpha generation in addition to the illiquidity premium). In last year’s CMA effort, we haircut the premium to 2.0% to capture concerns over heightened investor interest (making “deals” more difficult to find) and elevated valuations, recognizing that global equity valuations (off of which our private equity return forecast is based) are also elevated and may not revert quickly. We have maintained that haircut this year, leading to our private equity forecast of 8.4%.

EXHIBIT 13: INCREASING RISK RELIANCE

Alpha generation of the average hedge fund has been slipping over time, but varies significantly by manager.

HEDGE FUND VS. BALANCED PORTFOLIO - TEN YEAR ROLLING RETURNS



Source: Northern Trust Investment Strategy, Bloomberg, Hedge Fund Research.

NORTHERN TRUST CAPITAL MARKET ASSUMPTIONS: 2017 EDITION

Five-Year Forecasts - All Returns in % Annualized			Five-Year Return Forecasts By CMA Year						5-Year Actual Return		
Asset Class		Proxy	2017	2016	2015	2014	2013	2012			
Fixed Income	United States	Cash	3-Month U.S. T-Bill	1.7	0.5	1.5	0.9	0.5	0.5	0.1	
		Inflation Linked	BarCap U.S. TIPS	3.0	2.5	2.5	3.0	2.7	1.4	0.3	
		Investment Grade	BarCap U.S. Aggregate	3.2	3.0	3.0	3.0	2.8	2.0	2.2	
		High Yield	BarCap U.S. High Yield	4.8	5.3	5.6	5.6	6.1	6.1	6.9	
		Municipal	BarCap Municipal	3.2	2.8	3.5	4.0	3.0	2.9	3.3	
	Europe	Cash	3-Month German Bunds	-0.2	-0.5	0.0	0.4	1.0	1.3	-0.1	
		Inflation Linked	BarCap Euro Inf. Linked	1.5	1.4	1.8	2.8	3.2	3.1	5.2	
		Investment Grade	BarCap Euro Aggregate	1.5	1.4	2.0	2.8	3.0	2.9	4.7	
	Japan	Cash	3-Month JGB	-0.1	-0.3	0.0	0.1	0.1	0.3	0.0	
		Inflation Linked	BarCap Inflation Linked JGB	0.8	0.8	1.2	1.5	0.6	0.5	0.8	
		Investment Grade	BarCap Japanese Aggregate	0.7	0.5	1.0	1.2	0.8	0.7	2.2	
	UK	Cash	3-Month Gilts	0.5	0.3	1.5	1.3	0.6	1.0	0.5	
		Inflation Linked	BarCap Inflation Linked Gilt	1.6	2.0	2.6	3.0	3.2	2.7	8.3	
		Investment Grade	BarCap Sterling Aggregate	2.5	2.6	3.0	3.7	3.5	3.1	5.0	
	Canada	Cash	3-Month Canada T-Bill	1.3	0.7	1.5	1.3	1.5	1.5	0.8	
		Inflation Linked	FTSE TMX Real Return Bond	2.5	2.5	2.5	3.2	3.2	2.3	1.1	
		Investment Grade	FTSE TMX Universe	2.5	2.6	2.7	3.4	3.5	2.5	3.3	
		High Yield	ML Canadian High Yield	4.5	5.0	5.6	5.6	6.1	6.1	6.0	
	Aus.	Cash	3-Month Australia Gov't Bond	2.4	2.0	2.2	2.8	3.3	4.0	3.0	
		Investment Grade	BarCap Australian Composite	3.2	3.3	3.5	4.0	3.6	3.3	3.8	
	Global	Global Aggregate	BarCap Global Aggregate	2.2	2.1	2.5	2.7	2.6	2.0	3.3	
		Global High Yield	BarCap Global High Yield	4.5	5.3	5.8	5.8	6.5	6.5	7.8	
		Emerg. Mkt. Debt	JP Morgan GBI-EM Diversified	5.3	5.5	6.5	6.0	7.0	6.1	1.8	
	Equities	Developed Markets	United States	MSCI United States	5.9	4.8	5.6	6.6	7.1	8.5	14.6
			Europe	MSCI Europe ex U.K.	7.2	5.3	6.8	8.2	7.8	7.0	14.0
			Japan	MSCI Japan	6.0	5.6	6.2	6.6	5.8	5.0	17.6
			United Kingdom	MSCI United Kingdom	6.6	5.9	7.0	8.6	8.4	8.0	9.4
Canada			MSCI Canada	6.0	6.0	6.9	7.1	7.6	8.0	9.0	
Australia			MSCI Australia	7.7	8.0	8.1	9.1	9.4	8.5	11.8	
Developed Markets			MSCI World	6.4	5.4	6.1	7.2	7.4	7.8	13.8	
Em. Markets			Asia	MSCI EM Asia	8.9	8.0	8.5	10.0	9.9	11.5	9.2
		Latin America	MSCI EM Latin America	6.9	5.6	5.7	7.0	10.6	11.0	4.9	
		EMEA	MSCI EM EMEA	7.3	6.0	6.5	7.9	10.4	9.5	3.8	
		Emerging Markets	MSCI Emerging Markets	8.4	7.3	7.8	9.0	10.1	11.1	8.0	
		Global Equities	MSCI All Country World	6.9	5.8	6.5	7.4	7.7	8.4	13.1	
Real		Global	Natural Resources	S&P Global Natural Resources	7.4	6.9	7.0	7.0	7.2	7.9	0.5
	Listed Real Estate		FTSE EPRA/NAREIT Global RE	6.1	6.3	6.9	8.0	8.0	8.4	8.1	
	Listed Infrastructure		S&P Global Infrastructure	5.8	5.6	6.2	7.0	7.5	8.9	9.7	
Alts		Private Equity	Cambridge Global Private Equity	8.4	7.4	8.6	9.2	9.6	11.0	N/A	
		Hedge Funds	HFRI Fund Weighted Comp	4.4	3.4	4.4	4.3	4.4	5.5	4.9	

Forecasts listed here represent total return forecasts for primary asset classes, annualized using geometric averages.

Five-year actual returns are listed in local currency (with the exception of real assets, which are in USD) and annualized for five-year period ending 6/30/2017.

PROCESS AND PARTICIPANTS

Every year, Northern Trust's Capital Market Assumptions Working Group (CMA) gathers to develop long-term financial market forecasts. The team adheres to a "forward looking, historically aware" approach. This involves understanding historical relationships between asset classes and the drivers of those asset class returns; but also debating how these relationships will evolve in the future. Our forward-looking views are encapsulated in our annual list of CMA themes, which – combined with our quantitative analysis – guides our expectations for five-year asset class returns.

The CMA return forecasts are combined with other portfolio construction tools (standard deviation, correlation, etc.) to annually review and/or update the recommended strategic asset allocations for all Northern Trust managed portfolios and multi-asset class products.

CMA is composed of senior professionals from across Northern Trust globally, including top-down investment strategists, bottom-up research analysts and client-facing investment professionals. CMA working group members are listed below. In total, nearly 40 Northern Trust partners contributed to the 2017 CMA effort.

David Blake Director, International Fixed Income	Wayne Bowers International Chief Investment Officer	Bob Browne Northern Trust Chief Investment Officer
Brad Camden Director, Fixed Income Strategy	Michael DeJuan Director, Portfolio Strategy	Peter Flood Director, ETF Investment Strategy
Jim McDonald Northern Trust Chief Investment Strategist	Peter Mladina Wealth Management Director, Portfolio Research	Katie Nixon Wealth Management Chief Investment Officer
Matt Peron Managing Director, Global Equities	Dan Personette Director, Interest Rate Strategy	Brad Peterson Wealth Management Senior Portfolio Manager
Dan Phillips Director, Asset Allocation Strategy	Colin Robertson Managing Director, Fixed Income	Carl Tannenbaum Northern Trust Chief Economist

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