

# THE END OF SOVEREIGNTY?

Globalization, nationalism and the  
implications for institutional investors

SPRING 2018

For professional investor use only. Not for use  
with the public. Your capital is at risk and the  
value of investments can go down as well as up.



# FOREWORD

Never before in human history have people, information and capital moved across borders at the speed, frequency and volume we see today. These global forces have blunted the ability of individual sovereign states to shape their own economic destinies. The rising tide of nationalism around the world today is in many ways their response to this diminishing influence.

Beyond the potential geopolitical and social disruptions, this escalating tussle between globalization and nationalism could have profound implications for global financial markets, historical investment frameworks and traditional asset allocation approaches.

For our new white paper, we draw on the insights of an array of PGIM investment professionals—as well as leading academics and foreign policy experts—to discuss the most relevant geopolitical themes, the potential winners and losers, and the implications for investors and portfolios. Here at PGIM we believe investors who look beyond the near-term “noise” to understand the longer-term tug-of-war between globalization and nationalism should be best positioned to navigate these uncertain times.



**David Hunt**  
President and  
Chief Executive Officer  
PGIM



**Taimur Hyat**  
Chief Strategy Officer  
PGIM

## About PGIM

PGIM, the global investment management businesses of Prudential Financial, Inc. (PFI),\* is one of the top 10 largest global investment managers with over \$1 trillion in assets under management (as of December 31, 2017).<sup>1</sup> Our distinct multi-manager model delivers a broad suite of actively-managed solutions in the areas of public and private fixed income, equities and real estate to serve clients’ needs. Built on a foundation of strength and stability, our expertise in investments across asset classes and risk management helps achieve superior long-term performance for our clients. To learn more about PGIM, please visit [www.pgim.com](http://www.pgim.com).

\*Prudential Financial, Inc. of the United States is not affiliated with Prudential plc, which is headquartered in the United Kingdom.

# INTRODUCTION

**The modern nation-state, envisioned 370 years ago, is increasingly challenged by forces beyond its direct control—global capital markets, multinational firms, shadowy non-state actors, cross-border climatic and biological threats, and digital citizens freely transmitting information across state lines.<sup>2</sup> The attempt by sovereign nations to wrest back control from these forces of globalization, even if ultimately futile, may well be one of the defining struggles of our time.<sup>3</sup>**

Under these circumstances, traditional monetary and fiscal policies, and historical investment frameworks, will be inadequate to understand the shifting economic landscape. A broadened global perspective—including new geopolitical risks and how they manifest in the real economy—will need to be at centerstage.

Based on discussions with PGIM investment professionals, leading academics, and foreign policy experts, we identify two powerful trends reshaping the geopolitical landscape:

- **Rumors of the demise of globalization are greatly exaggerated.** Cross-border flows of financial, human and digital capital are reaching high water marks—with new technologies further accelerating the pace of global change. For example, 70 of the top 100 global “economies” are now multinationals, dominating most nation-states in economic terms.<sup>4</sup> And more than 40 percent of the revenues of firms in the S&P 500 and the MSCI Europe Index are sourced from outside their home markets.<sup>5</sup> At the same time, the darker side of globalization is gathering pace: while the risk of financial contagion is well-established, sovereign nations must now also deal with issues such as international cybercrime, cryptocurrencies, cross-border tax arbitrage, and global pandemics.
- **A populist backlash against globalization has taken hold in developed markets—at times focused on free trade and at times on immigration.** The middle class in emerging markets and the elite in developed markets are viewed as the winners of globalization while the middle class in developed markets is seen as the loser. It is no surprise that exclusionary nationalism and populism have become common themes among voters in developed markets: support for populist parties in countries with at least one populist party has increased fivefold since 1965.<sup>6</sup>

These intertwined geopolitical threads could have profound implications for global financial markets and the investment landscape. As a result, long-term institutional investors may want to rethink their investment approach and consider five key actions.

1. **Decrease reliance on top-down country-level factors which have a diminishing role in driving equity, real estate and corporate debt returns.** The complex web of global actors that must be analyzed now include multinationals, central banks and regulators in other countries, corporate and quasi-sovereign debt issuers, and city or provincial administrators who may be working at odds with their national governments.
2. **Apply a global framework for all investment decisions, given the increasing importance of cross-country spillover effects in driving asset prices.** The traditional demarcation between domestic and international securities is becoming increasingly blurred. As such, at the policy-benchmark level, investors should consider a single global benchmark. At the security selection-level, investors should broaden the analytical lens to understand, for example, how companies might benefit from globalization (e.g. global, quasi-monopolies in the technology sector) or withstand regulatory backlash by a sovereign actor.
3. **Ensure *developed market* political risk is embedded in in-house and third-party manager investment decisions,** similar to how investors have approached emerging market and frontier market risk analysis. As was made clear when Brexit left investors scrambling to understand their true underlying exposure to the U.K., developed market political risk is not just theoretical. The key is to separate political theater from true political risk, with a focus on political actions that can roil financial markets. Approaches to consider include regularly engaging with asset managers on their geopolitical risk assessment of individual companies and sectors, retaining political risk analysis firms or in-house political risk teams, evaluating true economic exposure versus market-cap weighted exposure, and conducting robust scenario analysis given the binary outcomes from many political risks.
4. **Position the portfolio for greater volatility and political uncertainty.** History has shown that when stresses in the

established geopolitical order reach a tipping point, they can generate significant disruption and even structural breaks in the global economy. While it is difficult to immunize a portfolio from such binary risks, investors may want to think long and hard about their true geographic diversification and how their active long-only and alternative managers may potentially be able to identify winners and losers in these disruptive environments. Investors may even want to consider targeted use of tail risk hedging strategies even though these can be expensive.

- 5. Prepare to be viewed as an agent of change with public stances on global challenges.** In an era of diminishing sovereign influence, stakeholders in civil society will increasingly call upon large asset owners to act as agents of change on cross-country challenges. This role is not comfortable for many investors who traditionally focus

on fiduciary duties above all. However, plan participants, nonprofit advocacy groups, the press, and board members will increasingly expect CIOs to communicate their position on global issues—such as climate change, biodiversity, international labor standards and gender equality. They will also expect CIOs to demonstrate leadership through corporate engagement and asset allocation decisions that advance that position.

For all these reasons, it is important to examine the struggle unfolding between nation-states seeking to control the direction of their economies and accelerating global forces challenging that control. Part 1 examines the benefits and pitfalls of globalization in a world of rapid technological change. Part 2 describes how nation-states are attempting to come to terms with, participate in, and exert control over the forces of globalization. Part 3 explores in greater depth the implications for investors and portfolios.



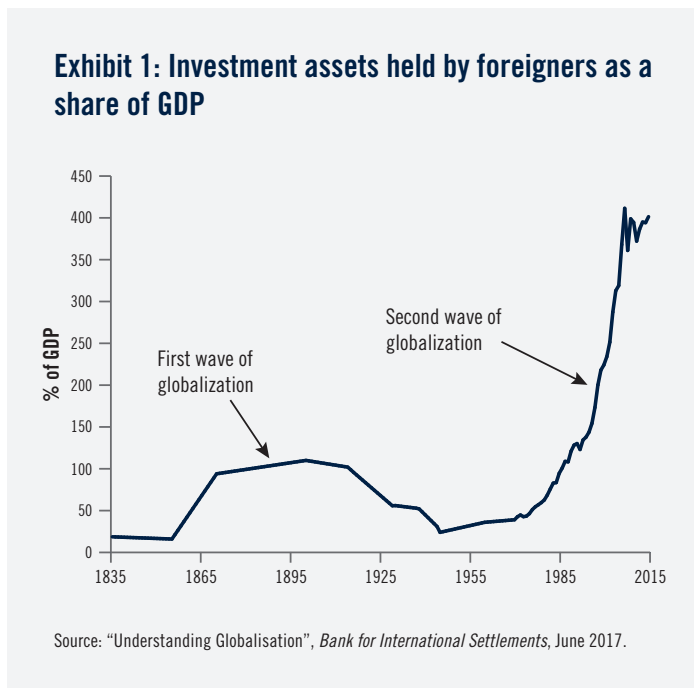
## PART 1

# GLOBALIZATION AT THE SPEED OF LIGHT

With the media spotlight on the rising tide of nationalism, the continued strength of the long-term forces powering globalization has garnered less attention. In reality, cross-border flows of financial, human, and digital capital are stronger than ever—and remain a key driver of global growth. What's unique to this current phase of globalization is the speed of capital and information flows—making it harder than ever for governments to keep pace with the opportunities and challenges that result.

### Cross-border capital flows

Since the 2008 financial crisis, aggregate cross-border capital flows into G20 countries have rebalanced (from bank lending to foreign direct investment), rebounded, and increasingly incorporated emerging markets in the exchange of capital.<sup>7</sup> While still below their pre-crisis high water mark, these flows have driven the stock of cross-border financial assets to an all-time peak: from below 20% of GDP in 1835, to 30% in 1950, and to approximately 400% of GDP today (Exhibit 1).



On the flipside, as it becomes quicker and easier to move money across borders, governments have become less capable of controlling the spread of financial trouble. This fact became painfully clear after U.S.-based Lehman Brothers declared bankruptcy in 2008, leading to the near collapse of the global financial system. More recently, cryptocurrencies have emerged as an alternative to government-backed currencies, with governments and regulators still trying to understand the risks to tax collection, consumer protection and illicit payments.

### Global access to human capital

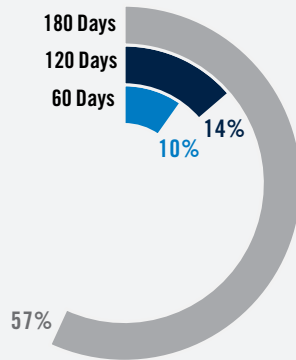
The relaxation of trade barriers, advancements in global supply chains, and the rapid decline in shipping and communication costs means that international labor is now embedded in nearly all the products we consume, even if that human capital is physically located abroad.

Take Chinese labor for example. Back in the 1860s, roughly 10,000–15,000 Chinese workers helped construct the first transcontinental railroad in the United States.<sup>8</sup> Today, through a system of complex supply chains and trade networks, the U.S. imports roughly \$480 billion in goods and services from China, effectively allowing U.S. firms and consumers to access the Chinese workforce without necessarily requiring people to move across borders.<sup>9</sup>

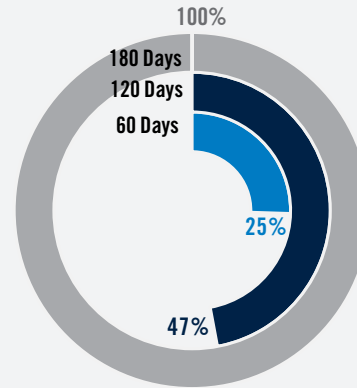
In addition, the physical movement of people continues to increase: the number of air travelers globally rose from 2.5 billion in 2007 to 4.1 billion in 2017, while interregional migrants have increased by over 50% since 1995.<sup>10</sup> This flow of people is helping to more efficiently allocate labor, boost economic development, and perhaps most importantly, spread skills and know-how among expatriate communities and foreign students.<sup>11</sup>

## Exhibit 2: Percent of select urban centers exposed to a forecasted pandemic<sup>12</sup>

Forecast Pandemic in the 1960s



Forecast Pandemic in the 2000s



Source: Grais, Rebecca F., Ellis, J. Hugh, & Glass, Gregory E, "Assessing the impact of airline travel on the geographic spread of pandemic influenza", *European Journal of Epidemiology* 18: 1065–1072, Kluwer Academic Publishers: 2003.

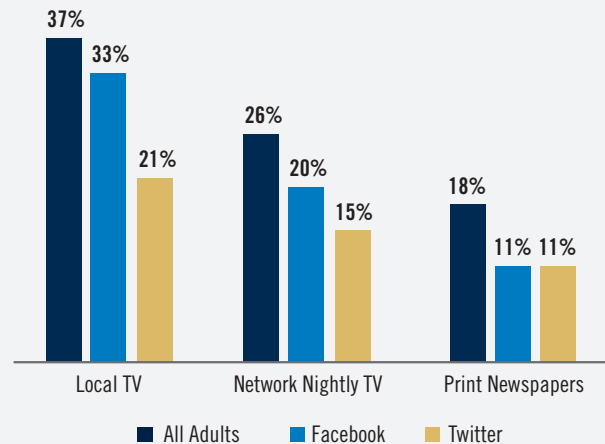
However, increased access to low-cost labor around the world has also led to job displacement and stagnating wages, particularly for manufacturing workers in developed markets. Further, the rapid rise in travel combined with increasingly dense mega-cities has created conditions for pandemics to spread quickly across the globe, making it nearly impossible for any one government to protect its citizens (Exhibit 2). Finally, the rising number of refugees has strained national infrastructure in a number of countries, especially in housing, schooling and hospitals.

### The free flow and digitization of information

The incredible expansion in digital infrastructure—undersea internet cables span roughly 1.1 million kilometers, enough to circle the globe roughly 28 times—has enabled a virtual explosion of information transferred around the world.<sup>13</sup> The use of cross-border bandwidth has grown from 4.7 thousand gigabits per second in 2005 to over 210 thousand by 2014, and is estimated to have generated \$2.8 trillion in world GDP.<sup>14</sup>

The associated technologies—particularly social networks—have disintermediated traditional information sources, with a growing number of social media users looking less to traditional media sources such as television and print newspapers (Exhibit 3). Growth of these social networks has been particularly pronounced in the emerging world: in the Philippines, Saudi Arabia, and Russia, social media users spend on average 4.3 hours, 2.9 hours and 2.3 hours, respectively, per day on social media.<sup>15</sup>

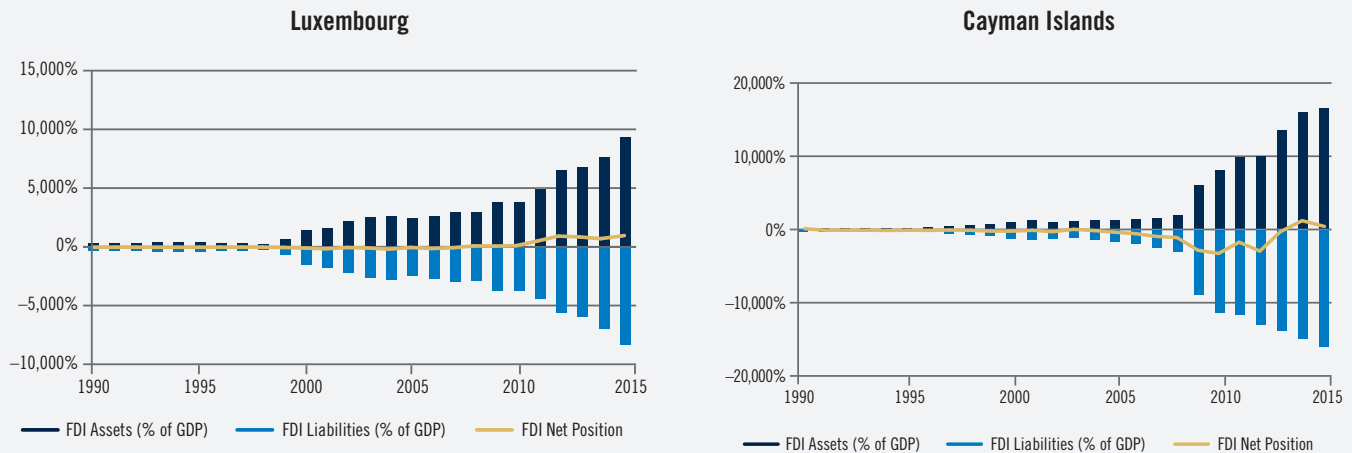
### Exhibit 3: Social media users in the U.S. are beginning to rely less on traditional news platforms



Note: Defined as the percent of each social media site's news users who often get their news from traditional news platforms

Source: Shearer, Elisa and Gottfried, Jeffrey, "News Use Across Social Media Platforms 2017", Pew Research Center, September 6, 2017.

## Exhibit 4: Net foreign direct investment positions in select tax havens



Source: Lane, Philip R. and Milesi-Ferretti, Gian M, "International Financial Integration in the Aftermath of the Global Financial Crisis", *International Monetary Fund*, May 10, 2017.

While increased digital connectivity has its economic and social benefits, the internet has also enabled international cybercrime, which is difficult for governments to track, prevent, and prosecute given the "statelessness" and anonymity of the internet. This problem has been getting worse: the average cost of cybercrime for large firms has increased over 60% in the last 5 years.<sup>16</sup>

### The evolution of multinational firms

Multinational firms have provided the foundation for global integration, transferring capital and intellectual property across borders. The global supply chains they own or orchestrate account for nearly 80 percent of global trade and one out of five jobs globally.<sup>17</sup> Given their scale, multinational firms also play an increasingly important role in shaping global policy—particularly

as agreements among multinationals or within their supply chains can often be reached faster than among governments.

Yes, as multinationals have grown more complex, they have been able to take advantage of different regulatory regimes and disparate tax laws, raising questions about whether transnational firms truly have a "nationality." Today, the top 100 multinationals are in many ways "stateless" with "an average of 20 holding companies each...with more than 500 affiliates operating in more than 50 countries."<sup>18</sup> This, of course, makes multinationals even harder for governments to regulate, as the arrangements often fall outside of any one nation's legal jurisdiction or regulatory capabilities. Notably, differences in tax regimes across the globe, combined with firms' ability to shift money and intellectual property rights among jurisdictions, allow many multinationals to book their economic activities in the country of their choice (Exhibit 4).

## PART 2

# THE NATION-STATE STRIKES BACK

**The momentum behind global integration—and the “borderless” challenges the forces of globalization create—has been seen by some countries as a challenge to state sovereignty. Nation-states are taking a variety of actions to wrest back control, with potentially significant implications for the economic and business environment.**

Feeding this national response are growing complaints that multilateral institutions have proven to be ineffective—whether the result of byzantine bureaucracies, perennial underfunding, unclear accountability, vested political interests of member states, or the underrepresentation of key emerging markets in major decision-making bodies. This last factor, for example, partially drove the Chinese-coordinated establishment of the New Development Bank and the Asian Infrastructure Investment Bank.

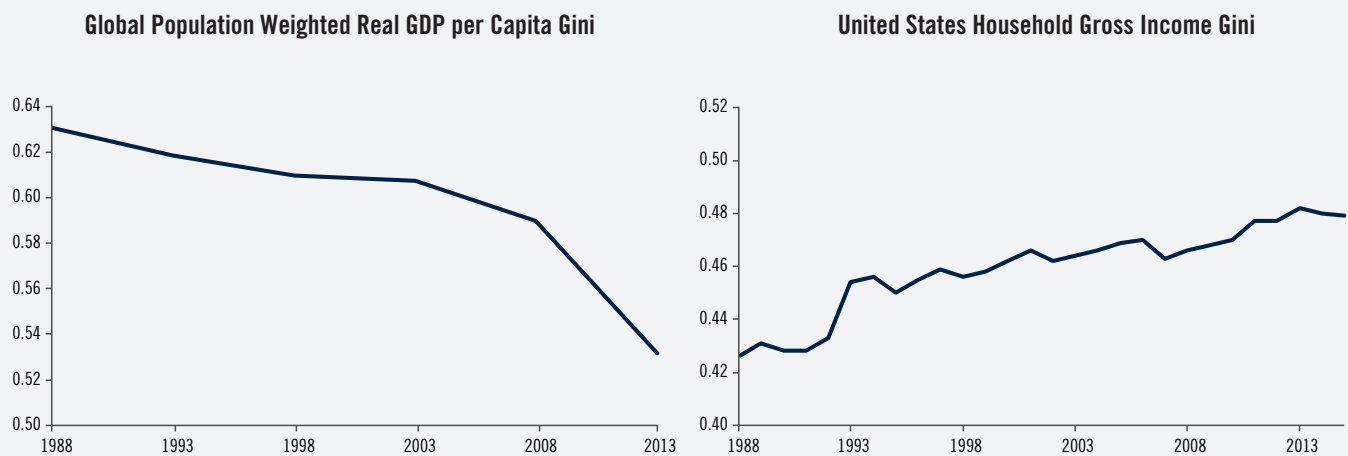
There are several ways governments and affected citizens are responding to both the perceived risks and real challenges of globalization against this backdrop. While not exhaustive, we

believe three potential responses will be particularly important for global investors to monitor in the coming years.

### A populist backlash in developed markets

Many factors underpin the rise of narrowly nationalistic and populist movements around the world. In the United Kingdom and the United States, the growing income, job and wealth polarization over the past few decades is likely a key contributing factor.<sup>19</sup> It is important to note that while population-weighted income inequality between countries around the world has steadily declined since the 1980s, inequality within individual developed

**Exhibit 5: Global inequality has declined while inequality in the U.S. has risen**



Note: A Gini coefficient, commonly used to express income inequality, is a statistical measure of the degree of inequality represented in a set of values. A coefficient of one represents total inequality, and zero represents perfect equality.

Source: Branko Milanovic, *Global Inequality: A New Approach for the Age of Globalization*, Cambridge, Massachusetts: The Belknap Press of Harvard University, 2016; All the Ginis database (version October 2016).



markets, particularly in the United States, has actually increased over the same period (Exhibit 5). The widening gap has been further strained by limited social welfare intervention.

Whether due to globalization or technology, clear winners and losers have emerged. The winners are the middle class in emerging markets as well as those at the top of national income distributions; the losers are the middle class in wealthy, developed countries. This has fueled populist sentiment, introducing nationalism and opposition to trade and/or migration as common themes in public discourse, which have given way to several highly visible outcomes: Donald Trump's election win in the United States, the Brexit vote to exit the European Union, and the rise of nationalist parties in a number of European countries (Exhibit 6).

The effects of these sentiments are already tangible. As governments begin to rethink trade relationships and adopt selective capital controls, firms' supply chains and growth strategies are being threatened. For example, discussions about the renegotiation (or even termination) of NAFTA and the implementation of steel and aluminum tariffs have been a cause for concern for North American carmakers. With many car materials and parts developed in Mexico and Canada, cars built in North America will travel across the U.S. border eight times during production.<sup>20</sup> Should major changes occur, carmakers could face significant cost increases on the billions of dollars' worth of auto parts that cross borders each year.<sup>21</sup>

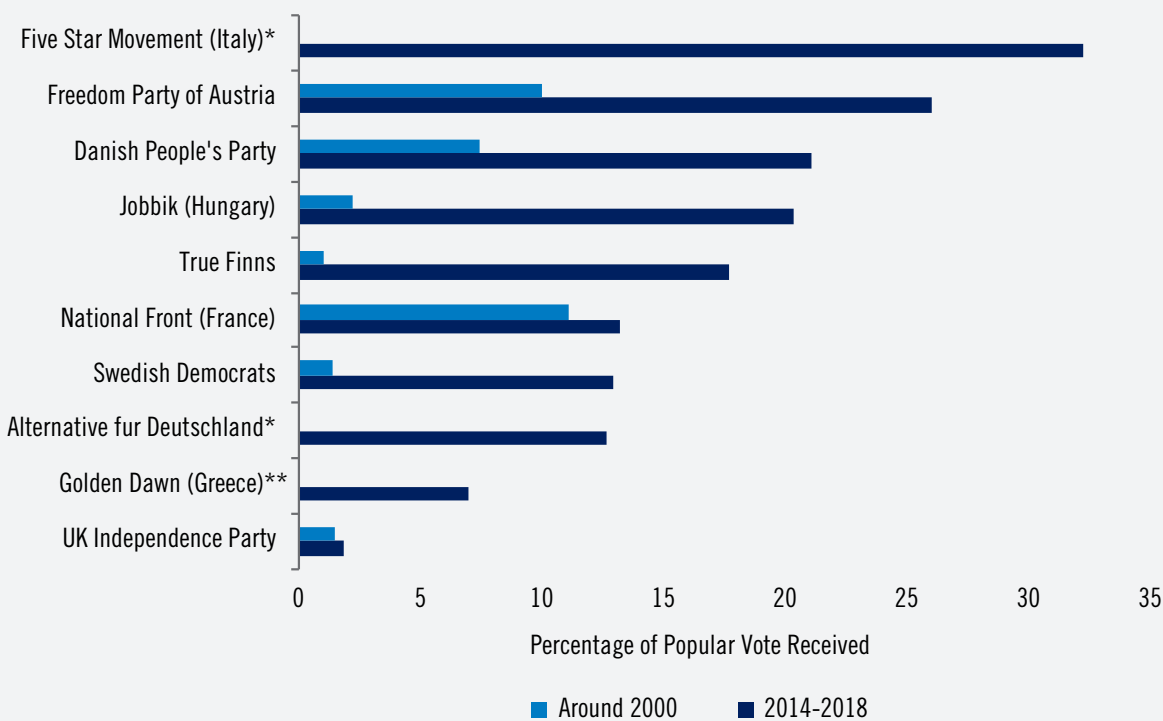
Similarly, in March 2018 the U.S. administration announced its intentions to put 25% tariffs on 1,300 imported items from China, reflecting charges that China has unfairly appropriated U.S. intellectual property. China responded to these intended U.S. tariffs with measures of a strictly similar size. While tariffs at this level alone will not cause much of a dent on either economy, both sides continuing to raise the ante would certainly threaten more severe disruption to global growth.<sup>22</sup>

Meanwhile, in Silicon Valley, there is concern around the U.S. government's revisions to the H-1B visa program and the implications for highly skilled technology talent. According to a report by Goldman Sachs, H-1B workers hold about 12-13 percent of all jobs in the U.S. tech industry.<sup>23</sup> On the other side of the world, China's efforts in 2016 to tighten restrictions on outbound M&A have led to a nearly 70 percent decline in cross-border purchases. In some extreme cases, companies have begun ignoring bids from Chinese firms in favor of lower-priced offers from firms domiciled in other countries.<sup>24</sup>

### Wresting control over cyberspace and the media

Governments around the world have begun asserting their authority over social media, with goals ranging from protecting privacy to blocking their citizens' access to unfavorable information to even manipulating information end-users have access to.

**Exhibit 6: Legislative success of populist parties in Europe**



\*Parties did not exist around 2000.

\*\*Percentage of popular vote received equals 0% around 2000

Source: Updated based on Milanovic, "Global inequality: A new approach for the age of globalization," 2016.

On the privacy front, a powerful example is the U.S. and U.K. governments' strong reaction to revelations that Cambridge Analytica gained access to private information on more than 50 million Facebook users, including details on users' identities, social networks and "likes." In terms of blocking digital information, governments have blocked apps, arrested social media users, and imposed new data localization requirements. Freedom House has identified at least 25 countries that blocked social media and communication apps in 2017, including China, Brazil, India, Indonesia and Malaysia.<sup>25</sup> These and other restrictions have significantly hampered firms' abilities to grow internationally, with some estimates showing that China's "Great Firewall" has cost U.S. tech companies billions of dollars' worth of lost revenue.<sup>26</sup>

The rise of social media-driven news has also opened a new front in state-to-state propaganda wars, as exemplified by Russia's alleged efforts to spread disinformation on social media during the 2016-2017 U.S. and French national elections. Of course, media censorship and manipulation are as old as news itself—but a globally open internet and the ability to use automated bots to spread false information takes this to a new level.

As states attempt to regulate social and digital media companies, technology firms could face significant regulatory uncertainty. Rules for these lightly regulated sectors are yet to be written, while questions such as the optimal way to manage quasi-monopolies, who owns the end data (firms, or the individuals on whom data is collected), how that data is distributed, and who should take responsibility for content uploaded to social media continue to mount. For example, European governments have been pushing social media platforms to remove content deemed "hate speech" and threatening to impose stiff regulations unless the industry takes action to control its own behavior.<sup>27</sup> As of writing, it remains to

be seen how much appetite the tech industry has to self-regulate, versus waiting for states to impose new regulations.

## The return of the "local" multinational

Governments across the developed world have been taking steps to shift multinational firms' economic activity back to their "home" tax jurisdiction. Starting in 2012, the OECD launched the Base Erosion and Profit Sharing (BEPS) Project to create an international framework that aims to increase reporting transparency and tackle tax avoidance.<sup>28</sup> In addition to such multilateral initiatives, some governments are also taking unilateral action. For example, in 2014, the U.S. Treasury announced steps to curtail the tax benefits of corporate inversions, taking additional actions in 2016 in response to Pfizer's proposed \$160bn takeover of Allergan.<sup>29</sup> More recently, the U.S. Tax Cuts and Job Act shifted taxation from a worldwide system to a territorial system and allowed a one-off tax on accumulated foreign earnings—potentially inducing firms to repatriate up to \$2tn back to the U.S. from earnings previously held overseas.<sup>30</sup>

Governments are also increasing their efforts to compel firms to "onshore" their physical and digital presence when selling into national markets and keep the local presence that firms already have. In the U.S., for instance, the Trump administration has both pushed tax incentives and used public pressure to keep multinationals from sending jobs abroad.<sup>31</sup> Government pressure is having real effects on business models around the world. General Electric, for example, has switched from a global strategy to a local strategy, with former CEO Jeff Immelt saying, "We used to have one site to make locomotives; now we have multiple global sites that give us market access. A localization strategy can't be shut down by protectionist policies."<sup>32</sup>

## PART 3

# WHAT DOES THIS MEAN FOR INVESTORS AND PORTFOLIOS?

The escalating tussle between globalization and nationalism could have significant implications for global markets and the investment opportunity set. As a result, we believe institutional investors may want to rethink their investment approach across five primary areas.

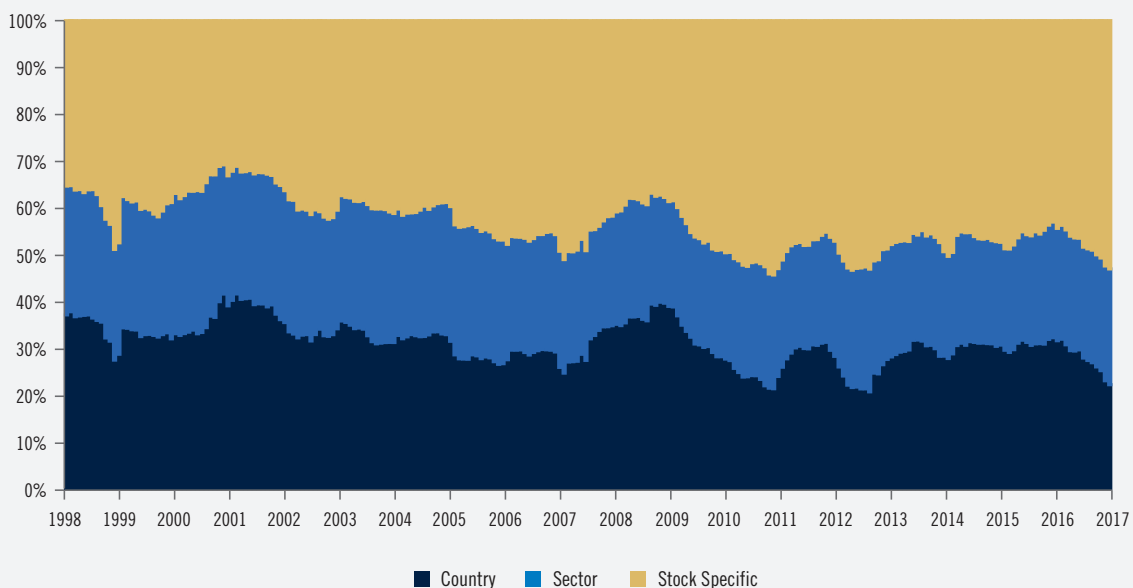
### 1. Decrease reliance on top-down country-level factors which have a diminished role in driving equity, real estate and corporate debt returns

Outside of sovereign debt investments, country-level analysis is increasingly inadequate to understand asset prices. Investors need to understand the complex web of global actors—for example, multinational firms, central banks or regulators in other countries, quasi-sovereign and corporate debt issuers, or even local mayors

and provincial politicians—and the risks and rewards their actions can pose, regardless of the sovereign intent.

This is on clear display in equity markets, where country-level factors account for only 20 percent of global equity returns, and sector- and stock-specific factors play a larger role. This is now even true of emerging markets. As firms in those markets have become more fully integrated into the global economy, the composition of equity returns has followed suit: the contribution of country-level factors has been steadily declining, with sector- and security-specific

Exhibit 7: Decomposition of equity returns in emerging markets



Source: QMA, a PGIM Company

factors increasing (Exhibit 7). In this environment, investors will need to focus on the cross-country themes, sectors, and companies that drive investment returns, rather than simply using top-down country-specific analysis.

A similar story is playing out in global debt markets. As economic interconnectedness grows, it is impossible to evaluate a country or municipality without considering global factors. For example, on a regional level, decisions made in Brussels can have significant implications on Spanish or Italian debt—highlighted most recently by the governor of the Bank of Italy, who claimed that the European regulatory regime was largely responsible for Italian bank collapses.<sup>33</sup>

This trend also extends to emerging market corporate debt. As many emerging market governments de-dollarize their balance sheets and issue debt in local currency, corporations and quasi-sovereigns have filled the void by issuing their own hard currency debt—overtaking the amount of hard currency sovereign debt outstanding in 2013. In countries where governments continue to strengthen their balance sheets, making them potentially less vulnerable to sovereign or currency crises, investors will increasingly need to focus more on the idiosyncratic characteristics of corporate and quasi-sovereign debt and less on broad country factors.

Real estate also reflects these trends, where the city rather than the country is increasingly the most relevant unit of analysis: the Chicago Council on Global Affairs places 42 mega-cities among the world's 100 largest economies.<sup>34</sup> While country-level factors will always matter in real estate—especially the rule of law, property rights, and contract enforcement—city-level factors are critical in asset selection.<sup>35</sup> In Japan, for example, the continued migration to Tokyo and Osaka by younger people creates a significantly richer universe of real estate investment opportunities compared

to smaller Japanese towns experiencing a hollowing out of the working age populations. Similarly, the London and New York luxury housing markets, and the Palo Alto and Bangalore tech-driven office markets, may have more in common with each other than with smaller cities within their home country. As such, investors will want to think carefully about their underlying exposure to specific cities and the risk-return trade-offs inherent in (for example) having exposure to Beijing versus Shanghai, or San Francisco versus Denver, rather than simply looking at China versus the U.S.

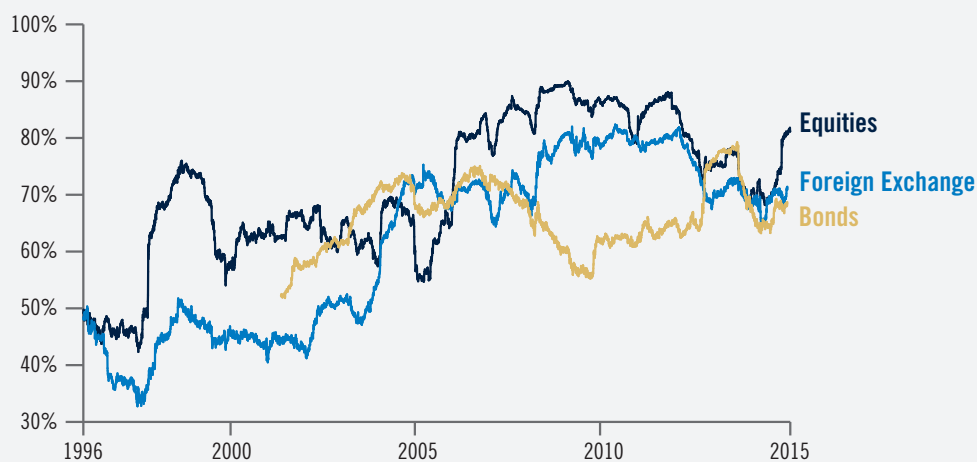
## 2. Apply a global framework for all investment decisions, given the increasing importance of cross-country spillover effects in driving asset prices

At the policy benchmark level, investors may want to evolve the traditional asset allocation frameworks that neatly separate domestic, international and emerging market securities in public markets. While these regional benchmarks may be appropriate to measure the performance of specialist managers in specific sleeves, they are inadequate in capturing overall portfolio exposures in an increasingly globalized world. Three real-world data-points help illustrate this.

In equity markets, regional stock indices are no longer accurate indicators of domestic economic activity. For example, 40 percent of S&P 500 company sales occurred outside the U.S. for the last decade.<sup>36</sup> Similarly, around 50 percent of MSCI Europe company sales come from outside the Eurozone.<sup>37</sup>

In fixed income markets, stronger global connectivity complicates domestic monetary and fiscal policy, making it harder for

**Exhibit 8: Spillover indices for various asset classes**



Note: Financial market spillovers are defined as the portion of market returns that can be explained by other countries' returns in the prior 12 days, after controlling for global macroeconomic factors that would be expected to impact multiple countries.

Source: "Global Financial Stability Report", International Monetary Fund, April 2016.

individual countries to control their interest rates, exchange rates and credit availability. For example, each time China threatens to cut back on its U.S. Treasury purchases, it fans fears among investors and U.S. policymakers of rapidly rising interest rates and higher borrowing costs for the U.S. government, most recently in early 2018. This, of course, occurred at a time when U.S. government debt levels were poised to rise after the passage of major tax legislation and the Federal Reserve was trying to slowly offload its assets.<sup>38</sup>

These anecdotal cases are backed by broad empirical studies that demonstrate the increasing influence of market movements in one part of the world on markets in other countries. For example, spillover indices—which capture the portion of a country's equities, FX and bond market returns that can be explained by other countries' lagged market returns—have been on the rise since the mid-1990s (Exhibit 8).

Beyond asset allocation, a truly global framework also requires broadening the analytic lens used for individual security selection. It will be increasingly critical for investors to understand how companies might benefit from globalization or withstand regulatory backlash by a sovereign actor.

For example, investors concerned about domestic regulatory flux may want to explore “born global” firms, which are defined as “firms that view the world as their marketplace from the outset and see the domestic market as a support for their international business.”<sup>39</sup> This type of firm is perhaps best exemplified by Skype, a company that was founded by entrepreneurs from Sweden and Denmark, created by developers in Estonia, and launched with the intention of disrupting the *global* telecom industry.<sup>40</sup>

Similarly, many digital services no longer require a significant local presence to distribute their product in foreign markets, and may have an easier time coping with changing regulatory environments. For example, the founders of Musical.ly, a Chinese app that allows users to share videos of themselves lip-syncing and dancing, realized early on that China's increasingly closed off internet would make it harder for them to grow.<sup>41</sup> While keeping their headquarters in China, the digital-first Musical.ly changed strategies. They ignored the Chinese market and instead linked with Instagram, WhatsApp and Facebook—sites blocked in China. Since then, Musical.ly has grown to over 200 million users in Europe, South America, Southeast Asia, and the U.S., where 50 percent of its user base is concentrated in the U.S.<sup>42</sup>

### **3. Ensure developed market political risk is embedded in in-house and third-party manager investment decisions**

While investors have long embedded emerging and frontier market political risk analysis in their investment frameworks, political uncertainty and geopolitical risk emanating from developed markets is a relatively new phenomenon. A case in point was the 2016 Brexit vote, which left many investors scrambling to evaluate

their total exposure to the U.K. - both direct investments in U.K. public and private assets, as well as indirect exposure through global firms with economic links to the U.K. It's a risk that can't be ignored; it stems not only from the ongoing struggle between globalism and nationalism, but also from shifting economic and power dynamics as a rising China begins to assert its voice on the global stage. As political scientist Graham Allison points out, over the past 500 years there have been 16 cases where a major rising power has threatened to displace a major ruling power—12 of which have ended in conflict.<sup>43</sup>

In fact, most professional investors believe that a geopolitical event may impact their portfolio over the coming years: a worldwide CFA Institute survey of roughly 1,500 investment professionals found that 70 percent expect investment returns to be compromised by geopolitical events over the next three to five years.<sup>44</sup> The key for investors is to separate political theater from true political risk, with a focus on actions that can truly move financial markets.

As a start, institutional investors will want to place geopolitical risk high on their agendas when making investment decisions and selecting managers, ensuring political risks are explicitly captured in their investment frameworks and seeking ways to diversify their geopolitical exposures. Asset owners may want to follow the lead of multinational firms that invest considerable time in understanding the long-term risks from the changing geopolitical order. This could potentially involve retaining political risk analysis firms, participating in foreign relations forums, or employing in-house political risk teams. More specifically, investors might consider conducting scenario analyses to better understand how various geopolitical events might affect their portfolios and how they might respond. This can be done internally among senior management, or with the help of an external political risk consultant.

At a minimum, investors will want to engage regularly with their asset managers and consultants on their assessments of geopolitical risk and the potential impact on their portfolios, and ensure they have access to local, on-the-ground expertise to stay abreast of rising geopolitical tensions.

### **4. Position the portfolio for greater volatility and political uncertainty**

History has shown that when stresses in the established global order reach a tipping point they can generate significant economic volatility, social disruption and geopolitical risk. While it's difficult to immunize a portfolio from such binary risks, institutional investors may want to consider a couple of actions to position the portfolio for an era of increasing geopolitical uncertainty.

First, long-term investors should be careful not to overweight traditional measures of risk, such as the CBOE Volatility Index, that may not fully capture the potential costs of low-probability, high-risk events, and which may be susceptible to backward-looking or momentum-driven influences.

Second, investors may want to spend more time analyzing their true geographic diversification, especially given the fact that traditional legal-domicile-based regional indices may not be accurate proxies for firms' true economic exposures. Investors that rely on traditional market-cap weighted regional indices may find it difficult to intentionally build exposure to certain countries, or reduce exposure to others. This is not an easy challenge to address: there are many factors that could expose firms to geographic risks and opportunities outside of their country of domicile, with the relative importance of each factor unique to each investor's objectives. There have been attempts by firms like MSCI and Russell to create indices that weight companies based on their geographic distribution of revenues, rather than solely using market capitalization, but this is not enough. For example, in addition to sources of revenue, one might look at firms' geographic distribution of inputs, location of labor and factories, sources of financing, or location and culture of the board of directors, as various ways to measure country- or region-specific "economic exposure."

Third, investors may want to consider tools that could protect them against downside shocks if and when geopolitical risks come to fruition, though broad overlay hedges are potentially quite expensive. This could include a wide variety of tail risk hedging strategies or, more generally, volatility management tools. Of course, this simply transfers the geopolitical risks to a counterparty—it doesn't make them disappear—and if investors do choose to use these tools, a proper evaluation of counterparty risk will be essential.

## 5. Prepare to be viewed as an agent of change with public stances on global challenges

In an era of diminishing sovereign influence, stakeholders in civil society will increasingly call upon large asset owners to act as agents of change on cross-country challenges, especially given their global reach and (either directly or via asset managers) corporate equity stakes. Asset owners will be expected to not only have a view on cross-country issues (such as climate change, biodiversity, gender equality, and cybersecurity), but demonstrate active leadership

through asset allocation decisions and corporate engagement that advances that position.

While this is not always a comfortable role for institutional investors who have been traditionally focused on fiduciary duties above all, we suspect the calls from civil society will only grow louder over time. So far, asset owners and investment managers have responded in a variety of ways. For example, European asset owners have for a number of years prioritized environmental, social and governance (ESG) goals as part of their investment process – and the European Commission has even considered explicitly including an evaluation of sustainability in the definition of fiduciary responsibility.<sup>45</sup> U.S. investors have started following suit: 37% of U.S. investment plans now incorporate ESG into their investment decisions, while others have begun encouraging their investment managers to sign the UN Principles for Responsible Investment, which now has over 1,700 signatories representing over \$68 trillion in AUM.<sup>46</sup> Additionally, the Investor Stewardship group, focused on improving corporate governance, has some of the largest asset managers and institutional investors in the world as signatories. Some asset owners are taking this engagement a step further, choosing to actively try and sway public debates, such as when a coalition of 41 investors signed a letter with New York State and New York City officials in 2017 urging companies to oppose immigration restrictions.<sup>47</sup>

Although each asset owner will choose to respond to stakeholders in their own way, one thing is clear: investors cannot afford to ignore these changing expectations. Some investors may not feel ready to act, but they must at the very least begin planning how to respond when (not if) stakeholder pressure arrives.

## Conclusion

Never before in human history have people, information and capital moved across borders at the speed, frequency, and volume that we see today. Ultimately, successful long-term investors will be those who look not only at near-term market indicators but also seek to better understand the escalating tussle between nation-states trying to maintain control over their domestic economies and the inexorable global forces wresting that control away.



## Acknowledgements

PGIM gratefully acknowledges the contributions by the following individuals:

Edward Alden, Bernard L. Schwartz Senior Fellow, Council on Foreign Relations

Heidi Crebo-Rediker, Adjunct Senior Fellow, Council on Foreign Relations

Dr. John Kline, Professor of International Business Diplomacy, Walsh School of Foreign Service, Georgetown University

Dr. Stephen Kobrin, William H. Wurster Emeritus Professor of Multinational Management, Wharton School of the University of Pennsylvania; Executive Director, Wharton Digital Press

Adam Segal, Ira A. Lipman Chair in Emerging Technologies and National Security, and Director of the Digital and Cyberspace Policy Program, Council on Foreign Relations

## PGIM Contributors

Ed Campbell, QMA, a PGIM Company

Matt Duda, PGIM Fixed Income

Laurence Dworkin, PGIM

Dr. Peter Hayes, PGIM Real Estate

David Hunt, PGIM

Dr. Taimur Hyat, PGIM

Dr. Wen Jin, QMA, a PGIM Company

Ed Keon, QMA, a PGIM Company

David Klausner, PGIM

Morgan Laughlin, PGIM Real Estate

Dr. Joshua Livnat, QMA, a PGIM Company

Karen McQuiston, PGIM Institutional Advisory Solutions

Dr. Harsh Parikh, PGIM Institutional Advisory Solutions

Greg Peters, PGIM Fixed Income

Dr. Arvind Rajan, PGIM Fixed Income

Dr. George Sakoulis, QMA, a PGIM Company

Dr. Nathan Sheets, PGIM Fixed Income

Benett Theseira, PGIM Real Estate

## Endnotes

- <sup>1</sup> Based on total worldwide institutional assets under management as of 12/31/16, according to a Pensions & Investments ranking published on 5/30/17.
- <sup>2</sup> The birth of the nation-state is cited as coming from the Peace of Westphalia in 1648, which ended the Thirty Years' War and established the concept of national sovereignty over a country's territory. For a more in-depth discussion of the evolution of the current world order and the modern forces of globalization undermining the order see Haass, Richard, "A World In Disarray", Penguin Press, New York, 2017.
- <sup>3</sup> The definition of sovereignty is often misunderstood and mischaracterized. For this paper, sovereignty refers to what Stewart Patrick terms "sovereignty as autonomy," or a state's ability to make and implement decisions independently. For an in-depth discussion on sovereignty and the ways in which it is impacting today's political discourse, see Stewart, Patrick, "The Sovereignty Wars: Reconciling America with the World", The Brookings Institution, Washington D.C., 2018.
- <sup>4</sup> "Countries vs corporations data set", *Global Justice Now*, September 2016. <<http://www.globaljustice.org.uk/resources/countries-vs-corporations-data-set>>; size of economies is measured by revenue.
- <sup>5</sup> Gupta, Abhishek and Subramanian, Madhu, "Economic Exposure in Global Investing: Tilting Portfolios Based on Macroeconomic Views", MSCI, October 2014; Silverblatt, Howard, "S&P 500 2016: Global Sales", *S&P Dow Jones Indices*, July 2017; S&P data.
- <sup>6</sup> Rodrik, Dani, "Populism and the economics of globalization", *Journal of International Business Policy*, 2018. <[https://drodrik.scholar.harvard.edu/files/dani-rodrik/files/populism\\_and\\_the\\_economics\\_of\\_globalization.pdf](https://drodrik.scholar.harvard.edu/files/dani-rodrik/files/populism_and_the_economics_of_globalization.pdf)>
- <sup>7</sup> Update to "The Great Mismatch: Addressing Barriers to Global Capital Flows", PGIM, June 2015; International Monetary Fund – Balance of Payment Data.
- <sup>8</sup> "Chinese Railroad Workers in North America Project", *Stanford University*, 2018. <<http://web.stanford.edu/group/chineserailroad/cgi-bin/wordpress/faqs/>>
- <sup>9</sup> "The People's Republic of China", United States Trade Representative, accessed April 9, 2018. <<https://ustr.gov/countries-regions/china-mongolia-taiwan/peoples-republic-china>>
- <sup>10</sup> "Number of scheduled passengers boarded by the global airline industry from 2004 to 2018 (in millions)", Statista, accessed February 15, 2018; Abel, Guy J. and Sander, Nikola, "Quantifying Global International Migration Flows", *Science*, Vol. 343, Issue 6178, pp. 1520-1522, March 28, 2014.
- <sup>11</sup> Hausmann, R., (2016). "Economic Development and the Accumulation of Know-how", *Welsh Economic Review*. 24, pp.13–16. DOI: <http://doi.org/10.18573/j.2016.10049>
- <sup>12</sup> Graph 1 depicts the temporal progression of the 1968–1969 pandemic. Forecast pandemic is based on 1968-1969 influenza pandemic. Graph 2 depicts the temporal progression of a 2000-2001 influenza pandemic if the 1968-1969 influenza pandemic occurred with 2000 air travel volumes.  
Urban centers include Atlanta, Bangkok, Beijing, Berlin, Bogota, Budapest, Buenos Aires, Cairo, Cape Town, Caracas, Casablanca, Chennai, Chicago, Delhi, Havana, Hong Kong, Honolulu, Houston, Jakarta, Johannesburg, Karachi, Kolkata, Lagos, Lima, London, Los Angeles, Madrid, Manila, Melbourne, Mexico City, Montreal, Mumbai, New York, Paris, Perth, Rio de Janeiro, Rome, San Francisco, Santiago, Sao Paulo, Seoul, Shanghai, Singapore, Sofia, Stockholm, Sydney, Tehran, Tokyo, Warsaw, Washington, Wellington.
- <sup>13</sup> "Earth Fact Sheet", NASA, last updated December 23, 2016. <https://nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html>; Mauldin, Alan, "Frequently Asked Questions: Submarine Cables 101", *TeleGeography*, February 14, 2017. <<https://blog.telegeography.com/frequently-asked-questions-about-undersea-submarine-cables>>
- <sup>14</sup> Manyika, James, et al., "Digital globalization: The new era of global flows", *McKinsey Global Institute*, March 2016. <<https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows>>
- <sup>15</sup> WeAreSocial; GlobalWebIndex, Q4 2015. <<https://wearesocial-net.s3.amazonaws.com/uk/wp-content/uploads/sites/2/2017/01/Slide047.png>>; based on a survey of internet users aged 16-64. Averages also factor non-users.
- <sup>16</sup> "2017 Cost of Cybercrime Study: Insights on the Security Investments That Make a Difference", Ponemon Institute and Accenture, 2017. <[https://www.accenture.com/t20170926T072837Z\\_\\_w\\_/us-en/\\_acnmedia/PDF-61/Accenture-2017-CostCyberCrimeStudy.pdf](https://www.accenture.com/t20170926T072837Z__w_/us-en/_acnmedia/PDF-61/Accenture-2017-CostCyberCrimeStudy.pdf)>; Large firms defined as having over 1,050 employees.
- <sup>17</sup> UNCTAD (United Nations Conference on Trade and Development), World Investment Report 2013: Global Value Chains: Investment and Trade for Development, United Nations Publication, 2013. <[http://unctad.org/en/PublicationsLibrary/wir2013\\_en.pdf](http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf)>; ILO (International Labour Organization) (2015) World Employment and Social Outlook. ILO, Geneva.
- <sup>18</sup> "Why giants thrive", *The Economist*, September 15, 2016.
- <sup>19</sup> "Emerging Markets at the Crossroads", PGIM, 2017. <<https://www.pgim.com/em>>
- <sup>20</sup> Wilson, Christopher E., "Working Together: Economic Ties Between the United States and Mexico", Woodrow Wilson International Center for Scholars, November 2011. <<https://www.wilsoncenter.org/sites/default/files/Working%20Together%20Full%20Document.pdf>>
- <sup>21</sup> "Revisiting NAFTA: The Stakes for Key Industries", *The New York Times*, April 27, 2017. <<https://www.nytimes.com/2017/04/27/business/economy/nafta-impact-industries-cars-agriculture-apparel-pharmaceuticals.html?mtref=www.google.com>>
- <sup>22</sup> Sheets, Nathan, "Trade Tensions – Still More Bark Than Bite?", PGIM Fixed Income, April 2018. <<https://www.pgim.com/wps/wcm/connect/cb1a2c3b-491d-4a11-9294-a838e0753/TradeTensionsstillMoreBarkThanBite.pdf?MOD=AJPERES&CVID=mamZExu>>
- <sup>23</sup> Torres, Nicole, "The H-1B Visa Debate, Explained", *Harvard Business Review*, May 4, 2017. <<https://hbr.org/2017/05/the-h-1b-visa-debate-explained>>

- <sup>24</sup> Sidders, Jack and Chan, Vinicy, “China’s \$246 Billion Foreign Buying Spree is Unraveling”, *Bloomberg*, May 11, 2017. <<https://www.bloomberg.com/news/articles/2017-05-10/china-s-246-billion-takeover-spre-is-crumbling-as-sellers-balk>>
- <sup>25</sup> “Freedom on the Net 2017”, *Freedom House*, November 2017. <<https://freedomhouse.org/report/key-internet-controls-table-2017>>
- <sup>26</sup> Makinen, Julie, “Chinese censorship costing U.S. tech firms billions in revenue”, *Los Angeles Times*, September 22, 2015. <<http://www.latimes.com/business/la-fi-china-tech-20150922-story.html>>
- <sup>27</sup> “France to get tougher on social media hate speech – PM”, *Reuters*, March 19, 2018. <<https://www.reuters.com/article/france-racism-socialmedia/france-to-get-tougher-on-social-media-hate-speech-pm-idUSL8N1R14G0>>
- <sup>28</sup> “Base erosion and profit sharing”, *Organisation for Economic Co-operation and Development*. <<http://www.oecd.org/tax/beps/>>
- <sup>29</sup> “Treasury Announces First Steps to Reduce Tax Benefits of Corporate Inversions”, *U.S. Department of the Treasury*, September 22, 2014. <<https://www.treasury.gov/press-center/press-releases/Pages/jl2647.aspx>>; Houlder, Vanessa, “Tax inversions: what the new rules mean”, *Financial Times*, April 5, 2016. <<https://www.ft.com/content/17261a80-fb18-11e5-b3f6-11d5706b613b>>
- <sup>30</sup> “United States tax act could lead to repatriation of \$2 trillion of overseas investment”, *United Nations Conference on Trade and Development*, February 5, 2018. <<http://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=447>>
- <sup>31</sup> Ehrenfreund, Max, “A company Trump attacked will receive state tax breaks to keep jobs in the U.S.”, *Washington Post*, November 30, 2016. <[https://www.washingtonpost.com/news/wonk/wp/2016/11/30/a-company-trump-attacked-will-receive-state-tax-breaks-to-keep-jobs-in-the-u-s/?utm\\_term=.80acbd3ccf12](https://www.washingtonpost.com/news/wonk/wp/2016/11/30/a-company-trump-attacked-will-receive-state-tax-breaks-to-keep-jobs-in-the-u-s/?utm_term=.80acbd3ccf12)>
- <sup>32</sup> Murray, Alan, “GE’s Immelt Signals End to 7 Decades of Globalization”, *Fortune*, May 20, 2016. <<http://fortune.com/2016/05/20/ge-immelt-globalization/>>
- <sup>33</sup> Politi, James, “Italian central bank chief blames recession and EU rules for bank collapses”, *Financial Times*, December 19, 2017. <<https://www.ft.com/content/601d5637-f181-38ed-b8ff-5efcb8d087c0>>
- <sup>34</sup> Toly, Noah J., “100 Top Economies: Urban Influence and the Position of Cities in an Evolving World Order”, *The Chicago Council on Global Affairs*, October 13, 2016. <<https://www.thechicagocouncil.org/publication/100-top-economies-urban-influence-and-position-cities-evolving-world-order>>
- <sup>35</sup> “The Wealth of Cities”, PGIM, 2015. <<http://www.wealthofcities.com/#/>>
- <sup>36</sup> Silverblatt, Howard, “S&P 500 2016: Global Sales”, *S&P Dow Jones Indices*, July 2017; S&P data.
- <sup>37</sup> Gupta, Abhishek and Subramanian, Madhu, “Economic Exposure in Global Investing: Tilting Portfolios Based on Macroeconomic Views”, MSCI, October 2014.
- <sup>38</sup> Schlossberg, Boris, “Dollar Dives After Chinese Threaten Halt to Treasury Buying”, *Nasdaq*, January 10, 2018. <<http://www.nasdaq.com/article/dollar-dives-after-chinese-threaten-halt-to-treasury-buying-cm902958>>
- <sup>39</sup> McKinsey & Co. (1993), *Emerging Exporters: Australia’s High Value-Added Manufacturing Exporters*. Melbourne: McKinsey & Co., Australian Manufacturing Council.
- <sup>40</sup> Grandori, Anna and Giordani, Laura Gaillard, *Organizing Entrepreneurship*, Routledge, 2011.
- <sup>41</sup> Mozur, Paul, “Chinese Tech Firms Forced to Choose Market: Home or Everywhere Else”, *New York Times*, August 9, 2016. <<https://www.nytimes.com/2016/08/10/technology/china-homegrown-internet-companies-rest-of-the-world.html?mtrref=www.google.com>>
- <sup>42</sup> Robehmed, Natalie, “From Musers to Money: Inside Video App Musical.ly’s Coming of Age”, *Forbes*, May 11, 2017. <<https://www.forbes.com/sites/natalierobehmed/2017/05/11/from-musers-to-money-inside-video-app-musical-lys-coming-of-age/#648568b66cff>>
- <sup>43</sup> Allison, Graham, “Destined for War: Can America and China Escape Thucydides’s Trap?”, Houghton Mifflin Harcourt, Boston-New York, 2017; see <<https://www.belfercenter.org/thucydides-trap/case-file>> for an overview of the 16 cases.
- <sup>44</sup> “Survey shows investment professionals increasingly believe geopolitical risks will have a negative impact on the industry”, *CFA Institute*, March 15, 2017. <[https://www.cfainstitute.org/about/press/release/Pages/03152017\\_133545.aspx](https://www.cfainstitute.org/about/press/release/Pages/03152017_133545.aspx)>
- <sup>45</sup> Rust, Susanna, “EU considering sustainable investing as fiduciary duty for investors”, *Investments & Pensions Europe*, November 13, 2017. <<https://www.ipe.com/news/esg/eu-considering-sustainable-investing-as-fiduciary-duty-for-investors/10021736.article>>
- <sup>46</sup> Kilory, Meaghan, “Callan: More U.S. asset owners incorporating ESG factors into investment decisions”, *Pensions & Investments*, December 14, 2017. <<http://www.pionline.com/article/20171214/ONLINE/171219862/callan-more-us-asset-owners-incorporating-esg-factors-into-investment-decisions>>
- <sup>47</sup> “Coalition of 41 Investors Call on U.S. Companies to Oppose President Trump’s Actions on Immigration”, *New York City Comptroller’s Office*, February 2, 2018. <<https://www.osc.state.ny.us/press/releases/feb18/immigration-statement.pdf>>

## Important Information

The information contained herein is provided by PGIM, Inc., the principal asset management business of Prudential Financial, Inc. (PFI), and an investment adviser registered with the US Securities and Exchange Commission. PFI is not affiliated in any manner with Prudential plc, a company incorporated in the United Kingdom.

In the United Kingdom information is issued by PGIM Limited, an indirect subsidiary of PGIM, Inc. PGIM Limited registered office: Grand Buildings, 1-3 Strand, Trafalgar Square, London, WC2N 5HR is authorised and regulated by the Financial Conduct Authority of the United Kingdom (registration number 193418) and duly passported in various jurisdictions in the EEA. These materials are issued to persons who are professional clients or eligible counterparties for the purposes of the Financial Conduct Authority's Conduct of Business. In certain countries in Asia, information is presented by PGIM Singapore, a Singapore investment manager registered with and licensed by the Monetary Authority of Singapore. In Japan, information is presented by PIMJ, registered investment adviser with the Japanese Financial Services Agency. In South Korea, information is presented by PGIM, Inc., which is licensed to provide discretionary investment management services directly to South Korean investors. In Hong Kong, information is presented by representatives of PGIM (Hong Kong) Limited, a regulated entity with the Securities and Futures Commission in Hong Kong to professional investors as defined in Part 1 of Schedule 1 of the Securities and Futures Ordinance.

*These materials are for informational or educational purposes only. The information is not intended as investment advice and is not a recommendation about managing or investing assets. In providing these materials, PGIM is not acting as your fiduciary as defined by the Department of Labor.*

These materials represent the views, opinions and recommendations of the author(s) regarding the economic conditions, asset classes, securities, issuers or financial instruments referenced herein. Distribution of this information to any person other than the person to whom it was originally delivered and to such person's advisers is unauthorized, and any reproduction of these materials, in whole or in part, or the divulgence of any of the contents hereof, without prior consent of PGIM is prohibited. Certain information contained herein has been obtained from sources that PGIM believes to be reliable as of the date presented; however, PGIM cannot guarantee the accuracy of such information, assure its completeness, or warrant such information will not be changed. The information contained herein is current as of the date of issuance (or such earlier date as referenced herein) and is subject to change without notice. PGIM has no obligation to update any or all of such information; nor do we make any express or implied warranties or representations as to the completeness or accuracy or accept responsibility for errors. These materials are not intended as an offer or solicitation with respect to the purchase or sale of any security or other financial instrument or any investment management services and should not be used as the basis for any investment decision. No risk management technique can guarantee the mitigation or elimination of risk in any market environment. Past performance is not a guarantee or a reliable indicator of future results and an investment could lose value. No liability whatsoever is accepted for any loss (whether direct, indirect, or consequential) that may arise from any use of the information contained in or derived from this report. PGIM and its affiliates may make investment decisions that are inconsistent with the recommendations or views expressed herein, including for proprietary accounts of PGIM or its affiliates. Any projections or forecasts presented herein are as of the date of this presentation and are subject to change without notice. Actual data will vary and may not be reflected here. Projections and forecasts are subject to high levels of uncertainty. Accordingly, any projections or forecasts should be viewed as merely representative of a broad range of possible outcomes. Projections or forecasts are estimated, based on assumptions, and are subject to significant revision and may change materially as economic and market conditions change. PGIM has no obligation to provide updates or changes to any projections or forecasts.

The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients or prospects. No determination has been made regarding the suitability of any securities, financial instruments or strategies for particular clients or prospects. For any securities or financial instruments mentioned herein, the recipient(s) of this report must make its own independent decisions.

Conflicts of Interest: PGIM and its affiliates may have investment advisory or other business relationships with the issuers of securities referenced herein. PGIM and its affiliates, officers, directors and employees may from time to time have long or short positions in and buy or sell securities or financial instruments referenced herein. PGIM and its affiliates may develop and publish research that is independent of, and different than, the recommendations contained herein. PGIM's personnel other than the author(s), such as sales, marketing and trading personnel, may provide oral or written market commentary or ideas to PGIM's clients or prospects or proprietary investment ideas that differ from the views expressed herein.

© 2018 PFI and its related entities.

0418-2000



**PGIM, Inc.**

Prudential Tower  
655 Broad Street  
Newark, NJ 07102  
+1 973 367 9213

For inquiries, please contact  
[thought.leadership@pgim.com](mailto:thought.leadership@pgim.com)

Visit us online at [www.pgim.com](http://www.pgim.com)