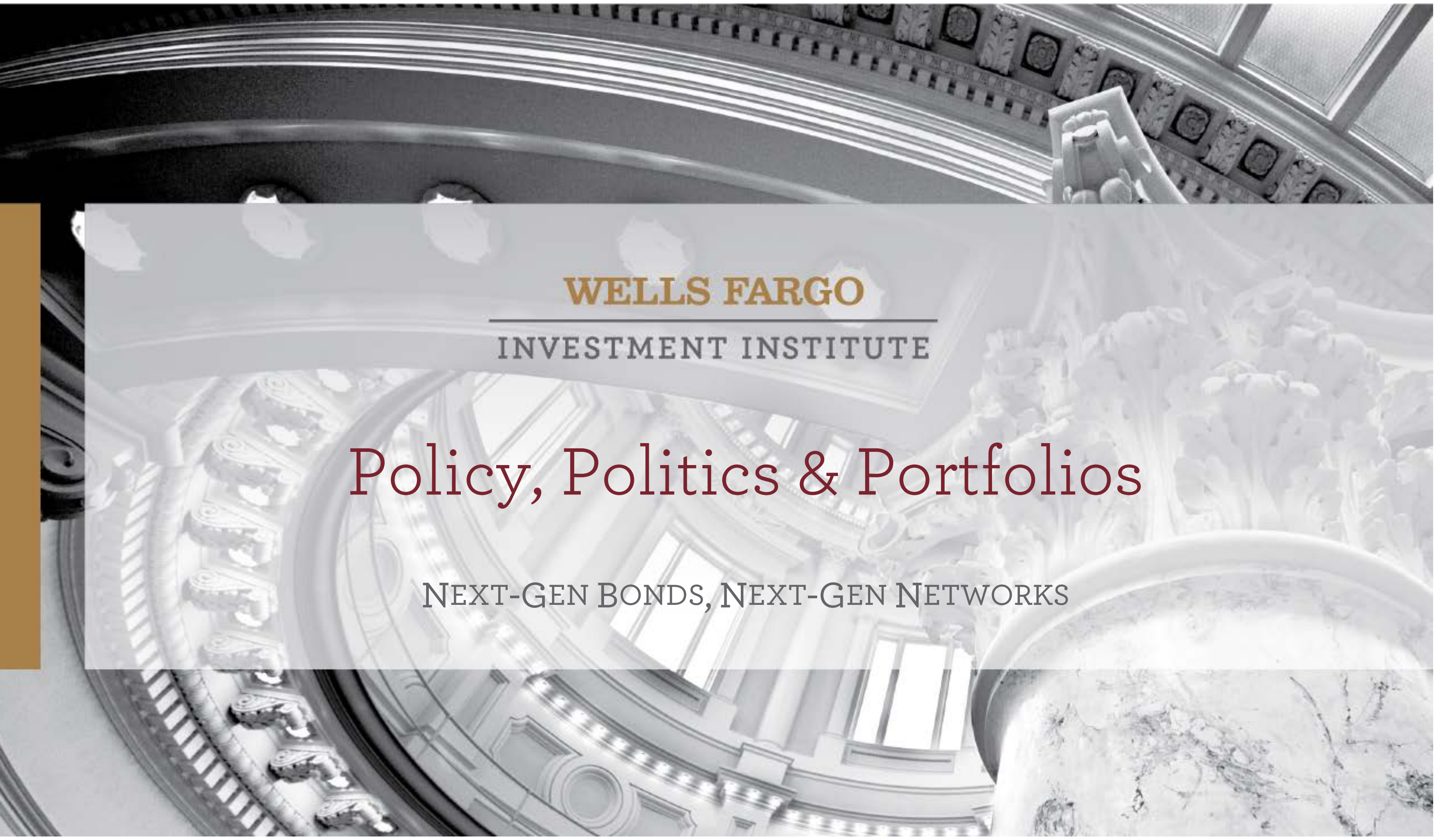

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Next-Gen Bonds, Next-Gen Networks

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Will the U.S. Treasury issue an ultra-long bond? 2
The U.S. Treasury Department is again considering ultra-long-maturity bonds. While such issuance could lead to positive headlines, we do not believe that it would bring in substantial new pockets of liquidity for the U.S. Treasury.

Trade, technology, and national security 4
The constraints of 4G and LTE network speeds could soon be behind us. Today, 5G networks are being actively tested and rolled out globally; their faster sharing speeds could change global connectivity and reshape industries.

2020 campaign spotlight 6
Since early summer, Senator Elizabeth Warren has been on the campaign trail and active in the Democratic presidential debates. Her climate change policy plan recently was released—mirroring her progressive platform on other policy issues. This campaign spotlight is part of our series on the 2020 presidential campaign.

Brian Rehling, CFA
Co-Head of Global Fixed Income Strategy

Duration[1] of a 30-year Treasury bond today:
Approximately 22.5 years

Estimated duration of a 50-year Treasury bond (with a slightly higher yield):
Approximately 30.5 years

Estimated duration of a 100-year bond:
Approximately 37.5 years

Source: Wells Fargo Investment Institute, September 10, 2019.

Key takeaways

- While the U.S. Treasury could issue a new ultra-long-maturity bond, we expect it to have minimal impact on funding the almost $16 trillion in outstanding marketable Treasury securities.
- In our view, a new ultra-long bond issuance would have little appeal to *individual* investors.

Ultra-long sound bites

Thirty year U.S. Treasury securities recently touched their lowest yield on record in late August (1.95%). With low long-term interest rates in the U.S., the Treasury Department is once again considering the issuance of an ultra-long-term bond. The issuance of ultra-long-dated debt would potentially tap into demand from longer-duration investors—while also locking in federal financing costs for generations to come. Previous feedback from the Treasury Borrowing Advisory Committee suggests that market participants have not provided "evidence of strong or sustainable demand for maturities beyond 30 years."[2] We do not believe that the Advisory Committee has changed its mind, but the political benefits of locking in low rates cannot be completely discounted.

Not the first time—and not the only ones

A number of countries around the world have experimented with issuing ultra-long-term debt. Mexico, Ireland, Canada, and France (among others) have issued ultra-long bonds. Even the U.S. issued a 50-year bond to help fund construction of the Panama Canal.

There is little doubt that the U.S. Treasury could issue 50-year or even 100-year debt. Yet, we are equally confident that an ultra-long bond could not be issued in a volume that would make even a dent in the almost $16 trillion in outstanding marketable Treasury debt. Ultra-long debt issuance really has not caught on and become a liquid market in any magnitude in these countries (or others). We are quite confident that if the U.S. decides to test the ultra-long-bond market, it will face a similar result.

Good public relations—but unlikely to solve the coming flood of Treasury debt

On the surface, locking in these "low rates" for multiple generations would appear to be a wise endeavor for a government to undertake. Without question, the sound bites around such an action would attract strong media attention. The U.S. is facing a meaningful increase in debt in the coming decade as Baby Boomers retire and begin to draw on Social Security and Medicare (for a more complete discussion of debt and deficits, please ask your investment professional for a copy of our report series titled "Paying America's Bills"[3]).

While there is real demand for portfolio duration among a subset of investors today (mostly in the institutional pension and insurance space), there is risk that an ultra-long bond would not attract new sources of liquidity but would simply borrow from today's 30-year Treasury market liquidity.

[1] Duration is a measure of interest-rate risk.
[2] Minutes of the Meeting of the Treasury Borrowing Advisory Committee, U.S. Treasury Department, May 3, 2017.
[3] Wells Fargo Investment Institute, "Paying America's Bills," published in August 2018.

Average maturity of total outstanding Treasury marketable securities:
70 months, or 5.83 years

Source: Bloomberg, September 10, 2019.

Locking in rates is not as attractive as it may appear (even at nominal cost)

We estimate that an ultra-long Treasury bond would require no more than 25 to 50 basis points in yield over a 30-year Treasury bond yield.[4] Such a small increase seems to be a reasonable price to pay for 20-70 more years of rate protection for the Treasury. While the financing costs likely are nominal, these bonds would increase interest expense for the U.S. government. This is an expense that essentially would have no significant value to taxpayers for the next 30 years. In the near term, those extra costs would make federal budget expenses higher and increase the deficit.

If rates were meaningfully higher 30 years from now, this issuance could appear to be a wise step. It also is possible that rates will be meaningfully lower than today's rates in 30 years. To illustrate this challenge, the U.S. Treasury issued a 30-year bond with a coupon of 7.5% in 1994—almost half of what the Treasury paid in 1980. Yet, it turned out that the low rates of the mid-1990s were rather expensive and hardly a good deal for taxpayers. In our opinion, the Treasury should not issue ultra-long bonds as an "interest-rate play." Rather, we believe that new bond issuance should look to tap new pockets of liquidity for the Treasury.

If the Treasury was truly interested in locking in current financing rates, a more prudent route would be to extend the average maturity of outstanding Treasury debt. This could be done by issuing more 10- and 30-year debt. The Treasury could also consider the reintroduction of 20-year bonds.

Investor implications

In our opinion, ultra-long Treasury bonds would have little appeal for individual investors. Few individual investors have investment horizons that extend 50 years or more. Life insurance and pension funds would be the most likely buyers of ultra-long Treasury debt. Yet, we still see the Treasury market benefits as minimal.

One of the sticking points for long-duration investors is that a 50-year or even a 100-year bond would not drastically alter the duration profile of the 30-year Treasury bond issue. The duration of a 30-year Treasury bond today is around 22.5 years. A 50-year maturity would extend the duration to 30.5 years, and we believe that a 100-year bond would have duration of about 37.5 years. While an ultra-long bond could be a tool for investors to lengthen duration, we do not believe that there is enough differentiation between these investments to bring in a substantial new source of Treasury liquidity and demand.

Ultra-long Treasury issuance may offer good media or political sound bites. Yet, we believe that such issuance would have little impact on Treasury financing. If ultra-long Treasury bonds were to be issued, we expect that it would have an insignificant impact on overall Treasury market demand.

[4] One hundred basis points equal 1.00%.

Charlotte Woodhams
Investment Strategy Analyst

Fifth-generation (5G) networks are the next generation of mobile networks. They are intended to greatly increase the speed of wireless networks over current LTE and 4G technology. [5]

Key takeaways

- The back-and-forth nature of the U.S.-China trade dispute likely will affect the rollout of global 5G networks. Technology companies may begin to see changes in their 5G equipment supply chains—as suppliers move operations out of China (to countries, such as Vietnam, that do not face U.S. tariff restrictions). Global adoption of 5G therefore could take longer than otherwise would be the case.
- In the future, if trade tensions intensify, technology goods and services may have higher prices, reduced demand, and higher forecast uncertainty in both the U.S. and China.
- China could choose to retaliate to the U.S. Department of Commerce's blacklisting of a large Chinese telecommunications company—by directly blocking American-made technology equipment in response.

The importance of 5G

New technologies are a constant. They also have played a significant role in the ongoing U.S.-China trade dispute. The "internet of things" (IoT), artificial intelligence (AI), augmented reality, and fifth generation (5G) networks are changing the ways that we live, share, trade, and work. In particular, 5G technology is shaping our ability to store, transfer, and analyze data—while also increasing the speed at which information moves across wireless platforms. As 5G networks are deployed and activated around the world, the ability to power complex technologies across industries will be possible (in sectors such as transportation, retail, and manufacturing). Both 5G network carriers and 5G-capable device manufacturers will benefit from its expansion. Further, early-adapting business users could profit from the unconstrained capacity of 5G networks and the speed at which they can process and transact. Some U.S. smartphone users already experience 5G downloading speeds that are almost 3 times faster than 4G speeds—making steps like downloading videos much faster.[6]

The key difference between 5G and past generations of mobile networks is low latency.[7] Low latency means that the time delay between a request for data and the resultant data transfer is almost nonexistent. A network's speed and bandwidth can affect its latency, along with how much data is being carried through the network (compared to its capacity).[8] Reduced latency in 5G networks should enhance cloud computing capabilities, increase reliability, and support new IoT connectivity—such as allowing driverless cars and smart city infrastructure to process large amounts of data through 5G networks. These networks also should cut the cost of connected devices and their components, by lowering the amount of necessary storage on new smartphones and by providing the power for enhanced cloud storage.

At the White House in April, President Trump announced that "the race to 5G is a race America must win".[9] President Trump noted that the most significant part of the 5G "race" is the securitization of new 5G mobile networks. As billions of devices become connected and data is routed through 5G networks, the economic, societal, and national security implications of an unsecured data ecosystem become much larger. In recent years, the U.S. has urged its allies to refrain from using a specific Chinese

[5] LTE is a 4G wireless communication standard used for transferring data over cellular networks. LTE stands for Long-term Evolution. LTE and 4G were designed to provide up to 10 times the speeds of 3G networks for mobile devices (including smartphones, tablets, and other connected devices).
[6] Ian Fogg, "5G boosts the maximum real-world download speed by up to 2.7 times 4G users' top speeds," OpenSignal, as of September 5, 2019.
[7] Latency is the amount of time delay before a data transfer begins following the request for, or instructions for, its transfer.
[8] Verizon, "What is network latency?" June 12, 2018.
[9] White House, "Remarks by President Trump on United States 5G Deployment," April 12, 2019.

Expected number of connected devices globally by 2022:
29 billion

Source: Ericsson Internet of Things forecast, June 2019.

Expected number of 5G subscriptions globally by 2024:
1.9 billion

Source: Ericsson Mobility Report, June 2019.

Percent of world's population that is expected to be covered by 5G networks in 2024:
65%

Source: Ericsson Mobility Report, June 2019.

telecommunications giant's infrastructure in their growing 5G networks. In recent months, heightened scrutiny over the Chinese telecommunications company's equipment—and the U.S. administration's response—has entwined 5G technology in the back-and-forth trade dispute between the U.S. and China.

In early- and mid-2018, U.S. authorities renewed warnings regarding the prominent Chinese technology producer and 5G industry leader's products—just as the Chinese company became the world's second largest smartphone maker.[10] Concerns of the U.S. government and other countries stemmed from the close connection between this telecommunications company and the Chinese government. This prompted fear that its equipment could be used to compromise other countries' and companies' information held on its 5G networks. On May 15, President Trump signed an Executive Order authorizing the U.S. Commerce Department to effectively ban American companies from using telecommunications equipment that it deemed a national security threat from a foreign adversary—and putting the Chinese telecom giant on an export blacklist.[11] President Trump's statement was a clear indication that the U.S. government was prepared to block this Chinese company's equipment being built into its 5G networks and infrastructure.[12]

Since May, the Commerce Department has given American companies a short reprieve. It has allowed companies to apply for a temporary license in order to trade with the Chinese technology firm while they find alternate supply sources. If the Commerce Department decides not to renew the temporary permits allowing U.S. companies to trade with this Chinese telecommunications giant in mid-November, we believe that the U.S. and Chinese technology sectors could be negatively impacted. Broad equity sentiment also could suffer if China introduces retaliatory measures and if further trade-dispute developments ensue. However, the U.S. government could choose to relax current restrictions placed upon this Chinese technology company as a means to reduce overall trade pressures between the two countries. Such a step could help to create an environment in which any trade talks could progress more smoothly.

[10] According to second quarter 2018 Canalys estimates, July 18, 2018.
[11] The White House, "Executive Order on Securing the Information and Communications Technology and Services Supply Chain," May 15, 2019.
[12] Matthew Bay, "New Huawei Restrictions Turn Up the Heat on the U.S. China Tech Cold War," Stratfor, May 17, 2019.

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Investment Strategy Analyst

Senator Elizabeth Warren:

Polling average in August 2019:

16.4%

(Percent indicating that Senator Warren would be chosen as the Democratic candidate for president)

Source: RealClear Politics, 2020 Democratic Presidential Nomination Polling Data averages, as of September 6, 2019.

Mentions on CNN, Fox News, and MSNBC so far this year:

25,177

Source: Data from the Internet Archive's Television News Archive processed by the GDELT Project, as of September 15, 2019.

Number of cosponsored legislation bills introduced by Senator Warren in Congress:

2,042

Source: Library of Congress, as of September 17, 2019.

This is the second in a series of spotlights on the five highest-polling candidates for the Democratic presidential nomination.

Democratic presidential candidate spotlight—Senator Elizabeth Warren

Before joining Congress in 2013, Senator Elizabeth Warren of Massachusetts had served as a professor of law at the University of Pennsylvania and at Harvard, vice president of the American Law Institute, and chair of the Congressional Oversight Panel. President Obama also appointed Senator Warren as Assistant to the President and Special Advisor to the Secretary of the Treasury on the Consumer Financial Protection Bureau. Since joining the Democratic field, Senator Warren has published detailed policy proposals on various issues, and she has avoided significant missteps in the first four national presidential debates. Her national polling average (those who rate her as their current Democratic presidential candidate preference) now stands at 18.3%.[13] Senator Warren continues to run on a progressive Democratic platform in the busy fall campaign season.

Health care

Senator Warren was one of 16 senators who cosponsored the introduction of Medicare for All to Congress along with Senator Bernie Sanders in 2017—as a means to create a single-payer health care system to cover all Americans.[14] Since announcing her candidacy in December 2018, Senator Warren has embraced the Medicare for All platform, mirroring Senator Sanders' health care position. Although Senator Warren has published more than a dozen policy plans, she has not yet presented her own health care platform. We believe that a Medicare for All system would be very disruptive to private health insurers as it would effectively replace many private health insurance offerings with a government-sponsored system.

During the recent presidential debates, Senator Warren has focused on health insurance companies as the main driver of high health care costs. In late 2018, she introduced legislation that would create an Office of Drug Manufacturing, which would give the Department of Health and Human Services the ability to manufacture generic drugs (to address market shortages or failures, increase pharmaceutical competition, and bring down drug prices for consumers).[15] Although, the bill did not pass the Senate, her sponsorship of this legislation emphasizes the scrutiny Senator Warren would place on the pharmaceutical industry if she were elected president.

Taxes

Senator Warren has stated that she supports the implementation of tax policy that helps the middle class. She advocates the creation of a tax that is aimed at accumulated assets, rather than income, of wealthy individuals. In

[13] RealClear Politics poll averages, data from September 5 – September 16, 2019.
[14] Library of Congress, "S.1904 – Medicare for All Act of 2017", introduced on September 13, 2017.
[15] Library of Congress, "S.3775 – Affordable Drug Manufacturing Act of 2018", introduced on December 12, 2018.

Key takeaways

- Senator Elizabeth Warren has not yet published her own health care policy plan. However, she has voiced support for a single-payer health care system, such as Medicare for All, throughout her campaign. A single-payer Medicare for All plan would be disruptive for the private health insurance industry (as it would cut demand).
- The "Ultra-Millionaire Tax" proposed by Senator Warren would increase taxes for households' assets exceeding $50 million. Senator Warren also wants to reverse President Trump's 2017 tax cuts, which would increase taxes for corporations and individuals.
- Senator Warren's climate change plan encompasses $3 trillion of investment in clean energy technology over 10 years. In our view, this investment would support the renewable energy sector and create jobs in the clean energy and manufacturing industries.

her proposal, Senator Warren outlines an "Ultra-Millionaire Tax" that she would seek to introduce to the federal tax code if she were elected president. This wealth tax would be an annual 2% tax on the wealth of households with assets exceeding $50 million, and an increase of the tax to 3% of assets for households that have assets exceeding $1 billion. Senator Warren notes that her proposed federal wealth tax would raise $2.75 trillion over the next 10 years, according to her estimates—and it would apply to approximately 75,000 American households.[16] In our view, such a wealth tax would be difficult to implement and calculate. Absent a Democratic sweep of the House and Senate, such a plan would be unlikely to pass in Congress. Senator Warren has indicated that she would use the revenues generated from the proposed wealth tax to finance the creation of a universal child care program.[17] This program would provide nationwide guaranteed child care from birth to school age.

Climate change

In early September, Senator Warren outlined her plan that would incorporate an additional $1 trillion toward the transition to clean and renewable power (alongside her broad climate change plan). Like other Democratic candidates, Senator Warren supports the U.S. rejoining the Paris Agreement on climate change. Her plan embraces Washington Governor Jay Inslee's climate change policies, while also echoing the objectives of the Green New Deal (of which she was an original sponsor in Congress).[18] Senator Warren plans to invest $3 trillion over a 10-year period, with the goal of moving the U.S. to carbon-neutral power by 2030.[19] She proposes that these initiatives be funded by reversing the individual and corporate tax reductions introduced in the Tax Cuts and Jobs Act of 2017.[20]

Senator Warren's climate change plan has three primary components:

- **Research:** The plan incorporates a Green Apollo Program that would invest $400 billion in the development and innovation of American-made clean energy technology.
- **Manufacturing:** It envisions a Green Manufacturing plan to invest $1.5 trillion in the innovation of clean energy technology, using federal procurement powers to purchase renewable power products and catalyze U.S. demand.
- **Export:** The plan would fund a $100 billion Green Marshall Plan to create a federal office to promote the sale (and usage) of American-made, emission-free technology to other countries.

Source: Team Warren, "100% Clean Energy for America," Medium, September 3, 2019.

[16] ElizabethWarren.com, "Ultra-Millionaire Tax", as of September 5, 2019.
[17] Team Warren, "My plan for Universal Child Care," Medium, February 19, 2019.
[18] Library of Congress, "S.Res.59 – A resolution recognizing the duty of the Federal Government to create a Green New Deal," introduced on February 7, 2019.
[19] Team Warren, "100% Clean Energy for America," Medium, September 3, 2019.
[20] Eric Wolff, "How Elizabeth Warren would address climate change," Politico, September 3, 2019.

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