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Engineering of the Global Economy

The Use of Quantitative Easing and the Risks It Poses to Society

Since 2008, the United States Federal Reserve has gone to new lengths in an attempt to artificially engineer the economy. During the 2008 recession, unemployment peaked at 10% and consumer spending experienced its biggest decline since World War II.¹ In response, the Federal Reserve initiated Quantitative Easing (QE) in an attempt to increase spending and decrease the unemployment rate. The Quantitative Easing program expanded and eventually totaled three rounds before Janet Yellen finally announced the end of the program in October, 2014. Though the economy has certainly recovered from its 2009 lows, Quantitative Easing should not be considered a success because it is debatable how much, if any, of the recovery can be attributed to Quantitative Easing, and its effect on economic growth has been mediocre at best. Furthermore, the use of QE has left the U.S. and global economies extremely fragile to new risks in that it has increased the probability that the U.S. dollar will lose its world reserve currency status, helped cover up the U.S. debt crisis, and created unjustified surges in asset prices in the U.S. and emerging markets that are bound to burst.

Behind the actions of the Federal Reserve lie two goals: to stabilize inflation (around 2%) and keep the unemployment rate as close to full employment as possible.² In order to fulfill these goals, the Federal Reserve manipulates interest rates throughout the economy. The Federal Reserve traditionally has a few tools at its disposal to influence interest rates. The most common and effective tool is known as "Open Market Operations (OMO)." This consists of the Federal Reserve buying and selling treasury bonds on the open market, which influences interest rates by changing the size of

¹ "Consumer Spending and U.S. Employment from the 2007–2009 Recession through 2022: Monthly Labor Review: U.S. Bureau of Labor Statistics."

² FRB: What Are the Federal Reserve's Objectives in Conducting Monetary Policy?

banks' cash supplies so that they can make more or less loans. The more loans that banks make, the lower interest rates will be. OMO also changes interest rates because the Federal Reserve bids up or down the prices of treasury bonds by buying or selling them respectively, which decreases or increases the bonds' rate of return respectively.³

For example, if the Federal Reserve wanted to decrease interest rates in order to fuel spending, it would buy treasury bonds. Banks, who sold these government bonds to the Federal Reserve, would now have more cash on their balance sheets and look for places to invest the cash. In order to make money off of this sitting cash, banks would begin offering more loans, thus lowering interest rates. Also, the Federal Reserve decreased interest rates by simply buying the treasury bonds, since they bid up the price of the bonds which subsequently lowered the rate of return on the bonds.

Moreover, the Federal Reserve can influence interest rates through setting the discount rate, the interest rate that banks pay the Federal Reserve for short term loans.⁴ The higher the discount rate, the fewer loans banks will be able to make and thus the higher interest rates will be. Lastly, another tool the Federal Reserve can use to manipulate interest rates is setting reserve requirements that banks must hold against deposits.

The higher the Federal Reserve sets reserve requirements, the less banks will be able to loan and thus the higher interest rates will be. Although the Federal Reserve traditionally uses these methods to accomplish its goals, extraordinary times in which traditional methods are not as effective have caused the Federal Reserve to experiment with Quantitative Easing.

³ Johnston.

⁴ "The Federal Reserve: Monetary Policy | Investopedia."

Quantitative Easing is essentially a larger scale, more powerful version of Open Market Operations. Though OMO is effective, it does have a limit. When nominal interest rates hit zero, there is essentially nothing that Open Market Operations can do to increase spending because theoretically interest rates can not go any lower. This is because if interest rates are negative, people can simply withdraw their deposits and hold money as cash rather than pay to hold money in the bank.⁵ This would lower the money banks have to make loans, and thus interest rates would rise until they equaled zero. This is when Quantitative Easing is used. While Open Market Operations limits itself to the purchase and sale of short term government securities, Quantitative Easing consists of the Federal Reserve purchasing vast amounts of longer-term government securities as well as asset backed securities.⁶ In Quantitative Easing, the Federal Reserve essentially creates money out of thin air by wiring banks digitally created cash in exchange for these longer term securities. The goal of this is to increase spending by increasing the cash that banks have, which decreases the long term rate at which banks loan money to consumers and businesses. Thus, Quantitative Easing mainly consists of the Federal Reserve “printing” money in order to buy back government debt.⁷ Even though the Federal Reserve is technically a private entity, it is essentially an extension of the federal government since its profits and losses are directly given to and incurred by the federal government. Thus, the federal government is really buying back its own debt (along with other securities) with money that it printed. The effect of Quantitative Easing is twofold: it injects liquidity into the market and lowers long term interest rates.

⁵ Johnston.

⁶ Ibid.

⁷ “What is Quantitative Easing.”

Quantitative Easing also has an effect on the value of the dollar. Since Quantitative Easing lowers interest rates throughout the economy, it decreases the value of the dollar relative to other currencies. This is because as interest rates decrease, demand for the dollar decreases as foreign investors turn to securities in other countries in search of higher yields. Moreover, foreign investors who already own U.S. securities might choose to take their gains (since a decline in interest rates means a rise in the price of securities) and seek out perceived undervalued investments in other countries, which would increase supply of the dollar on the foreign exchange market and thus decrease its value relative to other currencies. Quantitative Easing also reduces the value of the dollar domestically. If it works as it is supposed to, Quantitative Easing increases spending and thus increases inflation. Inflation decreases the real value of the dollar because it causes everything in the economy to become more expensive, meaning that an individual dollar can not buy the same quantity or quality of goods. Controlled inflation is not necessarily a bad thing for citizens, though, as wages often increase by the same amount as inflation or more than inflation, thus mitigating the price increases.

The first modern use of Quantitative Easing can be traced to Japan in 2001.⁸ As the Japanese economy underwent deflation along with a decrease in spending, the Bank of Japan (BOJ) decided to take drastic actions as normal Open Market Operations were not effective. Over the next three years, the Bank of Japan purchased over 35¥ trillion (roughly \$335 billion) worth of Japanese government securities.⁹ The goal of the program was to continue to inject liquidity into the market until the Japanese Consumer

⁸ Cavallo.

⁹ Ibid.

price Index (CPI) remained constant or increased year over year. Though the scale of the BOJ's liquidity injection was massive, it had much less of an effect on the banks' cash deposits than anticipated. This is due to the fact that as banks increased their deposits at the Bank of Japan, they simultaneously decreased their deposits in other banks.¹⁰ The banks largely did this because their deposits with other banks were at zero percent interest rates while the Bank for International Settlements (BIS) mandated that 20% of their deposits be in risk assets.¹¹ As a result, these massive injections of liquidity did not actually cause banks to increase the loans they made by a substantial amount. Accordingly, Japan's Quantitative Easing program took much longer than anticipated to show any positive results. The primary goal of the program, to decrease deflation and promote inflation, largely failed. Deflation actually increased in 2001, the year that the program started, to -1.27%.¹² Moreover, deflation continued for the next three years until 2004, when inflation was a mere 0.2%. Japan only reached its target of 2% inflation in 2014, 13 years after the start of the program. However, the program can not simply be considered a complete failure considering the economic growth in the years after the start of the program. By 2003, Japan's GDP growth rate approached 2% and remained close to 2% until the Great Recession in 2008.¹³

In 2013, the Bank of Japan announced a new round of Quantitative Easing, as part of the larger *Abenomics* project, following a few years of deflation and meager economic growth in the aftermath of the Great Recession. The goal of this round of QE was to stabilize inflation around 2%. When the program started, the BOJ originally

¹⁰ Bowman.

¹¹ Ibid.

¹² "Historic Inflation Japan - CPI Inflation."

¹³ "Japan GDP Growth Rate."

planned on purchasing between ¥60 trillion and ¥70 trillion worth of 7-10 year Japanese government securities per year.¹⁴ In October 2014, though, the BOJ announced that they were increasing their bond purchases to ¥80 trillion per year and focusing on longer term bonds in an attempt to bring down long term interest rates. By September 2016, the BOJ began to wind down the round of Quantitative Easing. This was due in large part to the fact that the BOJ was running out of bonds to buy: according to Citibank analysts: "The immediate concern for these central banks is not so much diminishing efficacy of such purchases but rather the narrower issue of running out of suitable assets to buy...."^{15,16} The effects of this new round of QE are debatable. Though Japan's economy has not contracted and deflation has not increased since the implementation of the program, economic growth has stalled and inflation remains negative after a brief period of 2%-3.5% inflation from 2013 to 2014.¹⁷ It may be years or even decades before we understand the true effects of Quantitative Easing in Japan.

The Weimar Republic also implemented a form of Quantitative Easing in the 1920s. Though there were some stark differences to modern QE (including the goals of the program), the fundamentals remain the same: the federal bank printed money in order to buy government debt. The memory of the Weimar Republic's Quantitative Easing program remains as a stark reminder of the potential dangers of QE and the caution that federal banks must take while implementing QE and similar programs. When Germany surrendered to end WWI, the terms included the payment of war reparations to the victorious countries. At this point, the government was already

¹⁴ "Japan Adjusts Its Quantitative-easing Programme."

¹⁵ Kawa.

¹⁶ "Citi Declares the End of QE as Japan Overhauls Its Policy."

¹⁷ "Historic Inflation Japan - CPI Inflation."

burdened with a large scale deficit due to the 160 billion marks it spent during the war.¹⁸ In order to pay for the cost of the war, Germany suspended the standard of backing its currency with gold so that it could pay its debts by printing money.¹⁹ While the money supply only totaled 13 billion marks in 1913, by the end of the war the money supply totaled 60 billion marks. Surprisingly, German economic conditions immediately after the war were fairly good. Industrial output soared to 20% and unemployment dropped below 1% in 1922.²⁰ Though Great Britain wanted to forgive the debt obligations since it believed that Germany would not be able to pay them, France insisted on receiving the full 132 billion gold marks, which were pegged at the 1913 level. As the German people become increasingly fearful of the government's ability to pay these reparations, inflation started to slowly creep up. As France occupied German ports and threatened an occupation of the Rhine in retaliation for Germany's inability to pay the reparations, the German government began to wildly print money in an attempt to pay their reparations. Inflation began to swell as the general population began to view marks as near worthless and instead chose to own tangible assets that could be used to barter. Inflation only perpetuated more inflation, as the more inflation increased, the more money the government printed and thus the less valuable the people perceived the mark to be. To put Germany's hyperinflation into perspective, in 1914 one U.S. dollar was equivalent to roughly 4.2 marks in the open market; by 1923 one dollar was equivalent to roughly 4.2 trillion marks.²¹ Though Germany's hyperinflation occurred in the mist of extreme events and circumstances, it highlights the potential dangers that

¹⁸ Boesler.

¹⁹ "Millions, Billions, Trillions: Germany in the Era of Hyperinflation

²⁰ Ibid.

²¹ Ibid.

can occur through increasing the money supply via printing money to buy or pay for government debt.

With the onset of the Great Recession in 2008, the U.S. began to experiment with its own form of Quantitative Easing. The collapse of the credit and real estate bubble and its subsequent effect on asset backed securities left the American Economy decimated. In 2008 and 2009, the U.S. lost 8.4 million jobs, which equated to 6.4% of all payroll employment.²² Moreover, GDP contracted by over 3.1% in 2008 and 2009 and inflation dropped from over 4% in 2007 to near 0% in 2008.²³ Stock market losses were also staggering. The S&P 500, an index representing the 500 largest publically traded companies and widely considered to be the market benchmark, dropped over 54% between December, 2007 and March, 2009. On November 26, 2008, Ben Bernake, the Federal Reserve Chairman, announced the purchase of \$700 billion in mortgage backed securities and other debt.²⁴ Moreover, the Federal Reserve reduced the Fed funds rate and its discount rate to zero. However, this was not nearly enough to jump-start economic recovery and the Fed had now exhausted all of its conventional expansionary monetary policy tools. Thus, at the start of 2009, the Federal Reserve began its first round of Quantitative Easing with the goal of stabilizing inflation around 2% and obtaining positive GDP growth. In only a few months, the Fed's portfolio of long term government debt, mortgage backed securities, and distressed debt it obtained through printing money reached \$1.75 trillion. Over the next three months, the Federal

²² "The Great Recession." State of Working America. The State of Working America, n.d. Web.

²³ Amadeo, "The Strange Ups and Downs of the U.S. Economy Since 1929."

²⁴ Amadeo, "The Quick Thinking That Saved the Housing Market."

Reserve added another \$350 billion in long term bonds to increase its holdings to \$2.1 trillion.²⁵

The effects of the first round of Quantitative Easing were mediocre at best. Like in Japan, the Federal Reserve's implementation of Quantity Easing failed to accomplish its primary goal: to get banks to loan more money at lower interest rates. Banks were still weary to loan out money due to the fact that they had to write down massive amounts of subprime mortgage debt and because banks chose to keep greater reserves because too few reserves exasperated the hardships of 2008 for many financial companies. Moreover, many banks increased their lending standards, as far too lenient lending standards were one of the primary causes of the credit bubble and subsequently the Great Recession. Overall, though, QE1 was moderately successful in reducing long term interest rates as well as borrowing rates. For instance, investment grade long term corporate bonds fell by 77 basis points immediately after the implementation of QE1. This can in part be attributed to the fact that QE1 immediately increased liquidity into the market during a time when credit markets were malfunctioning, reducing default risk.²⁶ However, inflation and GDP growth remained underwhelming in the years following the crash. The percent difference in inflation-adjusted GDP from the trough of the recession hovered around 3% one year after the trough of the recession and 4% after two years. Though the economy has largely recovered from the recession, this post recession growth is much slower than previous recoveries. In fact, the average percent difference in inflation-adjusted GDP from the trough of recessions is roughly 7% one year after the trough of the recession and 11%

²⁵ Ibid.

²⁶ Yu.

after two years.²⁷ Thus, though the economy began to recover under the first round of Quantitative Easing, there is very little evidence that Quantitative Easing actually sped up the economic recovery. In fact, it is certainly a possibility that economic growth would have been faster without the use of Quantitative Easing.

Even though the economy began to recover and the results of QE1 were mediocre at best, the Federal Reserve, under the leadership of Ben Bernake, decided to double down on Quantitative Easing and implemented QE2 in November, 2010. The Federal Reserve's rationale for implementing QE2 was to increase the rate of economic growth since they recognized that though the economy was growing, it was growing slowly.²⁸ This decision was fairly shocking considering the government had already implemented QE1 and a roughly \$830 billion stimulus package, which both resulted in this meager economic growth to begin with. Annualized GDP growth was already at 2.8%, so it would be hard pressed to say that a drastic increase in economic growth was necessary. Though it is difficult to claim that the decision to implement QE2 was politically motivated, it is important to note that Barack Obama was running for re-election in November, 2012. The Federal Reserve began its buying of \$600 billion worth of mortgage backed securities and long term treasury bonds (with slightly lower maturities than the purchases in QE1) in November and added another \$300 billion worth of investments from the profits of its previous investments.²⁹ Accordingly, the Federal Reserve maintained its portfolio of just over \$2.1 trillion. The program culminated in June, 2011.

²⁷ "What Accounts for the Slow Growth of the Economy After the Recession?"

²⁸ "The Three Phases of QE in United States."

²⁹ Ibid.

The results of QE2 were similar to QE1. Long term interest rates actually rose at first due to the sell-off of longer term government bonds upon the realization that the Federal Reserve was focusing their buying on shorter term securities compared to QE1.³⁰ Long term interest rates eventually returned to the same rates they were at the start of the program and were slightly lower by the end of the program.³¹ However, QE2 did not end up having a substantial effect on economic growth. A study by the Korean institute of International Economic Policy suggested that QE2 was only one-third as effective as QE1 in stimulating economic growth.³² Moreover, members of the Federal Reserve itself seemed to admit that QE2 was not very successful in accomplishing its primary goal. According to the San Francisco Federal Reserve Bank, QE2 added just .13% to annual economic growth.³³ This is hardly anything considering the growth rate was already at 2.8% when the policy was implemented, and dropped to negative growth by the start of 2011 before rebounding to around 2% when the program finished in June, 2011. In the same report, the San Francisco Federal Reserve Bank argued that the only thing that actually led to economic growth was investor confidence that interest rates would remain low, not Quantitative Easing itself. QE2 clearly failed to jump start growth as the Federal Reserve intended and instead only further exposed the U.S. to the potential risks associated with QE. At this point, the Federal Reserve should have disbanded the use of Quantitative Easing as a tool to promote economic growth. The first two rounds of QE led to negligible increases in economic growth despite the massive amounts of cash that were pumped into the money supply. There is no

³⁰ Ibid.

³¹ "30 Year Treasury Rate - Historical Chart."

³² Gittleston.

³³ Ibid.

definitive evidence that suggests letting the economy recover naturally and using limited Open Markets Operations would have led to slower economic growth relative to Quantitative Easing following the Great Recession. More importantly, abandoning Quantitative Easing would have gotten rid of the immense risks associated with QE (touched on later). Just because the risks have not manifested does not mean that they are not present and will not come to light in the future.

In September, 2012 the Federal Reserve continued its use of Quantitative Easing with the implementation of QE3. QE3 was largely a continuation of Operation Twist, which consisted of the Federal Reserve taking the funds it received from the expiration of its short term treasury bonds and rolling them over into longer term treasury bonds and mortgage backed securities.³⁴ Under QE3, the Federal Reserve added \$85 billion in liquidity per month in the form of \$40 billion in mortgage backed securities and \$45 billion in long term treasury bonds. The most significant difference between QE3 and the first two rounds of Quantitative Easing is that the Federal Reserve announced that it would continue QE3 until the unemployment rate fell below 6.5%, leaving the program open-ended.³⁵ The Federal Reserve's decision to implement a new round of Quantitative Easing was especially shocking considering that economic growth was fairly solid and seemed to be increasing at the time of the decision. In fact, with the announcement of QE3, the Fed stated that "Information received since the Federal Open Market Committee met in August suggests that economic activity has continued to expand at a moderate pace in recent months."³⁶ Thus, QE3 was enacted for the

³⁴ "How Central Banks Create Massive Amounts of Money."

³⁵ Ibid.

³⁶ Carney.

purpose of lowering the unemployment rate. When President Obama appointed Janet Yellen as the new chair of the Federal Reserve in February, 2014, Yellen decided to continue QE3 even though unemployment was 6.7%, only .2% higher than the Fed's goal of 6.5%.³⁷ Moreover, the U.S. continued its moderate economic growth at roughly 2.4%. When Yellen finally decided to end QE3 in October, 2014, the unemployment rate sat at 5.5% and the holdings of the Federal Reserve ballooned to \$4.482 trillion.³⁸ However, this third round of Quantitative Easing has had some negative effects on the global economy and has exposed the U.S. to some potentially debilitating risks.

The implementation of QE3 could have a devastating effect on emerging economies. After the U.S. began its bouts of Quantitative Easing, the European Central Bank followed suit in 2014. Thus, most of the biggest, most developed economies in the world (including Japan as previously mentioned) were fully committed to Quantitative Easing. As yields continued to drop drastically in these countries, investors began to look elsewhere for higher yields. Accordingly, many investors have decided to put their money in riskier emerging market assets which offer the higher rates of return that they are looking for. Thus, though the fundamentals of securities in emerging markets have not necessarily improved, the prices of the securities have increased substantially. This has been beneficial for citizens of emerging economies since this has led to capital gains and decreases in the cost of borrowing. However, since QE caused the value of the dollar to decrease relative to foreign currencies, exports for these countries have decreased.³⁹ However, the far bigger problem is that QE is causing a bubble in

³⁷ "How the Government Measures Unemployment." U.S. Bureau of Labor Statistics. U.S. Bureau of Labor Statistics, n.d. Web. Nov. 2017.

³⁸ Carney.

³⁹ "Positive-sum Currency Wars."

emerging market asset prices that will likely burst when interest rates in the U.S. (and Europe and Japan) begin to rise and investors look for safer securities offering comparable yields. This is bound to happen, as the primary reason for most of these foreign investments is that investors are not able to find comparable yields in their own countries. This is evident from India in late 2013, when there were expectations that The U.S. was going to adopt the policy of QE tapering. The Rupee dropped rapidly and hit historic lows against the dollar as foreign investors flocked to pull their money out of India.⁴⁰ Devaluation of the rupee was so rapid that the Reserve Bank of India had to quickly buy rupees and sell dollars in order to prevent the crisis from getting out of hand. If interest rates begin to rise throughout countries that are currently implementing QE, the devaluation of emerging market assets will be rapid, and will surely lead to massive job losses in these countries.

A major risk of QE3 is that it could drive the U.S. dollar out of world reserve currency status. The rise of the dollar as the world's reserve currency can be traced back to WWII, when the U.S. loaned the allies goods, weapons, and other supplies in exchange for gold. By this point, the U.S. dollar was the only major currency still backed by gold. Thus, it was decided in 1944 at the Bretton Woods Agreement that the world's currencies should all be linked to the U.S. dollar since the dollar itself was linked to gold.⁴¹ This meant that all countries held dollar reserves and traded with one another in dollars. However, as the U.S. began to spend beyond their means on government programs and the Vietnam War, the government printed large amounts of treasury debt.

⁴⁰ "Effect of Quantitative Easing on Emerging Markets"

⁴¹ Best

As the supply of dollars began to total much more than the gold supply backing the dollars, many countries began converting their dollars into gold, which the U.S. did not actually have enough of. Thus, President Nixon decoupled the dollar from the gold standard, resulting in floating exchange rates.⁴² However, the dollar has remained as the world's reserve currency mainly because countries have accumulated so many dollars and also because the dollar is relatively stable compared to other currencies.

However, the continuation of QE3 has the potential to undermine foreigners' confidence in the dollar and thus end its run as the world's reserve currency. Since the U.S. dollar is not backed by gold, the only reason that foreign countries have it in their reserves is because it has remained fairly stable relative to commodity prices over time and because the U.S. is a large, stable trading state.⁴³ However, after the implementation of QE3, the Federal Reserve added over \$4 trillion to the money supply. This, in essence, has devalued the dollar, though it has not manifested itself yet. If this money, which is predominantly stored as bank deposits, hits the streets and causes rapid inflation, foreigners will lose confidence in the U.S. dollar and begin to drop it from their reserves. This will create a spiraling effect because the supply of the dollar on foreign exchanges will increase, which will cause a further devaluation of the dollar and thus a bigger drop in confidence in the dollar.

If the U.S. dollar loses its reserve currency status, U.S. enterprises will surely be hurt. U.S. enterprises would have a much harder time borrowing money due to the increased risk of dollar fluctuations relative to other currencies. Loan issuers would thus demand much higher yields, which would discourage businesses from taking loans and

⁴² Ibid.

⁴³ Barron.

increase their probability of not being able to pay off the loans. Moreover, foreign investors might choose to take money out of the U.S. stock market, as the riskiness of the cash flows due to foreign exchange fluctuations might not be worth the yield they are currently receiving.

The lifting of interest rates off of their lows could help prevent the process of the U.S. dollar falling out of reserve status. Higher interest rates in the U.S. would cause demand for the U.S. dollar to increase as investors in other countries seek higher yields. This would in turn lead to a higher price of the dollar relative to other currencies and thus increase confidence in the dollar. Moreover, higher interest rates could prevent inflation from getting out of hand, which would prevent the devaluation of the dollar and thus increase foreigners' confidence in the U.S. dollar.

Perhaps the biggest risk associated with the continuation of QE3 is that it is essentially covering up the dire condition of the U.S. federal debt. The U.S. government is currently \$20 trillion in debt and has no way of actually paying off this debt besides by issuing even more debt. An investment's rate of return is derived from the riskiness of the asset. Though the U.S. government has never faced a greater risk of default (or potentially rapid inflation from printing money to pay off its debt), its yields are near all time lows solely because of the fact that the government has bid up the price of its own debt by using printed money to buy treasury bonds. However, the federal government has not taken advantage of these low interest rates and instead continues to run large government deficits. This will ensure that interest rate payments increase drastically once interest rates actually rise. According to the CFRB, the ten year treasury bond will

rise to roughly 5.2% (roughly its historical average) by late 2019.⁴⁴ This, in turn, will cause interest payments on the debt to soar from roughly \$250 billion per year to over \$500 billion per year. The federal government is incapable of running a surplus or even coming close to balancing the budget. This is due to the fact that government programs are almost always costlier than originally envisioned and because politicians generally get elected to government by promising to fund programs, not take them away. Moreover, tax increases on the 52% of people who pay taxes and the 35% corporate tax rate have done nothing to increase government revenue. This is largely because many people and businesses will legally adjust their methods of business so that they do not have to pay this tax. For instance, Apple currently has over \$230 billion in offshore cash that it refuses to bring back to the U.S. because of the 40% total tax (corporate plus state tax). A lower corporate and personal tax would actually give the government more revenue because there would be much more business and income to tax. Accordingly, the only way for the government to pay for the interest on the debt will be by issuing even more debt at these higher interest rates. This would be on top of the new debt the government incurs through its inevitable future deficits. The downgrade of the U.S. debt rating by Standard and Poor's in 2011 demonstrates that the U.S. government has become reckless in its spending and its handling of the national debt. According to the accompanying report, "it's an open question as to whether or when Congress and the administration can agree on fiscal measures that will stabilize the upward trajectory of the U.S. government debt burden".⁴⁵ The government deficit is

⁴⁴ "Here's the Giant Shoe About to Drop on the Economy."

⁴⁵ Appelbaum.

bound to continue growing and will either eventually result in the U.S. defaulting or a rapid rise in inflation as a result of the government printing money to pay off the debt.

Moreover, the continuation of QE3 has made the stock market extremely fragile toward interest rates. The near zero interest rates caused by the continuation of QE3 has left savers and investment funds with little incentive to park their money in bank accounts or safe securities given that this leads to virtually no income. Accordingly, savers and funds have been dumping money into the stock market in an attempt to generate income more in line with investors' expectations. It is shocking that the Federal Reserve is essentially punishing savers by forcing them to invest in riskier assets, considering reckless spending and investments was one of the primary causes of the Great Recession. Accordingly, the S&P 500 reached its all time high of roughly \$2,600 in November, 2017. However, the fundamentals of the underlying companies do not suggest all time high prices. In fact, the average price to earnings ratio of the companies that make up the S&P 500 was roughly 25 at the time of the all time high.⁴⁶ In comparison, the historical average price to earnings ratio of companies that make up the S&P 500 is 15.6. This suggests that investors are paying a large premium for these stocks. If interest rates rise, many investors will choose to abandon the stock market and seek safer investments that offer similar yields. This will cause asset prices to drop drastically. A rise in interest rates would certainly be justified because it has to happen eventually. It is simply inevitable that the stock market will be forced into a decline at some point when interest rates rise.

⁴⁶ Brown.

The implementation of Quantitative Easing by many of the world's strongest economies has left us in precarious and unprecedented times. At this point, the effects of Quantitative Easing on economies is unclear. This is largely because since the implementation of modern Quantitative Easing is still relatively new, we do not have much evidence of its effects. Moreover, it is difficult to say that other policies would have necessarily been better or worse given that we cannot exactly emulate specific past conditions and try multiple policies. Thus, it is difficult to determine the effects that Quantitative Easing will have on global economic growth, inflation, and unemployment in the near future (though so far QE's effects have been underwhelming). However, Quantitative Easing has led to the accumulation of massive risks that can potentially devastate the U.S. and global economies. Emerging markets as well as the U.S. stock market will begin to undergo severe drops when interest rates rise. If interest rates rise faster than expected, it could be detrimental to the markets. Moreover, it is a very real possibility that the increase in the money supply caused by Quantitative Easing leads to uncontrolled inflation and the devaluation of the dollar. If this happens, the U.S. will likely lose its status as the world's reserve currency which would cause further devaluation of the dollar and likely plunge the U.S. and the global economy into a deep recession. Perhaps most importantly, the eventual rise in interest rates will cause an exasperation of the U.S. debt crisis, which has largely been covered up by low yields on government bonds which in no way reflect the bonds' fundamental values. As mentioned, interest payments on the government debt will roughly double if interest rates return to their historical averages, which would cause the government to accumulate more debt on top of their anticipated continual deficits.

Thus, it is nearly impossible to say for certain what will happen to the economy in the near future. However, it is important to note the extreme risks associated with Quantitative Easing. Just because these risks have not manifested themselves at this point does not mean that they are not present. Additionally, even if these risks do not manifest themselves, it does not mean that Quantitative Easing was a success considering that its results have been mediocre while still exposing the U.S. and global economies to these immense risks. Even if there is only a 10% chance of any of these risks manifesting, the results would be detrimental if one did. Thus, the potential rewards of Quantitative Easing simply do not outweigh the risks.

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