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Banking

Policy Response Asymmetry and
the Increasing Risks From Rising
Government Debt Level

Blu Putnam, Erik Norland

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Policy Response Asymmetry and the Increasing Risks From Rising Government Debt Level

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Abstract

The pendulum is shifting away from a dependence on monetary policy and a switch to greater use of fiscal policy in the U.S., and the U.K., and Europe may result. At the same time, there is a robust debate about how fast mature industrial economies can grow, giving their aging demographic challenges. If significantly more rapid real economic growth can be achieved with fiscal stimulus or with continued monetary accommodation, then the currently high public and private debt loads may be manageable. This research argues that the ability of fiscal and monetary policy to push real economic growth rates higher is markedly reduced in periods of even modest economic growth, as compared to recession periods. And, stimulative fiscal policies that aim for unattainable economic growth targets risk pushing the national debt over the tipping point from which debt loads become destabilizing to the economy. That is, once economies have exited a recession and are growing again, stimulative policies may contain more downside risks than upside growth potential once the feedback loops from

rising debt are considered. We live in an asymmetric world full of unintended consequences and powerful indirect effects. Our analysis strongly suggests that since unconventional monetary policy largely impacted asset prices and not real GDP growth, assets may be entering a period of greater risk than historical measures of volatility might suggest, as unconventional monetary policy is ended. And, the starting point for fiscal expansion already embodies high debt-to-GDP ratios. If the expansionary fiscal policies fail to generate the hoped-for real economic growth, then the unanticipated increases in inflation and interest rates may bring difficult challenges with debt management to the fore.

¹ All examples in this report are hypothetical interpretations of situations and are used for explanation purposes only. The views in this report reflect solely those of the authors and not necessarily those of CME Group or its affiliated institutions. This report and the information herein should not be considered investment advice or the results of actual market experience.

Presidents, Prime Ministers, politicians of all stripes, regulators, and central bankers, just to name a few, are often focused on what policies they can put in place to encourage more rapid economic growth. Our analysis suggests that increasingly, policy-makers are having to confront the uncomfortable reality of asymmetric policy responses. Specifically, the economic responses to fiscal and monetary policy strongly suggests that for economies in recession, there are a number of policy options that can assist in bringing the economy back into positive economic growth. Unfortunately, the analysis also argues that there are meaningful limits as to the extent to which real economic growth can be encouraged to expand at a more rapid pace once a reasonably sustainable activity level has been reached. And, perhaps equally important, from a starting point of modest economic growth path, policy mistakes can easily lead to sub-par economic growth or even recessions. This means that there may be more downside risks than upside potential for major fiscal or monetary policy shifts made during periods of economic growth, despite the good intentions to push economic growth ever higher. And finally, having a realistic perspective of what a sustainable growth path might look like is essential, since an overly optimistic view of the growth potential may be a recipe for policy mistakes leading to debt expansion, which in turn triggers damaging economic consequences.

What we are talking about are the non-linear economic responses to policy decisions depending on the starting point. If the initial conditions are recessionary, then there is considerable potential for policy actions to improve economic growth. If the initial conditions are around or close to a sustainable economic activity environment, then policy actions are highly limited in their ability to encourage more rapid economic growth and the possibility of policy mistakes leading to sub-par economic growth are quite significant. To appreciate our general case for the asymmetry of policy outcomes for economic growth and critical importance of the initial conditions, we will work through the theory related to a set of selected and relevant examples from (a) fiscal policy and then (b) monetary policy.

Our analysis will start with fiscal policy, examining tax rate reductions, government spending increases, and the destabilization potential if debt levels grow to high too fast. With regards to monetary policy, we will study unconventional monetary policy, dividing the analysis into the immediate recession period and the later growth recovery phase. Our concluding section brings together the lessons from fiscal and monetary policy in recessions versus growth periods. Our objective is to lay the intellectual framework for a general non-linear and asymmetric theory of the economic growth responses to monetary and fiscal policy changes that depends critically on the

initial conditions. The implications for policy-makers are significant. The idea that “more of a good thing is always an even better thing” simply does not stand the test of analysis. And, moreover, during periods of even modest economic growth, policy shifts are not likely to have much impact on economic activity while they carry meaningful risks of causing dislocations and weakening economic activity. It is an asymmetric world full of unintended consequences and powerful indirect effects. Linear, or as some might say, “flat-earth thinking,” can be especially dangerous for economic policy.

FISCAL POLICY

As noted in the introduction, our analysis of fiscal policy will focus first on the economic impact of tax rate reductions and spending increases. Then, we will consider the national debt and how rising debt to GDP ratios can influence economic activity.

How likely is it that reductions in tax rates will stimulate economic growth?

Any discussion of the economic impact of tax rate reductions must consider what became known in the U.S. as the “Reagan Revolution.” The Reagan era was propelled in no small way by an economic idea called the “Laffer Curve,” named after Art Laffer² who is considered the father of supply-side economics. The “Laffer Curve” was a highly intuitive and appealing theory (Figure 1).

The “Laffer Curve” argued that there was an optimal marginal tax rate that could produce the most revenue for the government. If the marginal tax rate on the highest and last unit of income was set too high, economic growth was damaged and tax revenues would not be as high as they could be. It was also possible to set the marginal tax rate too low, so that government revenues from tax would fall as economic growth simply did not respond sufficiently to offset the sharply lower tax rates.

As is the case with all economic theories, they come with some heroic, embedded, and usually ignored assumptions that can turn out to make a very big difference when analyzing the economic outcomes from a policy change based on the theory.³ In the case of the Laffer Curve, the critical assumption

2 For the interested reader, an updated treatise on the Laffer Curve and related ideas: Canto, V. A., D. H. Joines, and A. B. Laffer, 2014, *Foundations of supply-side economics: theory and evidence*, Academic Press.

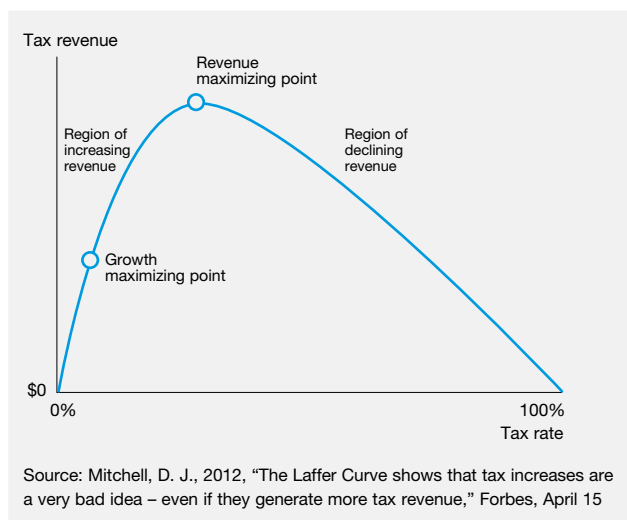


Figure 1 – The Laffer Curve

is that business and personal investment, savings, and consumption decisions will be primarily influenced by the marginal tax rate they pay on the last unit of income. This is a perfectly reasonable assumption; however, what it means is that if the tax code is rife with special exceptions and loopholes, then the marginal tax rate may not matter all that much for economic activity. Instead, the tax loopholes and special rules will dominate decisions about investment, savings, and consumption.

Given the complexity of the tax code in most countries, especially the U.S., the relevance of the “Laffer Curve” may be quite limited unless tax rate reductions are also accompanied with major tax reform that simplifies the tax code and puts the focus back on marginal tax rates and not on credits for medical expenses, deduction for mortgage interest, different tax rules for dividends and interest, special credits for certain types of investments and not others, special taxes on imports versus exports, differences in how wages or capital gains are taxed, differences in tax rates depending on investment holding periods, charitable deductions, etc., etc., and the list goes on for tens of thousands of pages, at least in the U.S.

During the 1980s, when Ronald Reagan was President, there were two tax cuts and significant tax reform. During the years 1983-1989, the growth years of the Reagan era, U.S. real GDP averaged 4.45% per year, a little bit higher than 4.26% of the Carter growth years, and a little lower than the 4.77% of the Kennedy-Johnson growth years. Government revenues remained in a tight range, 18.50% of GDP in 1979 (last year of economic growth before the recession of 1980-1982) to

18.43% in 1989. Unfortunately, there was little to no accompanying discipline on the spending side by the U.S. federal government, and the national debt rose from 33% of GDP in Q1-1981, as Mr. Reagan was coming into office, to 54.7% in Q1-1989 as he was leaving. By the end of President George Herbert Walker Bush’s Administration in Q1-1993, Federal debt had reached 68.3% of GDP, despite a modest (and unpopular) hike in the top marginal tax rate from 28% to 33%. We note that with lots of caveats and torturing of the data, some analysts have argued that the “Laffer Curve” worked as expected, but to our eyes the results on tax revenue and economic growth were inconclusive and the impact on the national debt was decidedly negative.

In addition, we would caution against parallels from 1981-1988 with 2017-2024, simply because the starting points differ and the likelihood of future tax simplification is a very large question mark. From a marginal tax rate perspective, in two steps the Reagan tax cuts took the highest marginal rate down from 70% in 1979 to 28% by 1986. This was a huge change. For 2017, the starting point is 39.6% as the highest federal marginal tax rate on personal income and 35% on corporate income. The tax rate reductions are simply not going to be as large as in the Reagan era, with or without tax simplification, hence the impact on real GDP may be smaller too.

As for economic growth, the 1983-1989 period benefited in a large way from the bounce back after the recession of 1980-82. To curb inflation then running above 10%, the Federal Reserve (Fed) had pushed short-term market rates toward 20%, long-term Treasury bonds reached yields of 14%, and the unemployment rate had jumped to over 10%. In the post-recession period, inflation subsided rapidly, bond yields and short-term interest rate fell sharply, and unemployment declined. One could argue that the bounce back from the recession was going to happen regardless of tax policy changes, especially since it was well underway before some of the tax changes were enacted into law or even known. For the case of the U.S. in 2017-2024, the economy has been growing modestly yet at a relatively steady pace of around 2% real GDP rate since 2010, while the unemployment rate has declined from 10% to below 5%, and short-term market interest rates were near zero and set to rise, albeit slowly. This is a vastly different starting point from the Reagan era.

3 The role of hidden assumptions in economic theory is a common source of erroneous analysis. See: Putnam, B. H., G. McDannel, and V. Shah, 2016, “Digital finance: at the cusp of revolutionizing portfolio optimization and risk assessment systems,” *Journal of Financial Transformation* 45, 35-42.

The size of the tax cuts discussed by the new U.S. Administration in Washington more closely resemble the relatively modest tax changes at the beginning of George W. Bush's Administration in 2001. These changes brought the top rate down from 39.6% to 35% and in 2003 the Administration convinced Congress to cut the dividend tax as well. Productivity growth was solid during the Bush Administration but overall GDP growth was weak and Federal debt expanded much faster than the economy as a whole. In Q1-2001 when Mr. Bush arrived in the White House the national debt was 49.4% of GDP and in Q1-2009 when he left office it had grown to 73.7%.

And there is another challenge for the 2017-2024 period – namely demographics. The labor force was growing at a healthy pace and population was relatively young during the 1981-1989 period. By 2016, labor force growth was down to less than 1% per year and retiring baby boomers represented a major cohort of the population likely to be cutting spending in their retirement years compared to their expansive consumption habits in their younger and highly productive working years.

Finally, there is one other aspect of the tax policy that we would like to consider in terms of estimating the economic impact of a reduction in tax rates. If the tax cuts primarily benefit wealthier individuals, as opposed to typical hourly wage-earners, then there can be a big difference in the savings and consumption outcome. Tax cuts for the relatively high earners produce fewer increases in consumption and more increases in savings. This means that if there is a tilt in the tax cuts favoring high incomes, then the impact can work to stimulate equity prices while not doing much for economic growth. One may remember many analysts (present company excluded) in the U.S., Europe, and Japan cheering the massive oil price decline in late 2014 as likely to work like a tax cut and lead to stronger economic growth. The extra growth never happened because a meaningful chunk of the fuel cost reductions to households went into savings or to pay down debt, instead of discretionary consumption. So, while there was a temporary boost to consumer discretionary spending in the months following the collapse of oil prices, it was just enough to offset the negative GDP impact of lower oil prices on the energy industry itself.

The bottom line is that there will be no following winds for U.S. tax reform in the 2017-2024 period like there were in 1981-1988. Caution is advised on just how aggressive to expect the real GDP impact to be from a given tax cut, given the initial conditions.

Will government spending increases lead to more real economic growth?

Our discussion of government spending starts with the arithmetic of national accounting and nominal GDP. Specifically, nominal gross domestic product is the sum of consumption (C) plus investment (I), including changes in inventories, plus government spending (G) plus the current account balance, which consists of exports (X) of goods and services minus imports (M). That is,

$$\text{Nominal GDP} = C + I + G + (X - M)$$

Other things being equal, any increase in government spending will work to increase nominal GDP. That is just arithmetic. Whether an increase in government spending works to advance real GDP growth, just raises inflation, or even increases imports to the detriment of nominal GDP, depends on a myriad of additional considerations. And, with all the feedback loops between markets and the economy, other things are never equal in predictive economic analysis.

If the starting point is a recession, then the impact on real GDP can be quite meaningful – the Keynesian view. And, John Maynard Keynes was not even concerned as to what the spending was – that is, wasteful spending was just as effective in the short-term at stimulating the economy as investment spending. Keynes viewed the Great Depression of the 1930s from the perspective that economies around the world were in disequilibrium.⁴ His solution was to suggest a role for government to step in, start spending, and not worry about the consequences for rising national debt until the economy was growing again. The key point was for government to spend while consumers and businesses were cutting back in fear of the economic situation deteriorating even further. Government spending could short-circuit the vicious cycle of fear gripping the economy. One can recall the famous quote from U.S. President Franklin D. Roosevelt⁵: “The only thing we have to fear is fear itself.”

If the starting point for increased government spending is an economy that is already growing, even at a modest pace, then the analysis gets considerably more complex. The type of new spending will matter, and positive impacts may come with a long time lag. Whether there is a long-term positive impact on real GDP is critically linked to whether the new spending can be expected to increase labor productivity.

4 Keynes, J. M., 1936, *The general theory of employment, interest, and money*, London: Macmillan & Co.

5 Roosevelt, F. D., 1933, U.S. Presidential Inaugural Address, March 4

If we return to arithmetic for the moment, one can look at real GDP growth as the sum of labor productivity growth plus labor force growth. Generally speaking, to have an expectation of raising labor productivity, one would be looking at whether the new spending was an investment in capital, such as improving the country's infrastructure, or whether the new spending was mostly subsidies or payments to individuals that might increase consumption but not contribute to improving labor productivity. And, since labor force growth is dependent on demographic patterns that evolve very slowly over time, there is no influence from fiscal policy.

Let us turn to labor productivity first and look at the case of China as an example. The Chinese focus on infrastructure building in the 1980s, 1990s, and early 2000s, provides a powerful explanation for why the country was able to modernize as rapidly as it did and achieve stellar real GDP growth rates for as long as did. Once the country reached a relatively mature degree of modernization, however, the gains to labor productivity from further infrastructure spending hit the point of diminishing returns and the economy began to decelerate toward lower real GDP growth rates. The U.S. spending on its interstate highway system in the 1950s and 1960s is another example of the type of investment spending that contributed to rising labor productivity and higher real GDP growth.

Military spending is a controversial category. Some military spending can influence innovation, such as advancing aerospace or satellite technology, and thus contribute to long-run gains in labor productivity. The vast amount of military spending from buying planes to building more missiles or a new aircraft carrier to adding soldiers are not likely to influence labor productivity even if they add to nominal GDP.

Even if the increased government spending has the potential to increase labor productivity through capital additions (infrastructure) or incentives for innovation and technological improvements, there are likely to be time lags. Infrastructure projects can take a long time to complete and then the knock-on indirect economic impacts can take even more years. And, innovation dances to its own tune, making it nearly impossible to attribute gains in labor productivity to specific government spending that may have occurred years before.

Consequently, when increased government spending hits an economy that is already growing there can be minor increases in labor utilization, so some increases in real GDP may be possible. Unfortunately, most of the increase in nominal GDP from the increased spending hitting an already growing economy is likely to lead to either increased imports or inflation. Other

things are never equal in economics, however, so the any increased imports or higher inflation may create opposing market reactions, particularly from higher interest rates and/or a restrictive monetary policy, as well as from exchange rates reacting to the interplay of trade and capital flows. In short, market prices move in response to the policy shift to increase spending during times of economic growth, but real GDP may only accelerate very little, and that will come with a long time lag.

With regards to labor force growth, it is all about demographic patterns, and it is the work force between the highly productive ages of 25 to 55 that really matters. If the prime age labor force is growing very slowly, as in the U.S., or not at all, as in Japan, real GDP growth expectations will need to be adjusted downwards, when compared to previous decades characterized by much faster labor force growth.

For the long-term analysis of labor force growth, there are three major factors that must be monitored: birth rate, rural to urban migration, and immigration.

For example, China's one-child policy to control population growth worked perfectly to reduce the population growth to zero. The unintended consequence a few decades later was the slowing of the labor force growth and then the aging of the population with steady increases in the over-65 cohort. Even ending the one-child policy will make little difference for a few decades. It takes 25 years to make a 25-year-old. And Chinese young adults that grew up in one-child families may well prefer to have only one child as they consider parenthood.

Rural to urban migration is also a common pattern as a country industrializes. And, since industrial output per person is generally higher than agricultural output in less developed countries, there are typically labor productivity gains associated with rural to urban migration as a country develops. This occurred in the U.S. in the early 20th century. It was a major factor in Japan and in the former Soviet Union in the 1950s and 1960s. And, it is still a factor in China, where upwards of 15 million people move from rural to urban communities each year. When this migration ends in the 2020s, China will face its most serious challenge to its economic growth model, not unlike the former Soviet Union did in the 1970s and 1980s.

Finally, immigration can be a source of an expanding labor force. Immigrants are often of prime working age, seeking a better life in a new country. The U.S. has been a major beneficiary of real GDP growth through embracing immigration in its past. Equally, Australia has enhanced its real GDP prospects through immigration. Japan eschews immigration and has had

to adjust to a reality of no population growth and an aging population much sooner than immigration-oriented countries.

The bottom line here, though, is that demographic forces are very slow moving and not at all influenced by fiscal policy. They are a given that must be considered as part of evaluating how rapidly an economy can grow.

At what point does a rising debt/GDP ratio destabilize an economy?

Any positive impact on real GDP from tax rate reductions or spending increases may happen with a lag, so the national debt as a percent of GDP is likely to rise in the short-term. The long-term effect on the debt-to-GDP ratio depends on how the policy mix influences real GDP, imports, and inflation. With the debt-to-GDP ratio heading higher from more stimulative fiscal policies until the long-term influences are realized, it raises the question as to whether the debt level itself could have destabilizing effects on the economy.

Specifically, we would argue that at some level of national debt-to-GDP, the debt overhang becomes a negative factor for the economy, as higher interest rates reflect rising inflation expectations and rising interest expense raises the risk of debt. Indeed, there is the possibility of capital outflows and less willingness by international investors to fund the rising debt.

From an economic indicator perspective, though, it is not the ratio of debt-to-GDP that makes the difference. The real issue is the long-run expected cash flow relative to debt service. A robust economy with solid growth prospects can handle more debt and a higher debt-to-GDP ratio than a slow-growing economy prone to setbacks or bouts of inflation. Economies that are adding debt from tax cuts and spending increases will eventually hit the point of destabilization, but it depends greatly on where they started. During the Reagan era, the starting point for the U.S. was a 30% debt-to-GDP ratio and relatively high growth expectations. In the U.S. in 2017, the starting point is a debt-to-GDP ratio of over 100% and a slower expected growth path due to demographic challenges not faced in the 1980s.

Higher levels of public and private sector debt inevitably put pressure on central bankers to maintain interest rates lower than inflation might suggest. The only way in which heavy public and private debt burdens can be financed is through relatively low interest rates or extremely fast growth. For mature economies, the latter is not usually an option, so the former becomes a priority.

Take the case of Japan. Japan reached 270% of total public and private sector debt-to-GDP in 1990, and rates hit zero by

1998 and the economy has continued to lever up with debt-to-GDP reaching 400%. The leveraging up has had little appreciable impact upon GDP growth, which has been mired at around 1% (in the good years) owing in large part to Japan's stagnant demographics.

What all this means is that there is no magic tipping point before the debt-to-GDP ratio starts to destabilize an economy. At some point, market participants around the world grow wary of the debt loads and the debt service requirements. Moreover, the process never happens smoothly. Everything seems to be OK, even if the danger from too much debt is well known and regularly debated, and then an event or a catalyst occurs that abruptly changes market behavior and the vicious cycle begins. Once it starts, it is like a snow ball rolling down a hill – getting bigger and bigger and much harder to stop. One generalization that we can make, however, is that the higher the level of debt, the lower the level of interest rates necessary to tip the economy into a recession. This is why it might be difficult for the Fed to put rates up to 3% by the end of the decade as it suggests that it will do in its “dot plot.”

MONETARY POLICY

The Great Recession of 2008-2009, triggered central bankers to launch an impressive experiment in unconventional monetary policy, which coincided with a pre-recession pattern of financial regulation putting more and more emphasis on capital adequacy as the method of controlling financial risks. And, it is important to note that the Great Recession only increased the desire of regulators to impose tighter capital adequacy rules, which we argue had an impact on how unconventional monetary policy worked.

In this examination of monetary policy, we want to focus on what we have (or have not) learned from the experiments with unconventional monetary policy. After all, while equity prices in the U.S., Europe, and Japan have soared from the low points during the Great Recession, real GDP growth has been quite modest by the standards of previous economic recoveries.

How did quantitative easing (QE) actually work?

To understand the impact of central bank balance sheet expansion on economies and asset prices one has to divide the 2008-2016 period into two parts.⁶ First, there was the

⁶ Putnam, B. H., 2013, “Essential concepts necessary to consider when evaluating the efficacy of quantitative easing,” *Review of Financial Economics* 22:1, 1-7

immediate central bank response to the financial crisis triggered in September 2008 by the way the U.S. authorities mis-handled the extremely messy bankruptcy of Lehman Brothers and the bailout of AIG. This initial period was very different in character and in policies to the later experiments in monetary policy by central banks once the Great Recession had ended and growth had resumed.

Starting with the financial crisis period, the U.S. Federal Reserve (Fed) and the European Central Bank (ECB) took different paths. In Q4-2008, the Fed bought U.S.\$1 trillion of distressed assets (aka, toxic waste) and removed them from bank balance sheets. The ECB chose a different approach and made available €1 trillion of low rate, term liquidity loans, which effectively backstopped the European banking system against a liquidity crisis and runs on the banking system. In hindsight, we know that the Fed's approach, by removing the overhang of distressed assets, allowed for a much faster and more robust recovery by U.S. banks than the ECB's approach of emergency liquidity loans. The ECB left the distressed assets on the books, including sovereign debt of very weak countries. This meant that the weakest banks had to be divided into "good" and "bad" banks, with governments bailing out the "bad" banks. And still in 2017, some of the overhang still exists, especially in the weaker banking systems of southern Europe, which has worked to delay a more robust economic recovery in Europe compared to the U.S.

The key takeaway is that it matters how the banking system is backed-stopped. If the central bank serves only as the lender of last resort, the liquidity crisis is prevented and there is no downward spiral into another Great Depression. But by removing the overhang of distressed assets from the financial system, the Fed went a step further and removed a critical barrier to a more rapid recovery. Credit goes to Fed Chair Benjamin Bernanke for appreciating that getting to the source of the problem (i.e., removing an overhang of bad assets) was as important to the recovery as just preventing a liquidity crisis (i.e., lender of last resort).

The second phase of unconventional monetary policy occurred after the recession had ended and growth had resumed. It is highly unusual for central bankers to add stimulus once an economy is growing again. Usually, once growth has resumed, the debate turns to how soon should the emergency monetary accommodation of the recession period be withdrawn. Two years into the economic recovery, however, the Bernanke-led Fed embarked on new rounds of asset purchases with the intent of encouraging a more rapid economic expansion. In this and subsequent rounds of QE, the Fed purchased only

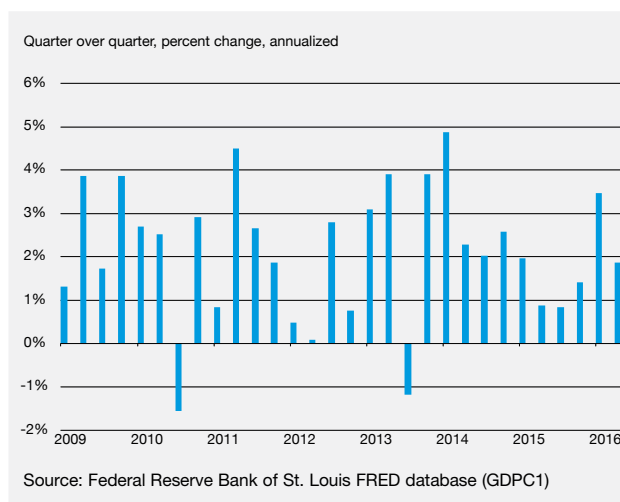


Figure 2 – U.S. GDP growth, Q3-2009-Q4/2016

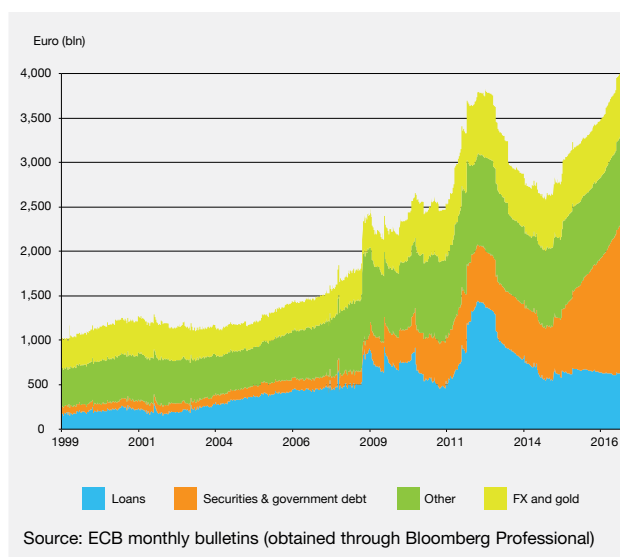


Figure 3 – ECB assets

high quality securities – U.S. Treasury securities and mortgage-backed securities.

If the criteria for success was the stated objective of more rapid economic growth, then this part of the Bernanke QE experiment was a total failure. See Figure 2 showing U.S. real GDP growth for 2010-2016 and see if you can find any difference in the pattern before or after QE. There was no real GDP response. If, however, the criteria were the intermediate impact on asset prices, then one can definitely see the response, in both government bond yields and equity indices. In short, the

Fed's experiment with QE in times of economic recovery went straight to asset prices and not to real GDP growth or even inflation.

The situation in Europe was more complex than in the U.S. because of the overhang of bad debt, especially sovereign debt from the weaker European Union (E.U.) countries. The original source of this problem was the Maastricht Treaty that created the single currency. A single currency for all of the E.U. would be a huge benefit to the stronger countries, such as Germany. The economic strength of Germany had led to currency appreciation and served as a restraint on exports to the rest of Europe, especially southern Europe. A single currency would remove the potential for exchange rates to adjust within and among Euro-Zone member countries. To provide an incentive for weaker countries to agree to join the Euro-Zone, the compromise was that the E.U. financial regulators would treat all sovereign debt as the same high quality credit risk, whether it was German government debt or Italian government debt or Greek government debt. Once this sovereign debt equivalence for capital adequacy regulations was agreed, there was a lending spree to take advantage of the higher rates offered by weaker sovereign debt issuers. This allowed bond yields to converge and the weaker countries to take advantage of lower capital costs than their inherent riskiness would suggest was reasonable. The chickens came home to roost with the Greek debt crisis of 2011, which also impacted Ireland, Portugal, Spain, and Italy.

Again, instead of dealing with the problem of the overhang of weak sovereign debt on bank balance sheets, the E.U. provided the weakest countries with some much needed funds in exchange for severe austerity measures that further drove down GDP and failed to contain debt ratios. The E.U. also decided for a stricter round of bank stress-tests and assigned the task to the ECB. Note that previous stress-tests were conducted by the E.U. and were largely viewed as publicity stunts, since everyone, weak or strong passed the tests. As the time (October 2014) for the ECB-conducted stress-tests neared, banks cleaned up their balance sheets as best they could. They focused on paying back the emergency liquidity loans to the ECB, since it was felt that these loans were a sign of weakness and could result in a bad stress-test credit score. The result was the ECB's balance sheet declined, and the credit markets stopped functioning properly while banks paid back the liquidity loans. This was an unintended "own goal" by the ECB, which continued to view the problem as one of capital adequacy instead of focusing on removing the overhang of bad debt from the system.

How did negative rates work?

After the stress-tests were over, the ECB changed direction and embraced Fed-style QE, purchasing only high-quality securities, and later introduced negative interest rates on bank deposits held at the central bank. The negative rate policy was controversial from its introduction. The idea was to provide an incentive for banks to take their deposits at the central bank and lend them out. Of course, at a time of stringent capital ratio rules, this was not possible. So, the main impact was to hurt bank profitability, since the ability of banks to pass their increased costs to their own depositors was extremely limited. If you are keeping score, this was another "own goal."

Worth highlighting in this discussion is the non-linearity in economic responses to negative rates. There is significant asymmetry in financial markets regarding responses to interest rates as they approach zero. Behavioral finance has shown that most investors get considerably less satisfaction from gains compared to their dislike of losses. The tax code in most countries focuses on taxing gains and strictly limits the deductibility of losses and limits loss carry-forward provisions. Many labor contracts and corporate incentive programs have zero bounds. It is relatively easy for corporations to let wage growth lag inflation, but nearly impossible to cut nominal wages should deflation occur. Executive stock options become worthless once the stock price drops below the strike price with little prospects of recovery. The reality is that lower interest rates become increasingly less effective as a tool for economic stimulus as they approach zero, and they may actually harm the economy if they go negative by hurting bank profits, by reducing banks' capability to lend.

As a final note on monetary policy, while we have focused on the Fed and the ECB, it is worth mentioning that the Bank of Japan (BoJ) did not participate in round one of QE immediately after the financial crisis started, as its banks were in better shape. The BoJ did eventually join the QE party after Prime Minister Abe was elected in late 2012 on a platform of getting growth going again. One of his three arrows for igniting economic growth was Fed-style asset purchases, and the BoJ balance sheet expanded in an explosive manner. The initial results hit the currency, a weaker yen. A weaker currency did restore Japan to positive nominal GDP growth but the pace of the expansion has been modest and inadequate to reduce Japan's debt burden. So, the BoJ added equity Exchange Traded Funds (ETFs) to its buying list, and managed to goose equity prices even higher. The BoJ also tried negative rates, with the same impact as the ECB – weakening bank profits, and disrupting the functioning of credit markets. The BoJ then altered its QE program to target fixing the 10-year government bond yield at zero.

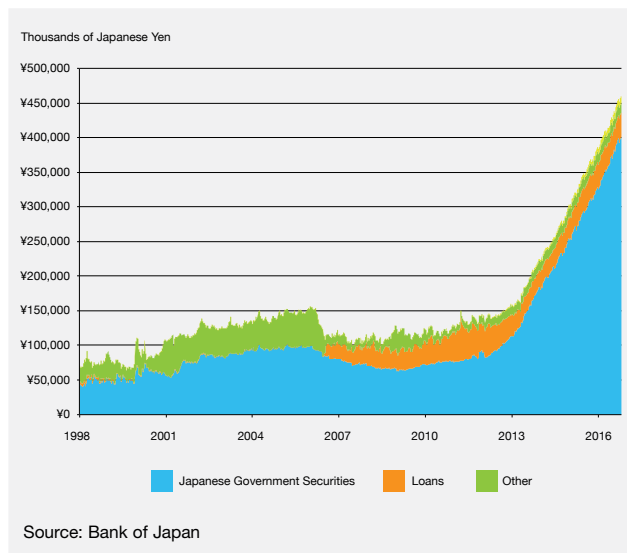


Figure 4 – Bank of Japan assets

GENERAL ASYMMETRIC THEORY OF ECONOMIC RESPONSES TO FISCAL AND MONETARY POLICY SHIFTS

Our examination of fiscal and monetary policy leads us to a set of observations, of which one common theme is that the analysis of economic responses to policy shifts is highly dependent on whether the starting point is a recession or whether the economy is growing, even just modestly. Our summary includes the following observations:

- The effectiveness of tax rate reductions to increase long-run, sustainable real GDP growth is dependent on tax simplification, such that marginal tax rates and not loopholes are the main incentives influencing consumption, savings, and investment decisions.
- The short-term effectiveness of government spending to increase real GDP is highly dependent on the state of the economy, such that policies that can help exit a recession do not work to increase growth once the recovery has begun.
- Moreover, the long-term effectiveness of government spending to increase real GDP is highly dependent on whether the increased spending can work to accelerate labor productivity growth; otherwise the impact is likely to lead to more imports and/or more inflation rather than more real GDP growth.

- Regarding monetary policy, in a crisis, central bank purchases of distressed assets can accelerate the recovery of the banking system and the economy compared to just “lender of last resort” approaches.
- In times of economic growth, central bank asset buying programs aimed only at high-quality securities largely impact asset prices and not economic activity.
- Economic responses to interest rate policy is highly non-linear, as rates approach zero, or even turn negative, they may actually hurt economic activity by damaging bank profits, which constrains bank lending and disrupts the efficient working of credit markets.
- Total levels of private and public sector debt play a significant role in determining at what level of interest rates the economy will become vulnerable to a recession. Generally speaking, the higher the level of leverage in the economy, the lower interest rates need to be in order to sustain growth and the less impactful fiscal and monetary stimulus will be.

The asymmetry of economic responses to fiscal and monetary policy depending on the initial conditions in the economy is not a new idea. Nevertheless, policy response asymmetry may be a more important consideration both for policymakers and for risk managers in the current environment because the sustainable growth path for mature industrial countries is much slower than it once was due primarily to challenging demographic trends. Policy attempts to push an economy toward faster than reasonable growth rates may well end in tears because the debt levels expand to a degree that leads to economic instability. In short, the probability of damaging policy mistakes rises as an economy approaches its sustainable growth path. For aging economies with little labor force growth, the ability to service debt payments has to confront the slower sustainable growth path. If policies designed to push real growth higher instead result in rising inflation and rising debt loads, then the higher interest rates that accompany the higher inflation may trigger a viscous cycle of debt default.

Of course, the warning over too much debt has been heard before. Too much debt has bitten many a developing country, and more recently some mature European ones. As debt levels rise relative to the cash flow of the economy to support them, rising interest rates will take a greater toll and do it faster. This is why the starting point is so important. The U.S., Europe, and Japan all experienced near-zero short-term interests in the 2010-2016 post-recession economic recovery period. The combination of aging demographic challenges and the possibility of higher rates in the later years of the economic expansion put even more of an emphasis on understanding the ramifications of policy shifts. And in many countries, not just

the U.S., the policy pendulum is swinging away from a dependence on monetary policy and a greater willingness to expand fiscal policy, which implies more debt.

Our analysis strongly suggests that since unconventional monetary policy largely impacted asset prices and not real GDP growth, assets may be entering a period of greater risk than historical measures of volatility might suggest, as unconventional monetary policy is ended. And, the starting point for fiscal expansion already embodies high debt-to-GDP ratios. If the expansionary fiscal policies fail to generate the hoped-for real economic growth, then the unanticipated increases in inflation and interest rates may bring difficult challenges with debt management to the fore.

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