?It's unbelievable how much you don't know about the game you've been playing all your life.?? Mickey Mantle

The word discipline has two closely related applications. Discipline may refer to the instruction and nurturing of an individual. It can also carry the connotation of censure or punishment. The purpose of discipline, in either case, is to sustain integrity or aim toward improvement. Although difficult and often painful in the moment, discipline frequently holds long-lasting benefits. Conversely, a person or entity living without discipline is likely following a path of self-destruction. The same holds true for an economic system. After all, economics is simply the study of the collective decision-making of individuals with regard to their resources. Where capital is involved, discipline is either applied or neglected through the mechanism of interest rates. To apply a simple analogy, in those places where water is plentiful, cheap, and readily available through pipes and faucets, it is largely taken for granted. It is used for the basic necessities of bathing and drinking but also to wash our cars and dogs. In countries where clean water is not easily accessible, it is regarded as a precious resource and decidedly not taken for granted or wasted for sub-optimal uses. In much the same way, when capital is easily accessible and cheap, how it is used will more often be sub-optimal. If I can borrow at 2% and there appear to be many investments that will return more than that, I am less likely to put forth the same energy to find the best opportunity. Indeed, at that low cost, I may not even use borrowed money for a productive purpose but rather for a vacation or bigger house, the monetary equivalent of using water to hose off the patio. Less rigor is applied when rates are low, thus raising the likelihood of misallocating capital.

Happy Talk

In November 2010, The Washington Post published an article by then Federal Reserve *(Fed)* Chairman Ben Bernanke entitled *What the Fed did and why: supporting the recovery and sustaining price stability*. In the article, Bernanke made a case for expanding on extraordinary policies due to still high unemployment and ?*too low*? inflation. In summary, he stated that ?*Easier financial conditions will promote economic growth. Lower corporate bond rates will encourage investment. And higher stock prices will boost consumer wealth and help increase confidence, which can also spur spending. Increased spending will lead to higher incomes and profits that, in a virtuous circle, will further support economic expansion*.? To minimize concerns about the side effects or consequences of these policies he went on, ?*Although asset purchases are relatively unfamiliar as a tool of monetary policy, some concerns about this approach are overstated*.? In his concluding comments he added, ?*We have made all necessary preparations, and we are confident that we have the tools to unwind these policies at the appropriate time*.? During her tenure as Fed Chair, Janet Yellen reiterated those sentiments. Taken in whole or in part, Bernanke?s comments then and now are both inconsistent and contradictory. Leaving the absurd counterfactuals often invoked aside, if asset purchases were in 2010 ?*unfamiliar as a tool of monetary policy*,? then what was the basis for knowing concerns to be ?*overstated*?? Furthermore, what might be the longer-term effects of the radical conditions under which the economy has been operating since 2009? What was the basis of policy-makers? arguments that extraordinary policies will not breed unseen instabilities and risks? Finally, there is no argument that the Fed has ?*the tools to unwind these policies*,? there is only the question of what the implications might be when they do. In the same way that no society, domestic or global, has ever engaged in the kinds of extraordinary monetary policies enacted since the Great Financial Crisis (GFC), neither has any society ever tried to extract itself from them. These truths mandate that the uncertainty about the future path of the U.S. economy is far more acute than advertised. Even though policy-makers themselves offered no evidence of having humbly and thoroughly thought through the implications of post-GFC policies, there is significant research and analysis from which we can draw to consider their implications apart from the happy talk being offered by those who bear no accountability. Looking back on the past 60+ years and observing the early stages of efforts to ?unwind? extraordinary policies offers a clearer lens for assessing these questions and deriving better answers.

The Ghost of Irving Fisher

Irving Fisher is probably best known by passive observers as the economist whose ill-timed declaration that ?*stock prices have reached a permanently high plateau*? came just weeks before the 1929 stock market crash. He remained bullish and was broke within four weeks as the Dow Jones Industrial Average fell by 50%. Likewise, his reputation suffered a similar fate. Somewhat counter-intuitively, that experience led to one of his most important works, *The Debt-Deflation Theory of Great Depressions.* In that paper, Fisher argues that overly liberal credit policies encourage Americans to take on too much debt, just as he had done to invest more heavily in stocks. More importantly, however, is the point he makes regarding the relationship between debt, assets and cash flow**. He suggests that if a large amount of debt is backed by assets as**

opposed to cash flow, then a decline in the value of those assets would initiate a deflationary spiral. Both of those circumstances ? too much debt and debt backed by assets as opposed to cash flow ? certainly hold true in 2018 much as they did in 2007 and 1929. The re-emergence of this unstable environment has been nurtured by a Federal Reserve that seems to have had it mind all along. Even though Irving Fisher was proven right in the modern-day GFC, the Fed has ever since been trying to feed the U.S. economy at no cost even though extended periods of cheap money typically carry an expensive price tag. Just because the stock market does not yet reflect negative implications does not mean that there will be no consequences. The basic economic laws of cause and effect have always supported the well-known rule that there is no such thing as a free lunch.

Cheap Money or Expensive Habit?

Interest rates are the price of money, what a lender will receive and what a borrower will pay. To measure whether the price of money is cheap or expensive on a macro level we analyze interest

Using data

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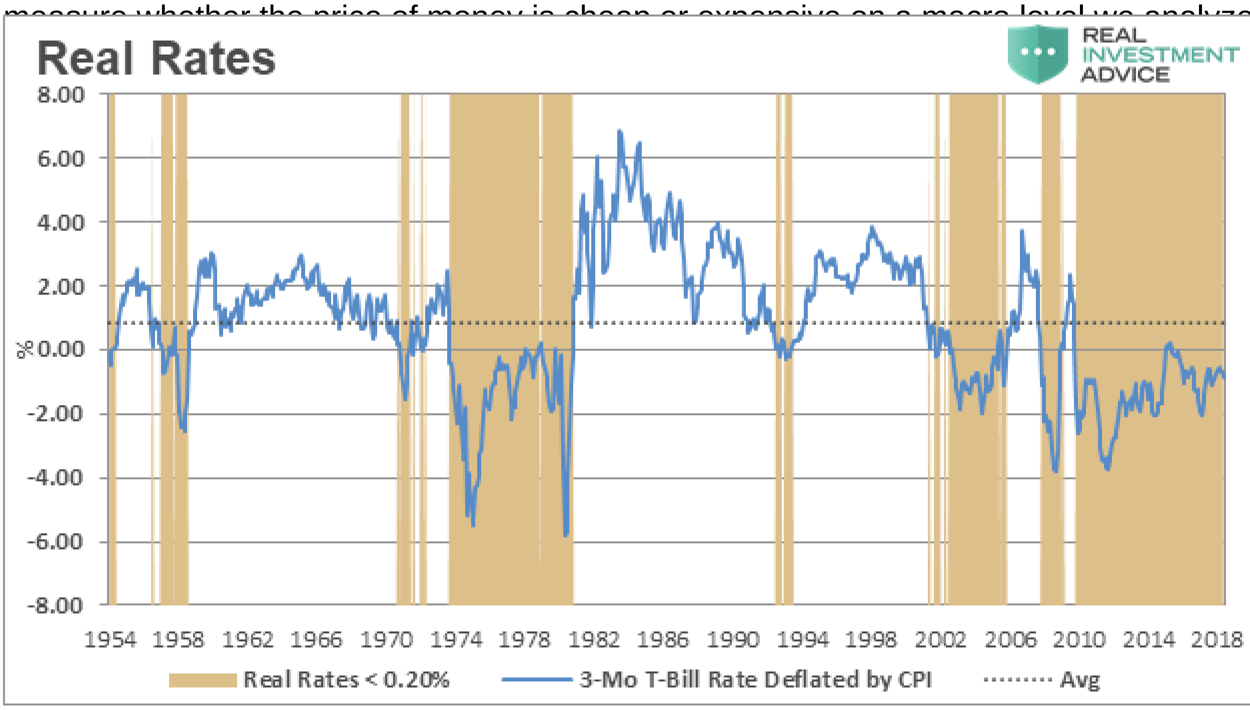

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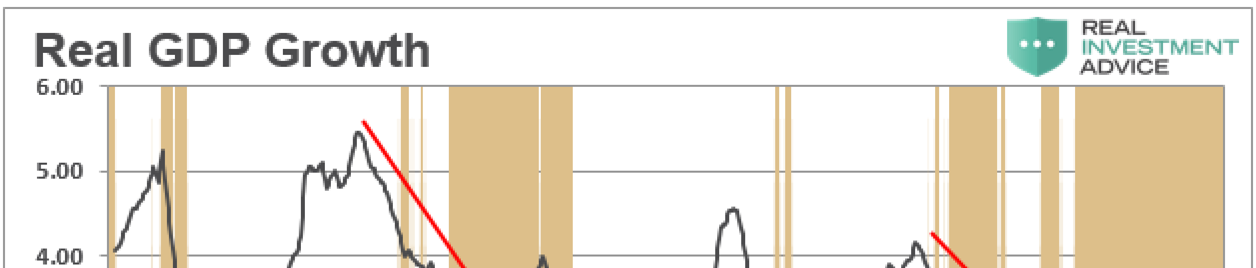
real rate falls below 0.20%, 0.65% below the long-term average, we consider that to be far enough away from the average to be improperly low. The shaded areas on the chart denote those periods where the real 3-month T-Bill rate is 0.20% or below. Of note, there are two significant timeframes when real rates were abnormally low. The first was from 1973 to 1980 and the second is the better part of the last 18 years. The shaded areas indicating abnormally low real interest rates will appear on the charts that follow. The chart below highlights real GDP growth. The post-war average real growth rate of the U.S. economy has been 3.20%. Based on a seven-year moving average of real economic growth as a proxy for the structural growth rate in the economy, there are two distinct periods of precipitous decline. First from 1968 to 1983 when the 7-year average growth rate fell from 5.4% to 2.4% and then again from 2000 to 2013 when it dropped from 4.1% to 0.9%. Interestingly, and probably not coincidentally, both of these periods align with time frames when U.S. real interest rates were abnormally low.



Revisiting the words of Ben Bernanke, ?*Easier financial conditions will promote economic growth.*? That does not appear to be what has happened in the U.S. economy since his actions to reduce real rates well below zero. Although the 7-year average growth rate has in recent years risen from
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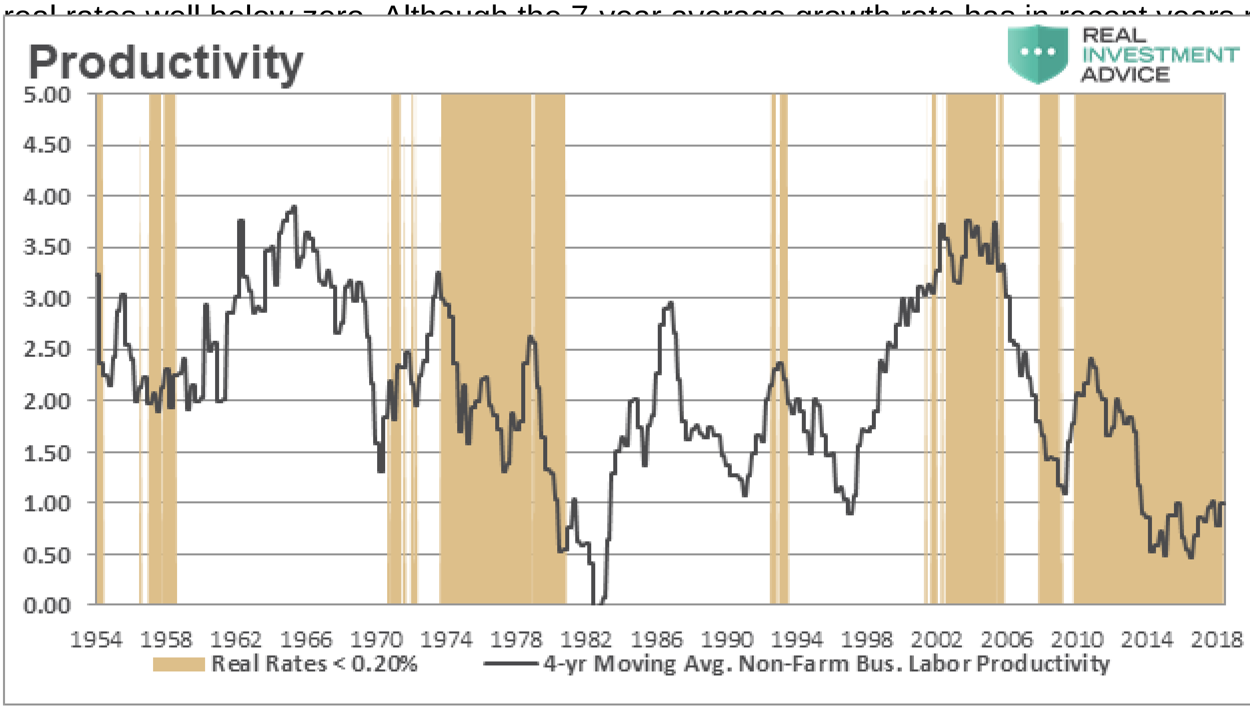

Despite what the central bankers tell us, there is a more convincing argument that cheap money is destructive to the economy and thus the wealth of the nation. This concept no doubt will run counter to what most investors think, so it is time to enlist the work of yet another influential economist.

Wicksell?s Elegant Model

Knut Wicksell was a 19th-century Swedish economist who took an elegantly simple approach to explain the interaction of interest rates and economic cycles. His model states that there are two interest rates in an economy. First, there is the ?natural rate? which reflects the structural growth rate of the economy (which is also reflective of the growth rate of corporate earnings). The natural rate is the combined growth of the working age population and the growth in productivity. The chart of the 7-year moving average of GDP growth above serves as a reasonable proxy for the structural economic growth rate. Second, Wicksell holds that there is the ?market rate? or the cost of money in the economy as determined by supply and demand. Although it is difficult to measure these terms with precision, they are generally accurate. As John Maynard Keynes once said, ?*It is better to be roughly right than precisely wrong*.? According to Wicksell, when the market rate is below the natural rate, there is an incentive to borrow and reinvest in an economy at the higher natural rate. This normally leads to an economic boom until demand drives up the market rate and eventually chokes off demand. When the market rate exceeds the natural rate, borrowing slows along with economic activity eventually leading to a recession, and the market rate again falls back below the natural rate. Wicksell viewed the divergences between the natural rate and the market rate as the mechanism by which the economic cycle is determined. If a divergence between the natural rate and the market rate is abnormally sustained, it causes a severe misallocation of capital. If the market rate rises above the natural rate of interest, then no smart businessman would be willing to borrow at 5% to invest in a project with an expected return of only 2%. Furthermore, no wise lender would approve it. In this environment, only those with projects promising higher marginal returns would receive capital. On the other hand, if market rates of interest are held abnormally below the natural rate then capital allocation decisions are not made on the basis of marginal efficiency but according to the average return on invested capital. This explains why, in those periods, more speculative assets such as stocks and real estate boom. To further refine what Wicksell meant, consider the poor growth rate of the U.S. economy. Despite its longevity, the post-GFC expansion is the weakest recovery on record. As the charts above reflect, the market rate has been below the natural rate of the economy for most of the time since 2001. Wicksell?s theory explains that healthy, organic growth in an economy transpires when only those who are deserving of capital obtain it. **In other words, those who can invest and achieve a return on capital higher than that of the natural rate have access to it. If undeserving investors gain access to capital, then those who most deserve it are crowded out. This is the misallocation of capital between those who deserve it and put it to productive uses and those who do not.** The result is that the structural growth rate of the economy will decline because capital is not efficiently distributed and employed for highest and best use. Per Wicksell, optimal policy should aim at keeping the natural rate and the market rate as closely aligned as possible to prevent misallocation. But when short-term market rates are below the natural rate, intelligent investors respond appropriately. They borrow heavily at the low rate and buy *existing* assets with somewhat predictable returns and shorter time horizons. Financial assets skyrocket in value while long-term, cash-flow driven investments with riskier prospects languish. **The bottom line: existing assets rise in value but few new assets are added to the capital stock, which is decidedly bad for productivity and the structural growth of the economy.**

Summary

As central bankers continue to espouse policies leading to market rates well-below the natural rate, then, contrary to their claims, structural economic growth will fail to accelerate and will actually continue to contract. The irony is that the experimental policies, such as those prescribed by Bernanke and Yellen, are complicit in *constraining* the growth the economy desperately needs. As growth languishes, central bankers are likely to keep interest rates too low which will itself lead to still lower structural growth rates. Eventually, and almost mercifully, structural growth will fall below zero. The misallocated capital in the system will lead to defaults by those who should never have been allocated capital in the first place. The magnitude and trauma of the ensuing financial crisis will be determined by the length of time it takes for the economy to finally reach that flashpoint. As discussed in the introduction, intentionally low-interest rates as directed by the Fed is reflective of negligent monetary policy which encourages the sub-optimal use of debt. Given the longevity of this neglect, the activities of the market have developed a muscle memory response to low rates. Adjusting to a new environment, one that imposes discipline through higher rates will logically be an agonizing process. Although painful, the U.S. economy is resilient enough to recover. The bigger question is do we have Volcker-esque leadership that is willing to impose the proper discipline as opposed to continuing down a path of self-destruction? In the words of Warren Buffett, chains of habit are too light to be felt until they are too heavy to be broken.