

The background is a dark, textured surface, possibly metal, with a grid of hexagonal bolts. The bolts are arranged in a 4x2 grid on the left side and a 3x1 grid on the right side. The text is positioned in the upper right quadrant.

GET REAL

WITH YOUR INVESTMENTS

PAUL A. ROGGE

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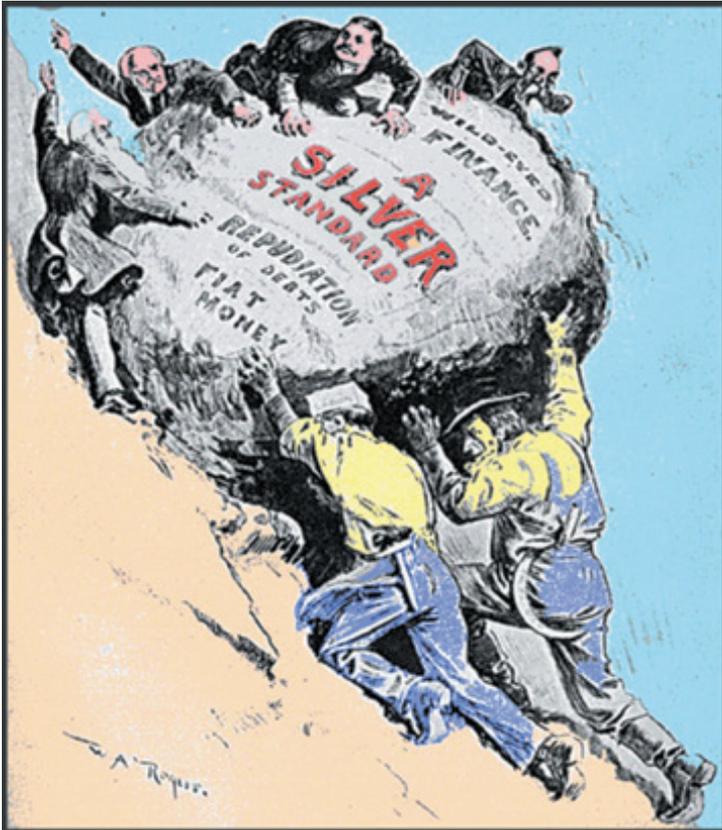
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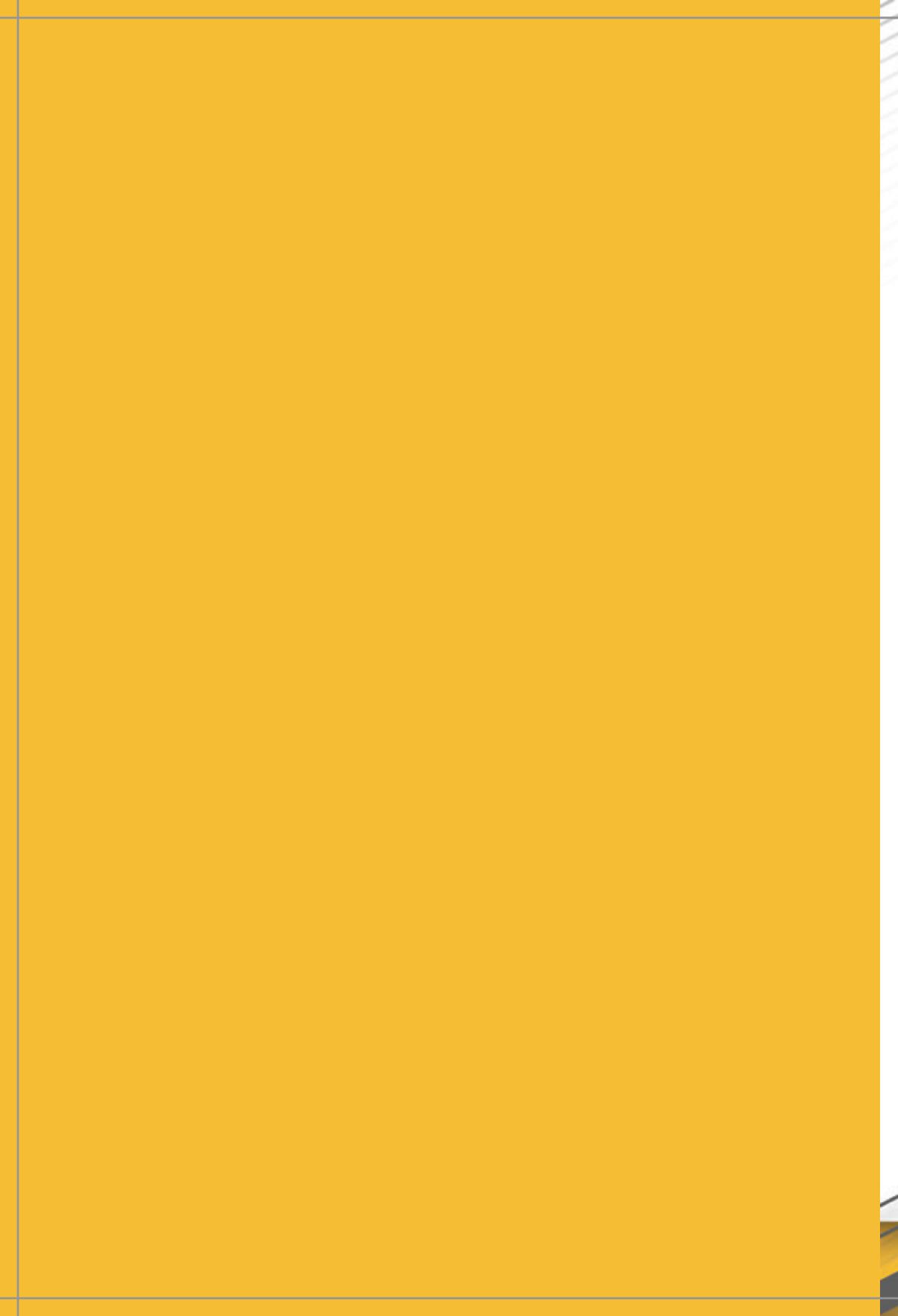
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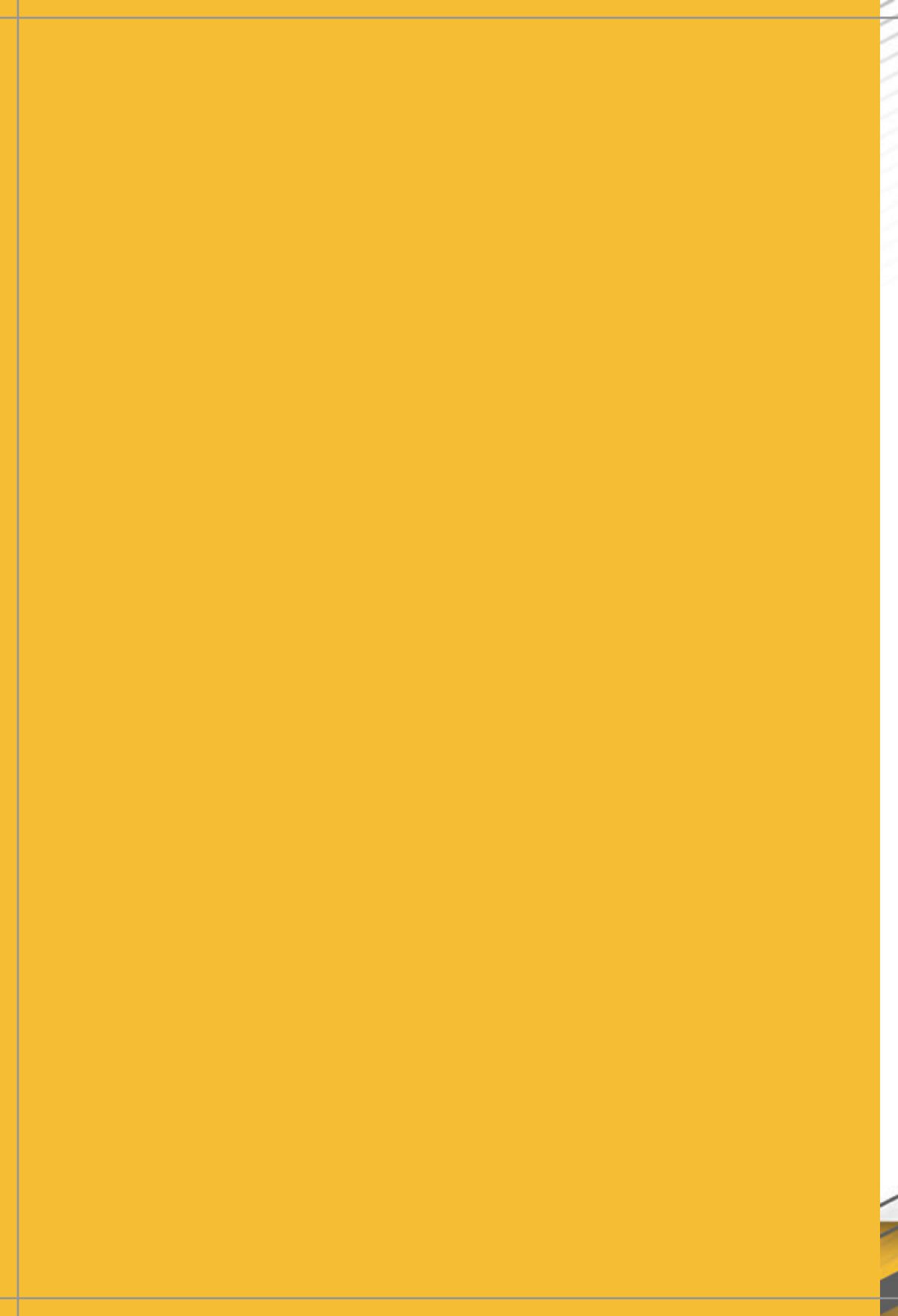


By Paul A. Rogge



Dedicated to the great teachers
of history from whom
I have learned so much.

Dr. W.W. Rostow
D.W. Rogge



AUTHOR'S BIOGRAPHY

Paul Rogge has been investing internationally since 1990, when he began his career with the Global Strategy Team of UBS Phillips & Drew in London, England. In 1991, he co-founded AIM Funds' (Invesco) International Equity department and grew the group to manage more than \$10 billion in international assets. In 1995 and 1996, *Barron's* ranked AIM Funds' International Equity department in the top three of all mutual fund families. Mr. Rogge went on to run AIM's European Equity Fund (ranked second by Lipper in 1998) and its Canadian Equity Fund (ranked fifth by *The Globe and Mail* in 1998).

Mr. Rogge left AIM Funds in 1999 and launched his own hedge fund, Rogge Capital LLC, in 2000. During his tenure at Rogge Capital, he managed his fund through the volatility of two historic bear markets. He more than tripled the fund's gross value from 2000 to 2012, averaging higher total returns than the market, with less volatility. After considering the opportunities and risks for an international equity hedge fund, he closed the fund in 2012. Since then, in addition to raising his five daughters, he has been looking at new potential investment opportunities.

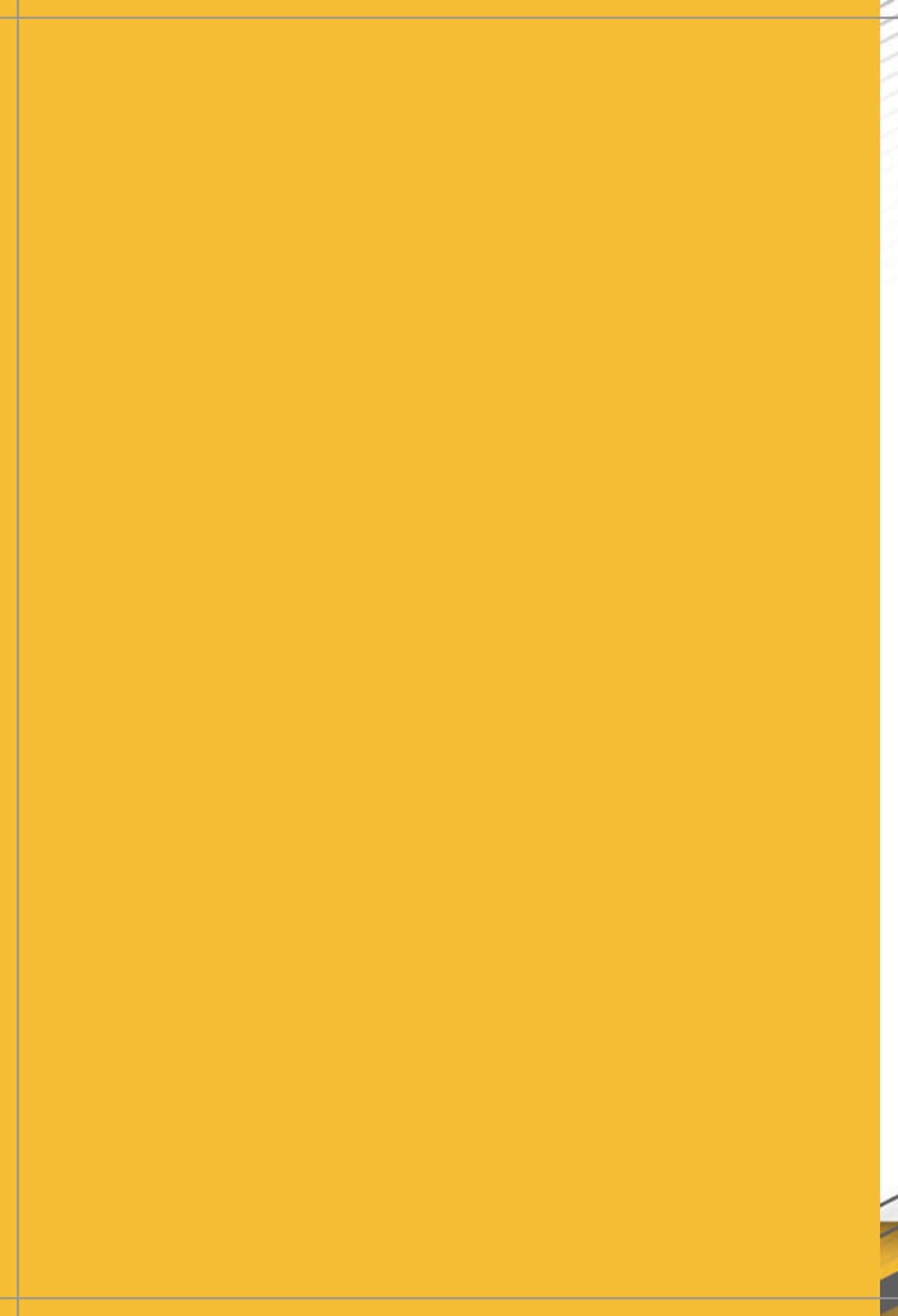
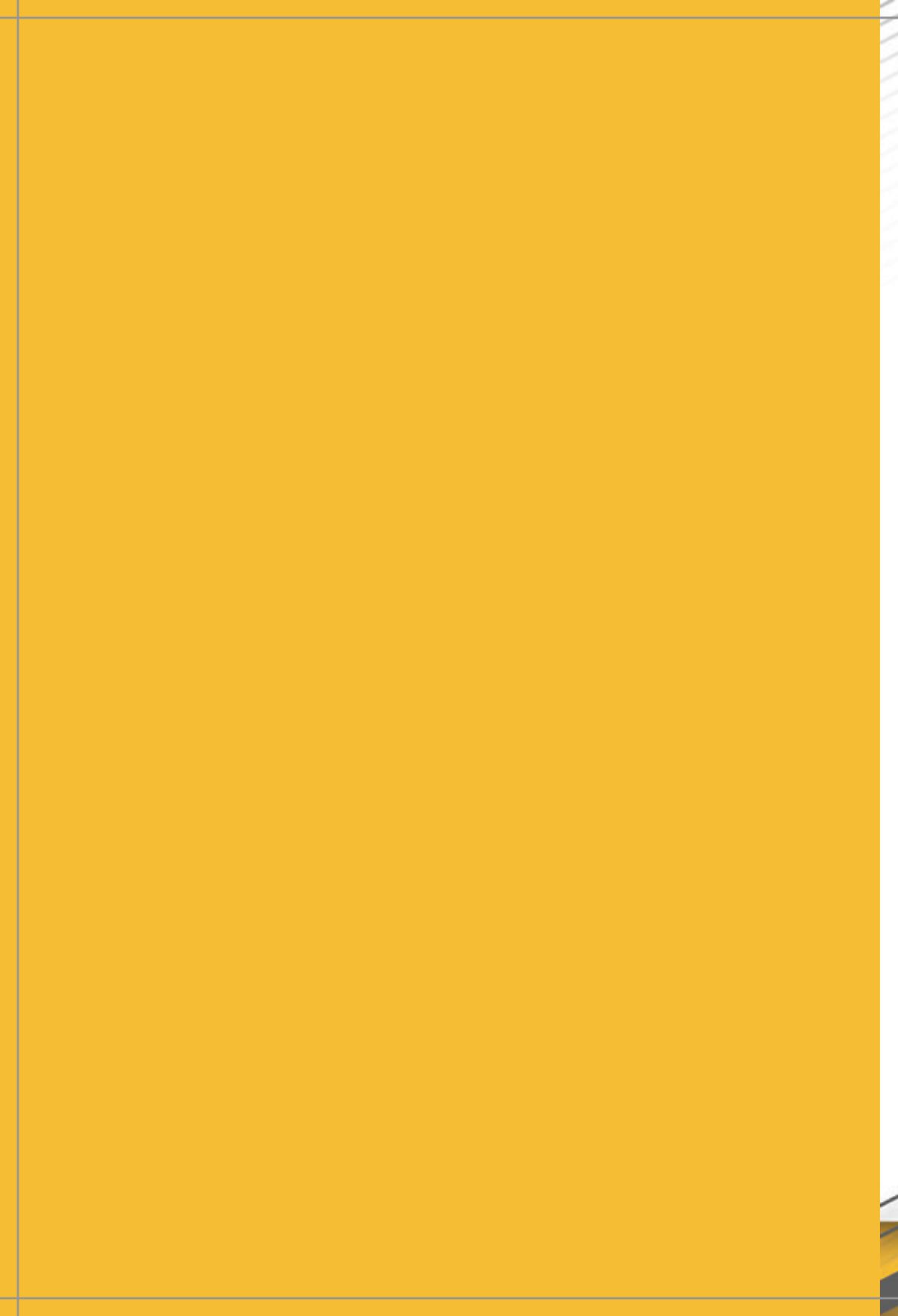


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PREFACE

As long as there has been capitalism, there has been banking. As long as there has been banking, there has been debt. As long as there has been debt, there has been pressure to inflate or debase money. This book will look at the modern debate between borrowers and lenders.

During the Roman Empire, the government created inflation by reducing the silver content in coins. This increased the money supply in the ancient economy in order to inflate away government debt. The problem of debt and government spending has clearly persisted throughout history, but the tools developed to deal with these problems have been substantially refined. These new tools, like the modern system of central banks and quantitative easing, are more powerful than the tools of the past, and while they have helped the U.S. deal with a global financial crisis and other financial bubbles, it is my belief that they will also significantly alter the investment environment over the next 20 years.

America's periodic love affair with populism, when mixed with monetary policy, has a potent effect on the economy. This book examines how the populist movement of the late 1890s relates to today's populism and how this trend could alter the financial environment into the future. Past debt bubbles have often been answered with increased inflation, and with no gold standard in place, central banks have the ability to rapidly increase the money supply through the purchase of financial assets outright. These powers will likely be used to inflate away the extraordinary amount of consumer, corporate, and government debt that has been accumulated

during previous decades. The country can either slowly and painfully try to reduce debt, or we will reduce the debt through inflation. I believe the country will opt for inflation.

As I put the finishing touches on this book in February 2019, a new Congress has been seated, many Democrats have announced their intention to run for President in 2020, and fiscal policy lines in the sand have been drawn. In this environment, I am struck by how quickly the topic of Modern Monetary Theory (MMT) has entered the political arena, particularly amidst the current Democratic candidates. MMT is a theory that promotes a new role for central banks in debt creation and allows increased deficit spending of governments. In the past, Keynesian policy was limited by a “crowding out effect.” In other words, when governments borrowed too much money, interest rates rose throughout the rest of the economy because the government was using too much capital. Now, with the Federal Reserve allowed to purchase ever more government debt, there are theoretically few limitations on debt creation because there is no “crowding out effect.”

MMT proponents argue that during the 2008 financial crisis, governments were able to fulfill emergency monetary demands through the use of quantitative easing, without creating inflation, or simply put, by printing money and monetizing debt without much of an inflationary cost.

The effects of government deficits have been debated for decades, and to be clear, increased deficit spending has been instrumental in helping to manage the past several recessions. The purpose of this book is not to preach against deficit spending. Rather, it is to consider the history of the modern financial system and the investment implications going forward, given the debt and viable policy responses to it.

Although new to Congress, Representative Alexandria Ocasio-Cortez has captured the political spotlight in ways that are framing

the new monetary debate. Recently she announced her sponsorship of a Green New Deal bill, which would transform the electricity, housing, and transportation sectors over the next 10 years. At the time of writing, 60 House Democrats and nine Senate Democrats have announced support for the bill. Five Democratic Presidential candidates have also thrown their support behind the bill: Bernie Sanders, Kamala Harris, Elizabeth Warren, Cory Booker, and Kirsten Gillibrand.

What interests me is not so much the bill's policy, but how politicians want to pay for it. The net effect of MMT is a renewed belief that deficits don't matter with our modern financial system. Central banks are now free to purchase government debt through what is called quantitative easing. This solution worked well during the last financial crisis and was not as inflationary as feared, so it is a very tempting avenue for politicians who want to introduce expensive new programs. This new genie is "out of the bottle" and if history is any guide, it is here to stay.

In recent months, other politicians have also put forward aggressive new plans that would greatly increase deficits. Senator Bernie Sanders has proposed increased government spending for health care. There are serious discussions about income redistribution through raising taxes on the wealthiest citizens to help alleviate growing income disparity.

I do not want to give the impression that Democrats alone believe in deficit spending. The current environment is a result of both parties' inability to develop policies aimed at long-term financial goals. Early in his first term, President Trump, with the backing of a Republican Congress, passed legislation that greatly increased the federal deficit.

I have genuinely enjoyed researching and writing this book. After taking the past few years to think about equity markets and economies, writing this book has allowed me sort through several

ideas. In 1990, I was lucky enough to secure a job as a portfolio manager in what turned out to be one of the fastest-growing and top-performing mutual fund families of the 1990s. In 1991, I became one of two founders of AIM Funds' (now known as Invesco) International Investment department. During the next decade, international investments in our department grew to approximately 14 billion dollars, and we garnered one of the top-performing track records of the time. In 1998, I was the lead manager on the top-performing European Equity Fund, as well as the number-one Canadian Equity Fund. I left the mutual fund business right before its peak in 1999 and piloted my own hedge fund until 2012.

I learned that successful investing involves a balancing of ideas. Outcomes are not deterministic, but they are not completely through chance either. There are often many potential ways that the economy could move forward, but the forward moves are also bounded by some constraints. In this way, investments are more organic. That is, an economy is more accurately studied as a historical process of change and development, rather than a series of supply and demand curves that just do not capture all of the variables active in the economy at a given time.

My hope is that this book helps readers apply history's lessons to make successful investment decisions in the current environment. Equity and bond markets have strongly outperformed since 1981, but now many of the economic forces that propelled this outperformance are reversing. As these new policy options enter the American political debate, they will become increasingly inflationary. History shows us that higher inflation is what happens to countries with high levels of debt. New attitudes toward deficits, even those not as extreme as MMT, will eventually raise inflation and interest rates. This will tend to shift the economy into a cyclical period similar to the 1970s, an environment in which real assets strongly outperform financial assets.

CHAPTER 1 — INVESTING IN THE LAND OF OZ

For decades, *The Wizard of Oz* was primarily regarded as a beloved children’s novel. In reality, there was a deeper meaning behind the book. Its author, L. Frank Baum, was not only an editor and writer in Chicago, but a political progressive, and his novel was intended as a political allegory that illuminated the problems of the modern banking system.

Baum’s novel cleverly depicted early populist and monetary movements of the late nineteenth century, echoing the debate between “hard money” advocates who favored limiting inflation and “soft money” advocates who favored loose monetary policy and economic growth. Out of this political debate emerged the modern banking system, which is interesting to consider through the lens of history.

This debate between borrowers and lenders has continued in politics throughout the past 100 years. Currently, with the zero-interest-rate policies of several central banks during the past 10 years, central banks have been able to use monetary policy in a way that they have historically never been able. Through a better understanding of the profound changes in central bank powers during the last half century, investors may glean a clearer investment outlook.

To gain that understanding, let's return to Oz. The allegory goes something like this. Dorothy represented the everyday American voter of the 1890s, unsure of which direction to go. When the novel was written, the U.S. was deep in the 1893-94 depression. The yellow brick road that was purported to help Dorothy find her way home represented the gold standard, a restrictive monetary policy that protected lenders but also limited growth and prevented economic lift to get the U.S. out of the depression.

In the book, Dorothy's slippers were made of silver, not rubies. (The producers of the film wanted to highlight new Technicolor capabilities, so the slippers were changed to ruby for the film.) The silver slippers represented the silverite movement or bimetallism, a system of allowing the currency of two metals as legal tender at a fixed ratio to each other. If a policy supporting bimetallism was passed, it would once again allow the use of silver, in addition to gold, to settle transactions. This new reserve would therefore also increase the monetary base. The inclusion of silver would make credit more available because the central bank could print more dollars backed by silver, probably creating inflation as well. Industries that were heavily in debt would get financial relief from an increased money supply. In the novel, with both silver slippers (bimetallism) and the yellow brick road (the gold standard), Dorothy could reach the Emerald City (Washington, D.C.). She could not go home until she believed in herself.

The following political cartoon from 1896, Figure 1, reflected support for bimetallism, depicting the need for two wheels—one gold and one silver—to make a bike work.

Figure 1: Silver Political Cartoon 1896



To continue with the allegory, the Scarecrow represented the American farmer, who didn't understand the power and intelligence he already possessed, and the Tin Man, who represented the labor worker. American labor at this time was heavily mechanized, with no heart. The Cowardly Lion represented populist presidential candidate William Jennings Bryan, whose supporters believed his ideas were good but that he lacked the forcefulness and courage to loosen monetary policy and create prosperity.

The tornado that caused Dorothy's house to fall on the Wicked Witch of the East represented the chaotic time period after the Coinage Act of 1873. The coinage act was controversial because it removed silver from the monetary base and tied the value of the dollar to only gold. This limited the ability of banks to print money, thereby restricting credit and growth. The Wicked Witch

of the East represented the bankers and industrialists of the East Coast who supported hard money and were therefore seen as limiting monetary policy and growth.

A tight monetary policy like the 1873 Coinage Act was seen as wise at the time, as the Republicans had led the country deeply into debt during the Civil War. Politicians and bankers relied on this policy, post-Civil War, in an effort to limit inflation and get debts paid back in dollars that were not weakened by inflation. But as time passed, the policy prevented the central bank from creating credit and thereby restricted growth throughout the nation. The period between the Civil War and the depths of the 1893 depression were characterized by falling prices (deflation) and difficult times for farmers and industry. This economic situation set the stage for the debate of monetary and banking policies. How could the U.S. find its way back to the prosperity it once had? The debate stirred tension between debtors and lenders that still simmers today and is reflected in interest rate movements over the last century. How do we construct monetary policy to create growth? Should we currently adopt loose or hard money policies today? The following political cartoon from the time, illustrates the perceived prosperity of bimetallism and the poverty offered by monometalism.

Figure 2: Bimetralism Political Cartoon 1896



Dorothy, along with the Lion, Tin Man, and Scarecrow, set off for the Emerald City. It is no coincidence that the Wizard of Oz was named after the abbreviation for ounces; one ounce (oz) of gold was equal to and exchangeable for \$20. The Emerald City represented Washington, D.C., the home of the greenback or dollar (emerald color). The wizard in the novel represented any one of the presidents during this time period, who many felt were less powerful than portrayed and more self-interested.

Eventually, Dorothy pulls back the curtain, and sees that the Wizard of Oz is just an old man. In the moral of the story, Dorothy and her friends learn that the powers they sought were in them all along. They didn't need the old wizard, just like money does not need gold. They didn't need the Emerald City or a yellow brick road or silver slippers; they just needed to have faith in themselves.

This allegory was ahead of its time in capturing a debate about monetary policy that has persisted for the last 100 years. The book subtly promoted the benefits of removing the gold standard and the free coinage of money for a modern economy. It breathed life in

the notion that expansion of credit is the road to prosperity. Author Baum slyly suggested that the dollar didn't need to be backed by gold or the gold standard, it just needed to be believed in.

In 1944 the gold standard developed into The Bretton Woods Agreement. Bretton Woods was a post-World War II agreement that linked various European currencies to the dollar, with the dollar thereby linked to gold, thus establishing a direct or indirect link for all of these currencies to gold. Eventually, as different growth and inflation rates spread across the U.S. and Europe, Bretton Woods collapsed, and all central banks abandoned the gold standard. The U.S. left the gold standard in 1971, making way for the dollar, and other currencies, to be freely printed. This was instrumental in allowing inflation to heat up around the globe in the 1970s.

The absence of the gold standard was most evident during the last financial crisis with the introduction of quantitative easing in December 2008. Quantitative easing is when a central bank prints money to purchase assets in the market. This causes asset prices to increase in value, helping restart an economy and reduce insolvency against high debt levels. These powerful policies have proven very useful in minimizing economic downturns and creating a massive increase in financial wealth. They have shifted responsibility for the economy from elected officials, where it once resided, to the Federal Reserve Board. This policy shift has also produced the greatest increase in debt the world has ever seen. Total global debt is now at a staggering \$244 trillion dollars, or near a record 320% of global gross domestic product (GDP). This is approximately twice the amount of debt the U.S. had right before the Great Depression.

What does this mean? Between the struggle of lender and debtor, the forces of the debtor won. In retrospect, the speech Williams Jennings Bryan delivered at the 1896 Democratic convention may have been the most prescient harbinger of the modern economic

system. Shown in this photograph, Bryan, who was known as the “Great Commoner,” was a three-time Democratic candidate for the U.S. presidency.

Figure 3: William Jennings Bryan 1896



Bryan was very much in favor of expanding monetary policy and famously said:

“Having behind us the producing masses of this nation and the world, supported by the commercial interests, the laboring interests, and the toilers everywhere, we will answer their demand for a gold standard by saying to them: You shall not press down upon the brow of labor this crown of thorns; you shall not crucify mankind upon a cross of gold.”

When President Nixon abandoned the Bretton Woods system and cut the tie between the U.S. dollar and gold in 1971, he finally dismantled the “cross of gold” that Bryan warned about. This allowed government to fund new programs while massively increasing debt, setting the stage for the modern banking system in which

central banks are able to limit downturns by creating credit and lowering interest rates. As a result, the post-1971 global economy has been a cornucopia of growth and progress. Many nations have joined the tier of productive industrialized economies. Even China, a country that was almost unindustrialized in 1971, has transformed into an industrial superpower.

But where do we go from here? How does the world move forward with this unprecedented amount of debt? How can individuals position themselves for profitable investments in the likeliest scenarios?

This book examines a great deal of history. For me economics is a topic best taught through history and less through demand or supply graphs. When we understand the forces that create an environment, it is much easier to forecast the future environment.

I believe the global economy is at a crossroads. Since 1981, the world has enjoyed disinflation as interest rates steadily fell, causing financial asset prices to rise. A whole system of development has been built on this environment.

Now the fundamental tailwind of lower interest rates for the economy is over. The U.S. Federal Reserve has continually lowered interest rates in response to economic bubbles and downturns. Central banks and governments around the world have followed policies of near-zero interest rates, creating an amount of debt that greatly surpasses the levels of debt before the global crisis of 2008. Moreover, developed economies have enjoyed a very low cost of borrowing for an extended time period, and the “recovery” in real terms has been relatively weak. If there is another downturn, it will be hard for interest rates to move to negative for the long term. With rates already at such a low point, there is no room to cut further, so printing money is really the only way to energize and create demand in the economy.

Understanding the history that has led the global economy to this point can also help illuminate the future direction that policy makers may take. In turn, history may hold the answer to how investors might make money in this environment.

Essentially, our investment environment is the new Wizard of Oz. We are firmly off the yellow brick road of the gold standard, and this has been great so far. The low cost of money (i.e., interest rates) has allowed the wizard(s) to create unmatched global prosperity but also with unmatched global debt. With each downturn, it takes a greater and greater level of intervention to get the economy moving again.

Since the last peak of inflation in 1981, the downward manipulation of interest rates was enough to manage the economy. Now, with near-zero interest rates around the globe, the possibility of lowering interest rates does not exist. The new era of central bank asset purchases is here, and as that new tool is used, the returns for real asset investments should be extraordinary.

All financial bubbles start as a good idea, but then enter a period of too much. Too much of a good thing is bad, and this is where we find ourselves. When William Jennings Bryan gave his “cross of gold speech,” (as depicted in the following political cartoon) he presented a great idea. The gold standard was too oppressive in limiting debt. However, debt levels are now well beyond any historical reference point. This new era of printing money will alter the investment returns for a generation to come.

Figure 4: Political Cartoon

William Jennings Bryan's
"Cross of Gold" speech at the
Democratic Convention 1896



CHAPTER 2 — GET REAL

“The financial policy of the welfare state requires that there be no way for the owners of wealth to protect themselves. This is the shabby secret of the welfare statist’s tirades against gold. Deficit spending is simply a scheme for the confiscation of wealth. [The gold standard] stands in the way of this insidious process. It stands as a protector of property rights. If one grasps this, one has no difficulty in understanding the statist’s antagonism toward the gold standard.”

Dr. Alan Greenspan,
Gold and Economic Freedom, 1966

I believe real assets should outperform financial assets during the coming decades. Financial assets are assets that derive their value because they are a call on the earnings of a company. Primarily, financial assets are made up of stocks and bonds. These pieces of paper represent a partial ownership or fractional call on those assets, and they are generally valued for their stream of earnings against interest rates. The dirty little secret of the financial industry is that lower interest rates from 1981 until 2018 have been the primary force powering investment returns in financial assets. Yes, earnings grew over this time period, but those earnings are now discounted with much lower interest rates. High valuation multiples are a function of extraordinarily low interest rates. Multiple expansion, or just valuation, is responsible for approximately one-half of the total return for equities since 1981.

Given the zero-interest-rate policy for the past 10 years, there is

little room for this revaluation story to continue. As interest rates fell, the value of bonds and stocks went up. Future financial asset returns, however, will be limited because there is much less room for further rate cuts. What was a great engine for growth will be much more limited in the future.

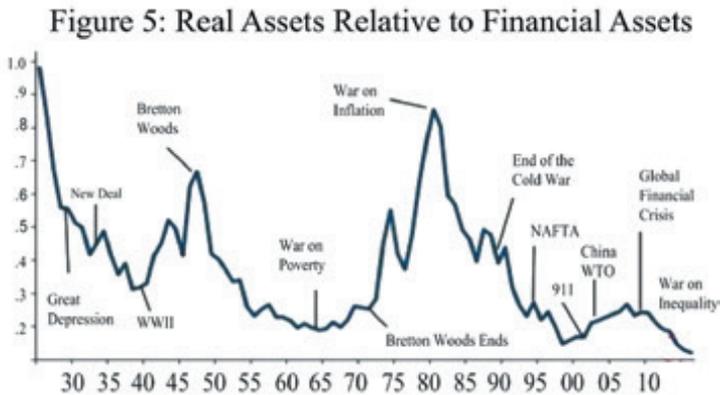
I believe interest rates will generally find a higher level during the next two decades, with a strong possibility of inflation. In this type of environment (higher interest rates and higher inflation expectations), real assets have traditionally outperformed. One can look throughout the history of the last 100 years to see when real assets relatively outperformed financial assets.

Real assets are those that derive their value from their production, and they are much more efficient at passing on inflation to the investor. These are assets which include commodities, farmland, mines, oil royalties, real estate, and precious metals. Many real assets have strong operating leverage, meaning that while their costs generally are fixed, their revenues can increase from inflation.

New sectors are developing that exhibit these characteristics of real assets, such as new types of infrastructure, like solar power plants or toll roads, for which costs are primarily fixed when the plant is constructed, and revenue can increase with inflation.

The following graph quantifies the movement of real assets relative to financial assets. Notably, there are two periods of real-asset out-performance: the time period around World War II and the time period between 1965 and 1981. Both periods were characterized by large deficits and large debts. Although the current global economy has thus far avoided the inflationary characteristics of these previous time periods, inflation is all but inevitable now that central banks have moved from interest-rate policies to money-printing policies. While there may be a deflationary shock in the short term, the post-1970 global central banking system has demonstrated an

extreme tendency toward managing financial markets in an inherently inflationary way.



Most of the great investors I have known begin their investment process with an understanding of the bond market and interest rates, even if their eventual transaction is in another market like equity or real estate. This book aims to examine the great boom in financial assets and how interest rates on the 30-year U.S. Treasury bond tumbled from their 1981 high of 15% to a low of 3% in 2018. In Figure 6, one can see how truly unprecedented these modern interest rate moves have been.

This book also looks at the effect of the modern banking system and the creation of incredible amounts of both public and private debt. In addition, it aims to elucidate our current investment situation and its effect on the future price of real assets. (Spoiler alert, I believe investors should concentrate more on real assets and less on financial assets.)

Figure 6: History of U.S. 10-year Treasury Debt



Financial history is underappreciated in money management today. Often, one can learn from history, especially when short-run manias temporarily cloud investors' minds. I place significant emphasis on the study of financial history, as it helps clarify an understanding of the forces that develop over time to create investment returns. In particular, history reveals that interest rates are the strongest lever in valuation. Therefore, this book will spend considerable time on the history of interest rates and their impact on various investments.

From the founding of the U.S. through the end of the Bretton Woods agreement in 1971, the banking system essentially followed a gold standard, or a similar fixed exchange rate system. This system worked to effectively limit the amount of money in circulation. This gave lenders some assurance that a dollar paid back in the future would be roughly equal to what it was worth when the loan was made. It was a protection against inflation. The central bank could only issue a dollar if it was backed by either gold or silver.

In the early years of the U.S. banking system, a depositor could turn in paper currency and receive gold or silver in its place. This system worked like a firewall, helping hold down rates of inflation. The value of an ounce of gold was maintained at \$20, and one ounce of silver was set at \$1. That's how we got the \$20 gold piece and the "silver dollar." By keeping inflation rates down and tying the value of a dollar directly to gold, lenders were confident

making loans because they knew they would be paid back with a dollar of similar value and were therefore willing to assume more business risk with the loan.

Although these fixed relationships limited the amount of currency in circulation, they were not always successful in limiting fluctuations in the price level, especially in times of war. During a war, the gold standard would often be suspended. After the war ended, a new fixed rate system would be established. The total amount of money in circulation could vary because of economic activity and a fractional banking system, but it was also somewhat limited by the monetary base. The total amount of printed money was tied to gold assets in the central bank.

In addition, there were time periods of relative inflation when a change in technology, such as mechanization, would alter how the economy as a whole worked. This would cause both inflation and deflation at the same time in different sectors, also known as relative inflation. For example, when factories in the 1830s lowered the overall cost of cloth by increasing production efficiency through mechanization, this created much more demand for input components (cotton), as the total volume of produced cloth increased. In turn, this caused the price of raw materials (raw cotton) to increase. Within the economy, the relative value of a “finished good” decreased, while the price of inputs increased. The mechanization of textile weaving greatly reduced the cost of cloth, while railroads and canals decreased the cost of transport, and the demand for cotton and cloth increased substantially. This created cotton’s place, for a time until after the Civil War, as king of commodities. Each raw material cycle tends to have one leading commodity and is often characterized with higher general inflation. Recently in the global economy, technology has also helped us produce more goods at a cheaper price. As technology now ripples through the economy, demand for raw materials is set to accelerate.

The first business cycles of the late 1800s focused primarily on commodity prices. The relative increase in raw material prices would often boost investment in the production of those raw materials, eventually causing overproduction of the commodities and resulting in periodic depressions. This over-shooting process is just a typical raw material cycle. Boom leads to bust.

The gold standard did not inoculate the U.S. from boom-and-bust cycles, but it did help put limits on movements in either direction. One can clearly see in the historic graph of long-term U.S. interest rates (Figure 6) that the 10-year government bond only varied between 6.6% and 2.9% throughout the entire nineteenth century. In more modern times, when governments found it useful to go off a fixed currency system, interest rate movements became much larger.

This expansion of monetary policy allowed modern governments to develop larger spending programs, as well as monetary policies to reduce the effect of business cycles. In the time period between 1981 until now, each recession has been met with a stronger and stronger monetary policy to limit the downturn. This has also resulted in greater and greater debt. Although this modern banking system has limited economic recessions in the twentieth century, the increased use of debt has presented a new type of risk. How can an economy move forward with so much debt?

President Nixon effectively closed the gold window on August 15, 1971. This action cut the last tie between the U.S. dollar and gold, allowing the Federal Reserve flexibility to absorb the effects of the oil shock and unemployment. Nixon addressed the country on a Sunday television showing, saying:

“[the] indispensable element in building the new prosperity is closely related to creating new jobs and halting inflation. We must protect the position of the American dollar as a pillar of monetary stability around the world. In the

past seven years, there has been an average of one international monetary crisis every year ...I have directed Secretary Connally to suspend temporarily the convertibility of the dollar into gold or other reserve assets, except in amounts and conditions determined to be in the interest of monetary stability and in the best interests of the U.S.

“Now, what is this action—which is very technical—what does it mean for you? Let me lay to rest the bugaboo of what is called devaluation. If you want to buy a foreign car or take a trip abroad, market conditions may cause your dollar to buy slightly less. But if you are among the overwhelming majority of Americans who buy American-made products in America, your dollar will be worth just as much tomorrow as it is today. The effect of this action, in other words, will be to stabilize the dollar.”

Over the next several years, the trade-weighted dollar fell by approximately 20%, inflation picked up, and unemployment expanded. The desired effects of stabilization didn't happen, but the U.S. Federal Reserve did gain massive power and responsibility over the economy.

In the following decade, the higher price of raw materials (primarily oil) rippled through the economy. The Federal Reserve kept short-term interest rates low and increased the money supply so that prices could generally still go up enough to effectively absorb the shocks.

Eventually, when inflation had rippled out of control in 1980 and 1981, a new Federal Reserve chairman, Paul Volcker, raised interest rates very high. High interest rates eventually choked off the path of inflation, resulting in a sharp recession. This movement from inflation to disinflation created an unprecedented, 40-year bull market for financial assets. Disinflation is when the rate of inflation falls and corresponding interest rates fall, but the overall price level does not dip negatively into deflation. In our current

financial environment, the primary problem central bankers face is how to prevent disinflation from moving into outright deflation.

Under the backdrop of steadily lower interest rates, the great bond bull was born. When interest rates fall on a given bond, the value of the bond is bid up, even though the coupon payments do not change. With a bull market in bond securities, the value of Treasury securities, mortgages, corporate bonds, and bank loans all increased as interest rates came down. This proved to be a windfall to the banking system, as its assets went up in value. The healthy banking system created more credit and the economy took off. Even if lending standards were not what they should be, the entities that loaned money were supported by the overall increase in loan portfolio value and lower interest rates. This asset value increase became a self-reinforcing process. Throughout various recessions since 1981, the Federal Reserve bailed out those very entities that overextended themselves, which encouraged even more risk taking. The ensuing borrowing binge has resulted in the largest amount of outstanding debt any country has ever seen.

Other economies around the world began to adopt this modern system of activist central banking. With large amounts of credit creation, and the new power of the Federal Reserve to encourage credit creation in times of recession, financial markets enjoyed a long and steady boom from 1981 until now.

During this time period, equity markets also greatly benefited from steadily falling interest rates. As the increase in credit spurred new demand in the economy, real standards of living increased. Yes, there were hiccups along the way, including the 1987 stock market crash, the recession of the early 1990s, the Asian financial crisis of 1998, the eventual tech crash in equity markets from 2000 to 2003, and most recently, the 2008 global financial crisis. Each downturn was met with increasingly activist central banks that shored up asset

values by lowering interest rates or bailing out those entities with overextended credit.

The shocking fact is that current levels of global debt have again risen to an all-time high, even with the debt crisis of 2008 firmly in people's minds. There has been no real deleveraging since the last debt crisis. U.S. corporate bonds that stood at 6 trillion USD at the end of 2010 totaled around 9.6 trillion USD by the end of 2018. Total U.S. household debt expanded from 11.7 trillion USD to 13.51 trillion USD over the same time period. Gross public debt has increased from 16.4 trillion USD in 2010 to 24.5 trillion USD today.

As I assess the financial landscape, I believe there are four eventual outcomes possible for the global economy. Subsequent chapters will look at these outcomes in detail:

1. A new recession, which is answered by both increased social payments and increased money printing. This outcome would eventually result in higher inflation.
2. No recession, but there is higher inflation rates while the earlier increase in the monetary base from 2009 quantitative easing finds its way into the larger economy.
3. A new recession in which monetary policy is ineffective, resulting in strong deflation in the economy.
4. No recession, but real growth is limited. This is akin to the last 30 years in Japan, where prices and output have stagnated.

With the first possible outcome, as the business cycle comes to an end, central banks and governments go one step beyond what quantitative easing was during the 2008 crisis. Politicians will respond to the slogan that they must “bail out Main Street and not Wall Street.” I think the tendency is that politicians will try to increase government fiscal policy payments, which will generate

increased spending and demand across the middle and lower economic levels. Increased direct payments and welfare payments to citizens will be made along with the traditional quantitative easing bailouts. During the last global financial crisis, central banks were able to radically increase the money supply without causing inflation because the velocity of money fell. If the government is able to strongly increase spending, and transfer payments as well, inflation will not be so subdued the next time. I expect the federal deficit in the next recession will be much larger, perhaps at the 4 trillion USD level.

During the global financial crisis of 2008, the newly printed funds of quantitative easing were primarily used to shore up balance sheets and push asset prices up. Although this resulted in a massive increase in the monetary base, the money did not immediately enter the economy through increased aggregate demand and increased spending. The newly printed Federal Reserve notes were used to purchase Treasury bonds and lift asset prices in the global financial crisis. Therefore, quantitative easing was limited and primarily affected asset prices and not consumption. As the Federal Reserve bought huge quantities of Treasury securities, it pushed investors into riskier assets. This worked to lift the general level of equity and real estate values. As interest rates fell and money was removed from the Treasury bond market, money flooded into other asset markets like private equity, junk bonds, real estate, and the listed equity market.

But given the large increase in quantitative easing around the planet, a big question is this: why hasn't inflation already come forward? Remember in the discussions of quantitative easing, there was an extreme worry in 2009 about inflation. After 10 years, that inflation hasn't developed yet because the velocity of money sharply declined and remains very low. The velocity of money is the rate in which money turns over in an economy. This relationship was

famously described by Milton Friedman in the basic monetarist equation:

$$M V = P Q$$

M is the monetary base - printed money

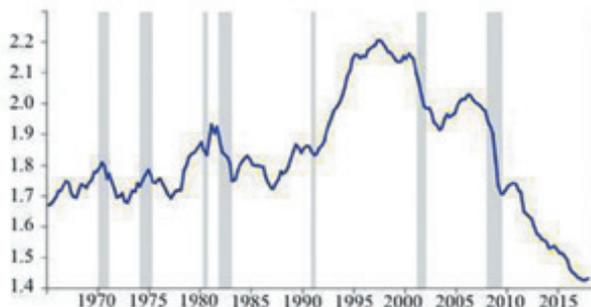
V is the velocity of money or the rate at which money is exchanged in the economy

P is the price level of the economy - inflation

Q is the quantity produced in the economy - GDP

Most monetarists believe, in the long term, that the velocity of money is relatively stable. If you adjust the monetary base of money in circulation, and if the price level in the economy is relatively stable, you can manage the quantity of output of the economy. This is the root of monetarist thought. During the last 10 years, the monetary base has increased by 4.5 trillion USD or almost five times, but the quantity of output and the price level have remained relatively stable. How could this be? It's because the velocity of money declined so precipitously and is sitting at extremely low levels, which to me indicates the potential for inflation to build.

Figure 7: Velocity of Money
Ratio of nominal GDP to money Supply



Given the increased monetary base during 2008 and 2009, if the velocity of money had remained stable, then the trajectory of prices

as described by P would have been around 30% per year inflation. The relationship clearly shows the potential for inflation to heat up. With asset prices moving so strongly up through quantitative easing, the economy slowly moved forward.

This process increased wealth inequality in the Western economies, simply because wealthy people had assets that could appreciate in value. As wealth becomes concentrated in fewer people, it hurts and distorts the overall demand function in the economy, and consumer debt just piles up outside the top one-third of earners. I believe the both political parties now see this concentration of wealth as a significant political conflict. There is increasing rhetoric about more programs to address this inequality that are effectively wealth redistribution. Furthermore, after the 2008 crisis, aggregate demand remained low in the economy. If politicians want to stimulate demand, the marginal dollar given to someone on the lower income level has a much greater velocity. This would be an extremely efficient way of quickly raising aggregate demand and also inflation.

I think the less likely outcome is a sharp recession that then turns into outright deflation. This would be reminiscent of the last Great Depression. Eventually, the business cycle comes to an end, and we are faced with an even larger economic crisis than we had in the global financial crisis of 2008. Either because monetary and fiscal policy is ineffective, or we are politically unwilling to follow past precedence, the government does not bail out the financial system. This would result in outright deflation, and a time period more similar to the depression of the 1930s. I believe this outcome is less likely, because everybody knows the cost of deflation is too high, both politically and economically.

A good friend once said to me that no one will ever vote for deflation. When Paul Volcker became head of the Federal Reserve, the U.S. people supported his efforts to bring down the level of

inflation by increasing interest rates and slowing the economy. These were harsh steps, but he finally succeeded in breaking inflation after so many others had failed. President Nixon tried price controls, President Ford had his “Whip Inflation Now” (WIN) campaign, and President Carter also tried to bring down inflation and tax what he saw as unjust profits through the “windfall profits tax.” Now the economy is the polar opposite. Disinflation could quickly turn into deflation if individuals and corporations have problems meeting their debt obligations. If we face another downturn, I believe most economic participants will vote for inflation and increased government programs. Through ultraloose monetary policy and inflation, the real value of the debt declines, even when the nominal cash amount does not.

The realization that we are near the beginning of a great reflation has many investment implications. When interest rates are falling, the primary question the average investor has is: how much in stocks and how much in bonds? But when inflation ramps up, both equities and bonds lose. These financial assets do poorly when interest rates and inflation accelerate because the value of their future earnings is worth less with inflation. It is difficult for companies to maintain margins in an inflationary environment.

When inflation comes back, investors profit from assets that benefit from the higher level of prices. Those types of assets tend to be real assets, such as farms; precious and industrial metals; commodities in general; commodity royalties like oil, lumber, or mining interests; infrastructure investments; and real estate. The value of these assets is not dependent on lower interest rates and is more likely to benefit from inflation.

Later in the book, I will examine the different characteristics of success for each type of real asset. It takes a different trading strategy to invest in the real asset market. Throughout history, most commodity cycles have had a leading sector. Back in the 1830s,

cotton was the leading sector. After World War II, as factories began mass-producing consumer products like automobiles and refrigerators, the demand for steel increased dramatically. That was the golden age of U.S. steel. During the 1970s, oil was the leading sector.

In our current environment, one sector I believe offers potential for investors is the mining sector. With the advent of electric vehicles and with consumers and governments seeking to reduce fossil fuel reliance, the economy will require new supplies of metals used in electricity generation and storage. In the past five years, investments in nickel, cobalt, lithium, and vanadium have proved profitable. These four new-economy industrial minerals have good fundamental demand stories for decades to come.

I also believe other “old industrial” metals will benefit from this environment. Copper has a good fundamental investment story. Since 2000, the average ore grade of a copper mine has fallen by half. This means that a mine must spend twice as much in crushing and processing the ore to get the same amount of copper output. Therefore, with a low-cost supply of copper limited, its price could move up substantially if demand continues growing, which presents a strong long-term opportunity for investment in the new economy. If you believe in the growth of electric cars, or the continued development of emerging economies, the global economy will need more copper because it is the best and cheapest conductor. More houses require more copper wire. More copper will be used in vehicles that use more electricity.

The oil industry is another sector with strong fundamentals. Although new fracking technologies have led to new supplies of accessible oil, it is still a real asset investment and should benefit from the forces of higher inflation and interest rates. As inflation heats up, oil prices will rise too. Traditionally, the oil industry has

benefitted from inflationary periods, even if it is not the leading sector of the new commodity boom.

I also believe there is a great case to be made for agricultural investments in a longer-term raw material bull market. Historically, farmers were some of the poorest members of the economy. Their own labor was the primary input in the business. The current era has changed to replace labor input with technology and capital. The average age of an active farmer is now 58 and has been increasing for the past 30 years. Not many new farmers have entered the ag economy. This is illustrative of the lack of capital and talent the industry has been able to attract. Ignored industries with good demand profiles tend to outperform going forward. The developing world will require increased amounts of agricultural goods. An increasing number of families in China, India, and other developing countries have entered the middle class, with annual incomes greater than \$5,000 per year. Their buying power allocated to protein (i.e., meat) has increased dramatically, and modern Western agriculture is proving to be one of the only ways to meet this demand. It is very hard to increase farm productivity in developing Asia. The average farm in India is only around seven acres and cannot apply the modern production techniques of the west, without a great dislocation of their farmers. Only time will fix this. As these economies develop, they will become more reliant on agricultural imports. The Brookings Institution estimates the global population that can be considered middle class now numbers 3.8 billion people, and for the first time is more than 50% of the global population. With this expansion in income, there will be an increase in protein demand. The world is looking primarily toward the U.S. and Brazil to fill this demand. Returns should be outsized for decades to come.

Infrastructure also represents a bright spot for real asset investing. Local and state governments have increasingly turned to private-public partnerships to build infrastructure projects such

as toll roads, gas pipelines, alternative energy production facilities (i.e., wind or solar farms), and electric transmission and distribution infrastructure. These types of investments have high upfront fixed costs and are usually able to pass on and capture pricing power.

Real estate is another real asset. The question will be what real estate is needed, and not needed, as the economy changes? With more retail sales going online, the power of the shopping mall is known to be declining, so real estate investment trusts geared toward retail space are not a desirable type of real estate investment. Furthermore, as interest rates fell, the capitalization rates that apartment building investments sold became very low. These are vulnerable investments in the short term. Many real estate investments were purchased because of “bond like” attributes. Eventually, these types of interest-rate-sensitive real estate investments will benefit from inflation, but in the beginning, they lose value as mortgage rates move up and affordability is hurt. Once this “yield” linkage is broken, then these types of real assets, like apartment buildings, will eventually appreciate in price.

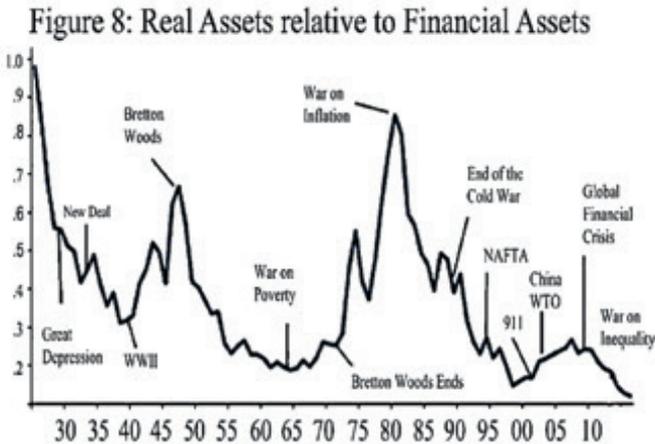


Figure 8 shows the movement of real assets versus financial assets, which is really the impetus behind this book. One can clearly see

there are long swings between these two broad asset groups. Think of the opportunity that was offered in the 1965 takeoff in real asset investment. Think of all the money that was made in oil, cattle, gold, and farms. A popular TV show called *Dallas* in the 1970s portrayed the exploits of a rich Texas oil family. Huge fortunes were made last time in this shift, and huge fortunes will be made again.

In the current environment, I find myself thinking very little about which stocks or companies could outperform their competition, and much more about interest rate changes and how this will affect different investment classes. It seems unlikely for the average investor to realize how the investment world changes as inflationary expectations change.

Realistically, an investor needs to be over the age of 65 to remember what it was like to invest in such an environment. After all, interest rates have really only gone one way in the last 40 years, down. Now, with interest rates and inflation likely to increase, I firmly believe the next 40 years will be nothing like the last 40.

CHAPTER 3 — INTEREST RATES AND ASSET PRICES

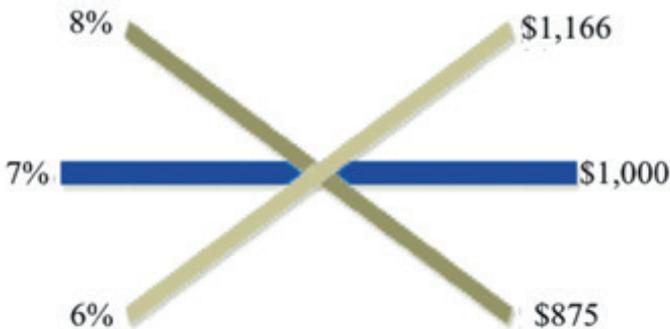
This chapter offers a primer on the relationship of interest rates to asset prices. This is a crucial concept to understand. As a successful hedge fund and mutual fund manager for 28 years, I had a front-row seat to the greatest bull run in financial assets, powered by lower and lower interest rates.

Most equity managers won't tell you that a large amount of their outperformance was due to the bond market. After 1981, as interest rates fell, the great bond market rally began, and equity market values were lifted again. As inflation expectations started to come down, investors grew confident that the Federal Reserve would work toward price stability, and real investment began to increase in the economy. Furthermore, as interest rates declined, investors were willing to pay higher and higher Price to Earnings ratios (P/E_s) for growth. That's how growth investing came to dominate the 1980s and 1990s. Lower rates go hand in hand with higher equity valuations. Growth equities benefited the most, providing much of the outperformance in my own career as a fund manager.

The relationship between interest rates and bond prices is direct: as the value of a bond falls, the discounted interest rate of that bond increases. This is illustrated in Figure 9 through the movement of three different coupon bonds into a decrease of interest rates. The reverse relationship holds true when interest rates rise.

Suppose that XYZ Company issues a 7% bond when the market interest rate is also 7%. Each year, the bond will pay \$70, and the bond's market value is \$1,000. The bond matures in 10 years.

**Figure 9: Relationship of Interest Rates
and Bond Prices
(10 Year Bond Values)**

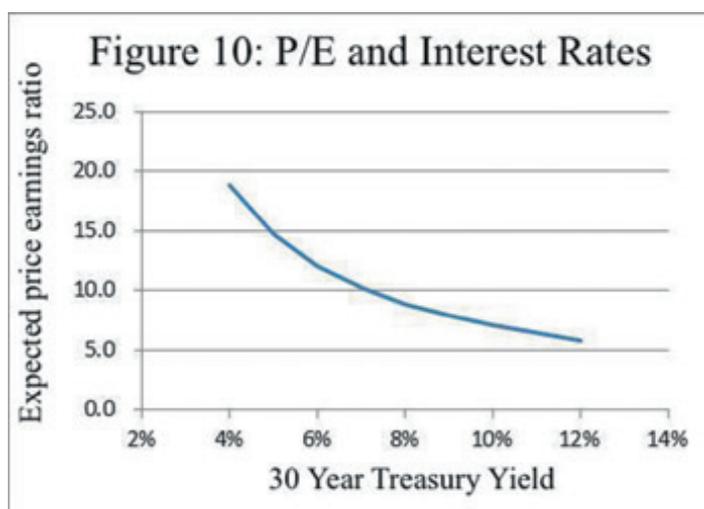


If the market rate of interest increases to 8%, the bond still only pays \$70; therefore, the value of the bond falls in value to make up for the lack of current interest payment. The new value for the bond falls to \$875 per bond. Conversely, if interest rate fall to 6%, the bond is still paying out the fixed \$70, and the bond price would increase in value to \$1,168.

Investors often don't understand the link between interest rates and equity valuation as well. This is best illustrated through a relationship referred to as the Capital Asset Pricing Model, or CAPM. In this illustration of equity valuation, the value of a company is related to the discounted value of its earnings and dividends. These earnings, like the coupon payments of bond example above, are discounted by an expected rate of return. The discount rate is determined by the risk-free rate set by government bonds plus a market-specific risk rate of return for the equity. Much like a bond,

when interest rates rise, the discount rate used to value equities rises, and all things being equal, the value of that equity falls.

The P/E ratio is the inverse of the equity discount rate. A 5% discount rate (earnings/price of stock), is equal to a 20 times P/E level (price of stock/earnings). One can see this relationship if you plot the yield on the 30-year Treasury security against the average P/E ratio for the U.S. stock market. As yields go down, expected P/E goes up.



Theoretically, if inflation picks up, it should show up in increased earnings. But much like the time period of the 1980s and 1990s, when P/E valuations increased and interest rates fell, if interest rates start to rise, I would expect the decline in equity valuations to be stronger than the increasing earnings. Although preferable to holding bonds, equities would probably still fall in value as inflation increases.

During the bear market of the 1970s, earnings increases were not strong enough to overcome decreases in how those earnings were valued. It became hard to pass along all price increases

to consumers, debt cost went up, and valuations fell. Real assets strongly outperformed equities and bonds during the 1970s.

In fact, this relationship with interest rates plays out across many assets, not just equities. As interest rates come down, so do the capitalization rates for apartment buildings, thereby pushing their value up. For housing, the same is true. As interest rates fell, the available rates on mortgages fell, and homes become more affordable, allowing average selling price to increase.

This explains why the Federal Reserve's zero-interest-rate policy was so effective in raising all asset prices. As rates came down to historically low levels, borrowers could even refinance at very low rates. So especially yield-sensitive investors were pushed out into more risky assets in what's called a reach for yield. The yield spread between junk bonds and investment-grade bonds tightened significantly, allowing junk bond issuance for some of the most fragile borrowers to increase their borrowings even more.

So enough about theoretical relationships, let's look at what happened to equities when interest rates fell. There is a rather simple but robust way of seeing if equities are generally more expensive or not. A simple ratio is the P/E ratio, the inverse of an earnings yield. The blue line is the observed P/E ratio of the Standard & Poor's 500 Index. The red line is the 10-year U.S. Treasury bond. You can see how valuations bottomed for equities (blue line) when interest rates peaked (red line).



The 1981 peak in interest rates corresponds with the January 1982 low in P/E ratios. Ten years after quantitative easing, it's unsurprising that financial assets do not look cheap. As interest rates fell, investors were willing to pay higher valuations for a given level of earnings.

For housing, the same is true. As rates came down to historically low levels, borrowers could increase debt or just refinance at very low rates. Figure 12 provides a clear example, as potential homeowners weighed if they should spend \$1,000 a month on rent. As interest rates fell, so did the rates on mortgages, making homes more affordable.

Figure 12: The Difference Your Interest Rate Makes

If you want to keep your mortgage payments under \$1,000, here is how much home you could buy at differing mortgage rates.



This process allowed average selling price to go up, even if incomes did not. The effect was magnified by the fact that a mortgage payment is tax deductible, while rent is not. For decades, it was part of the American dream to own a home. For most people, a home is their greatest single investment, and the pressure to “move up” with housing made the market extremely sensitive to interest rates and uniquely susceptible to over-speculation.

The 1980s saw the birth of the junk bond era. During the 1970s, with increasing credit quality concerns and rising rates of inflation, low credit-quality (junk) bonds had very little investor interest. As interest rates fell during the 1980s and the economy started to move forward, some of the best returns for corporate bonds could be found in the high-yield market, known as junk bonds. With equity values relatively low, corporate takeovers could be financed by issuing these low-quality bonds, and therefore merger-and-acquisition activity increased dramatically and fueled investor profits. When both bond and equity markets were moving up, junk bond returns created a large amount of profit.

More important than the immediate impact on junk debt returns, the expansion of the high-yield market contributed to rising debt levels. The yield spread between junk bonds and investment-grade bonds tightened significantly as rates fell in the 1980s, allowing junk bond issuance in some of the most fragile borrowers to increase borrowing even more. Investors became accustomed to riskier corporate debt, and this allowed corporations to tap credit markets in ways they couldn't before.

And why not? Business was great. Remember that inflation during the 1980s was falling, but it was still positive. Even as interest rates fell, borrowers still had the advantage of paying back loans with inflated dollars. If inflation was running at 5% a year, and a company took out a four-year loan, the principal was paid back in inflation-adjusted dollars. Even without considering the effect of

compounding inflation, the real value of principal paid back on this loan would be approximately \$0.80 for every dollar borrowed. This type of math did not escape corporate boardrooms, and corporate debt expanded throughout the 1980s and 1990s.

Similarly, consumer spending and debt expanded markedly. Relatively inexpensive, imported manufactured goods such as clothing, electronics, and cars from Asia helped make consumers of the 1980s feel wealthier, after the decade of stagflation in the 1970s. Even as U.S. manufacturing jobs began to disappear, this new buying power gave workers the sense that their real incomes were going up. Standards of living increased. With the subsequent advent of cheap consumer credit and even lower mortgage interest rates in the 1990s, the consumer credit boom accelerated.

This is how the influence of the U.S. Federal Reserve grew and how it became more intertwined with several aspects of the economy. Interest rate changes from the U.S. Federal Reserve had an almost immediate impact on equity prices, bond prices, home prices, and consumer spending.

During this period, the U.S. Federal Reserve's global influence also increased. During the late 1990s, as global capital flows increased, the lending currency of choice became the U.S. dollar. Foreign companies and countries began to increase borrowing in U.S. dollars. As a result, changes in U.S. interest rates had a ripple effect around the world. As trade and investment flows grew substantially in the late 1990s and early 2000s, so did this global interdependence.

The effective repricing of assets that resulted from the steady fall in interest rates from 1981 has affected many asset classes. Because investors tend to think the future will resemble the past, there are expectations that financial assets or real estate will behave similarly in the future. But trees don't grow to the sky, and interest rates

around the globe are near zero. There is little room for further interest rate reductions going forward, so the development of other asset prices will be affected. Simply put, the future cannot look like the immediate past, because the cost of money cannot drop much further.

CHAPTER 4 — EQUITY MARKET HISTORY

For me, equity investing is akin to a biological process: the process of how companies grow and how the perception of future growth is forecast. This opinion stands in sharp contrast to current portfolio management techniques, which are based on concepts borrowed from physics. Much of modern portfolio theory is based on correlations and not causations. Portfolio managers try to quantify risk as volatility of returns. For me, true risk is valuation risk, not price volatility. Volatility is good if the price of the investment goes up.

I want to put forward a more organic or historical approach to evaluating investments. This approach grew out of my understanding of history and the causes of investment returns.

The previous chapters are primarily a discussion of interest rates and inflation, in which the relationship is clear between bond prices going down when inflation rates go up. The effect on equity prices is not as immediately clear, as it depends on the movement of many independent variables. Sometimes equity prices can appreciate when inflation rates are moving up. It depends on the context of the rate movement. Historically, if inflation is less than 2%, equity prices remain stable, and inflation has little impact. When inflation moves higher than 3%, it tends to have a negative impact on equity prices. That doesn't sound like a big difference, but it has historically had a huge impact on the equity market. Is

the economy fundamentally healthy? Are earnings rebounding? As this book moves away from the topic of interest rates and towards their effect on equities, the discussion becomes more inherently contextual. What type of environment are we in, and what are the possible paths in the future?

This chapter discusses various conditions in which equities can outperform or underperform. We will first look at time periods in history, before examining some economic models that shed light on why equity prices are linked to interest rates.

Interest rates are not the only determinate of equity prices, but they have a strong impact. There are many other inputs into equity valuation, such as economic growth, earnings growth, or tax policy. But interest rates are a constant force, sometimes a headwind and sometimes a tailwind. When interest rates move because of greater inflationary expectations, it is usually detrimental to equity prices.

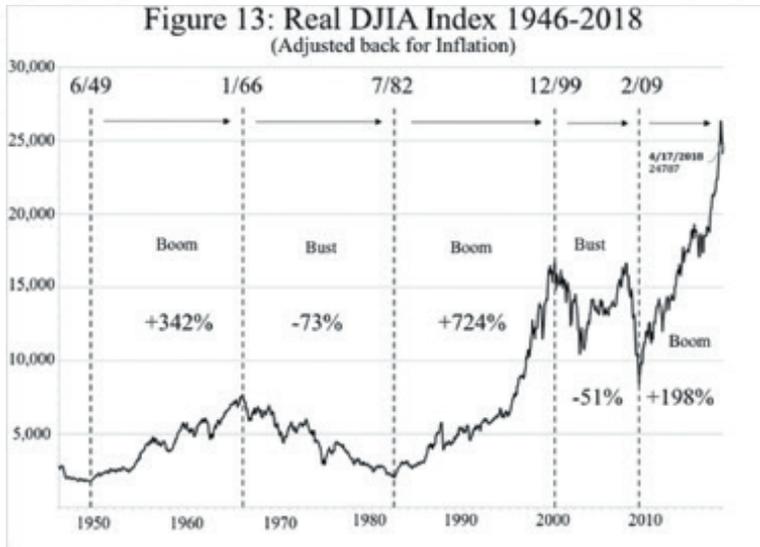
Between 1945 and 1965, a little bit of inflation mixed with economic growth created a great recipe for equity markets, as earnings growth was unleashed in the postwar U.S. economy. The problem arose between 1965 and 1981, when inflation expectations heated up and swamped the effect of real economic growth. During this time of rising inflation, real assets enjoyed one of their strongest return periods, peaking in 1981. Further back in history, real asset prices and investments did very well from their bottom in the 1930s until right at the end of the war, although that data is distorted because of wartime demands for raw materials like rubber, iron, and steel.

Investment managers often try to point out that equities can adjust to changes in inflation. However, throughout history, equity returns have not been able to outpace increased inflation. At first glance, it may seem that if a company could just increase earnings in pace with inflation, shareholder value would be protected in

equity investments. Upon closer examination, it's evident that other things happen. As inflation heats up, input prices also increase, and companies are often unable to pass along that increase in input cost by increasing their own prices. Profit margins fall. Even more importantly, the cost of equity capital also increases as interest rates move up, which means that financial margins shrink. This increase in the equity cost of capital generally results in lower P/E levels and lower earnings levels in general, and therefore, lower stock prices.

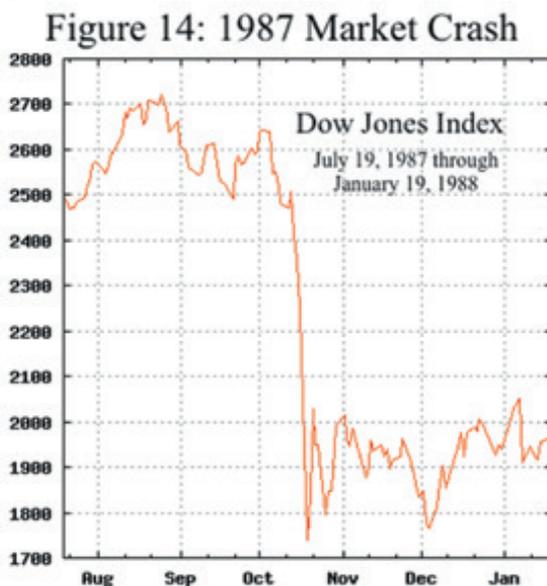
In that sense, equity returns should always be evaluated in the context of the macroeconomic background. A little inflation is good for equity prices, but too much is bad. The relationship is not linear. Equities outperform when inflation rates are controlled between 1% and 2%. This represents a stable period when economic growth is high, the velocity of money is stable, and the price level of the economy remains positive but contained. This is very similar to the time period between 1945 and 1965, after World War II.

Figure 13 shows an inflation-adjusted chart of the Dow Jones Industrial Average over the last 100 years in which the boom-and-bust trend over the course of an interest rate cycle is clear.



The time period between 1965 and 1981 reflects a long financial asset bear market when real assets strongly outperformed stocks and bonds. The period between 2000 and 2010 illustrates the effect of two historic equity bear markets. Coupled with inflation, this resulted in a 50% loss of real value over 10 years.

It's crucial to understand the boom periods. With interest rates as extraordinarily high as they were in 1981, the stage was set for this extraordinarily long bull market in financial assets as those rates normalized. With the 10-year Treasury bond at 16% and short-term rates at 20%, there was a very long way for interest rates to fall. The period from 1981 to 1987 was the first leg of this great bull run for financial assets, but nothing ever runs in a straight line forever. In October 1987, the global financial markets experienced a crash similar to that which occurred in 1929 (see Figure 14).



Within a single week, equity investors lost close to 25% of the value of their investments. By then, Chairman Volcker had retired, handing the chairmanship to Alan Greenspan. Central banks around the globe responded to the equity price crash, immediately making funds available to banks and slashing interest rates, thereby supporting asset prices. The increase in bond prices, with money available from the central bank, worked to increase investors' confidence that equities would not fall into the same deflationary depression that gripped the nation after 1929.

The 1987 stock market crash was a milestone event because it established the precedent that the Federal Reserve would give strong support to equity markets in times of need, a kind of insurance to fight the negative effects of bursting bubbles. Increasingly, this became viewed as central bank protection against great declines, fostering a certain moral hazard. In other words, investors invested more recklessly because they knew that if something bad happened at the aggregate level, the central banks would come to the rescue.

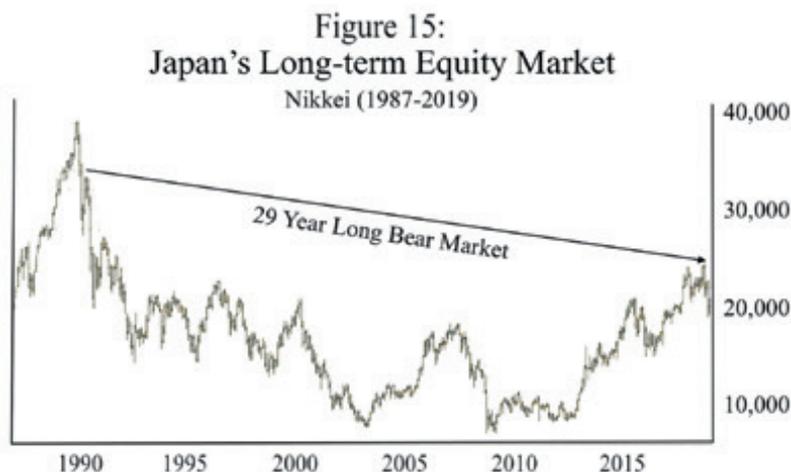
This protection became known as the “Greenspan put,” because it was developed during the years he served as the Federal Reserve chairman. The Federal Reserve and other central banks learned they could be proactive in staving off recessions or depressions. After all, Greenspan’s actions following the October 1987 crash negated the typical path of a strong recession, firmly cementing the central bank’s responsibility in limiting business cycles. Greenspan was credited with averting a depression, and the “Greenspan put” would govern Fed policy and asset prices for the next 30 years.

With interest rates on a steady decline throughout Greenspan’s years at the Fed’s helm, the great bull market for financial assets extended. The 1980s witnessed a great bull market in consumer non-durable companies, including Coca-Cola, tobacco companies at the time, pharmaceutical companies, or any non-cyclical company with relatively stable earnings. They were able to solidly increase earnings even during some short-run recessions. These were the core holdings at AIM Funds where I was a portfolio manager. In fact, the performance of most large equity funds was predicated on these consumer non-durable investments during the 1980s.

What’s interesting for me is that these earnings presented somewhat bond-like returns, but with growth. Investors were willing to pay a substantial P/E premium for consistency. Investors’ returns were generated by both earnings growth and higher valuations, both of which must be present to create a sustained bull market.

The 1990s saw the first industrialized economy fall into deflation. After decades of uninterrupted growth from the post-war period until the end of the 1980s, Japan’s economy fell victim to speculation and excess. The Bank of Japan had been especially expansionary in the two years after the 1987 crash. Lower interest rates fed into already overheating real estate, debt, and equity markets. In Japan, this culminated in the peak of Japanese equities on December 27, 1989. Almost 30 years later, equity values of the

Nikkei 225 still languish at less than one-half the value of the peak, standing as a stark reminder that equities don't always go up over long periods of time.



During the 1990s, investors moved heavily into the fast-growing tech sector. These companies had less stable earnings growth, but many of them saw their earnings absolutely soar with advances in technology. Toward the end of the tech boom, investors were willing to pay billions of dollars for companies that had no actual earnings, merely the hope that their product would eventually be profitable. Looking back, this advance in technology set the stage for more speculation in equity markets. Eventually, equities took on a life of their own in a great mania as investors discounted higher and higher levels of hoped-for growth into financial forecasts that never happened, elevating into the massive bubbles of 2000 and 2007. Markets went up simply because they had in the past, and investors hoped the music would never stop.

Figure 16: Long-term NASDAQ 100 Index
(Bubbles Happen)

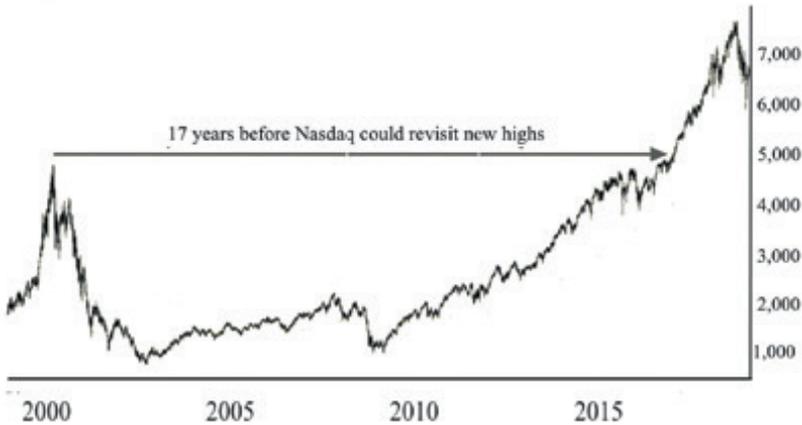


Figure 16 illustrates the performance of the NASDAQ Composite index. A closing high of 5,048 points was reached on March 10, 2000, and not seen again until January 2017. At its 2000 peak, the tech sector made up 65% of the index; currently tech stocks are back up over 50%. Some other facts are striking. The number of tech stocks in the index reached 1,207 in 2000 and only 443 by 2015. The biggest company at the 2000 peak was Microsoft, with a market capitalization of \$525 billion USD.

Long-term bear markets do still happen within countries or sectors. As bubbles get larger, the inevitable bust turns out to be an increasingly difficult hangover. Since the 1987 crash, the global economy has experienced successive manias, starting with the consumer non-durable stocks, then the Mexican crisis (1994), the Asian and Russian crisis (1998), the equity bear market (2000), and the housing crisis (2008), with each new financial bubble forming one after another.

The new U.S. technology bubble is led by fewer, larger companies. The FAANG (Facebook, Amazon, Apple, Netflix, and Google)

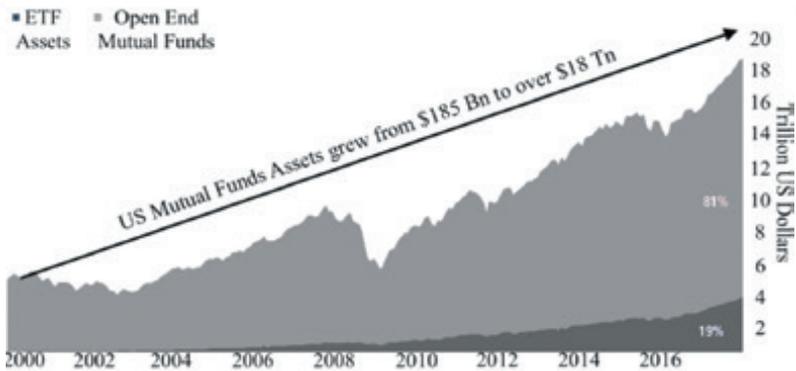
stocks have a market capitalization greater than \$3 trillion USD. Just those five companies account for more than 10% of the entire U.S. market capitalization. The top five companies, all tech, account for a whopping 40% of the NASDAQ 100. This type of concentrated performance and valuation highs are consistent with a long-term market top.

How did we get to this level of speculation? During the 1980s, several changes in regulation encouraged equity ownership and financial asset purchases. Retirement plans moved away from defined benefit plans that guaranteed pension payments to retirees. Instead, companies offered defined contribution plans in which the employee took on the market risk for the pension value. These defined contribution plans moved retirees' risk from the individual company onto the financial market returns.

The mutual fund boom was born. Investors could easily diversify their holdings and have their portfolio professionally managed at a fraction of what an individual stock portfolio would cost. Even though fees were still relatively high for mutual funds, investors enjoyed their benefits: more diversified stock holdings and more active management of stock selection than an individual would find possible.

When I started my first international fund in 1990, there were only 36 international funds with more than a 10-year track record. At the end of 1980, total mutual fund assets were only 135 billion dollars. By the end of the 1990s, that figure topped \$5 trillion USD. Currently, it is close to \$18 trillion USD. The mutual fund boom became the engine to push financial assets even further up.

Figure 17: Total Mutual Fund Assets
Open End and ETF Assets (Tn \$US)



From 1981 through today, the public has moved a considerable amount of savings into these financial markets, enjoying a great bull run. With this movement of assets, the consumer has become much more linked to the financial markets. This reinforces itself: stock profits increase consumer spending, which boosts the economy, which in turn improves profits, sending stock prices up again.

This works until it doesn't; trees don't grow to the sky. With each successive recession or decline, the Federal Reserve policy has become more and more intertwined with the equity market. U.S. consumers moved more and more money into financial assets. As a percentage of GDP, financial assets were fairly steady at between 275% to 325% of GDP throughout the 1960s and 1970s. With the financial boom starting in 1981, financial assets now stand at more than 550% of GDP.

Figure 18: U.S. Private Sector Financial Assets as a Percent of GDP

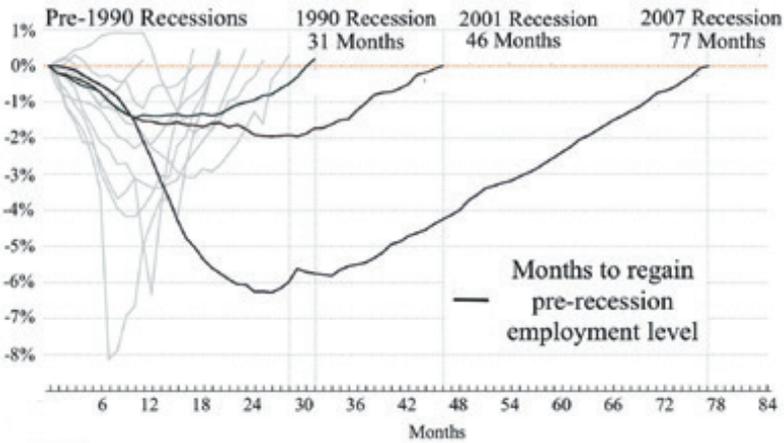


Even adjusted for inflation and relative economic growth, financial assets are a much larger part of our economy than ever before. This is how the movement of financial markets has grown to have a huge influence on the real economy. The tail (markets) is wagging the dog (economy). This is backwards.

Whenever a financial crisis grips the headlines, central banks have alleviated fear by lowering interest rates. The Latin American crisis, the Asian financial crisis, the long-term capital management crisis (LTCM), the Russian crisis, the dot-com crisis and bubble, all were met with increasing measures of monetary action. Like a drunk going to a punch bowl again and again, central banks returned to keep the party going.

Figure 19: Recessions are deeper and longer

Time in months to regain pre-recession employment level



Unfortunately, every time the economy gets sick, it requires greater action to return to desired growth rates. Therefore, the economy takes longer and longer to bounce back.

After the early 2000 peak in the NASDAQ, equity markets faced their largest decline since 1929. I remember talking to older investors who had experienced the decline of 1973–74, and they referred to the post-2000 decline as much worse, because the value of many large companies fell by 70%, 80%, or even 90%. The indexes didn't capture all of the carnage.

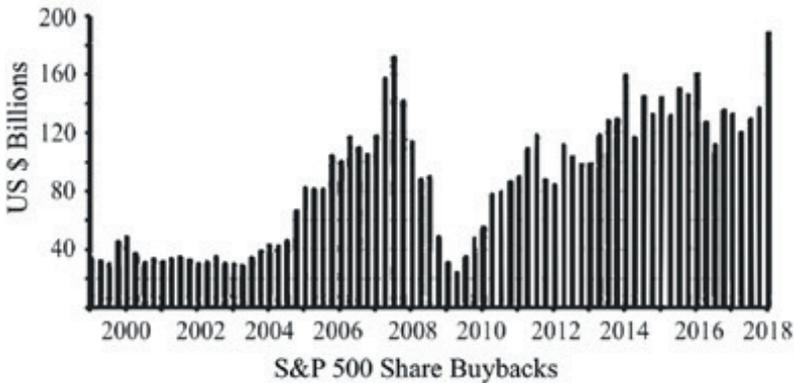
At that time, tech and telecom had reached extraordinary valuations. Today's valuations across multiple industry sectors are all quite high. Bond yields are near record lows and median equity valuations are historically high. It's no longer just one or two sectors.

Of note is that the post-2003 equity bull market was characterized by a lot of financial engineering. In 1982, stock buybacks were made completely legal. This allowed corporations to purchase their own shares in the market, helping move the price up. In addition, a number of shares in the open market could be "retired," reducing

the number of outstanding shares. Therefore, even if a company had flat earnings from one year to the next, they could actively buy back their own shares and earnings per share would increase, allowing a casual investor to believe the company was actually growing. During the same time period (2003 to 2007), large banks and other financial institutions saw their stock prices rise as they were able to write loans and create assets without enough collateral backing.

This behavior has continued after the 2009 market low through today. When companies cannot find profitable ways to expand, they engage in share buybacks to boost earnings per share growth. To quantify this effect, aggregate S&P 500 corporate earnings are up 27% since 2010, but on a per-share basis, earnings growth for the S&P Index is approximately 60%. This difference is due to the reduction in shares outstanding. This is financial engineering, not actual growth. Often, large share buyback activity corresponds to market tops.

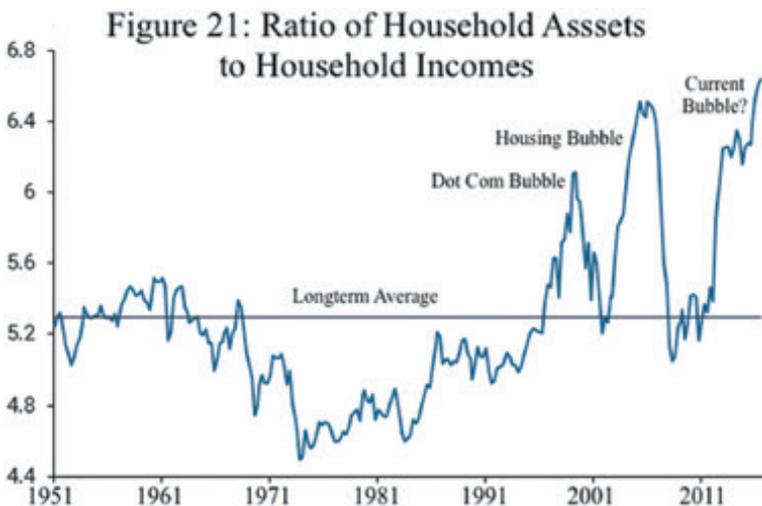
Figure 20: US Equity Corporate Buybacks



It is interesting to look back on the last bull market and to recognize that many assets today seem to be developing a bubble at the same time. The San Francisco Federal Reserve has done a lot

of interesting work to try to assess bubbles. For instance, they've tracked the ratio of household assets to household income in order to show the movement over time of typical household assets such as a house, household bank accounts, and longer-term investments. When that ratio moves and seems extended, it seems to be a pretty good valuation benchmark for those types of assets. It is a relatively good predictor of bubbles because it includes several types of household-owned assets and shows their total size in proportion to household income.

This data, which goes back to 1951, makes intuitive sense. One can see the effects of inflation in the ratio as it fell throughout the 1960s, reflecting that household assets did not increase in proportion to rising incomes. The ratio reached bottom in the early 1970s and did not move up in earnest until the market low of 1982, when one can see the development of the tech and dotcom boom and bust, then the housing boom and subsequent bust, and more clearly the debt cycle evolving today.



This indicator is consistent with the existence of a new and dangerous cycle for financial assets. It leads us to the hardest question

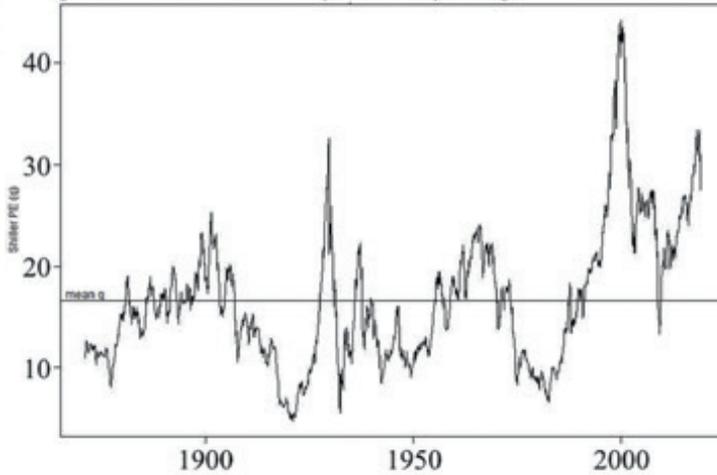
for investors: when does a bubble end? How do you invest for the full cycle?

Currently, other forms of valuation for equity markets come into style and out of style. It's always easier to identify financial bubbles in hindsight than in real time. Some investors and policy makers hate the idea of a financial bubble, but I do not. You can make a lot of money in bubbles; you just need to leave the "party" before it bursts. I like to think of different markets as waves: you see the wave and surf it. Just remember to get off before it crashes.

Equity valuation ratios are general indications of bubbles, but they can remain expensive for a long time. The P/E ratio is a popular valuation matrix but has problems if a lot of companies are losing money in any given year. The ratio can go unstable if earnings approach zero. Price-to-sales and price-to-book are more stable and therefore provide a better general indication of value in the whole market. The Case-Shiller adjusted P/E ratio resolves some of the problems inherent in a simple P/E ratio, and it provides a good idea of relative value in the market.

The chart shows that general valuations for the market increased after a 1981 low and remained elevated during the post-tech bubble. And yes, I would believe market valuations should be higher because as we've seen interest rates were much lower. The key is to step back and see the larger picture for equities; equities are simply not cheap. Furthermore, bonds are near record-low interest rates. Financial assets in general are relatively and historically expensive. The short-term movement of equity prices depends more on earnings and economic growth. The long-term returns (the big money) depend on where you are in the cycle. You need an understanding of both in order to see where you are in the whole cycle.

Figure 22: Shiller Cyclically Adjusted PE Ratio



When I was managing money, I used valuation measures only in very general terms, and earnings expectations to judge short-term movements. Valuation would tell me which markets were historically cheap and which markets were historically expensive. In general, I still kept long positions, even in expensive markets, if earnings expectations continued increasing. By far, the best indication of short-term movements of an equity market is the difference between expected and reported earnings. Companies will do everything they can to fulfill earnings expectations. If corporations, in aggregate, start missing expectations and revising expectations down, it is a sober snapshot of how business is doing. Admittedly, this is a better indicator of market bottoms than market tops. Below is a chart of earnings expectations and reported earnings throughout the 1990s and early 2000s. This indicator proved to be a good judge of when it was safe to own equities. The change in aggregated earnings expectations also foretold the 2003 and 2009 bottoms. When analysts finished downgrading stocks, reported earnings were revised up and companies reported above forecast earnings. It was time to buy.



I'll conclude this examination of interest rates and equity markets with a description of what's called the Buffett Indicator. The Buffett Indicator is the total market cap of the stock market divided by the GDP of the U.S. As with many of these valuation measures, it is best used not as an exact indicator but to gauge the general state of the market. In general, when financial assets are relatively expensive, look at how the valuation of those assets moves when interest rates change, and ask yourself if there's a catalyst to evoke a change in trend.

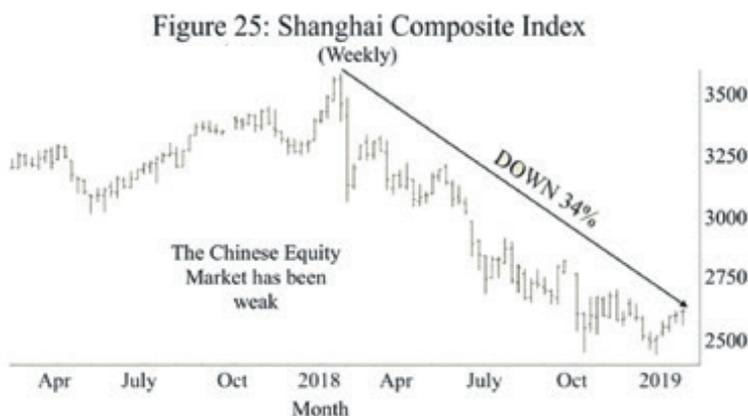


Figure 24 shows how the Buffet Indicator identified how cheap equities were in relation to the entire economy back in 1980. You can also see how the ratio increased until the peak of 2000, which was characterized by widespread public investment in equities and high valuation, relative to the size of the economy. As baby boomers matured in the 1980s and 1990s, they had the ability to save for retirement in mutual funds and IRAs, and equity markets rallied. Newfound investors were able to meet up with growing equity markets, which resulted in the bubble in the late 1990s.

Twenty years later, we are back to where we were during the peak years of 2000. With equities being 150% of GDP, either the world must grow abnormally fast to bail out investors, or equity prices need to correct. This understanding of inflation and interest rates is the bedrock you need to evaluate what type of assets to invest in for the future.

We need a short-term indicator, an signal of a change in global business, in order to time this cycle. The following chapter examines the debt cycle, which will help illuminate short-term possibilities. The beginning of 2019 suggests some negative trends. Earnings expectations for many companies have been cut again. Apple has downgraded its sales forecast, and this spread out to other

suppliers. The German equity market peaked in early 2018, and this deeply cyclical market is a good example of the worldwide industrial health. The Chinese market also had a horrible year; as a leader in the developing world, this is a strong indication that not all is well, as illustrated in the following graph of the Shanghai Composite Index.



China is notoriously hard to call, but it is striking what the People’s Bank of China has attempted to accelerate the growth of its economy. You can often accurately deduce what’s happening in a country’s economy by watching the policies being pursued. China’s reported economic statistics can be misleading, whereas central bank behavior can often provide an accurate reading. The People’s Bank of China cut its reserve requirement for banks four times during 2018, and it cut the requirement another 1% in January 2019. This is intended to increase liquidity in the slowing economy. The Chinese Purchasing Manager Index fell into contraction in late 2018 as well. Furthermore, several Western companies doing business in China have downgraded their earnings expectations, citing “weakness in China.” Perhaps this is the beginning of a strong downturn.

Growth rates around the globe are starting to show the first signs

of a potential slowdown. As of January 2019, equity markets have bounced back up in valuation, yet other central banks have cut their growth and interest rate outlooks. The Bank of England cut its forecast growth rate by 0.5% for 2018. The European Central Bank cut its GDP forecast to just 1.2%, German economic statistics show it is close to recession. The Royal Bank of Australia shifted its interest rate outlook from raising to neutral; several global analysts had four rate hikes penciled into Australian rates for 2019 before the announcement. India cut its Royal Bank of India (RBI) repo rate by 0.25% to 6.25%. This signals their desire to stimulate growth. Collectively, these central banks have moved in early 2019 to ease financial conditions. This may signal a new era of “super” accommodative and dovish central bank policy.

CHAPTER 5 —

DEBT CREATION AND THE BULL MARKET

“Under the gold standard, the amount of credit an economy can support is determined by the economy’s tangible assets, since every credit instrument is ultimately a claim on some tangible asset. But government bonds are not backed by tangible wealth, only by the government’s promise to pay out of future tax revenues and cannot be easily absorbed by financial markets.... The abandonment of the gold standard made it possible for the welfare statist to use the banking system as a means to an unlimited expansion of credit.”

Fed Chairman Alan Greenspan, 1966

During the 1990s many developing nations saw that interest rates were falling and tried to loosely tie their currencies to the U.S. dollar. With their currency linked to the value of U.S. dollar, corporations and governments in these countries were enticed to borrow in the U.S. dollar market. It was often easier to get a U.S. dollar loan, with an interest rate corresponding to the lower U.S. dollar rate, than to get a loan in their own domestic currency.

Countries like Thailand, Malaysia, and China could essentially borrow in U.S. dollars, then convert those dollars into the local currency. But they had to eventually make their payments back in U.S. dollars. One can see how this process of lower interest rates

in U.S. dollars, along with the globalization of capital flows, could start to create credit in places the Federal Reserve never intended.

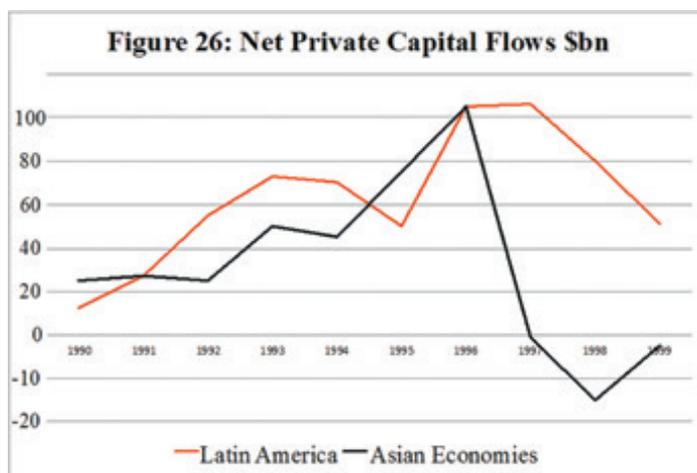
As the business cycle developed in an emerging country, the upward pressure on the currency often worked against the developing country's terms of trade, and exports declined as the price advantage eroded. Eventually, the downside of the cycle would happen, debts would be repaid, and the country's current account would be thrown into reverse. Often, the prosperity of the emerging market boom encouraged the purchasing of more imported goods by the emerging country as new consumers acted on pent-up demand for items their developing economies did not produce. Eventually the bubble would burst, and the resultant recession would lead to a clamor of that countries' currencies being sold to buy U.S. dollars in order to repay the loans denominated in U.S. dollars

During the 1990s, this debt cycle developed in many emerging countries. After the Maquiladoras projects created tax-free zones between the U.S. and Mexico, the peso first boomed and then sharply declined. During the Asian financial crisis, the Thai baht, Malaysian ringgit, and other Pacific Basin currencies like the Indonesian rupee all boomed as foreign investors moved in, and then crashed when foreign investors hit the exit door en masse.

This proved especially tricky when a country was forced to devalue. For example, when Thailand devalued in 1997, the country's total debt effectively increased in Thai baht terms because the baht had lost value against the dollar when traders saw the possibility of trouble. Put another way, to repay the same number of dollars the loan was denominated in, the loans had to be repaid with more baht after the devaluation.

Loans and foreign currency reserves are built up over a long period of time, but when lenders want their money back, there is a run on the central bank. The local currency is forced to devalue, and

the debt burden as measured in the devalued currency increases dramatically, simply because of the change in exchange rate. This makes repayment in U.S. dollars almost impossible. This was the story of the 1998 Asian financial crisis. The same problem surfaced in Mexico, Argentina, Africa, and Asia during the 1990s. Figure 26 shows this pattern of debt boom and bust during the late 1990s.



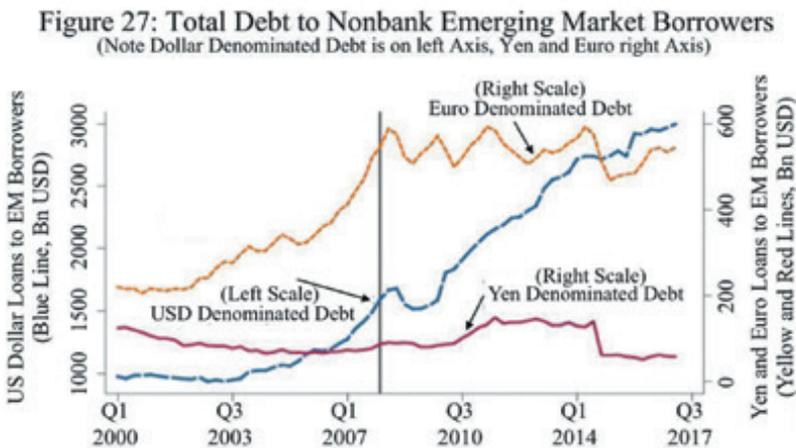
By the 2000s, this loan cycle had helped in modernizing many new economies around the globe. This in turn created new markets for U.S. goods and reinforced the economic expansion that began in 1981. With the growth of the U.S. dollar in foreign trade and investment, the U.S. Federal Reserve had a much stronger and wider reach. After all, when the Federal Reserve adjusted interest rates, it not only affected U.S. companies, it had a direct effect on all borrowers in the U.S. dollar market. As global trade increased, so did the value of U.S. dollar denominated assets and the Federal Reserve's power. Therefore U.S. monetary policy directly fed into other countries around the globe.

Currently, the dollar value of these dollar-denominated loans to foreign entities is much higher than before the 1998 crisis. Across the globe, U.S. dollar denominated debt to foreign entities tripled

during the 1990s from \$647 billion USD to \$2.17 trillion USD. (Left scale of Figure 27)

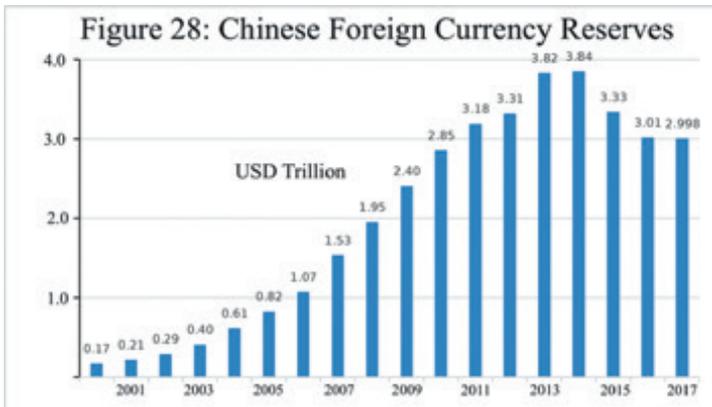
This trend has dramatically accelerated in the last 20 years. By mid-2018, for both developed and developing economies, the Bank of International Settlements cited more than \$11 trillion USD in U.S.-dollar denominated debt to foreign entities. (Market Watch Aug 23, 2018) Even countries like Turkey have approximately 50% of their debt in U.S. dollars, some \$200 billion. The current level of debt makes the Asian financial crisis of 1998 look very small. If there is a shock that takes the U.S. dollar higher, these borrowers will not be able to repay their debts. If developing currencies are forced to devalue against the U.S. dollar, the same negative feedback loop will begin. The portion of emerging world debt, as a percentage of GDP, is much larger than ever before.

In response to the U.S. Federal Reserve's zero interest-rate policy after 2008, many emerging market borrowers were presented with an opportunity they just couldn't pass up. Figure 27 illustrates the development of U.S.-dollar-denominated debt. (Note that the axis on each side of the graph are different; the dollar amount of debt is much greater than both the yen amount and the euro amount.)



At present, China is the largest debt creator among emerging markets. The country has a unique history in buffering global capital flows. During the Asian financial crisis of 1998, flows in and out of the mainland were relatively small by today's standards, and the People's Bank of China was able to navigate the difficulties quite well. Given the history of relative stability, Chinese companies were then able to expand debt financing at an increasingly high rate after 2008. China's domestic market during the 2000s had an inflation rate around 5% or higher, while the U.S. inflation rate averaged between 2% and 3%. With Chinese currency indirectly fixed to the U.S. dollar, U.S.-dollar loans to China expanded. The indirect link occurs because the Chinese yuan is directly linked to the Hong Kong dollar, and the Hong Kong dollar is pegged primarily to the U.S. dollar. Although there is some movement, it is all within ranges set by the People's Bank of China.

During the post-2000 crisis, China built up enormous foreign currency reserves, peaking in 2015 at around \$4 trillion USD. This stands in stark contrast to the Federal Reserve which maintains around \$750 billion in foreign currency deposits. Remember that when central bank assets increase, it allows monetary expansion in that country. In addition to increased dollar reserves, yuan-denominated loans have also dramatically increased since 2000.



The vast majority—close to 90%—of the People’s Bank of China’s foreign currency reserves is made up of the U.S. dollar. This favoritism toward U.S. dollars is a mechanical choice, in that most of the currency coming into China are loans in U.S. dollar denominations. The People’s Bank of China keeps a correspondingly high dollar account in case there is a reversal of investment flow. Also, most of China’s foreign currency reserves are invested in U.S. Treasury debt. If capital starts to flow back from China to the U.S., these foreign currency exchange reserves will decline more, and China will be a forced seller of U.S. dollar bonds.

The Chinese government, having witnessed other developing Asian countries’ finance problems, once worked very hard to avoid reliance and to ensure its ability to repay foreign currency. That’s why China amassed the largest foreign currency reserves of any central bank in the world. This conservative behavior created the image of China as a stable borrower whose central bank was actually larger than the U.S. Federal Reserve.

The Chinese accumulation of dollar-based reserves has also helped the U.S. fund its deficit. This process, which built up large U.S.-dollar balances of foreign currency, created natural buyers of U.S. government debt, at a time when U.S. borrowing expanded as well. The Chinese recycled these dollars and bought into U.S. debt markets, taking interest rates ever lower. Thereby, this process helped to finance the U.S. deficit.

Unfortunately, if trade and capital flows reverse, this process will also force the Chinese to become net sellers of U.S. Treasury debt. This would tend to drive up interest rates in the U.S.

Perhaps this reversal is underway already; in the last few quarters, foreign net sales of U.S. Treasury securities have expanded. The buyers of U.S. debt have become net sellers.

Figure 29: Foreigners have become net sellers of US Treasury debt



Chinese yuan-denominated debt has also expanded tremendously. In the time period since the global financial crisis, Chinese banking system assets (i.e., loans created by banks) have grown to some \$37 trillion USD. To provide perspective on how large this figure is, the total banking assets in the U.S. are equal to around \$17 trillion USD. Put another way, U.S. banking system loans are about one-third the size of total bank loans in China, while the U.S. economy is two times the size of China's. This means, relative to GDP, that the bank loan total in China is about six times larger than in the U.S. That's a lot of borrowing.

Based on capital flows in/out of the People's Bank of China and on loan losses, Chinese banking could be topping out now. This situation recalls the height of Japan's economic power in the 1980s. At that time, all of the world's 10 largest banks were Japanese. Invariably, the banks at the top of this list are in countries with high levels of loan creation and often, as was the case with Japan, lending excess. China has bounded from nowhere to number one fast.

The Largest Banks in the World 2018

Ranked by Total Assets USD

1. Industrial & Commercial Bank of China, China - \$4 trillion
2. China Construction Bank, China - \$3.4 trillion
3. Agricultural Bank of China, China - \$3.24 trillion
4. Bank of China, China - \$2.99 trillion
5. Mitsubishi UFJ Financial, Japan - \$2.79 trillion
6. JPMorgan Chase, U.S. - \$2.53 trillion
7. HSBC, UK - \$2.52 trillion
8. BNP Paribas, France - \$2.36 trillion
9. Bank of America, U.S. - 2.28 trillion
10. Credit Agricole, France - \$2.12 trillion

Banks have grown much bigger in the ensuing decades. Currently the top four are Chinese and represent 48% of the top-10 list by assets. (By comparison, the largest Japanese bank in 1989 was Dai-ichi Kangyo Bank, LTD with total assets of \$387 billion USD, or \$765 billion in today's USD, adjusted for inflation.)

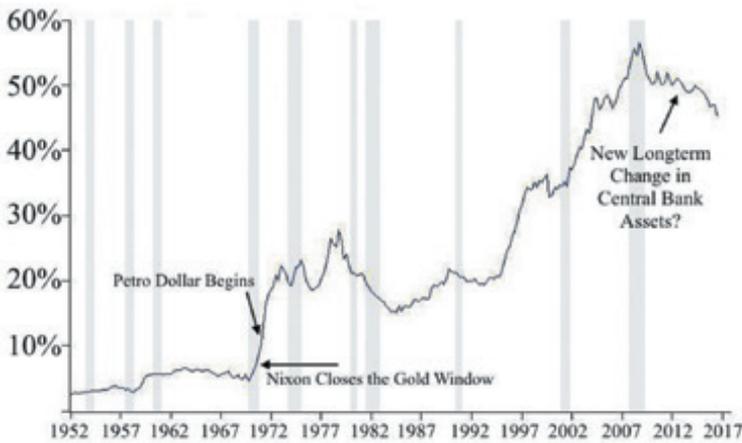
A glaring difference between then and now was that the Bank of Japan was the chief determinant of yen monetary policy during the Japanese boom. In modern times, the Japanese yen has always been on a flexible exchange rate and was highly valued against other foreign currencies. Through the linked currency system that now exists between the U.S. dollar and the Chinese yuan, the U.S. Federal Reserve has a large role in the resulting monetary policy in China. And in turn, China, as the holder of U.S.-dollar denominated debt, has unprecedented foreign influence on U.S. bond markets and interest rates. We are economically linked, and the road goes both ways.

The significance of the U.S. dollar becoming not only China's reserve currency, but the world's reserve currency, cannot be

overstated. Since the fall of Bretton Woods in 1971, countries that trade internationally have been obligated to keep a balance of U.S. currency in order to settle trade. Over the same period, the need for U.S. borrowing has gone up dramatically. Therefore, the U.S. has been able to supply U.S. dollars to the global market and then recycle them back into U.S. debt. Many foreign central banks are therefore large holders and financiers of U.S. debt.

The U.S. dollar reached its apex as a reserve currency in 2007. This upswing began around the time the U.S. went off the gold standard in 1971, right before the oil crisis. On a global basis, oil is primarily traded in U.S. dollars, and as international trade in oil grew, so did the need for U.S. dollars in central banks. The U.S. began to run larger and larger trade deficits, which put more dollars into circulation outside the U.S. Trading in oil expanded in the 1970s, and global trade expanded even more in the 1980s and 1990s. These forces further reinforced the dollar's status as the global reserve currency, which then facilitated the growth of U.S. dollar-denominated debt. There was a growth of U.S. dollar deposits abroad, and those very dollars were then recycled into purchasing U.S. debt. So foreign ownership of U.S. debt expanded dramatically. Figure 30 shows total foreign holdings of Treasury securities over the time period since the gold standard was abandoned.

Figure 30: Foreign-owned U.S. Treasury Bonds



The U.S. has placed a large amount of government debt into foreign hands, and foreigners have been quite willing to keep dollar balances on hand because it has been stable and useful for trade. This represents nearly \$7 trillion USD worth of assets that could flow back into the U.S. if foreigners lost their desire for U.S. debt. Looking to the future, borrowing requirements for the U.S. government will likely go up dramatically, with foreign entities potentially rolling back their requirements for dollars and selling off their supply of existing U.S. dollar debt. This is a dangerous situation that would result in higher interest rates, as the supply of bonds increases from both foreign sellers and new debt.

To reiterate, there has been a period of 50 years in which foreign countries have increased their holdings of U.S. dollars and reinvested them in the U.S. bond market, making it possible for the U.S. to run up large debts. This is a system that works until it doesn't work. I don't think it will end overnight, because there are very few instruments that central banks could purchase with that \$7 trillion USD. It would be impossible for foreign countries to just go out and buy euro-equivalents for their dollar holdings. There is not enough euro debt that is liquid, and a global reserve currency

declines over time. However, once the readjustment away from a reserve currency happens, it can be a powerful drag on the value of that currency for decades. Losing foreign buyers of U.S. dollar debt, and seeing them become sellers, will likely raise interest rates and increase inflation. This in turn causes financial assets to decline along with the value of the dollar. Figure 31 shows the correlation between the value of the dollar and its percentage of foreign reserves. When foreign entities sell, the value of the dollar declines.

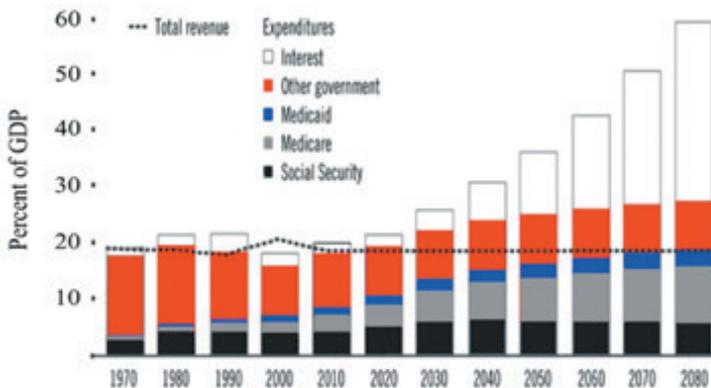


It is not far-fetched to predict that the U.S. dollar, in terms of reserve currency status, could begin to decline over decades. After all, the world has moved politically toward a multi-polar system. After the Cold War, the globe has adjusted away from two super-powers into many. Russia's decline has been met by the increased independence of Europe and the rise of China. India and Brazil are also leading separate global political blocks. Perhaps the global banking system is developing to reflect this multi-polar political system. Several central banks, including the BRIC countries of Brazil, Russia, India, and China, have expressed a desire to create a different reserve currency system away from the U.S. dollar. India has a long history of keeping its financial system separate from the global system, and this was an advantage for it during the 1998

Asian financial crisis. China and Russia have also started to settle international trade in Chinese Renminbi. If these central banks are successful in creating a non-U.S. dollar trade block, it could have a profound effect on the value of U.S. dollars held by foreign governments, effectively reversing much of the post-1981 interest rate era. Central banks would hold assets that reflect new trading partnerships. U.S. interest rates would rise just as our borrowing requirements are increasing.

Figure 32 is a graph from the St. Louis Federal Reserve Bank that projects the budget deficit going forward, given retirement demographics and expected increases in Medicaid and Medicare. It shows that for the past 50 years, total revenue in taxes has averaged about 20% for the federal government. The St. Louis Fed calculated the expected interest payment, assuming normalized total debt and interest rates. Their forecast doesn't assume a large increase in inflation. What is striking to me is the increase in the interest portion of the budget. It's realistic to be concerned that if inflation and interest rate move up more than expected, the deficit will become even bigger, even earlier.

Figure 32: Components of Projected Budget Deficit



For as long as I can remember, economists and politicians have worried about the U.S. federal debt. For economists, it has become akin to Aesop's fable of "the boy who cried wolf." In the fable, a boy kept warning about a dangerous wolf, when there was no wolf in sight. The true warning from the fable is to not ignore warnings, even if they have been erroneous in the past. The true meaning is to be vigilant. When the wolf actually arrives and no one believes the boy, the wolf eats the boy.

High levels of debt make the banking system much more fragile. When interest rates rise in a highly indebted world, the entities with cumbersome debts have less room to escape economic problems. U.S. debt levels are now much higher than they were prior to the 2008 recession. In essence, the "wolf" is at the door. We cannot slowly and painfully pay off this debt. Eventually we will need to inflate.

CHAPTER 6 —

WHERE ARE WE IN THE DEBT CYCLE?

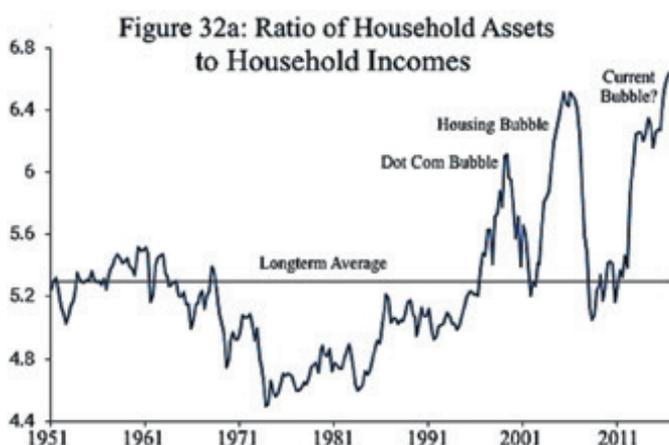
“The IMF estimates that global debt hit a record \$184 trillion last in 2017. That’s equivalent to \$86,000 per person. The largest debtors are the U.S., China, and Japan, the three biggest economies. Overall, the amount of worldwide public and private debt is equal to about 225% of gross domestic product. The agency uses data for 190 countries dating back to the 1950s.”

Bloomberg

Previous chapters have looked at how central banks took on a more activist role starting in the late 1970s, using the newfound powers granted with the fall of Bretton Woods and fixed exchange rates. With the backdrop of falling interest and inflation rates, central banks were free to deal with other bubbles and crashes; their new powers were first successfully deployed after the 1987 crash. Other assets became tied to the credit cycle, and we’ve seen how emerging market credit cycles have played out in the emerging markets. When central banks lowered interest rates with each successive recession, it resulted in larger and larger quantities of money being borrowed. During the last decade of this 40-year period, credit availability for U.S. dollars even spilled out to create massive debt expansion in the developing world. With low U.S. interest rates, the U.S. dollar debt market has helped finance credit expansion and asset returns around the globe. Developing countries who couldn’t afford to borrow in their own currencies, found credit

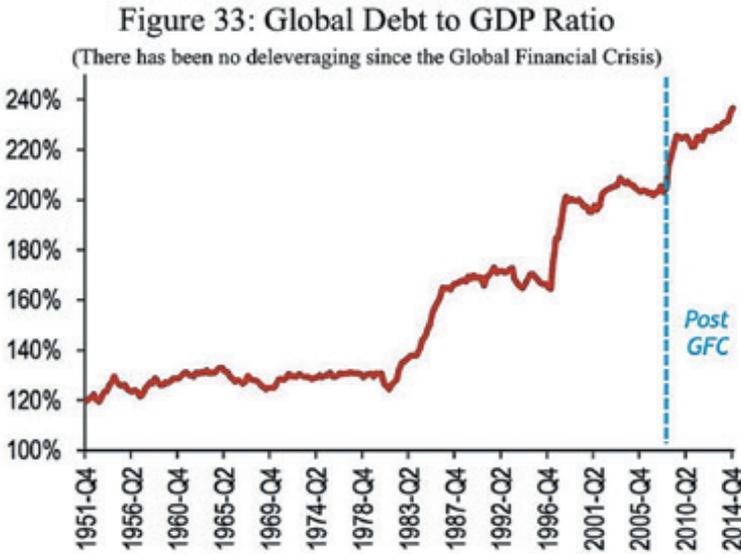
by borrowing in U.S. dollars. In fact, I believe the post-2008 economic recovery has been primarily fueled by debt and not by prudent management or much real global demand.

This brings us to a critical question: where are we in the current global debt cycle? We seem to be in a coordinated global debt cycle, spurred by zero interest-rate policies in Japan, the U.S., and Europe. Real growth across the globe has been stubbornly low, even with the massive rise in debt.



The usual relationship between interest rate reductions and growth has broken down. Now we have little global growth but high asset values. In the graph above, one can see the total value of household assets is in bubble territory relative to household incomes, a strong indicator that we are near a top.

What started as a very good move from Fed Chairman Volcker, to finally arrest the problems that arose from 40 years of increased inflation, turned into a fantastic financial asset bull market that resulted in equity and bond markets advancing relative to real assets. Unfortunately, too much of a good thing can be bad, and that's where investors face a challenge today. The most important question for investors now is, how big is the global debt problem?



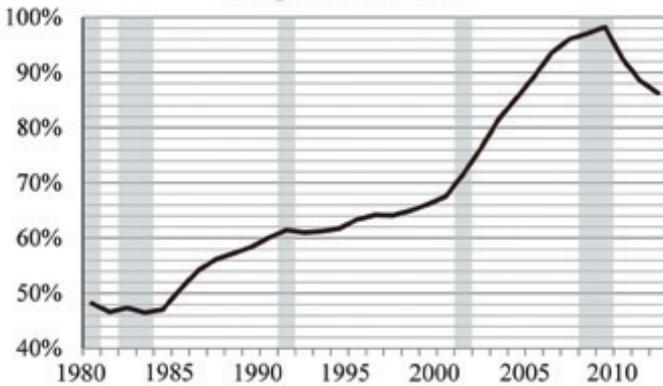
In the decade since the 2008 near-collapse of many financial institutions around the world, global debt relative to global GDP has continued to increase. Governments, corporations, and consumers, like drunks after midnight, returned to the punchbowl of debt. This is evident in Figure 33, which shows global total debt relative to GDP from 1950 through 2014. In both the U.S. and worldwide, civilization has never carried this much debt.

When confronted with this level of debt, many economists conjecture about default. And yes, on a micro level too much debt can lead to default by an individual or corporation. At a macro level, I believe we have entered the phase of too-big-to-fail. With freely printable money, central banks are more inclined to create inflation rather than deflation. It is an age-old discussion dating back to the late 1800s, where debtors were pitted against lenders. Eventually the people in a representative democracy will push strongly for inflation. Perhaps Benjamin Franklin said it best: “Democracy is two wolves and a lamb voting on what to have for lunch.”

To understand the magnitude of problem, it is valuable to look

closely at how debt has formed, starting at the household level. The line in Figure 33a shows the persistent increase of household debt since 1981, with total debt as a percentage of GDP now near all-time highs. Total household debt expanded greatly, while interest rates came down strongly. Overall debt payments from households has remained about the same only because interest rates fell.

Figure 33a: US private debt as a percent of GDP

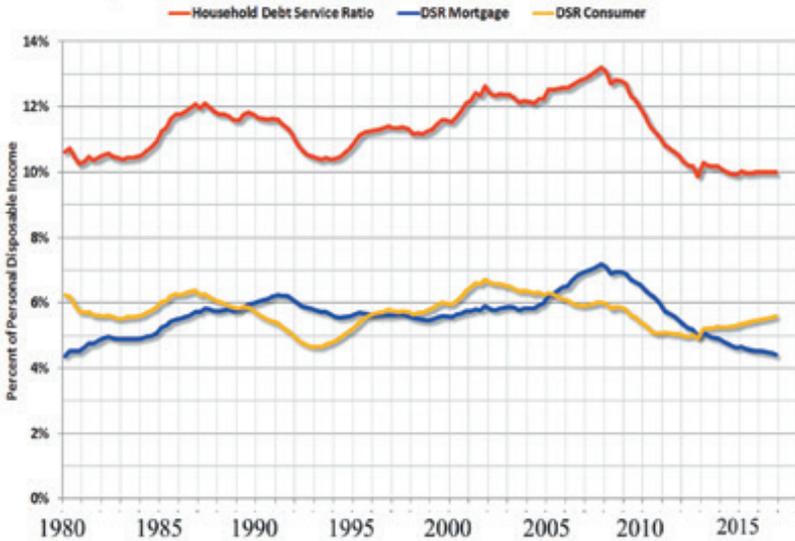


In the next graph, figure 34, observe that debt service payments, as a percentage of income, have remained relatively constant between 10% and 13% of household incomes. The average consumer has been able to expand debt, while keeping the household monthly interest payments stable. Households don't feel they have increased debt that much because their debt service is about the same. Feelings aside, they do owe more money, and if rates rise, they will feel much more pain.

The same fundamentals have also spurred government borrowing. During President Obama's administration alone, federal debt essentially doubled from \$7.2 trillion to more than \$14 trillion USD. Yet, government interest expense increased far less: in 2009, interest expense was around \$185 billion USD, rising to \$223 billion by the end of the Obama administration. In effect, the federal government doubled its outstanding debt while only increasing

interest payments by 20%. This is because of the decline in interest rates. If the Fed raises interest rates, the effect on the household, government, or corporate budget will be much worse.

Figure 34: Household Debt Service as a Percent of Income

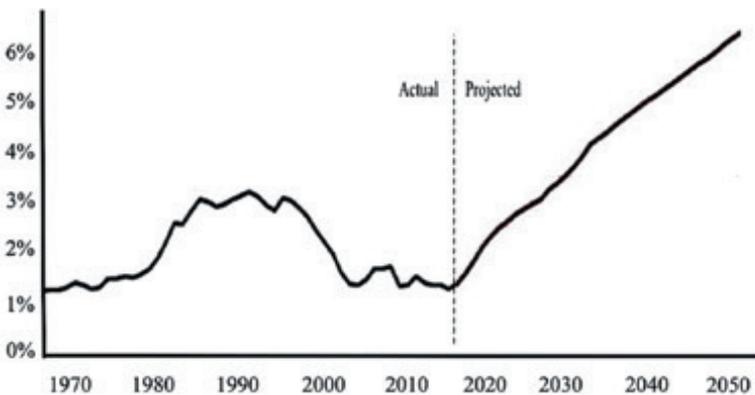


In short, we've experienced nearly 10 years in which interest rates and borrowing have been almost free for the government. However, lenders will not be willing to accept an interest rate less than the rate of inflation for long. As we add to the deficit, total borrowing cost will start to become a sizable portion of the federal budget. If history serves as a guide, the Federal Reserve will be motivated to keep interest rates low on the short-term yielding end of the curve, in order to help finance federal debt costs and keep the economy stable. However, keeping rates too low will increase long-term inflation, as it did in the post-1965 era. In the next recession, I believe it will be much easier to keep short-term rates low through bank intervention, whereas keeping the long end of the bond market low will be much harder. Once investors increase the required interest rate to reflect long-term inflation concerns, the yield curve will be much steeper.

Currently, the global bond market is behaving as if the developed world has slipped into an environment similar to Japan's deflation. Although I believe that comparison is coming to an end, it is worth discussing. The amount of negative-yielding financial instruments is symptomatic of an overall top in financial assets, not an indication of future deflation. Financial assets like bonds and stocks have both been bid up as the financial bubble exists in all financial assets this time.

The extreme nature of our current low interest rate environment is evidenced in the amount of negative yielding bonds around the globe. A bond has a negative yield if its price is bid up over its face value plus interest. This means investors would be willing to receive less money in the future in exchange for some attribute of the bond, such as credit quality. Currently, \$7.5 trillion dollars of foreign government bonds have negative yields. This cannot last for long. Economically, it makes no sense to lock in a loss; there must be a "time value" for money long-term. Eventually, the size of required future borrowing will have an impact and raise the cost of borrowing. Holders of debt will require a return for their loans, and that required return will probably increase if the debt cycle turns down.

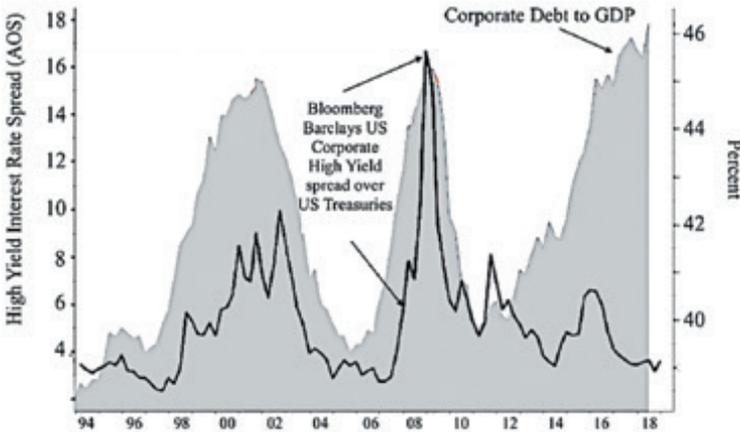
Figure 35: Projected Interest on Federal Debt as a Percent of GDP



In Figure 36, it's clear that while consumers and corporates found a little bit of religion right after the 2008 crash, they have returned to the zero-interest rate environment to borrow more. And why not? Companies can borrow in debt markets and buy back equity shares, allowing them to increase earnings per share without increasing business activity comparably. Roughly one-half of earnings growth since 2009 is attributable to share buybacks. Aggregate (total) earnings from the S&P 500 have increased 27% since 2010, while earnings per share have increased 60%. This percentage difference is caused simply by the reduced number of shares outstanding and purchased through share buybacks. This process also creates the illusion that earnings in the aggregate are growing faster. Individual investors look at earnings per share for individual companies, but it is misleading on an aggregate basis.

Furthermore, with large purchases of Treasury securities by the central bank, risk becomes mispriced, which pushes investors into riskier assets. As a rule of thumb, watch the interest rate spread between junk bonds and Treasury securities to monitor declines in general credit quality. As shown in Figure 36, corporate debt, as a percentage of GDP, has returned to a historically high level, but the credit spread between junk and treasury debt has not. Risk is not being reflected in the junk market as it should be, given the amount outstanding.

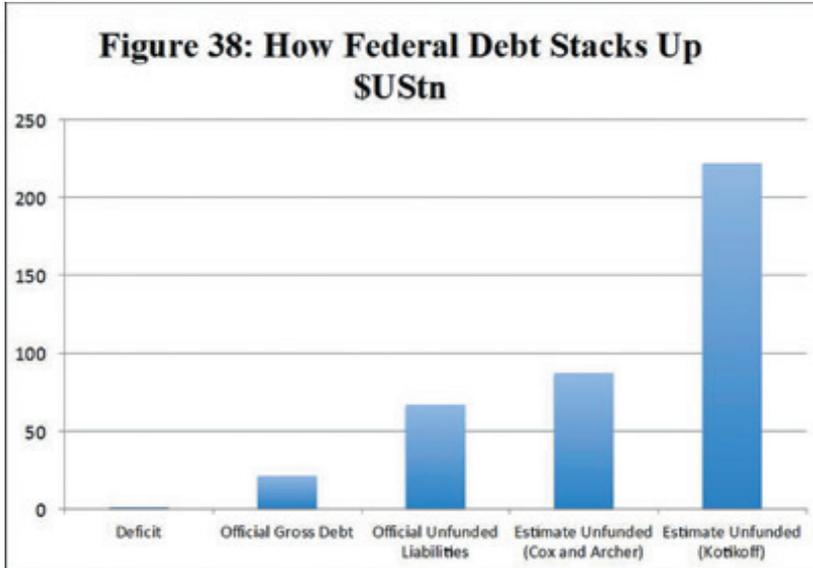
Figure 36: High Yield interest rates do not reflect high levels of total borrowing (risk)



It is useful to look at the total debt relative to the size of the economy (i.e., GDP), as this helps to adjust for inflationary effects over long periods of time. We are currently well beyond any previous debt levels, with the federal government's legal liabilities at around \$23 trillion USD. This federal debt doesn't even include state and municipal debt, household debt, and corporate debt. Remember in the last depression, household debt and corporate debt were quite low, while federal debt was high. This meant that during the 1930s, the Federal Reserve could stimulate domestic consumer demand. In today's environment, however, with all sectors so heavily leveraged, it will be very hard to actually grow the real economy.



In addition, this debt total doesn't include future unfunded liabilities. The U.S. government is responsible for future obligations and promises for Social Security, Medicare, and Medicaid. During the establishment of these programs, it was much easier to afford the benefits because there were fewer beneficiaries than workers. Now that baby boomers are retiring en masse, average life expectancy is going up, and medical expenses are rising, the current system has a very large future liability. The net present value of these debts is expected to reach over \$100 trillion USD this year.

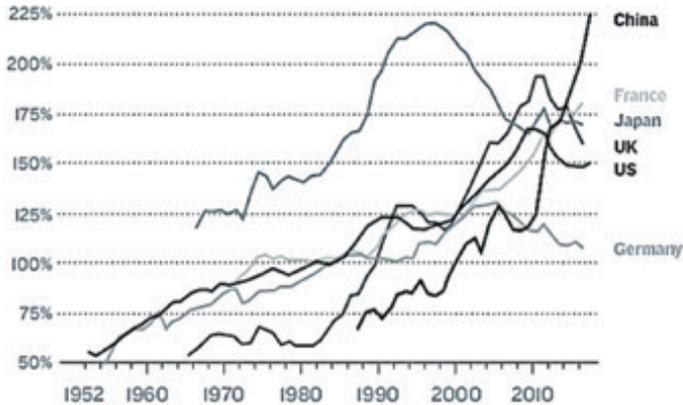


While the government is likely to impose some limits on these programs, the future liability will nonetheless increase the deficit and debt going forward, which will automatically create inflationary pressures. As the deficit increases and total Social Security payments increase, that alone will help create inflation. In short, the current level of debt in the global economy is extreme, and given demographics and commitments already in place, it will get substantially worse. Our spending will go up in the future purely based on demographics. The U.S. clearly appears to be near a peak in the debt cycle simply because we are well beyond any debt in history, and interest rates have been manipulated to the lowest point in history.

I'll now shift our focus to the other large debt creator of the last two decades. Since the global financial crisis of 2009, China has become one of the largest borrowers on the planet. Particularly in the past five years, the Chinese borrowing binge has accelerated. Figure 39 shows the historic rise of private debt in China. This has coincided with the Chinese consumer providing a great deal of aggregate demand in the global economy. However, China is

not an economy familiar with substantial debt, and this may be the source for the next global recession and crisis.

Figure 39: Private Debt to GDP

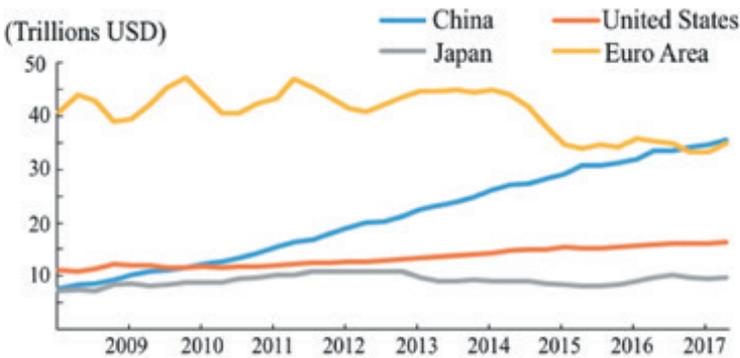


During China's modern development (1990 to 2007), the People's Bank of China could absorb bad debt. It would simply clean up the banking system by purchasing troubled loans, handing the banks cash in exchange for those loans. The banks could then turn around and make new loans in order to lift the economy out of its slowdown. It is uncertain if the People's Bank of China could follow this path now. During the 1998 Asian financial crisis, private debt was about 85% of GDP in China, a figure that has now ballooned in excess of 225%, and the Chinese economy has also grown substantially.

China achieved a perception of stability during the 1998 and 2008 crises, which allowed it to increase bank assets denominated in renminbi during the last decade. Remember that bank assets are essentially the total of credit extended, a liability for the borrower but an asset within the banking system. Figure 40 shows the incredible growth in Chinese lending since the 2008 global financial

crisis. As of August 2018, total private loans (bank assets) topped \$37 trillion USD, which is much larger than U.S. bank assets and roughly equivalent to all outstanding loans in the euro area. Yet the vast majority of loans made in the last decade in China are denominated in its own currency, the yuan. Notably, this means that China and the U.S. (the two largest borrowers) are able to rapidly increase debt denominated in their own currencies. Therefore, both are able to print currency to help pay off debt.

Figure 40: Growth of Banking Assets (Loans)

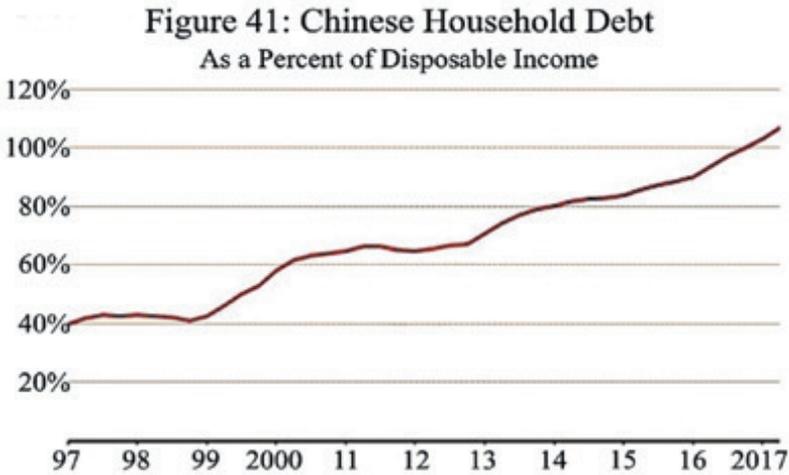


One part of the relative size difference in banking loans reflects the difference in market structure. The U.S. has a more developed bond market that supplies corporate funding, while China is more reliant on its banking system for direct business loans. In order to make it truly comparable, one should also include the U.S. corporate bond market. It is crucial to consider how Chinese banking loans went from being relatively small to being the largest on the planet. In my experience, financial bubbles are more often found in assets that quickly come up, such as the current loan growth in China. Credit quality is usually relaxed during such a huge ramp-up in loan growth.

The Chinese government has been able to “fix” previous debt

problems by having the People's Bank buy nonperforming loans to shore up the banking system. But now, many Chinese households and corporates have overextended themselves and carry large debts.

This will be a substantially harder problem to fix because of its sheer size.

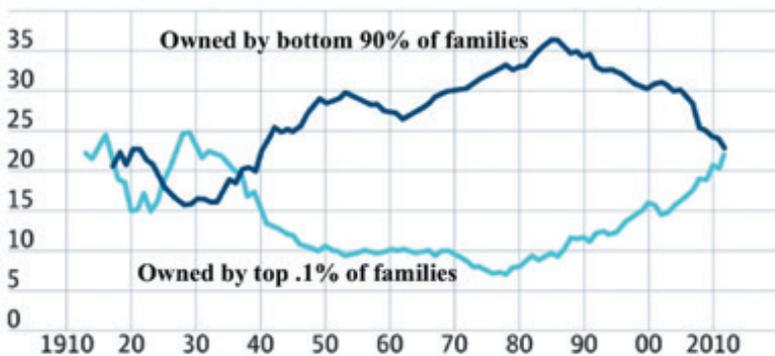


To this point, we've discussed the short-term debt cycle, a regular recessionary cycle that usually takes around eight to 10 years to play out. There is also a longer-term debt cycle, and it is harder to call the top in this cycle. The increased powers of central banks have helped the economy through several of the past recessions, which has led to the growth of an unprecedented amount of global debt. Throughout history, the accumulation of debt within the longer-term economy also has had cycles. These cycles were somewhat limited in the past because the gold standard worked as an absolute restriction on how much debt could be created. We could very well be near the top of the larger debt cycle. I think the key factor in the longer-term outcome will be the central bank's response to the next crisis. Will central banks finally move to limit

the debt within the economy, and how would they do that? Will there be deflation and default or simple inflation? (The next chapter explores four different scenarios of how this could play out.)

There are indications that a longer-term peak in debt to GDP is occurring. The last peak in the long-term debt cycle during the 1920s bears similarity to the current economy. Ray Dalio, a successful hedge fund manager, notes that the longer-term debt cycle is evident in the distribution of wealth. This makes sense, in that wealth distribution is often a function of wealth creation, and wealth creation is often created through financial asset price increases over a longer period of time. Figure 42 shows the percentage of wealth owned by the top 0.1% (which bottomed in 1980, just when financial assets began to outperform) vs. the percentage of wealth owned by the bottom 90%. I believe wealth disparity is more of a byproduct of the economy and not really a driver of it. Those with money to invest during the last 40 years could compound it more easily in the equity market. By using other people's money and leverage, some compounded it even faster.

Figure 42: Percentage of U.S. Total Wealth
(Percentage Owned by top 0.1% vs the bottom 90%)



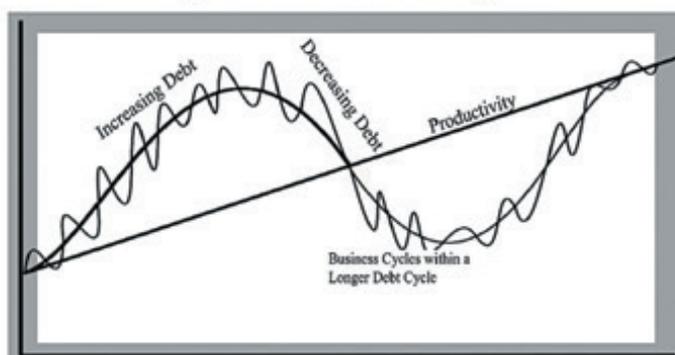
Also notice the last time that the top 0.1% owned this much of the wealth, the economy was in the boom of the roaring 1920s

and beginning of the Great Depression. For me, this is another sign we are near the end of the long-term debt cycle. I think it is an indication that the overall economy is not healthy and very sensitive to a downturn. But I do not embrace the idea that these cycles will play out in the economy and in the market, regardless of government activities. During the past 50 years, we have seen the impact of central banks on the economy and markets. The actions of central banks have certainly influenced longer-term buildup of debt, now we need to see how they influence the eventual “work out” of that debt.

Nonetheless, there is much to be learned from the concept of historical long-term business cycles. History is full of examples of long-term trends in trade, country emergence, and debt. There is undoubtedly a progression of actions that the economy moves through. I love the saying that history does not repeat, but it rhymes. An understanding of economic history makes it is easier to see where an economy is going, as long as you also recognize the potentially path-changing interactions of governments, banks, and businesses.

With that caveat, we’ll examine the idea of a longer-term debt cycle. Chapter 4 described how international capital flows, laid upon a business cycle, can cause a boom and bust in emerging countries. In the stylized debt cycle shown in Figure 43, you can see this pattern. Historically, it took roughly 50 years for the long-term debt cycle to build up. I think a lot of this has to do with institutional memory. Younger bankers take the place of older ones, and the past problems of larger debt crises fade from memory.

Figure 43: Idealized Debt Cycle



Throughout history, business cycles have worked effectively, with higher highs in the economy along with higher successive lows. This general uptrend represents productivity increases. After all, each successive business cycle builds on the past; bottlenecks and inefficiencies are lessened and new, more productive technologies are adopted. For example, the 1990s technology boom was responsible for tremendous growth in hardware development. The personal computer and the cell phone made rapid improvements, which set the stage for the software and Internet growth in the early 2000s. Likewise, the growth in wealth and prosperity in the Texas oil boom of the 1970s diffused to other sectors of the economy and set the stage for rapid growth in Texas during the 1990s and early 2000s.

Often, the excesses of one business cycle can work as a catalyst to create the next boom. In this way business cycles string along one after another, each building on its predecessor. It's easy to see how the general increase in debt since 1981 is a common string that has facilitated the financial asset boom.

When I managed money, I became pretty good at judging business cycles and market cycles. After a very successful decade of

managing mutual funds during the 1990s, I left the mutual-fund industry at its peak in 1999. I was able to benefit from adjusting market exposure in my hedge fund from 2000 to 2012. Within those larger cycles, I managed the top-performing European mutual fund in 1998, at a time when many international investors were caught flat-footed by the Russian and Asian financial crisis. I would identify expensive and cheap markets around the globe, always looking for a catalyst that might signal a change in the market. For 1998, that catalyst was difficulties in Thailand in late 1997, which proved to be the first stage of the greater debt implosion of the Asian region. I always waited for that spark to cause a market to change direction. Valuation and excess can carry on quite a long while, and the key is to identify a catalyst.

In late 2018, some fissures in the business cycle emerged. Looking at the internal domestic equity market, cyclical stocks were hit hard at the end of the year. We seem to have a change in leadership as the over owned stocks from the bull market sell off stronger than the ignored ones. The FAANG gang (Facebook, Apple, Amazon, Netflix and Google) were hit hard in the late 2018 correction. Late 2018 and very early 2019 saw widespread earnings downgrades, with commodities hit hard. There were large downgrades in mining stocks. Auto and retail stocks also had negative earnings announcements, while defensive stocks actually traded up. The market is indicating a slowdown could be coming. The troubles with the Chinese economy also indicate that we are near the end of the business cycle. The Chinese economy has built the greatest amount of debt since 2009, so it is logical that troubles in China could be the spark that brings about the next recession.

With the market having rebounded in early 2019, it is bothersome that traditional cyclical stocks have not participated in the rally. These companies will need to rally next if the short-term rebound is to be believed.

As far as equity returns, foreign investment returns have greatly lagged U.S. returns over the past decade. The decade from 2000 to 2009 was a great run for foreign stock markets, but after the financial crisis, foreign equities have had one of their worst decades ever, during a time in which the U.S. market has almost doubled. Often, global stock markets have decade-long investment themes. The 1960s was the decade for U.S. conglomerates. The 1970s was the decade of commodities and oil companies. The 1980s were dominated by Japanese equities. The 1990s were led by U.S. tech investments. The 2000s were dominated by BRIC equity markets. And finally, the past 10 years were the decade of U.S. equities. Figure 44 shows the outperformance of U.S. equities during the past nine years, against non-U.S. equities that have stagnated in value. This leads me to believe that U.S. equities (along with Chinese banking loans) have already enjoyed their 10-year run and are now the most precarious assets.

Figure 44: Unprecedented US Outperformance



To the question of where we are in the debt cycle, I would answer that we are probably near the end. Debt creation has rapidly expanded, and the global economy is having a smaller and smaller

reaction to each dollar of debt created. Equity markets have had real difficulties. During the last nine years, the vast majority of equity appreciation has come from the U.S. equity market, which suggests a narrowing of investment returns. The breadth of investment returns is important because it reflects how broad the foundation of economic advance is.

For example, in the post-World War II boom, there was broad-based aggregate demand, and strong real wage growth to supply that aggregate demand. During that era, economic growth was broad-based, with the rebuilding of Japan and Europe, and returning soldiers who placed strong demands for housing and consumer goods. Currently, aggregate demand in the global economy is narrow. There is overcapacity, and therefore, weak demand in manufacturing, retail, and global real estate. That leads me to believe we are closer to the end of the cycle than the beginning.

Furthermore, within the regular business cycle we seem to go through each decade, many of my short-term indicators are beginning to turn down. Within the U.S. equity market, much of the market performance has come from the growth of the FAANG tech stocks. Every bull market, as it nears the end of the cycle, is built on only a few leaders. The 1990s tech bubble was built on the “four horsemen” of Dell, Intel, Cisco, and Microsoft.

The current bull market has taken these leadership stocks to a new extreme market cap. As a money manager, if you didn’t hold them, underperformance was pretty much guaranteed. Just five stocks, and the portfolio weighting in them, determined much of a fund’s over or under performance. That’s the definition of a narrow market.

By the way, this is another indication of the end of this bull run, when the leadership starts to get hurt much worse than the market as a whole. Therefore, it will be critical to watch how the

FAANG stocks are trading relative to the entire market. With a likely increase in regulation, along with recent earnings misses, the FAANG stocks were hit hard in the fourth quarter of 2018, which could signal a change in trend.

Another indicator to tell us the market may be topping is earnings downgrades. As discussed earlier, general aggregate earnings have been a strong indicator for me over the past 25 years. If companies on balance are beating earnings expectations, the economy is generally still expanding. Even if the market is quite expensive, it still tends to trend up. Often, earnings expectations tend to move ahead of overall economic data such as the unemployment rate.

Furthermore, even though the U.S. equity market is near record highs, global equities already peaked in January 2018. In general, the globe is in a different place than the U.S. economy and market. In this situation, the globe usually turns out to be the true and larger indicator.

I hope I have painted a picture for you of a global economy awash with debt. This situation now even extends to the emerging economies of the world. But there have always been people warning about debt levels, so what is different this time?

The difference is that past governments were able to use monetary tools to lower interest rates, thereby lowering the immediate effect of the debt. With interest rates around the world already near zero, it will be much harder to bring future demand forward in the economy and manage out of a recession. Remember that last time, central banks tried to raise asset prices without inflation; this time they'll try to raise the inflation rate. If there is a recession in the future, politicians and central bankers will increasingly turn to money-printing tools to mitigate the situation.

Interest rates can't be cut much further. With deficits and debt

already large, borrowing more money is problematic because it may be seen as bailing out Wall Street or serving “the top one percent” again. I therefore think politicians will move strongly with economic packages that redistribute wealth and directly monetize the debt. This will probably result in higher inflation rates and higher long-term interest rates. The next chapter discusses these scenarios, and various paths that could emerge.

CHAPTER 7 — SCENARIOS AHEAD

“With the absence of a gold standard, there is no way to protect savings from confiscation through inflation. There is no safe store of value.”

Dr. Alan Greenspan, 1966

Looking ahead, it is important to establish some scenarios of the different paths the economy may move through, and then examine how various investment strategies work in each scenario. This begins with the question of whether the economy will grow or slow? What is the future path of inflation? Developing an opinion on inflation is the first hurdle to overcome in constructing your investment portfolio.

A second hurdle involves recognizing what another recession will look like. If a catalyst sends the global economy into a new recession and the business cycle turns down, will it signal the end of the greater debt cycle? If the ability to use debt effectively is eliminated, we are in for a very long and strong recession. Even with the central bank’s freedom to create currency, we will still be subject to a recession at some point in the future.

Some economists now argue that perhaps modern post-industrial countries like the U.S. just cannot generate inflation. Globalization and technology in the last 40 years have helped produce more goods at cheaper prices, but incremental benefits of those advances are waning. For example, because of the high percentage of imports

from China, we are now subject to wage inflation in China that could impact our own economy. We are accustomed to the price of import goods going down, while domestic goods like healthcare and education go up. However, going forward, we will be subject to Chinese wage inflation because the price of imported goods we buy can increase now. An interconnected world also means we don't have total control over our production costs and inflation.

Perhaps, the U.S., like Japan, is doomed to fall into deflation. Some investors believe that Japan's demographics are responsible for its deflation, but I don't believe that is the case. As Nobel Prize-winning economist Milton Friedman eloquently put it, "inflation is always and everywhere a monetary phenomenon." During the past 40 years, central banks have shown their ability to adopt and implement monetary policy by any means necessary. In essence, if you control the printing press for dollars, you can eventually drive inflation.

I believe some of the forces and excesses in recent history will create an environment in this next recession that will look and act differently than previous recessions. Given that each successive downturn in equity markets has required a larger and larger response from governments to reflate, debt burden levels across government, corporations, and individuals have grown extreme. Eventually, interest rates have hit near zero levels, and therefore, mathematically, interest-rate changes cannot be relied upon to have the same impact on the economy. In 2009, after the last recession, central banks turned to the new tool of quantitative easing to intervene in open markets with asset purchases from new printed currency.

What's certain is that the government's response to another global financial crisis will determine the bifurcating paths of inflation or deflation. There is little question that the majority of the populace will want to inflate. I anticipate that Western central banks and

legislators will be aggressive in starting inflation. This is the only way that the central banks can alleviate the “real” amount of debt in the economy. Recall that the principal amount of a loan, at a scant 3% per year inflation rate, falls to approximately 50% of the original “real” debt after 20 years. If inflation rates average closer to 5%, that means the “real” debt principal is lowered even faster and two-thirds of it is inflated away in 20 years.

Yes, inflation is a tax on savers, but it appears to be the only viable way out of the current debt trap. During a recession, central bankers must weigh their dual mandates—price stability and employment. To resolve the debt problem behind us, price stability will be sacrificed, and inflation targets will be raised in the name of full employment. The Federal Reserve may keep short-term rates lower, but long-term rates will need to rise to reflect higher inflation rates. Thus, the yield curve will steepen like it did in the 1960s and 1970s.

Table 2:
How inflation decreases the value of a bond

Year of Bond Investment	Nominal Principal Value	Adjusted Value of Principal Assuming 3% Inflation	Adjusted Value of Principal Assuming 5% Inflation	Adjusted Value of Principal Assuming 10% Inflation
1	\$1,000	\$970	\$950	\$900.00
2	\$1,000	\$940.90	\$902.50	\$729.00
3	\$1,000	\$912.67	\$857.38	\$656.10
4	\$1,000	\$885.29	\$814.51	\$590.49
5	\$1,000	\$858.73	\$773.78	\$531.44
10	\$1,000	\$737.42	\$598.74	\$348.58
20	\$1,000	\$543.79	\$357.53	\$122.00
30	\$1,000	\$401.01	\$214.64	\$42.39

Given this present-day economic environment, there are several scenarios the U.S. economy could move through. All four scenarios presented in this chapter are possible, but not equally possible. The logical process is to enumerate possible outcomes, rule out less probably options, and adjust your outlook toward the path that is most probable.

Currently, I believe the most probable outcome is that this debt bubble will finally burst, resulting in a quick and harsh recession. As in 2000 and 2008, the economy will decline rapidly because the debt levels will make the economy more fragile. This deflationary shock will trigger an even stronger inflationary response from central banks and governments around the globe. We'll see policymakers returning to their tools, including quantitative easing and wealth redistribution policies.

The biggest difference during the next recession will be the response of elected politicians. In 2008, Democrats were focused on the passage of the Affordable Care Act, better known as Obamacare. This time, in response to the debt bubble bursting, elected officials will be much more aggressive in their response. The issue of wealth disparity has moved to center stage in the global economy, and wealth redistribution is simply much more inflationary. Whereas quantitative easing was more focused on asset prices, increases in wealth redistribution moves money from investment into consumption. The velocity of money will increase. Moreover, the momentum around Modern Monetary Theory (MMT) will accelerate in this environment; its increased use is simply too tempting of a source for new large government initiatives.

The key questions will be: can governments create inflation? Is debt primarily a closed system that borrows from future consumption? Will borrowers be able to “cheat” lenders by inflating away the debt? Depending on the answers to these questions, there are essentially two potential outcomes for the current economy, and two potential responses by global central banks, as outlined in the following table. In this chapter, I’ll explore these four possible scenarios, two that assume inflation will occur and two that assume deflationary paths.

Table 3: Four Possible Scenarios

	Economy Grows	Economy Slows
Allow Deflation	<p><u>First: Deflation Scenario</u></p> <p>The developed economies around the globe continue in a very low growth environment, with an extended time of deflation. Stagnation similar to post bubble Japan.</p>	<p><u>Second: Deflation Scenario</u></p> <p>The economy rolls over into a strong recession. Governments, corporations, and households move to reduce debt.</p>
Create Inflation	<p><u>Third: Inflation from here</u></p> <p>Historic advances in the monetary policies have been enough to create a sustained expansion, yet central banks have difficulty in raising interest rates and inflation advances from here.</p>	<p><u>Fourth: Most likely Scenario</u></p> <p>The economy slows when this business cycle ends, and central banks and governments move to fight the decline with monetary and fiscal policy as well as reintroducing quantitative easing.</p>

FIRST – DEFLATION SCENARIO

The economy slowly grows and central banks battle deflation. The developed economies have a protracted battle with deflation, similar to Japan.

I remember the Japanese equity desk at my first job in London, 1990. It was still a hotbed of activity as some European investors thought they were seeing a great opportunity to buy during a “dip” in the market. This dip has lasted for 30 years!

It is conceivable that the industrialized world is falling into a similar period of stagnation. Investors look at the low rates of interest in Japan and compare them to current rates in Europe or the U.S. Yes, currently all the developed counties are fighting against deflation. I believe both the U.S. and Europe will not allow this

long “Japan-like” standoff to happen. Already the concern that we are similar to Japan has led to different economic management of the debt crisis. The developed world has learned from Japan and is acting differently.

Also, Japan had unique qualities that lead to its stagnation. Its lack of population growth, loss of leadership as the global center of cheap production, lack of bankruptcy laws and other cultural differences all conspired to put Japan in this rare economic state since 1990.

These conditions do not exist in the developed world right now. Although Europe suffers from stagnant population growth, the European economy does not share many characteristics with Japan circa 1990. The demographic problems are not nearly as large. Japan was able to “stay afloat” because it was relatively small in a quickly growing world. Now, the overleveraged developed world represents around 40% of global GDP. In 1990, Japan was approximately 15% of global GDP, falling to as low as 6% in 2015. With its relatively smaller size, stagnation was easier for Japan rather than outright depression or inflation.

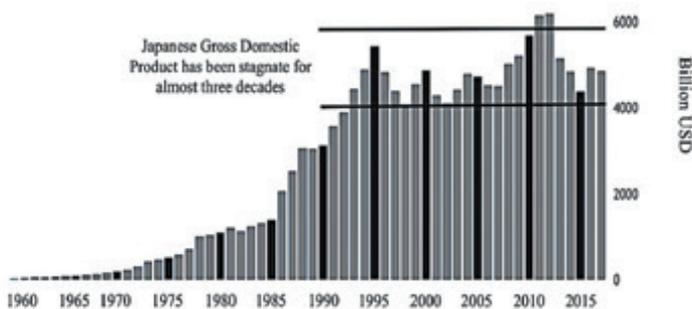
Furthermore, today’s central bankers are very different from their Bank of Japan colleagues of the 1990s and have learned from Japan’s perceived mistakes. Members of the Federal Reserve and other central banks have the very fresh and sobering tale of Japanese deflation squarely in their minds. Accordingly, they have acted much more quickly with quantitative easing and other stimulating measures than did the Bank of Japan, thus not allowing the expectation of deflation to grow. During the 1990s, Japanese investors and the general public grew accustomed to deflation and the expectation of falling prices. That deflationary expectation is hard to break, a lesson the central banks of Europe and the U.S. learned well. They have been explicit in their commitment to avoid a Japanese-style rerun. In Japan, people postponed consumption because they had

come to believe that all goods or services would be cheaper in the future, causing a downward spiral. By contrast, Western banks have used debt to stimulate demand and avoid this spiral.

Another distinction about Japan was its investment return expectation. Japanese investors grew accustomed to negative investment returns and shifted to overseas investment. This created a cycle in which capital was not invested in Japan's own domestic economy, and their corporations were free to move investment abroad, thus reinforcing the low domestic growth and returns. Investments made during this long deflationary period were disappointing because the underlying economy hadn't grown. Accordingly, Japan's GDP has been flat for more than 20 years.

Figure 45 depicts Japan's development from a very small nation to a growing one between the 1960s and the early 1990s. Particularly during the 1980s, Japan was a mania unto itself, dominating the investment world. By its peak in 1989, Japan accounted for approximately 45% of the global market capitalization and approximately 15% of global GDP. The average Japanese stock sold at 58 times earnings, as opposed to around 18 times earnings today. However, Figure 45 also clearly shows (on the right half) the economic stagnation that took hold and has crippled Japan for the past 30 years.

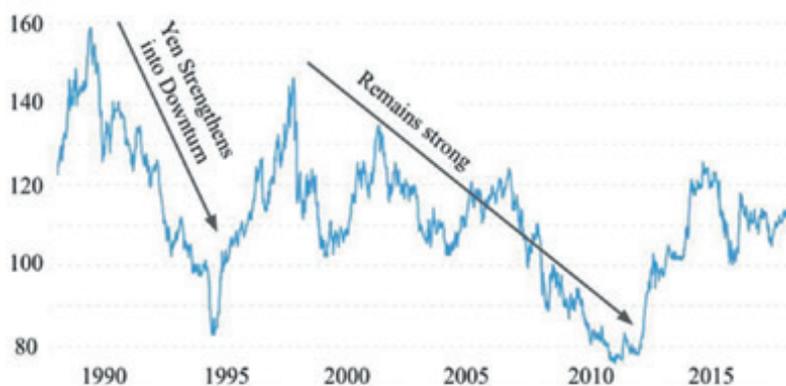
Figure 45: Japanese Nominal GDP



With weak GDP growth, the Japanese equity market has endured one of the longest bear markets in world history. Without economic growth to power earnings growth, Japanese investors have had little to give them hope. The current Prime Minister of Japan, Shinzo Abe, has tried to bring stronger inflationary forces into play, but it has been too little, too late. I believe earlier efforts by the Bank of Japan were somewhat nullified by other major global economies that were enjoying a much different part of the cycle.

The Japanese yen went into the economic downturn valued extremely high against other developed currencies and rose in value as the crisis unfolded, as shown in Figure 46. This high currency rate versus other major currencies made it very hard for Japan to inflate.

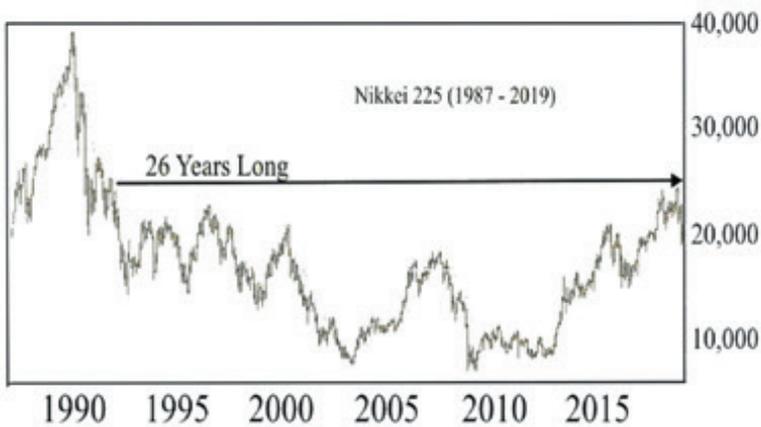
Figure 46: Yen Exchange Rate (Yen per USD)



By 1990, the Bank of Japan began the process of tightening monetary policy into a slowing economy and falling equity market. During that year, the Bank of Japan fatefully raised its discount rate from 4.25% to 6%. The already-strong Japanese yen (which started 1990 at 145 yen to one U.S. dollar) further strengthened into the recession, closing out the year with a value of 133 yen to the dollar.

To this day, the yen's exchange rate has strengthened further to 108 yen per U.S. dollar. These initial deflationary actions are the opposite of recent central banks' reactions. Economic slowdowns are now cushioned by the Fed or other central banks by lowering interest rates and weakening currencies. Japan did not follow this path for decades.

Figure 47:
Longterm Japanese Equity Market



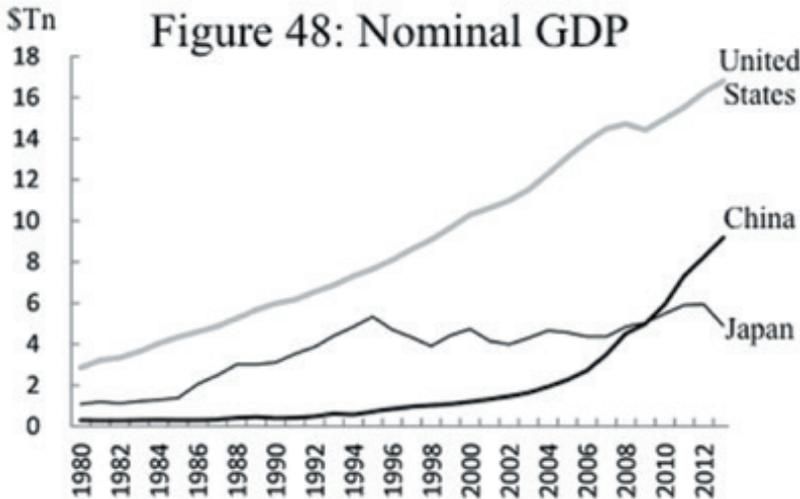
Another key difference between the Japan of 1990 and the global environment of today were the country's legal impediments, including the absence of bankruptcy laws. Their lack of bankruptcy law prevented companies from going through a typical Western bankruptcy and instead lingering in a "zombie" state, prolonging the deflationary period.

Particularly in the beginning of the Japan crisis, policy makers' reactions ranged from slow to outright nonresponsive. This contrasts with the U.S. Federal Reserve, which, since the fall of Bretton Woods, has moved toward being an activist central bank. I expect any downturn in the U.S. to be met with even more monetary policy expansion than in 2008, when many Americans were worried about the inflationary impact of quantitative easing. Now 10 years

after that crisis, politicians will want to be much more aggressive with fiscal policies and wealth redistributive measures.

During the stagnation of the 1990s and in the years since, Japan benefitted from the growing global economy, as it helped create demand for Japanese goods. The rest of the world had two great drivers of growth: China and Technology, both of which helped stave off outright economic free fall for Japan. Even after the asset price collapse, GDP in Japan remained relatively stable. The country had issues with deflation, but it never turned into an outright depression. China's growth stepped onto center stage as the 1990s unfolded.

In Figure 48, one can see how China's growth in nominal GDP coincided with Japan's stagnation. Collectively, it was still a growing region overall.



The question pertinent today is whether new regions can still provide such as an engine for the global economy. Currently the developed industrialized countries provide around 40% of global GDP, with 60% of global growth coming from the emerging world. I doubt emerging economies could provide enough aggregate

demand to have the same effect in the current situation, but it is possible. China is trying to increase domestic consumption. If China and other developing nations can step forward with a new consumer economy, this could provide enough global demand to help the overindebted nations.

The emerging market debt problem is just very large, and the growth of the emerging economies is also symbiotically dependent on a healthy global economy and exports to the developed world. Japan's economy during the last 40 years is similar to a tightrope walker. Inflation didn't heat up and the economy never fell back too strongly, and Japan never got moving either. This type of tightrope walking is just not possible with the larger global economy. Japan was able to battle deflation for 40 years, and did not fall into a long depression, but it also did not create inflation. These same conditions don't exist in the larger developed world today. If the U.S. or Europe were in the same situation Japan has been for years, a much larger portion of the global economy would be affected today, and the outcome would be dramatically different. I believe this deflationary scenario is unlikely, but it is a possibility. It depends upon how much the consumer market in emerging nations grows, and how we deal with our own debt.

There are many market thinkers that believe that over indebted economies are not capable of inflation. Perhaps Japan is one of those economies. They argue that savings is depleted and therefore can not create increased consumption. They also note that interest rates are so low, they can not be lowered in order to induce investment. Although this has been the case in Japan, I believe the rest of the world will respond differently. Automatic spending in entitlement programs, plus other fiscal programs, will create the spending and investment that has traditionally come from what savings the consumer had. If we are faced with another recession, it is not unthinkable that the deficit would increase to well over 2 trillion dollars per year. That's ten percent of GDP, and would be strongly

inflationary. It may take even a couple of years to get government spending increased to that level, but eventually the government will get there.

SECOND – DEFLATION SCENARIO

The economy rolls over, and everyone finally moves to reduce debt, resulting in a very long and strong recession.

There is a second possible scenario, depending on what actions policy makers take. If the global economy experiences a recession, it is vulnerable to a stronger downturn when both fiscal and monetary policy could be either ineffective or not implemented. This could start with a trigger that slows the economy, such as a trade war, a recession in China, a recession in the developing world, or problems with the Euro block. The slowdown could also start with a typical end to the business cycle. There could also be a policy error with raising interest rates too high in an effort to “normalize,” thus tipping the world into a 2008-style credit crisis. There could be a foreign policy error that moves the world into recession. Business cycles happen. Deflation could be structural in over-indebted economies.

Counterintuitively, one avenue that would limit government’s reaction to the initial slowdown is if governments adopt policies of austerity and attempt to pay off their debt. Under the banner of decreasing wealth inequality, taxes could be raised too fast and worsen the downturn. After all, these downturns are becoming worse when there is more debt, yet in the past, the economic fix has been to bring future demand forward with more debt. The medicine is making the patient feel better in the short run, but it damages the long-term health. Within each of the business cycles, ever increasing amounts of debt are required to support the economy and

encourage recovery. The increase in debt also makes the economy more fragile. The economy becomes more brittle if it has more debt, less able to handle downturns. Paradoxically, the only way we have gotten out of recessions was more debt. Throughout the past 10 years, Greece exemplifies an economy that cannot save its way out of recession and over-indebtedness. However, austerity may be a way to end this cycle.

The result of austerity in the U.S., or around the globe, would be a deflationary depression. Increased taxes and reductions in spending would cause the economy to slow down even further, along the lines of the 1930s. It is in no one's interest, and democratically elected politicians would probably not opt for this course of policy, if they fully understand the implications.

In this scenario, high-quality bonds would do well, as lenders remain whole if you can find borrowers that remain solvent. Equity prices and real asset prices would fall, but financial assets would suffer from credit quality on the debt side and earnings declines on the equity side. Real assets would still outperform equity investments in this case.

With the knowledge of the difficulties of the Great Depression, no one would vote for deflation. Most voters are strongly in debt and would opt for inflation over deflation.

But perhaps fiscal and monetary policy is simply ineffective. What if the debt is too big? Perhaps fiscal stimulus and quantitative easing, even at larger amounts, cannot overtake the effect of the debt. This is possible. Deflation is also a problem of overcapacity, not just austerity, especially if aggregate demand starts to decline.

Perhaps overcapacity in the global economy, as well as global trade and technology, is just too strong of a deflationary force, and large amounts of this debt globally must be defaulted on. Even if the

U.S. and China are able to print currency and monetize most of their debt, the rest of the world does not have this ability. That is an outcome that will have to be evaluated as events unfold. Only time—and political responses—can tell.

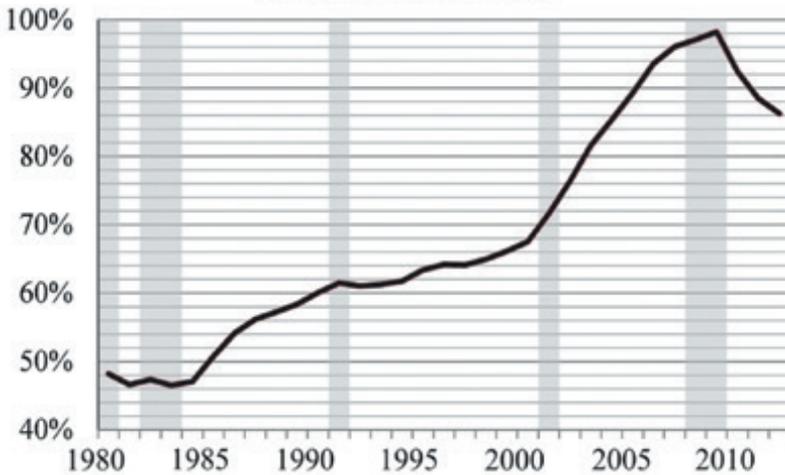
How did deflation become structural? With the advances in innovation across the global economy, more goods are being produced at lower prices. Technology is inherently deflationary. Several commodities can be produced more cheaply now because of a structural innovation. Fracking has allowed the U.S. to increase its oil output and make worthless oil reserves suddenly productive. With computerization, 3D seismic has revolutionized the probabilities and economics of oil drilling. This has culminated in massive oil supplies that can be exploited very quickly if prices rise. Each rally for oil above \$55 is quickly answered by increases of supply. This is an example of structural deflation that is outside of monetary policy.

The general origin of this current structural deflation can also be traced to the globalization of the 1990s. Lower labor cost overseas, global trade agreements, the rise of big box retailers with more efficient supply chains, and later, Internet retail sales, all conspired to greatly increase efficiency and lower prices. By the 2000s, increases in cheap high-quality goods, along with cheap debt, created tremendous value for the Western consumer. The nation's largest electronic store, Best Buy, was increasingly described as the showroom for Amazon. Consumers could decide on the product they wanted at a local store, but then find the best deal on the Internet. This process plays out across retail and will greatly impair profits for decades to come. Spotify brings down the cost of music, Netflix and Hulu provide more entertainment for fewer dollars than the local movie theatre, Uber is often cheaper than a taxi. Disruptive technology is inherently deflationary.

Large debt also makes us more exposed to deflationary difficulties. Much like the decade of the roaring 1920s, there has been a strong

consumer boom, and this has produced a vast amount of household debt. Figure 49 represents household debt as a percentage of total household assets. This level of debt affects future ability to generate demand. Effectively, households have already spent their future. Unless the debt is inflated away, future consumer demand will be impaired.

**Figure 49: US Household Debt
as a percent of GDP**



In addition, there are significant deflationary forces whose impact has yet to be seen. More than 75% of U.S. employment is in the services sector. As developments in artificial intelligence and robotics make service tasks more efficient, future jobs are at risk. In the long term, I believe the economy will adjust to the advent of artificial intelligence, but in the short term, it could cause large disruption in wages and employment, thereby having a detrimental drag on demand.

The economy has already seen hints of this in certain service businesses. Much of the travel agency business deflated in the 1990s and 2000s, as it became far easier to book a flight or hotel online. Even sectors like the news and media have been affected by this trend.

The news was highly profitable for broadcast companies in the 1970s when people were dependent on the nightly news. With the advent of the 24-hour news channel or free distribution over the Internet, news department budgets have been cut massively as profitability has declined. Newspapers are shuttering at an incredible pace. All of this is happening while the consumer is inundated with news options through the web, phone apps, or streaming content.

Service workers have already become commodity-like. With the rise of the “gig economy,” corporate payrolls have been able to rise and fall to exactly match what is needed around the firm. Retail banking and fast food have already entered this automation phase, with customers strongly encouraged to do their banking business online or just touch a screen at their local fast food restaurant.

Some sectors in the global economy remained relatively untouched to date. For example, over the past two decades there has been significant inflation in the healthcare and education sectors. These sectors were able to continue without much automation because they were consumed without the actual consumers paying a direct cost. For example, employers and insurance companies picked up the health care cost, and governments and loans pay a large part of educational costs. Without the immediate effect upon the consumer as payer, deflation was delayed. However, these sectors are beginning to change now as well. Now, with more individuals paying for their own insurance as costs escalate, the political debate around the role of government and insurance has escalated. I’m not sure how this will look in 20 years, but I think the general trend will be to put more cost discipline into the healthcare system. Furthermore, you see increased debate around the cost of education and the benefit of the four-year system at universities. This also will tend to introduce more price discipline (i.e., deflation) into the sectors.

This idea that deflation is now structural has a lot of validity. If deflation becomes recognized as a structural issue, then even more

government debt can be used. Politicians will feel there is no inflationary downside to massive spending programs. The paradox is that the more people who believe this, the more likely we are to start inflation. Massive government programs and deficits resulting from things like Medicare for all and a uniform base income would rather quickly cause outright debasement of currency and therefore inflation. Therefore, this path, in the very long term, will result in inflation.

THIRD – INFLATION SCENARIO

As the economy continues forward, inflation begins,
and real asset prices accelerate as inflation picks up.

There are two types of inflation. One comes from rapidly increasing economic activity which feeds through a wage/price spiral in which input goods become relatively scarce. This is inflation that results from strong economic activity. Price increases are strongly passed through the economy. This type of inflation doesn't exist in our current economy. We are not constrained by supply of goods and services which would cause a wage/price spiral. Demand is relatively constrained because of debt, increased productivity because of technology, and simple overcapacity.

Another type—monetary inflation—happens when the monetary base is greatly expanded, even as the “real economy” declines. There is purely more money chasing the same goods, so prices increase.

In the first two scenarios I described in this chapter, the forces of deflation are stronger than the fiscal and monetary tools in the next recession. In the next two scenarios, I'll examine what happens if the monetary and fiscal forces are greatly expanded in order to essentially overrun deflation. Only time will tell which policy option

governments will choose. Investors must continually re-evaluate their assumptions.

The third scenario is if inflation and growth begin from here. Already, I am struck by how quickly central banks around the globe reacted to the weakness in December of 2018. The reversal of planned rate hikes shows how sensitive central bankers are to a slowdown. They will do almost anything to avoid an economic slowdown now.

This possible inflationary scenario would be a transition similar to that of the mid-1960s, when deficits and debt were accommodated by major central banks around the globe. Central banks ignored inflation worries in order to accommodate large increases in both social spending and defense spending from the Cold War and Vietnam. After all, since the last recession, central banks have been extremely coordinated in their monetary policies supportive of money printing. This scenario's likelihood is bolstered by the fact that central banks are much more dovish at this point in the cycle than ever before. Several talked about normalizing rates in 2018, but when the global economy hit a very small weak spot, most immediately talked about easing monetary policy. This is not the same type of Federal Reserve that raised rates at the end of the cycle in 2007 to prick the housing bubble. It is deathly scared of pricking any of these current "bubbles."

This "smooth transition" inflationary scenario could happen because central banks would find it difficult to raise short-term interest rates in the face of inflation, given the amount of debt outstanding and if the economy continues to grow. Central banks will be forced to resist rate hikes because debt service costs, especially for the government, would increase dramatically. Furthermore, central banks can't normalize interest rates without increasing debt service costs for the household sector, thereby risking a decline in household spending. The household sector is where end demand comes

from. If debt service costs rise, consumer demand will be negatively affected. In combination, these factors make the economy overly sensitive to rate hikes. The dual mandates of employment and price stability will come into conflict, and the central banks will choose to protect employment and allow inflation to bubble up.

The seeds of inflation have already taken root in the current economy. Quantitative easing was primarily focused on asset prices and money already designated toward investment. It forced investors into riskier assets. When the central banks started buying large quantities of government debt, the low yields forced investors into other assets. Corporate bonds and real estate increased in value as investors searched for yield. As this money remains in the economy, it may eventually feed into higher incomes and spending. The velocity of money could start to increase, if an active economy was able to essentially move money from investment into consumption and wages increases. Theoretically, the price level could start rising with wages, which would mean that we wouldn't have a traditional recession first. Instead, the general level of prices would increase from this base, and current deficit spending would be enough to accelerate inflation. Redistributive policies, if implemented, might be able to further increase spending within the economy. The velocity of money would therefore increase.

During the time period of zero interest rates, the Federal Reserve created around \$4.5 trillion USD in order to purchase bonds from private hands. The European Central Bank also adopted a stance of quantitative easing and purchased \$4 trillion USD of bonds. The Bank of Japan has purchased \$4.87 trillion USD of assets as well. Together, this had a huge impact on financial markets, and cumulatively amounts to over \$13 trillion USD of asset purchases, thereby pushing a lot of invested capital into other riskier assets. The total amount of the global bond market, including corporate, is about \$100 trillion USD. What surprised many market observers was that inflation remained subdued, even in the face of the very

large money printing after 2009. This would change if the money found its way into consumption and out of investments. Wealth redistribution efforts would greatly increase this inflationary path.

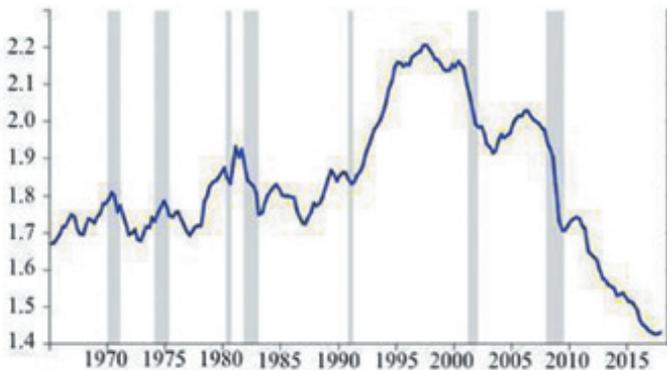
Although I do not believe this is the most likely scenario, it is possible. Central banks have now proven themselves to be reluctant even to normalize interest rates. Central banks still have an enormous amount of bonds on their balance sheet and still haven't been able to sell them, more than 10 years after the purchase program began. I am surprised at the dovish reversal of Federal Reserve policy early in 2019. There are still great deflationary forces in the global economy. There is overcapacity in the production of many goods and services, and technology is deflationary. The Internet literally makes it possible to take advantage of the lowest possible price producer on the globe, which has put an enormous amount of price discipline in the economy. The problem with this history of deflationary force is that it will start to slow down. Rates of change in productivity and the impact of technological efficiency is not what it used to be. From here forward, wage increases, interest expense, and potentially raw material price increases could freely ripple through the global economy.

Consider that the transformation to inflationary growth could already be underway. This transition could have resulted from the tax cuts early in the Trump administration. The new Democrats elected to the House seem much more intent on helping working-class families. New deficit-increasing programs could be passed along, in the spirit of Modern Monetary Theory, thereby directly increasing inflation.

As in the 1960s, the current government has built up debts and increased its deficits at the same time. That's an increase in deficit spending in a very different part of the business cycle. Perhaps this is like LBJ's war on poverty which started in 1965, and deficit spending increases alone were enough to lift inflationary expectations in the market. In effect, the expanded monetary base remains in place,

and velocity increases on its own, because of a stronger global economy for a longer period of time than a usual business cycle. Some economists point to the velocity perhaps has bottomed and a simple move up to slightly higher levels is enough to spur inflation. Even if the turnover of money in the economy just rebounds to where it was in the 1960s and 1970s, then we'd see a significant increase in inflation given the expanded monetary base. Put another way, inflation did not manifest itself after quantitative easing because the turnover of money declined substantially. Just a small normalization of velocity would cause a high future rate of inflation. This would happen if relatively more wealth were to be redistributed to lower income people, who have a higher propensity to spend.

Figure 50: Velocity of Money
Ratio of nominal GDP to money supply



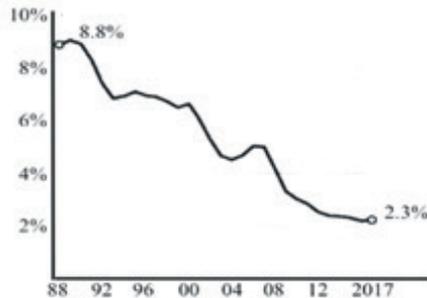
It is also important to consider that the economy may not need to continue growing very strongly. Perhaps we've expanded the monetary base enough that the economy could generate inflation without much economic growth. This has some precedent. During the OPEC oil shocks, price increases were absorbed by keeping short-term rates low in the Fed, even as long-term rates increased in the face of higher inflation rates. Even today, I suspect the pressure will be enormous to keep the Federal Reserve from raising

interest rates to the point of choking off economic expansion. In other words, I think the Federal Reserve is aware of the delicate situation. They prefer a slightly higher inflation number for a longer period of time over risking the whole economy with deflation. Some members of the Federal Reserve have even proposed that the targeted inflation rate should not be set at 2% but instead average 2% over the whole business cycle. This gives them room to run inflation over 2% for a while during the mid-cycle.

Much like the 1970s, the Federal Reserve is put in the position of weighing price stability against economic stability. All sectors of the economy are now accustomed to very low rates of interest. Therefore, the economy is much more sensitive to higher interest rates than ever before.

Moreover, the government debt service, or interest payable, is another reason why the Fed will be hesitant to raise rates and normalize. The federal budget has definitely benefited from lower interest rates. Even though total debt now approaches \$22 trillion USD, interest on Treasury debt only equals around 6% of the total budget. The average rate of interest paid on the national debt in 2017 was approximately 2.3%, and although maturities are extending currently, the average maturity of federal debt is around six years. It is not inconceivable that we can see a 2% move in interest rates in coming years, and just on the existing debt, that would add around \$400 billion USD to the deficit today. For all of these reasons, the Fed will hesitate to raise rates in the short-term. Increases in interest rates would be very damaging to the federal budget, not to mention corporate budgets and household debt service.

Figure 51: Average Interest Rate Paid on Federal Debt



Under this scenario, bonds would sell off because of increased inflation expectations. Equities would also face significant headwinds as investors demand lower valuations given the higher interest rates. Commodities would probably do well, as demand from China and the developing world would continue to increase. Farmland would do very well in this scenario. Farms are like a massive “put” on bonds. When inflation happens, commodity prices typically go up more than the general price level, so farms make more money. Furthermore, as inflation expectations start to rise, investors are willing to discount even higher future income assuming that inflation continues. This is a process, just as investors saw inflation fall from 1981 until 2017, but this time it will be the acceptance of higher rates.

FOURTH – MOST- LIKELY SCENARIO

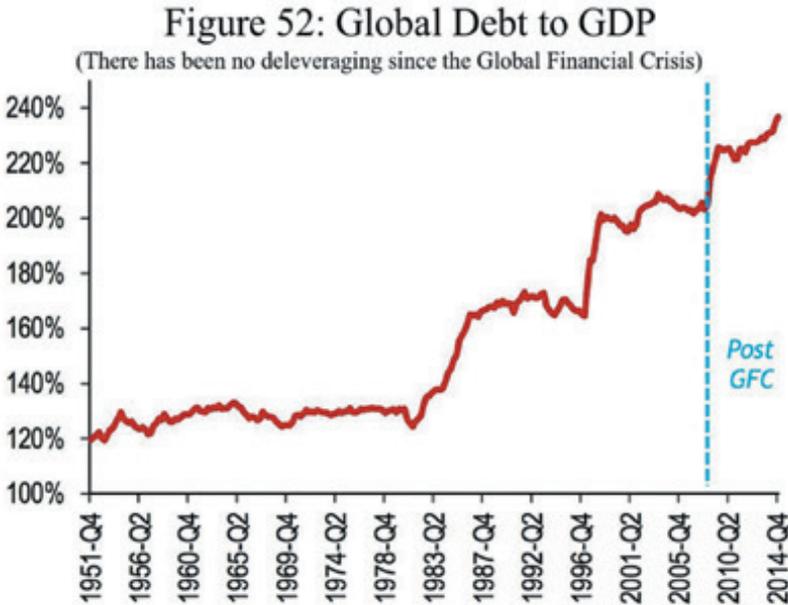
The economy slows when this business cycle ends,
and central banks move to create more inflation.

Asset prices first decline, then real assets move ahead strongly.

I believe a slowdown is likely to occur, sometime, somewhere. The Federal Reserve hasn't repealed the business cycle. The zero

interest-rate policies of central bankers have contributed to excesses in the system, and these excesses will become visible at some point, leading to another global recession. The global economy has more debt now than it did in the last recession, a condition that will require an even larger response from policy makers. This response will increasingly emphasize the creation of inflation.

Perhaps a shock from outside the economy will occur, i.e., central banks raise rates too high or war in the Middle East will send oil soaring. Perhaps it is China that experiences its first recession and hard landing, or Europe faces new problems with the Euro and keeping Italy and Spain in line. Or perhaps it is a hard Brexit from the United Kingdom that starts a global slowdown. Perhaps it is something I haven't thought of, but eventually there will be a slowdown or shock somewhere, and we are less prepared now for a debt crisis than we were in 2007. As the 2008 global financial crisis unfolded, politicians and banks stood up and blamed the level of debt, but at the end of the day, the only way they knew how to get the economy going again and create demand was by creating even more debt. This next time, policy makers will return to the only policies they have, using quantitative easing, running larger deficits, and lowering interest rates.



In this scenario, a regular business cycle downswing will take place, generating losses in equities and sending unemployment rates up. The loss of financial wealth will cause consumption and employment to decline. Central bankers know this scenario could trigger the return of enormous deflation if left unanswered. Therefore, as they scratch their heads and evaluate what to do, interest rates would be lowered, and money would be printed again to lessen the impact of the recession.

I tend to think that the next downturn will be swift. Investors have become used to the idea of equity prices falling by as much as 50%, as in the 2000–2003 and 2008–2009 declines. In the next downturn, I believe prices will move there much more quickly because investors have seen 50% declines more frequently. It has become part of their expectation of possibilities for the equity market, so it will move there more quickly. Bear markets like that were not very common in the 20th century, but we’ve experienced two in the first decades of the 21st century.

Furthermore, when governments are confronted with voters besieging them to do something, they will be more willing to use quantitative easing and return to greatly expanded deficit spending to help those in need. The increasing acceptance of Modern Monetary Theory provides an avenue to expand the money supply. Certainly, governments won't be as afraid of inflation this next time around. Given the large amount of debt outstanding in the economy, both Republican and Democrat politicians will want to generate inflation.

I believe we will see the impact of politicians like Elizabeth Warren and Bernie Sanders who are gaining traction with rhetoric around wealth redistribution. Even if these particular politicians do not get elected to higher office, they are moving the middle of the debate about wealth-redistribution policies to the left. Even the concept of direct government payments is gaining acceptance with the Democratic proposal of a national minimum income level. This program would provide direct payments to citizens to ensure they do not fall below a level of income even if they are employed.

Redistributive measures may have some economic validity; voters didn't just wake up and feel left behind. It is true that asset distribution and wealth distribution have become more and more skewed ever since 1981, primarily because financial assets have performed so well. Mathematically, those with assets to invest would make relatively more money as interest rates fell. Many Democratic economic advisers believe that redistribution of wealth is righting a past wrong. It is possible that policy makers will turn to redistributive measures because they believe transfer payments are the only way for governments to fix inequality.

As shown in the graph below, the top 40% of incomes benefitted the most from falling interest rates after 1981. People with excess savings could outperform by investing in financial assets. Now, if

interest rates start to move up over the long-term, it would be the tendency of these income distributions to come back together.

If politicians enact these types of redistributive programs, this will be much more inflationary than just quantitative easing. If a dollar is taxed away from a wealthy person's savings, it is much more likely that the dollar will be spent rather than saved. This will lower the investment rate of the country, but also increase aggregate demand and the velocity of money in that country. On a basic level then, redistribution of wealth, coupled with quantitative easing, would be much more inflationary than quantitative easing alone.

Some economists argue that inflation cannot be created in a slowing economy. Can you increase inflation in a time when economic activity is falling? Although it is unusual, it is not impossible. The simplest way to generate inflation is through straight monetary inflation, i.e., currency printing. This happens when government policy overrides the economic stagnation. An extreme example was post-World War I Germany. The country was required to repay large debts as restitution, so the German government simply printed the money to pay for the damages of World War I. Even with economic activity restrained and unemployment very high, rapid increases in the money supply simply devalued the money and therefore rapidly increased inflation.

We have not seen this type of hyperinflation in the U.S. economy, but we have seen it throughout the past 50 years in Mexico, Brazil, Argentina, Russia, and most recently Venezuela. Hyperinflation (very, very high rates of inflation) has traditionally happened when a local currency is devalued against other currencies and inflation rates are dramatically increased through resultant import price inflation.

In developed countries, there would be little import inflation into the target system, especially if many countries try to inflate at the

same time. This coordination would keep exchange rates relatively stable, and therefore greatly lower the chances of making currency worthless. But through this policy, inflation rates in the mid-teens are very possible, as was the case in Europe during the 1970s.

A mixture of monetary policy and increased deficit spending could therefore lead to a much higher level of inflation. Remember when central bankers started down the road of quantitative easing, there was a lot of discussion and worry about how it would create too much inflation. But the quantitative easing was done, in such a way, that it kept a lot of the new monetary base outside of circulation and the velocity of money fell. During the global financial crisis of 2008, politicians did not want to be seen as running up government deficits in the face of a debt problem. Congress and the President Obama essentially failed on any economic legislation to improve the economy, leaving the Federal Reserve alone to fight the great recession with monetary policy alone. The debt problems and prior administration were blamed for the financial crisis, and the new president did not want to be cast as an irresponsible spender.

In the next recession, I believe the political response will be different, especially if the recession hits at the end of the Trump administration. The Democrats would most likely take control of both houses and the presidency, and most likely deal with the recession in the way I've outlined above. During the 2008 period, quantitative easing was a new weapon in managing the economy and policy makers were timid about its use. Politicians are now much more willing to risk inflation, and in fact, I think both parties will be desperate to create inflation in order to be seen as helping the middle-class worker. Governments around the globe will strongly consider increasing direct money support for people (i.e., minimum income).

The national minimum income is a form of helicopter money. Along with politicians, the Federal Reserve has also considered this as a

future monetary tool. Recently, the San Francisco Federal Reserve stated in the conclusion of its review of unconventional monetary policy that “interest rates have trended lower in recent decades, reflecting low inflation and persistently low inflation-adjusted interest rates in the wake of an aging population and low productivity growth. If this situation continues, the lower bound on interest rates is likely to constrain short-term interest rates again and pave the way for further use of unconventional policy.”

The concept of helicopter money was first invented by Milton Friedman when he referenced an economic example of how money could be produced during a time of very low interest rates. It is an unconventional monetary policy that is sometimes forwarded as a stronger tool than quantitative easing in helping an economy get out of a liquidity trap. A liquidity trap is when interest rates are stuck near zero, and the economic output keeps heading down. In 2002, future Fed Chairman Ben Bernanke mentioned helicopter money in a speech as a tool that could always prevent deflation. Theoretically, the concept has some merit. It would be extremely efficient to quickly increase aggregate demand in the economy, especially when central banks have already lowered interest rates to near zero levels.

If the theoretical concept of helicopter money were to be put into practice by the Federal Reserve, it might look something like this. The Fed would print money and give everyone a certain amount, regardless of income. Perhaps, for example, the Federal Reserve would give everyone \$1,000. This would be spent almost immediately in the economy and add to the stimulus without lowering interest rates.

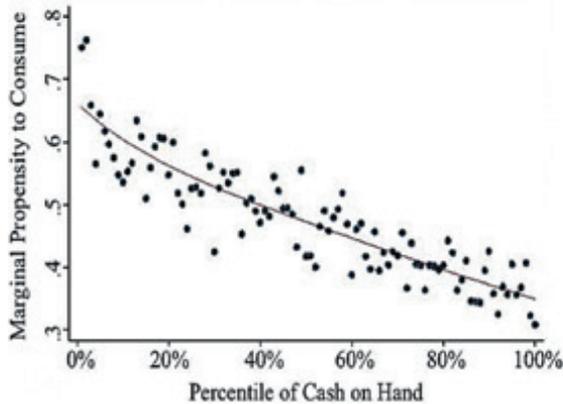
When you listen to Democrats speak about the economy, and their reaction to the past global financial crisis, there is strong message that the growth of income inequality grew during the recovery and must be addressed. This is a democracy, if the larger middle class

wants more money and support from government, they will vote those policies in. Politicians as disparate as Elizabeth Warren and President Trump have been able to tap into the same underlying sense of dissatisfaction in the middle class. During the great bull market run, the owners of assets like stocks, bonds and real estate were able to benefit from increases in value. Regardless as to why this inequality increased, I think the political reality is that income inequality will be dealt with going forward.

The new war on inequality will be much more inflationary than the 1960s war on poverty. This time we are not constrained by a gold standard or the Bretton Woods agreement. An increase in transfer payments is a more traditional liberal response, but there is an enthusiasm for the Federal Reserve's ability to fund government through quantitative easing and not raise taxes as much from both parties. This will be far more inflationary. If more people are receiving more assistance, the money will have a much higher velocity than money created in quantitative easing. The money will be spent.

Figure 53 shows the rate of consumer consumption falling as incomes increase, also known as the marginal propensity to consume. This relationship makes sense because people with limited incomes tend to spend a higher percentage of their pay, and people with more money tend to increase their savings. If you redistribute assets from savings to consumption, it has a higher velocity in the economy. Quantitative easing alone primarily raises upper income assets, while government spending on the lower income levels immediately increases consumption and delivers upward movement of the velocity of money.

Figure 53: Marginal Propensity to Consume
(Percentage of additional income that is spent instead of saved, per cash on hand percentile)



In this way, taxes raised on the wealthy and redistributed to the other 90% would result in higher levels of aggregate demand within the economy. With today's divided political and economic opinions, I think a Democratic administration elected during an economic slowdown would have support to take more radical redistributive policies, which are uniquely inflationary.

Let's look at a hypothetical example. The lower half of the economic strata of American society has a marginal propensity to consume greater than the top 1% of the economic population. This makes sense. A very wealthy person, if handed a check for \$3,000, would probably add that amount to savings and increase the investment rate in the economy, driving interest rates down, and equity prices up. This is one reason why quantitative easing was not as inflationary as people initially feared. As the Federal Reserve printed \$4.5 trillion USD and used it to buy up financial instruments, it increased the value of corporate bonds, stocks, and real estate.

In retrospect, we see that quantitative easing did not spill out into the real economy as much as people feared because it was focused

on asset prices and not consumption. Equity buybacks increased, the debt machine turned on yet again, and financial markets seemed to get back on track. The only problem with quantitative easing was that aggregate demand and average household incomes did not evenly increase. An economy is most healthy when all income levels enjoy increases in real incomes and can supply broad-based aggregate demand within the economy.

If government combines increased deficit spending with areas that would have high-velocity impacts on the economy, it's equivalent to lighting a match in a room full of very dry wood. Inflation may easily spiral out of control. I don't mean hyperinflation, but inflation rates between 10% and 15%. This inflation would be very painful to stop once it starts. The pressure will be crushing to keep short-term rates low in order to hold interest expense down and keep the economy moving forward. Remember most central banks have a dual mandate for price stability AND employment. These two mandates will come into conflict, with short-term employment winning out.

This inflationary scenario has investment implications. Although I'm not recommending you run out and sell all of your equities and bonds right now, I would hope this serves as a useful alert that significant headwinds may be ahead for these financial assets. I believe that real assets, over the upcoming long term, present a better risk and reward ratio.

In Chapter 8, we'll look at various real asset markets. Real asset investing is very different from investing in equities. It often involves greater volatility, and therefore it's best to average into positions and keep some cash on hand to take advantage of strong downturns, even in the evolution of a real asset bull market. And get ready for some turbulence, both political and economic. The investment environment during a bull run of real assets is much more volatile than during an equity run.

CHAPTER 8 —

FUTURE INVESTMENT POLICY

The four possible scenarios described in Chapter 7 may already have you thinking about your investment portfolio. I believe it is probably that we will see a decline to the current business cycle (much like 2008), followed by a strong inflationary response by the government.

The amount of global debt is higher than it was during the 2008 debt crisis, and high levels of debt tend to make recessions very long and strong. Corporations, governments, and households are much less flexible in helping the recession end. Once the recession is underway, policy makers will be incented to inflate away the debt. Even if the economy doesn't grow in real terms, it may grow in nominal terms.

Three of the four scenarios in Chapter 7 point to economic environments in which real assets will outperform equities and bonds. Real assets are assets like commodities, metals, mining stocks, farmland, or even precious metals. Figure 55, which graphs the relative value of financial assets vs. real assets, demonstrates that we could be at a meaningful inflection point.

Figure 55: Real Assets relative to Financial Assets



This figure shows two other time periods with large upward movements in the relative value of real assets. The first real asset cycle started with the low in 1937 and ended in the years following World War II, approximately 1948. Granted, this was a time of great demand for goods as the global economy built up for war. It was also an inflationary time in which price levels started to rise after the Great Depression of 1929-1936. The important lesson during this time is that the government took on more debt and deficits, and then inflation increased. While the impetus was different than today, the mechanics are the same.

The second time was from 1965 to 1981, starting with President Johnson's war on poverty as he grappled with fallout from the Vietnam War. At this point, the sustained economic growth of the 1950s and early 1960s led into a time when inflation expectations rose dramatically as government deficits ballooned. I believe that era has very strong characteristics similar to today. Interest rates were/near low points, and government had/have good reasons for inflation to increase.

In this environment, real assets outperform financial assets on a relative basis. Financial assets are extremely expensive, so there is more “room to run” for real assets. U.S. government bond yields, for example, are currently roughly equal to inflation rate, providing no inflation-adjusted return. Even if the equity and bond markets don’t sell off, real assets can still outperform financial assets going forward. For years, investors have been buying U.S. Treasury bonds, often with a yield less than the rate of inflation, which loses money on an inflation-adjusted basis.

Let’s look at a hypothetical bond for which the yield is exactly the same as the inflation rate (e.g., a 3%-yielding 30-year Treasury bond). In year one, the investor gets their inflation-adjusted return back, but unfortunately the 3% interest coupon they receive has a tax liability that must be subtracted. Therefore, if you scroll through another year, the purchasing power (principal) of that bond has fallen to 97% of the initial purchasing power, and the coupon payment is equal to 2.9% on the initial investment in inflation-adjusted terms, while inflation has actually compounded. This continues for the life of the bond. If inflation averages just 3% over the life of the bond, the bond (principle) is only worth 40% of your inflation adjusted investment upon repayment. That means that in real terms, you have been robbed of interest and you have lost 60% of your initial purchasing power. All this, while you were paying taxes and thought you were making money.

Table 2:
How inflation decreases the value of a bond

Year of Bond Investment	Nominal Principal Value	Adjusted Value of Principal Assuming 3% Inflation	Adjusted Value of Principal Assuming 5% Inflation	Adjusted Value of Principal Assuming 10% Inflation
1	\$1,000	\$970	\$950	\$900.00
2	\$1,000	\$940.90	\$902.50	\$729.00
3	\$1,000	\$912.67	\$857.38	\$656.10
4	\$1,000	\$885.29	\$814.51	\$590.49
5	\$1,000	\$858.73	\$773.78	\$531.44
10	\$1,000	\$737.42	\$598.74	\$348.58
20	\$1,000	\$543.79	\$357.53	\$122.00
30	\$1,000	\$401.01	\$214.64	\$42.39

The table above shows the future inflation-adjusted value of a \$1,000 bond, or loan. A \$1,000 loan made at the beginning of year one has only \$970 of purchasing power at the end of that year. If you compound the loss of buying power over 30 years, the principal repaid is technically \$1,000, but the purchasing power is only \$401.01.

Also notice the big difference in compounded inflation between 3% and 5% inflation rates. After 30 years, you have one-half the buying power of the principal if the inflation rate goes up 2%. If the inflation rate doubles again, you lose 80% of the debt again. Politically, this compounding of inflation is the most acceptable way to reduce debt over the next 20 or 30 years.

Globally, there are more than \$7.5 trillion USD in government

bonds with a negative yield. (At least we had positive rates in our example above.) When a bond has a negative yield, it means the investor pays more for the bond than the actual cash flows coming back from it. Quantitative easing has led to historically low interest rates, which means an entire asset class has negative real return expectations going forward. That alone should be a reason bonds should sell off, and interest rates go up.

What does that mean for your investment portfolio? Although interest rates might move low again during the upcoming recession, the longer-term trend (five- to 30-year view) will be an increase. Financial assets do poorly in this environment. As interest rates increase, the value of bonds fall, just the opposite of the environment of the 1980s and 1990s. Stock prices also fall as P/E ratios increase, and many companies find it hard to pass along inflated costs and maintain margins. The companies able to pass along costs tend to be raw material producers, such as oil or mining companies.

As mentioned in Chapter 7, an investment shift away from stocks and bonds and toward real assets requires a few different skills. As an equity investor, you have not experienced the kind of volatility you will experience as a raw material investor. Traditionally, commodity markets show more of a tendency for shorter, stronger advances, followed by periods of consolidation or even nearly retracing their upward move back down. It's a process of four steps forward, three steps backward. It's more important to be disciplined with price in real asset investing than it is in stocks. Buy a little when prices are low, and then don't chase markets; wait for prices to come back down significantly again.

The polar opposite of commodity investing was investing in consumer non-durable stocks in the 1980s and 1990s, such as Philip Morris, Coca-Cola, Merck, or great growth stories like Walmart. For decades, these companies had long track records of steady earnings growth of more than 16% per year. As interest rates fell,

these long-term growth stocks were almost like bonds with increasing non-cyclical earnings every year. They also tended to be less volatile than the overall market. An investor could average into these shares year-in, year-out and make a tremendous amount of money as interest rates fell. Not surprisingly, I believe these types of equities are bad investments going forward. It will become increasingly hard for them to achieve earnings growth, and the price people will be willing to pay for them will decrease substantially as interest rates move up.

With real asset stocks, you need to concentrate on understanding what the company's peak earnings for that cycle might be. Keep your eye on long-term earnings potential and NOT the quarterly earnings announcement. It's also crucial to pay attention to valuation. Although earnings these companies will grow, don't kid yourself; these are not growth companies. These companies will grow their earnings because of the change in the inflationary environment. You are buying an asset with high fixed costs that promises an inflation-sensitive revenue stream. Real asset investors must be extremely value-oriented and able to invest in several different real asset markets. One year, oil may increase dramatically; perhaps the following year, agriculture or mining might move. Success in an inflationary environment requires an investor to watch several markets at the same time. Let's begin looking at these specific commodity markets.

Mining

Mining is a market with fundamentals (like oil stocks in the 1970s) that suit the future economy. The only way to really invest in mining companies is through the stock market. While equities in general will be weak, mining is an area of the equity market that has languished for years, and it tends to have lower correlation to consumer demand. Beyond the basic fundamentals, mining typically benefits from inflation. Mines have high fixed costs (i.e., the infrastructure, shaft in the mine itself, processing equipment, etc.),

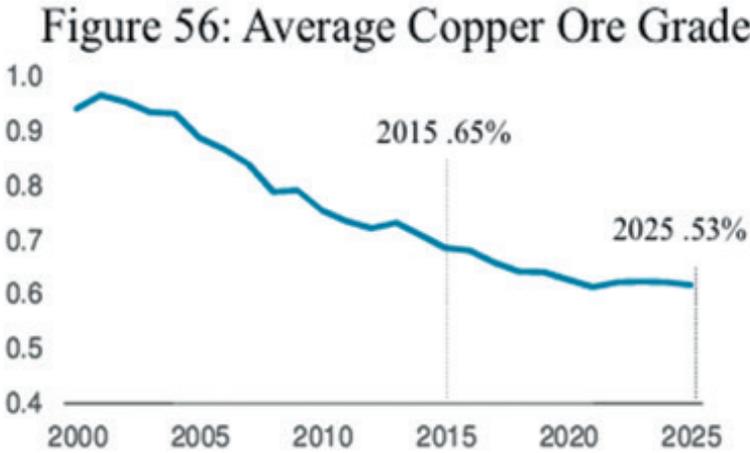
but the cost structure has a lot of operational leverage. In other words, many of the costs are paid upfront for the life of the mine, while the product price is free to respond to market forces and inflation. If inflation ramps up, revenues increase more than the fixed cost associated with production.

Traditional metal extraction, such as copper mining, holds promise in an inflationary environment. Other minerals also have strong investment potential, such as vanadium and cobalt. These minerals are used intensely for conducting electricity and storing electric power. Electric vehicles, electricity storage, and electricity generation are all areas that will create new demand for minerals. The average electric car contains three times the amount of copper of a traditional car. Furthermore, copper demand looks set to increase with the need for new electronic technologies and small motors.

With new big breakthroughs in battery technology, demand for lithium, cobalt, and nickel are increasing. Vanadium, which is currently used to strengthen rebars, can also be used to create a vanadium flow battery. These batteries have superior characteristics in the storage of large amounts of electricity (e.g., the ability to store power produced from a solar electricity project). Early test batteries indicate there is no patterning of the battery as there is in cell phone or computer batteries, so their industrial life should be greater than 20 years. This greatly reduces battery cost over the entire life of the electronic. These new materials are starting a whole new mining sector.

I think mining will have a very long product life cycle. Globally, a couple billion people have entered the middle class in the last 20 to 30 years, which has spurred demand for many mining products. Bigger better houses require more copper. This demand story should unfold over several decades, allowing investors to invest in stocks for the long-term. Using copper as an example: it is estimated that copper consumption consumed this year will exceed

production. We are already in a supply shortage and global inventories are very low. The difficulties in producing copper cheaply are evident in Figure 56, which shows the degradation of the average copper ore grade since 2000.



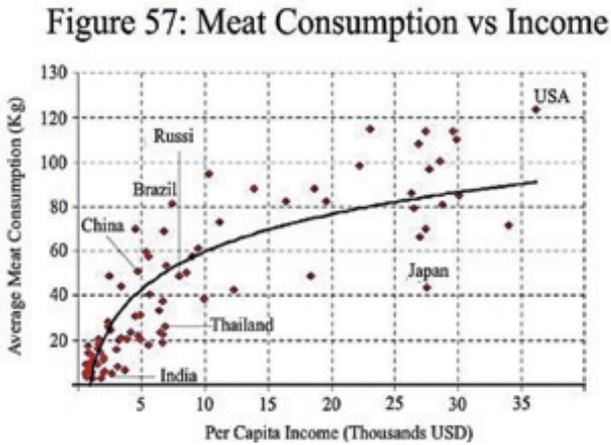
Ore grade indicates what quantity a mine needs to process in order to produce a given amount of copper. From 2000 until 2015, the average ore grade fell from approximately 1% to 0.65%. Put another way, this means the industry must process 50% more ore to create the same amount of copper. This will increase the cost structure of copper in the future, so production will lag demand, suggesting a promising long-term investment opportunity.

Farmland

Farmland has strong long-term characteristics. Once again, its fixed cost base is very high. A farmer must buy land or rent it at a fixed price, as well as purchase expensive equipment. While most costs on a farm are fixed, the price of crops can fluctuate wildly, thus when there is inflation, farmers see their profits increase over time.

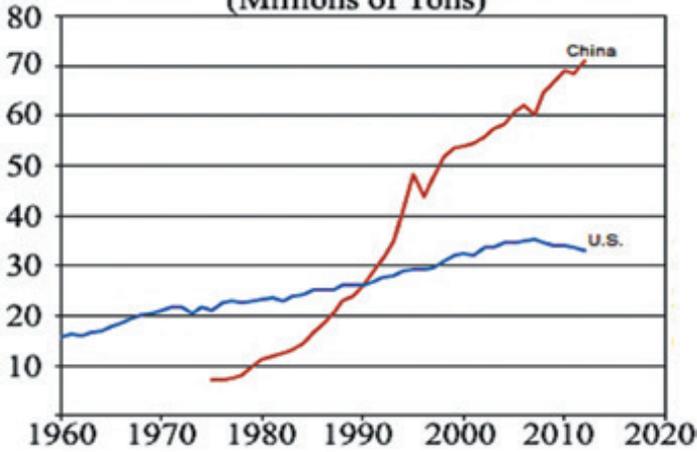
There is also a positive long-term story for food demand. Protein consumption on average has increased during the last 40 years

globally, based on advancements in the developing world. In order to produce animal protein, the animals need to be fed grain. Thus, increasing global demand for protein drives up demand for grain as well. Merrill Lynch conducted a study recently that showed when household incomes rose above \$5,000 per year, the percentage of income spent on consumer products and protein increased dramatically, because basic needs of shelter, water, and clothing are already met. These new participants in the global economy are going to buy more and better food. Figure 57 shows how meat consumption, specifically, increases as incomes rise.



By far, the biggest swing on increased meat production has come for China during the past 20 years. Figure 58 depicts the long-term upward trend in China's total meat consumption. Tastes and preferences in China are likely to change as well. Beef is currently seen as a luxury item over chicken. Therefore, the demand for grain should be extended even further.

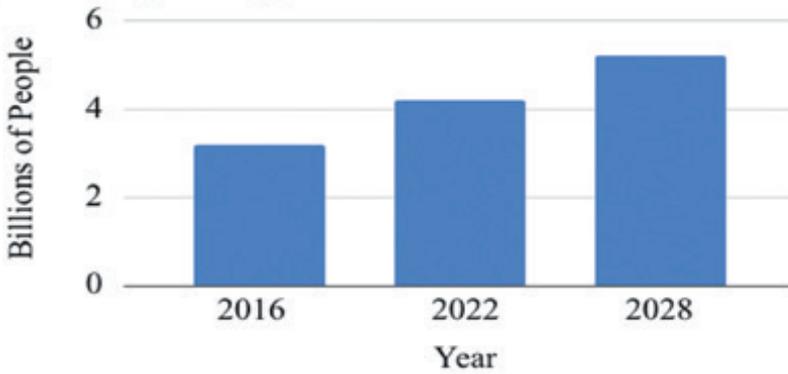
**Figure 58: Total Meat Consumption
(Millions of Tons)**



The upward trend in meat consumption in China is spreading to other developing countries in Asia and South America. Due to cultural differences, the relative importance of animal protein in India may remain lower than in other countries, but even when beef is not preferred, demand for chicken, lamb, and fish demand is strongly rising.

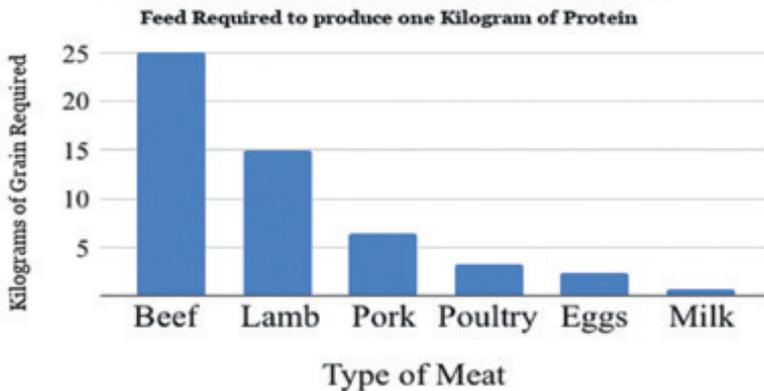
This increase in global middle class spending is spreading across many countries. According to the Brookings Institute, the number of people in the global middle class is expected to increase by approximately 60% between 2016 and 2028.

Figure 59: Global Middle Class



As meat consumption increases, the demand for grain goes up even more, as Figure 60 shows. Although some countries have markedly different meat consumption patterns, all animals must be fed. It takes 3.3 grams of grain to make 1 gram of poultry, 6.4 grams of grain to make 1 gram of pork, 15 grams of grain to make 1 gram of lamb, or 25 grams of grain to make 1 gram of beef.

Figure 60: Feed Conversion Ratio



With the percentage of protein in the diet likely to continue increasing as families move up income levels, and a record number

of people moving into the global middle class, the basic demand for grain looks very strong going forward.

Participation in farmland investments is a more difficult than some other real assets. With mining companies, you can simply purchase shares on the equity market, but with farmland it is hard to directly invest. You can invest in farm-related companies such as equipment manufacturers, fertilizer companies, or grain trading companies. On a global basis, there are a number of palm oil companies across Asia and some listed farming companies.

With these types of investments, however, investors have a hard time seeing through the cyclical downturns, and the stock prices often move well below book value. This prevents public farming companies from expanding during downturns as they should.

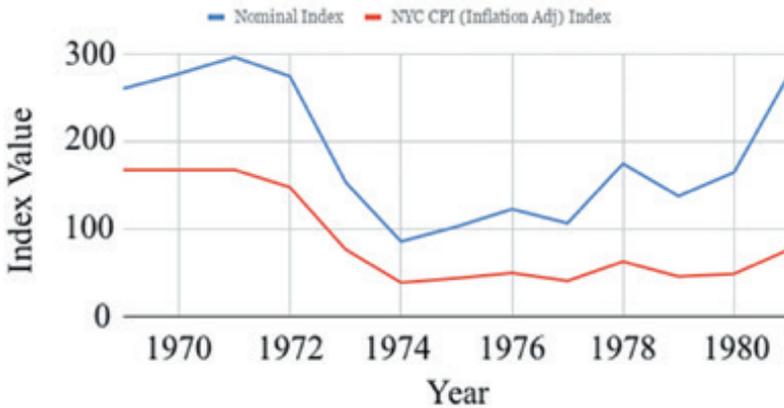
The best way to participate in farming is to buy a farm and hire a farm manager to operate it for you. This often takes a high minimum investment. You need to have some economy of scale. For row crops, an investor should be looking for at least 1,000 acres, and at \$6,000 per acre, that's a minimum of \$6 million USD to get started in farm development.

Non-Farm Real Estate

Real estate investments will eventually benefit from higher sustained inflation rates, but there is always a balance in this type of investment. Currently, most residential real estate does not interest me. Eventually it will, but it is quite vulnerable in the next several years. Many of the real estate investments that are currently popular could go through a steep decline before responding to inflation. The short-term difficulty is due to increased financing costs, which hurt affordability in the short run. As inflation rates pick up, interest rates go up, which means the same house is less affordable for a family at a given income level. Lending standards also grow more stringent as interest rates increase. This combination

of tighter lending requirements and lower affordability can cause short-term weakness in real estate prices in formerly hot markets. On the medium- to long-term, inflation helps real estate values. Eventually, new demand starts to require housing, the replacement cost of materials and building costs start to move up rapidly and are eventually reflected in real estate markets.

Figure 61: Manhattan Real Estate Values



This process reflects what happened in the Manhattan housing market in the 1970s. Manhattan was representative of a “hot” real estate market in the post-war period. As inflation increased, it was therefore extremely vulnerable to higher mortgage rates of the 1970s. In the next recession, a similar process could again play out in the currently “hot” real estate markets in New York, California, and Texas, to name a few. Affordability goes down when rates rise.

Although the 1970s were a net-positive decade to invest in Manhattan real estate, prices actually fell sharply during the first half of the decade, as real income in the financial sector declined. This came to a head in the 1975, with the near bankruptcy of New York City finally putting the low in the housing market, at which

point prices slowly moved up in nominal terms during the second half of the 1970s.

Jason Barr, a professor at Rutgers University, spent a lot of time creating an index for Manhattan real estate, going back even to the 1870s. In the four decades after the civil war, with America's industrial growth, New York established itself as the financial capital of the U.S. The city's growth over the past 100 years is a well-known story. But professor Baer points out, in the few years before the bottom in 1977, real and nominal returns from investing in Manhattan Real Estate fell. The Real Estate market in New York was quite strong during the 1950s and 60s, and you can see the index put in a price of 297 in 1971, within three short years, the index hit a low of 86 in 1974. The index then bounced up a little bit during 1976-77 78 but investment returns were very muted up to 1979.

Of course, real estate investing is all about location. In oil-producing areas like Houston or especially Midland, Texas, home prices went up dramatically during the entire 1970s decade. I highlighted Manhattan example because if we are heading into a period of higher inflation, New York's real estate market has already been very hot, perhaps similar to the current situation in Austin, San Francisco, and Los Angeles, to name a few. Real estate investment returns are likely to be quite subdued in the next real asset cycle for the currently "hot" markets.

Furthermore, many investments in multifamily houses were sold as bond proxies to investors during the period of low interest rates between 2009 and 2016. This caused a sharp rise in multifamily housing value as investors were pushed into any investment that had yield. These too will face sharp downward pressure because of interest financing costs, then should appreciate with inflation less depreciation. Therefore, the very expensive real estate markets look especially vulnerable going forward.

Precious Metals

“There is something about gold... I’ve thought about this for a number of years, and I reached a blank. It’s almost as though, technically speaking, the ability of having a stable price, has great value.”

Alan Greenspan

I admit that I am not a gold-bug. Many real asset investors tend to *overemphasize* this yellow metal, but it does have several characteristics that are good in a real asset boom. It is easily bought, sold, and transported. It is divisible. It is universally bought around the globe as a store of value. Gold has been used as a surrogate form of money for centuries. All of these qualities can make it desirable during a time of inflation. Furthermore, many of the newly industrialized nations across Asia have valued gold for centuries. As these countries become wealthier, gold has spurred a whole new wave of buyers in Asia.

Precious metals like gold deserve a portion of a portfolio during a real asset cycle, but I would also like to point out some of their drawbacks. Precious metals are only a store of value, and this is their greatest flaw. Over centuries (literally), gold has been a stable way to hold value. However, gold doesn’t actually produce anything, which represents an opportunity cost for the investor. With other commodities like timber or oil rights or real estate, the investor has something of value that produces something. Gold pays no dividend and earns the owner nothing other than the price of the metal. That’s why I tend to deemphasize precious metal investments, but there is a good rationale to invest a portion of a portfolio in precious metals.

The first (and strongest) case for gold in particular is that the actions of central banks around the world have created a situation in which money itself has been debased. Without the gold standard, politicians can promise any number of programs and the money

could be freely printed to support them. Second, bankers had a great interest in the free printing of money because it allowed them to create financial assets, loans and bonds, also without market discipline or limit.

Figure 62 depicts the price of gold going back centuries. The United Kingdom has one of the oldest financial markets, so the data from London markets is extremely useful for looking at long-term trends. Gold is one of the longest traded assets around. Frankly, I find it amazing that we know that one British pound was worth approximately 1 ounce of gold back in the 1300s. The graph shows a slow but steady debasement of the pound over time; by the 1700s, the price of gold had reached about 4.5 pounds an ounce, and generally stayed around there as the pound became the chief trade currency on a global basis. Then the price jumps from 4.5 pounds, after the fall of Bretton Woods, to nearly a thousand pounds an ounce today. This reflects the new reality of debt and inflation in the global economy. The world really changed post Bretton Woods. Note that the scale is logarithmic.

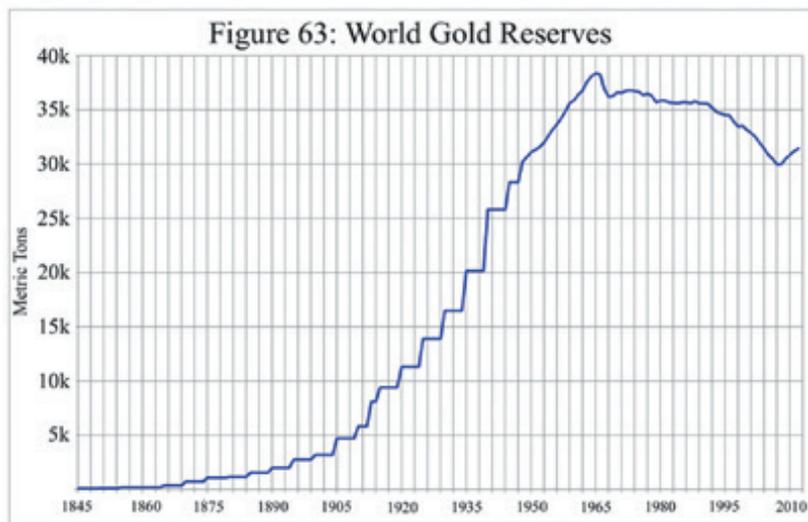


During the post-Bretton Woods era, the inflation rate in the United Kingdom averaged higher than in the U.S., so inflation was a larger factor in the price of gold in pounds versus U.S. dollars. A British investor who bought an ounce of gold in the mid-1960s would have seen that investment go up by approximately 80 times. If the same investor had invested in a stock index, the return would only be about 35 times the initial investment. Over this long time span, gold's return was substantially better than equity investments. This is quite a different outcome than U.S. investors would have expected. Remember that during this time period, Britain lost its status as a reserve currency and suffered through years of higher inflation. The depreciation of the pound itself was a large contributor to gold's outperformance over British stocks.

Many of these same forces that caused gold to strongly outperform among pound-denominated assets are now present in dollar-based investments. Therefore, the post-World War era for the United Kingdom may prove an excellent template going forward. Although the U.S. was a contributor in the global economy between World War I and World War II, it was still relatively isolated from the rest of the world. It's only in the post-war period that the U.S. truly evolved into the most important financial and manufacturing center of the developed economies. Prior to that, the British pound was the chief reserve currency.

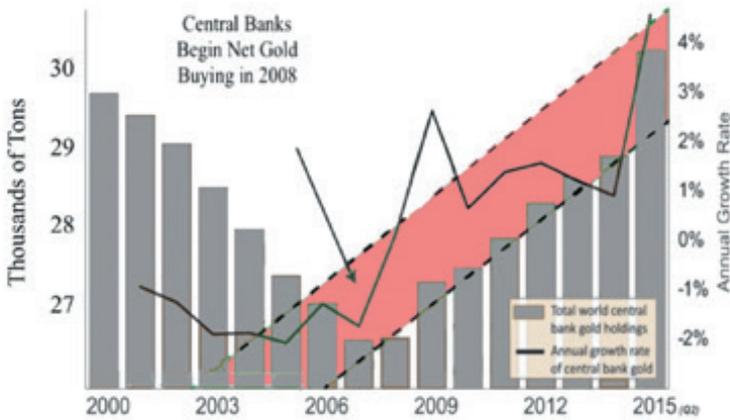
One can argue that the U.S. dollar may have a diminished role in global trade going forward from here. Central banks are making moves away from the U.S. dollar as the principal currency to settle international trade. This would put the U.S. in a very similar economic role as Britain in the post-war period.

Note that gold reserves for all central banks peaked around 1970; after the fall of Bretton Woods, central banks sold gold and diversified into trade currencies, primarily the dollar.



This may be showing up in the changing composition of central bank reserves. When the Bretton Woods system fell apart in 1971, there was no reason for central banks to hold gold. Most global trade was settled in dollars, and there was little reason to hold anything but dollars. In the past few years, gold reserves have begun to increase again, primarily driven by central bank purchases of gold in Russia and China. Additionally, emerging economies of Brazil, India, and other nations are seeking to break the dollar monopoly for trade. Several have signed large trade deals that do not use U.S. dollars to settle trade. For example, Russia is exporting oil to China for settlement in Chinese yuan, and Russian central bank is in turn using the yuan to purchase gold on the Shanghai exchange. If central banks start to move away from U.S. dollar reserves because of perceived growing inflation, one would expect that central banks would become net buyers again of gold. Indeed, they have started, thereby pushing the price even higher.

Figure 64: Central Banks are Net Buyers of Gold



Although gold has its drawbacks, it has characteristics that are valuable in a real asset boom. It's divisible, so you can sell a portion of your gold holdings, whereas it's hard to sell a portion of a farm or apartment building. It's transportable, so it can be delivered to the highest bidder or easily used to settle trade deals. Gold has long had the status of money, and now, several central banks are reducing their U.S. dollar holdings and increasing their gold holdings. It's often a good strategy to mimic the investment behavior of central banks. On balance, gold holdings by central banks are going up.

The Hong Kong Dollar Peg

Although the Hong Kong dollar peg is not a real asset investment, it is an investment concept that may be valuable if the western governments implements extreme monetary policies in an economic downturn.

I'll explain the concept here. In October 1983, the Hong Kong dollar (HKD) was fixed in value to the U.S. dollar (USD) at a rate of 7.8 HKD to 1 USD. In 2005, the fix was changed to a band between 7.75 and 7.85. Remember that if one currency fixes (or

pegs) its value to another currency, it also fixes its monetary policy to the other currency, regardless of economic differences. If the economies diverge too much, the fix (or peg) must be broken.

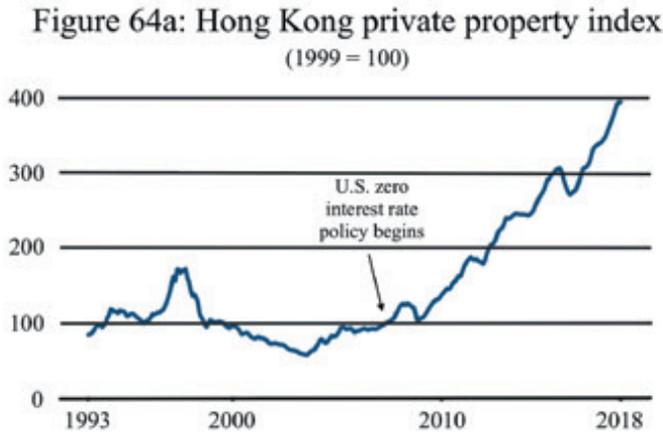
In this example, the Hong Kong monetary authority unilaterally fixed the value of the HKD after a period of weakness in 1983. When Hong Kong was much smaller, it was trying to add credibility to its currency by linking it to the USD. If Hong Kong wanted to become a center for trade and banking, it needed a more stable currency. Just as when the USD was linked to gold, or European currencies were linked to the USD after World War II, Hong Kong linked its currency to the USD.

This worked well as long as Hong Kong was primarily an export-nation to the U.S. and Europe. During the 1980s and 1990s, the U.S. set interest rates, and Hong Kong could also adopt those interest rates. The two economies were in sync. The U.S. monetary policy gave Hong Kong stability.

However, a major problem has developed during the past 10 years. The U.S. economy has pursued an aggressive monetary policy with near zero rates, while Hong Kong's economy has become more reliant on a growing China. The two nations' economies are not as similar and aligned as they once were. If a currency pegs its value to another currency, interest rates must also be the same. If not, then savings from the lower-yielding currency would be sold and invested in the higher-yielding currency, thereby breaking the peg.

Throughout the past 10 years, with very cheap interest rates imported from U.S. monetary policies, the Hong Kong monetary authority has been forced to keep its interest rates too low, and this has led to an extraordinary credit bubble. As we know from past fixed currency rate arrangements, the currency fixing comes apart when the economies separate. During this same time period, the U.S. monetary policies have been aggressive because the U.S. Federal Reserve was trying to accelerate a sluggish economy. The Hong Kong economy, especially

given its linkage to the newly emerged Chinese economy, is anything but sluggish. Interest rates should be different, given the two countries' different growth rates, but the old currency peg was still enforced.



Hong Kong now is one of the most indebted economies in the world. Its housing market became the world's most expensive, as demand for real estate dramatically rose and interest rates were kept low. Currently, the Hong Kong banking system, as well Hong Kong property companies, are uniquely vulnerable. Sometime, this will be a very profitable short.

Closing observations on Real Assets

For five generations, my family has farmed in southeast Nebraska. We remain active in the family farming business to this day. My father was also very fortunate in earning the opportunity to attend the Harvard Business School in the early 1960s. After graduation, he embarked on an investment career, always keeping Nebraska as his home.

On weekends and after school, as we did chores together, my Dad and I always talked about economics, the markets, and history. I learned a lot about his investments, and I became fascinated by markets and the movement between real assets and financial assets. I began to clearly understand how and why my family's farm

thrived, and then declined, and grew again over five generations. I was literally working on a 150-year-old living textbook on economics. Decade by decade, I knew when farming was profitable, and when it was hard.

As a kid in the 1970s, I remember my Dad's activities in cattle feeding and oil. I clearly remember in 1981, when he stopped cattle feeding and drilling for oil, and put the proceeds into the equity market. It was a shocking trade from real assets into financial assets. He timed that trade perfectly.

I went on to have my own career as an international mutual fund manager and hedge fund manager. The lessons I learned from my Dad's 1981 trade stayed with me. In 1999, right before the tech bubble burst, I resigned as a mutual fund manager. I definitely do not get all the timing correct, but I have been able to lean against manias and reinvest into new, less popular opportunities. I try to put capital in a new position after another trade has been extraordinarily profitable; this allows me to move on to the next logical step.

Currently, I think the next logical step is an exact reversal of my Dad's 1981 trade, this time getting *into* real assets and *away from* financial assets. We have looked at the reasons why financial assets outperformed during the past 40 years, and I am not one of the "super bears" who thinks a financial depression is in front of us. As I've tried to show in this book, it depends on what central banks do.

Looking at the various paths that the economy might take, the majority of outcomes favor real asset investment. The timing varies, but real assets appear worthwhile for the future. I have high conviction that over the next few years, investments away from financial assets into real assets will be timely. If there is a stronger recessionary shock, then it depends on what policymakers choose to do. Regardless of short-term inflation or deflation, I think it is time to get real.

CHAPTER 9 — SUMMARY

The framework I've used to analyze the financial environment is primarily based on history, beginning with the defining presidential race of 1896, the first strong populist race that introduced debate about modern central bank policy. William Jennings Bryan, with his “cross of gold” speech, directly called for loose monetary policy and the free printing of money, in order to help debtors and grow the economy.

Although the dollar remained tied to gold until 1971, there was a general movement through the 20th century toward an increasingly relaxed monetary policy. A watershed for this movement was the establishment of the Federal Reserve in 1913, which gave the country a central bank that could affect monetary policy. During the 1930s depression, the Federal Reserve raised the price of gold was raised from \$20 to \$33 an ounce, thereby literally increasing the monetary base and money supply nearly 50% overnight. After suspension of the gold standard during World War II, the Bretton Woods system was adopted to facilitate international trade and settlement. This agreement once again fixed the U.S. dollar to the price of gold and fixed other foreign currency rates to the U.S. dollar. European currencies were effectively fixed at a relatively low rate, allowing them to rebuild after the devastation of World War II.

The Bretton Woods agreement was abandoned in 1971. In this new era, governments were able to freely print money, and in the

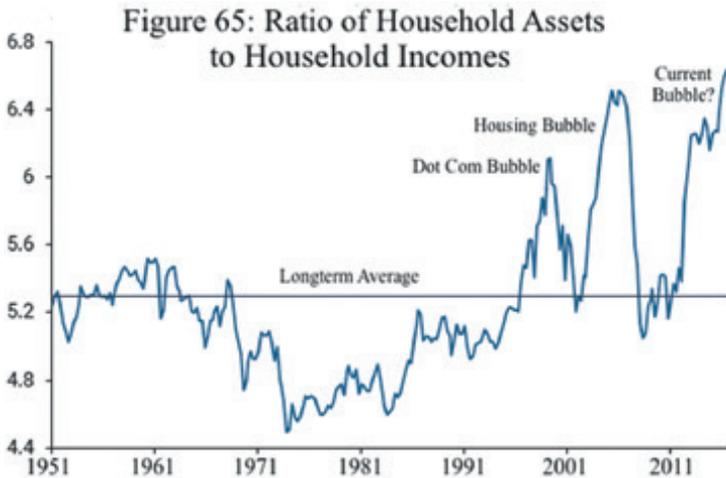
time since, central banks around the world have been increasingly active in the global economy. Most central banks have adopted a dual purpose, taking on the responsibility for both full employment and price stability. These two objectives can sometimes come into conflict with each other. I believe as recessions become more pronounced and extended, central banks will prioritize the goal of full employment at the cost of price stability. Historically, when push comes to shove in a democracy, the populace wants to borrow and debase the currency in order to achieve higher employment. Increasingly, this is been the pattern of central bank activity.

Currently, the global economy has more debt than ever before in history. Even as a percentage of GDP, it is well in excess of total debt in 1929. However, the Federal Reserve and other central banks also have more tools to deal with this extreme debt, and I believe these tools will lead to an investment environment very different from the current one.

Since the fall of Bretton Woods, each successive bubble has grown larger. There was the savings and loan crisis in the mid 1980s; the emerging market crisis in the 1990s; the technology crash in the 2000s; and the global financial crisis in 2008 that centered around the overvaluation of real estate. Now in 2019, we face what some market participants call the “everything bubble.” Very low interest rates have enticed many sectors of the economy—and whole country—to borrow a tremendous and unprecedented amount of money.

It is difficult to pinpoint just one overvalued asset group in what some people are beginning to call an “everything bubble,” but it is captured in total household assets. Housing is high, although not as leveraged as in 2007. Equities are highly prices, but not at the level of 2000 mania. Nevertheless, assets taken as a whole are quite high relative to consumer income, as shown in figure 65. The bubble

is everywhere at once: property in London, New York, and Hong Kong, and equities in China and the U.S.



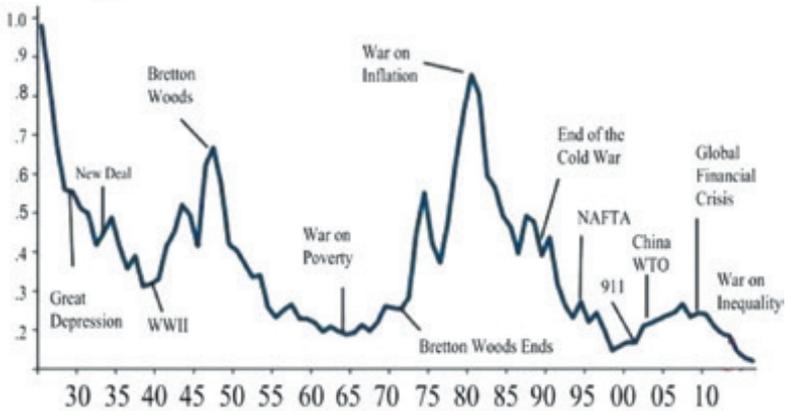
As a result, many assets have rapidly increased in value as borrowed money chases those valuations ever higher. This is reflected in corporate balance sheets, public debt and equity markets, private equity valuations, and real estate values. The only two choices we have going forward are to slowly pay off that debt and face deflation, or to try to grow our way out of debt by causing inflation. Democracies faced with the next recession, as I have said throughout this book, will most likely vote for inflation and more money printing.

Since 2009, the Federal Reserve and other central banks have used quantitative easing to print money. These measures were done with great care to avoid outright inflation, and they have been successful so far. However, the politicians now espousing Modern Monetary Theory (MMT) want to expand this “new tool” of printed money. The MMT proponents don’t necessarily have to be successful in a national election in order to have an impact on public policy. They have already “succeeded” in shifting public mindset toward an idea that government deficits don’t matter. Although inflationary

readings are not immediately on the horizon, there is a strong radical shift that favors the monetization of debt. This is a generational shift in which the populist policies of William Jennings Bryan truly seem to have won the policy debate over the last century. In previous debates about monetary policy, Keynesian economics entered the discussion. According to Keynesian thought, normal activities and use of capital would “crowd out” business investment by excessive government borrowing. Interest rates would rise above a level that made economic sense. With MMT, older Keynesian policies have a new lease on life because they hew to the belief that the Federal Reserve simply will monetize the debt, and therefore government programs have no effective limit. If government spending therefore has little or no limit, that will be inherently inflationary.

This book examined four possible scenarios for the economy and investment returns. While I tried to present them equally, I believe we are eventually heading into an inflationary period; long-term deflationary scenarios are less likely because of central banks’ growing reliance on their new powers to print money and purchase debt. It seems likely there will be another recession. Somehow, somewhere, the economic excesses brought on by excessive debt will become visible in the global economy. Perhaps a trade war or policy error from a large global central bank will provide a spark that ignites a global recession. In the clamor that arises when politicians mobilize a response, I believe policymakers will rely even more heavily on monetizing debt and printing money. Once inflation begins, with employment facing structural difficulties, it will be extraordinary hard to stop. Policymakers will face a difficult choice between inflation and employment.

Figure 66: Real Assets relative to Financial Assets



Given these changing tides and in light of historical patterns, I believe there's a high probability of success for investments in real assets. Monetary, fiscal, and investment policies favor an increased allocation to real assets.

As one can see in the graph above, one can see real assets have endured a strong bear market since 1981. Now, the interest rate environment is completely opposite. It's time to Get Real with your investments.

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Figure 3: William Jennings Bryan

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Figure 4: William Jennings Bryan, Judge Magazine

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Figure 5: Real Assets Relative to Financial Assets

Bank of America Merrill Lynch Global Investment Strategy, Global Financial Data, Bloomberg, USDA, Savills, Shiller, ONS, Spaenjers, Historic Auto Group.

Note: Real assets are an average of commodities, real estate, and collectibles) relative to financial assets which are an average of large capitalization stocks and long-term government bonds.

Figure 6: U.S. Long (10-year) Yields

Source: Global Financial Database, Federal Reserve Data, Goldman Sachs Global ECS Research.

Figure 7: Velocity of Money

Federal Reserve Bank of St. Louis

Figure 8: Real Assets Relative to Financial Assets

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Figure 9: Relationship of Interest Rates and Bond Prices

Arithmetically derived

Figure 10: Relating P/E and Interest Rates

$P/E = 1 / (C - G)$. Arithmetically derived. As C increases, then P/E gets smaller and visa versa. In the Risk Premium Factor Model, C is the cost of capital, which equals the 30-year Treasury yield x 2.48. Increases in interest rates cause large increases in the equity cost of capital and lower P/E/ ratios.

Figure 11: Long-term Rates and Equity Price to Earnings

Data from http://www.econ.yale.edu/Shiller/data/ie_data.xls

Figure 12: The Difference Your Interest Rate Makes
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Yahoo Finance. Price level of Dow Jones Index is adjusted to March 2018 dollars.

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Market Data, Bigcharts.com

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Federal Reserve Bank of San Francisco
Economic Research, Economic Letter January 8, 2018
Valuation Ratios for Households

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Federal Reserve Bank of San Francisco

Economic Research, Economic Letter January 8, 2018

Valuation Ratios for Households

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Thomson Reuters Datastream

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Note: Numerator is corporate equities; liability for the Federal Reserve's Quarterly Z.1 Balance Sheet (B.103). This series is also published in the FRED repository as NCBEILQ0275.

Denominator is Nominal Quarterly GDP

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Market Data, Bigcharts.com

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Institute of International Finance

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Federal Reserve Bank of St. Louis

Bank for International Settlements

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Chinese State Administration of Foreign Exchange 2000–2017

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U.S. Treasury Data, 12-month trailing purchases

Paul A. Rogge

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Source: Federal Reserve Board, Factset

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Source: New View Economics

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Deficits, debt, and looming disaster; reform of entitlement programs may be the only hope.

Federal Reserve Bank of St Louis

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Bank of America Merrill Lynch, World Economic Forum

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Federal Reserve Bank of San Francisco

Economic Research, Economic Letter January 8, 2018

Valuation Ratios for Households

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Board of Governors of the Federal Reserve

Calculatedrisk.com, Bill McBride

April 3, 2018

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Congressional Budget Office

Committee for a Responsible Federal Budget

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Bank of America Merrill Lynch

Federal Reserve Bank of St Louis

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Federal Reserve Board of Governors

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Source: BEA, Federal Reserve, BIS, UN Data, CEIC

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Source: Bank of Japan, CEIC, European Central Bank, FRED

Measured in total assets, its size surpassed that of the U.S. banking system in 2010, and even all euro area banking systems put together in the last quarter of 2016 (see Figure 1). It is now clearly the largest banking system in the world, with \$35 trillion in total assets (about 300% of China's GDP)

Figure 41: Chinese Household Debt

Financial Times, PBOC

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Washington Center for Equitable Growth

National Bureau of Economic Research

Working Paper 20625

Saez and Zucman

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Paul Rogge

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Market Data, Bigcharts.com

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Market Data, Bigcharts.com

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Market Data, Bigcharts.com

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Source: IMF, World Economic Outlook,
REITI, Research Institute of Economy, Trade, and Industry

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Bank of America Merrill Lynch, World Economic Forum

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Economic Research, Economic Letter January 8, 2018
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Source: U.S. Census income data, historical, household
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Bank of America Merrill Lynch Global Investment Strategy,
Global Financial Data, Bloomberg, USDA, Savills, Shiller, ONS,
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Note: Real assets are an average of commodities, real estate, and collectibles) relative to financial assets which are an average of large capitalization stocks and long-term government bonds.

Figure 56: Average Copper Ore Grade
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Nikkei Asian Review
Hong Kong's highflying home market
October 7, 2018

Figure 64: Central Banks Are Net Buyers of Gold
World Gold Council
Gold.org

Paul A. Rogge

Figure 65: Ratio of Household Assets
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