

In light of the uncertain economic impact of the COVID-19 Pandemic, we are making this article freely available. Our goal is to remind investors and decision makers that a return to the status quo ante before January 2020 is very unlikely to be a sufficient policy response, as the economy then very clearly displayed substantial weaknesses with dangerous long-term implications.

The Next Downturn: How Different? How Deep? How Long?

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By Tom Coyne

"Each [failed estimate] involved historical discontinuity, and, in the early stages...unlikely outcomes. The basic problem was...situations in which trend continuity and precedent were of marginal, if not counterproductive value."

"Report on a Study of Intelligence Judgments Preceding Significant Historical Failures", CIA, 1983 (Declassified 2006)

The global economy is approaching the end of a ten-year long expansion following the 2008 financial crisis. This analysis focuses on three questions that increasingly preoccupy investors: How different will the next downturn be from those we have experienced in the recent past? How deep will this downturn be? And how long will it last?

How Different?

At the highest level of aggregation, our model of global political-economic dynamics is driven by two factors: (1) the natural tendency of complex adaptive systems to vary between states of relative order and relative disorder, and (2) the natural tendency of social systems to vary between periods of cooperation and conflict.

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Together, these give rise to four regimes that recur throughout history in a predictable sequence: order/cooperation; disorder/cooperation; disorder/conflict; and order/conflict. At the risk of appearing overly deterministic, a crude approximation is that each regime occurs at intervals of about 40 years. Today's regime is characterized by growing disorder and conflict; by our reading of history, we previously saw such regimes in the vicinity of the 1970s, 1930s, and 1890s (again, we stress these decades are just approximations of both the timing and length of these regimes).

All of these periods of growing turmoil were followed by ones in which heightened conflict (WW1, WW2, and the Cold War in the 1980s) re-imposed a degree of order on the global system that, following the resolution of the conflict, later gave way to increased cooperation.

So in this sense, the next downturn will very likely take place in a global political-economic context that many people working in companies, financial markets, and government have never experienced before.

Beyond this context, there are many disruptive trends underway that are likely to make the next downturn very different from ones we have seen in recent years. Looking just at technology, economics, and finance, these include:

Technology

- Transition from industrial to digital/knowledge-based economy; the last time this happened (agriculture to industry) it took 40+ years and involved substantial economic disruption, social suffering, and political unrest.
- We now live in a world of global hyperconnectivity, where information, emotion, and behaviors diffuse with unprecedented speed.

The Economy

- Persistent weakness in aggregate demand, driven by a complex mix of reinforcing causes that include population aging; record levels of debt/GDP; a declining labor share of national income, compounded by

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worsening income inequality and winner-take-all competitive dynamics in a growing number of markets; and financialization of the economy (which has driven increases in leverage at non-financial corporations, and a preference for passing on the benefits of productivity gains to investors rather than workers).

- Expansion of potential supply in many traded industries, due to globalization (particularly since China joined the World Trade Organization in 2001) and/or improved technology.
- Bifurcated productivity growth, with high rates in some companies and industries (which has put downward pressure on employment in them), and low to negative productivity gains in others (e.g., healthcare and education), which has led to substantial price increases relative to incomes, and increasing pressure on household and government budgets. In the case of households, further pressure has come from restrictions on housing supply, which in many markets has driven up prices faster than income.

Financial Markets

- The increasing use of algorithmic decision-making has made many markets both efficient and potentially less liquid in a downturn.
- The growth of indexing, and particularly products like ETFs based on potentially illiquid assets (e.g., corporate bonds) that promise investors daily liquidity.
- Record levels of total credit/GDP, and the increasing use of credit growth to support current consumption (by the private and public sector), rather than investments that theoretically will increase both demand and supply. Put differently, weakly growing income streams are supporting ever-higher levels of debt. As Michael Pettis has noted, use of credit to support current consumption necessarily leads to reduced growth and consumption in the future (see, "*Why a Savings Glut Does Not Increase Savings*").
- Historically low levels of interest rates, including a rapidly rising stock of sovereign debt that now pays negative rates of interest, even as ratios of government debt/GDP have risen to historically high levels.

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To put this as starkly as possible: interest rates (the cost of credit) have been falling, even as the stock of public and private sector credit (and arguably its riskiness) has rapidly grown.

How Deep?

From complex adaptive systems theory, we know that the possible outcomes that can be produced by socio-technical systems like economies and financial markets is best characterized by a power law (Pareto) and not a normal (bell curve, Gaussian) distribution.

We also know that our understanding of the tails of power law distributions is limited by the complexity of the systems that generate them, with the 2008 Global Financial Crisis only the most recent example, to which I can add, just from my working years, the tech crash of 2001, the implosion of Long Term Capital Management in 1998, the Asian financial crisis of 1997, the Swedish banking crisis of 1992, the Japanese equity market collapse in 1990, the October 1987 crash, the 1980s' US commercial real estate and Savings and Loan crises, the 1982 LDC debt crisis, the 1970s' oil price and stagflation crises. And before these occurred, there were even more extreme depressions in the 1930s and 1890s that were accompanied by major social and political disruption.

The combination of this experience and the circumstances we all observe today leads me to conclude that the coming downturn will likely be among the deepest the world has experienced. The evidence, logic, and assumptions that underlie this conclusion are as follows:

Evidence

- Aggregate demand growth has been weak, with consumption supported by increasing expansion of credit. The recovery of aggregated demand is constrained by factors that cannot be changed quickly. These include demographic forces, depressed labor share of national income, income inequality, weak productivity growth (e.g., in healthcare and education), and record levels of credit/GDP. And with interest rates approaching, at, or, in real terms, below the Zero Lower

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Bound (ZLB), the effectiveness of monetary policy has been greatly reduced.

- Globalization substantially increased the productive capacity of the world economy. In a world of weak demand, this supply shock was fundamentally deflationary. In a world of low debt/GDP ratios, this deflation could have been beneficial. However, in an increasingly leveraged global economy, its impact is much more likely to be negative. While trade conflicts and disruption of international supply chains may either temporarily or permanently reduce effective global capacity, they will not reduce the growth in potential supply, and thus deflationary pressures, being created by the increasing use of automation technologies.
- The current level of uncertainty in the world is already high (and thus weighing down aggregate demand growth), due to a combination of technological, economic, environmental, national security, social, and political trends and events (e.g., see the [Evidence File](#) on our website).

Logic and Assumptions

- Liquidity problems and high-speed algorithmic decision making will accelerate any significant downturn in financial markets.
- Social media and other forms of hyperconnectivity will rapidly transmit shocks that further increase already high levels of uncertainty, and trigger reductions in consumer and business spending.
- Businesses will initially cut workers to stave off debt problems. This will further reduce spending.
- Accelerating declines in spending will be translated into accelerating defaults on household and non-financial corporate debt.
- Spending declines and rising defaults will cause declines in equity market values, which will feed back into an accelerating vicious cycle.
- Current political conflicts, both domestic and international, will prevent the development of a coherent narrative that might otherwise stem the accelerating rise in uncertainty and fall in confidence. Instead,

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these conflicts are likely to increase under the pressure of a global economic crisis.

- While the chances remain very unlikely, global economic decline may, either because of the preoccupation of the United States and other nations with domestic crises, and/or because of their urgent need to deflect attention from accelerating domestic crises, tempt China, Russia, Iran, and/or Korea to undertake a sudden strike intended to substantially improve their geostrategic advantage. These could include China invading Taiwan, a Russian move into the Baltic nations, an Iranian attack on or attempt to seize Saudi oil fields, and/or an attack by North Korea on South Korea. Any of these, particularly if accompanied by attacks on US space based systems, and/or cyber attacks on US infrastructure (e.g., power, etc.) would almost certainly trigger a global conflict.

How Long?

Any discussion of how long the next downturn will last must begin with an explanation on how we got into the problems we now face.

One of the leading explanations for weak aggregate demand (and indirectly the increasing use of credit to support it) is that the global economy has been experiencing a prolonged period of secular stagnation. The best-known proponent of this view is Professor Larry Summers. Another argument that has been put forth (e.g., by Professor Ken Rogoff, and Nomura Research Institute's Richard Koo) is that the current situation is similar to previous downturns that when debt levels were historically high (including those that came at the end of so-called "debt supercycles"). In these cases, weak demand reflected both lower spending (to pay down debt) and the impact of debt defaults (which cause company closures, higher unemployment, and more precautionary saving due to heightened uncertainty and fear).

The two explanations are not mutually exclusive, and are in many ways complementary. However, it is also important to note that in the present case, total debt/GDP levels have continued to increase, with private sector borrowing as a percent of GDP going down in the Eurozone and US (but up in China) and public sector borrowing going up in all three regions.

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In their paper, "*On Falling Neutral Real Rates, Fiscal Policy, and the Risk of Secular Stagnation*" Lukasz and Summers argue that, "neutral real interest rates would have declined by far more than what has been observed in the industrial world and would in all likelihood be significantly negative but for offsetting fiscal policies over [since the 1970s]"...

"Neutral real interest rates are best estimated for the block of all industrial economies given capital mobility between them and relatively limited fluctuations in their collective current account. We show...that neutral real interest rates have declined by at least 300 basis points over the last generation."

The authors claim that, "these secular movements are in larger part a reflection of changes in saving and investment propensities rather than the safety and liquidity properties of Treasury instruments. We then point out that the movements in the neutral real rate reflect both developments in the private sector and in public policy."

"We highlight the levels of government debt, the extent of pay-as-you-go old age pensions [and their funding deficits] and the insurance value of government health care programs have all ceteris paribus operated to raise neutral real rates."

[However], "we suggest that the private sector neutral real rate may have declined by as much as 700 basis points since the 1970s" [due to a wide range of trends, including aging, declining total factor productivity growth, rising inequality, and increasing concentration in many industries].

The authors conclude that their "findings support the idea that, absent offsetting policies, mature industrial economies are prone to secular stagnation [weak demand relative to potential supply]...Policymakers going forward will need to engage in some combination of greater tolerance of budget deficits, unconventional monetary policies and structural measures to promote private investment and absorb private saving if full employment is to be maintained and inflation targets are to be hit."

In another paper, "*A Model of Secular Stagnation*" Eggertsson, Mehrota, and Robbins formalize a theory of secular stagnation, and describe its economic consequences.

They begin by noting that in the aftermath of the 2008 crisis, many observers expected interest rates to rise again as demand growth returned. That they did not come as a shock to many. The authors' response is that

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“the low interest rate in 2008 was not just an anomaly that arose solely because of the financial crisis. Instead, it was the culmination of a 25-year trend across the major industrial economies”, and likely “represents a permanent change – a new normal.”

Their definition of secular stagnation is “a chronically binding zero lower bound (ZLB) on nominal interest rates, subpar growth, and inflation below target.” They conclude that “a policy of simply waiting for a ZLB episode to end is not a good strategy in a secular stagnation; there is no deus ex machine for recovery, as presumed in the existing literature, where the exogenous shock that is assumed to give rise to the ZLB must ultimately revert.”

They find that, “the main drivers of negative real interest rates are an aging population, low fertility, and sluggish productivity growth. While this trend may reverse itself, if current projections for fertility and productivity hold, our analysis suggests that the natural real rate of interest will be low or negative for the foreseeable future. Though productivity growth has experienced unexpected periods of acceleration and deceleration since the 1970s, the demographic factors accounting for a low natural real rate of interest are unlikely to abate.”

To put these impacts in perspective, the authors find that between 1970 and 2015 reductions in fertility, mortality, and productivity respectively accounted for reductions of (1.85%), (1.92%), and (1.90%) in the real Federal Funds rate. Like Summers, they find that “the main factor that has tended to counterbalance these forces has been an increase in government debt.”

The authors conclude that, “a key determinant of whether interest rates are likely to increase is whether the rate of productivity growth, which has slowed markedly since the 1970s, returns to its long-run rate of 2% per year.

In contrast to Rogoff, they also conclude that, “the deleveraging cycle need not culminate in a recovery of growth and an increase in interest rates.”

Like many others, the authors find that monetary policy loses most of its effectiveness at the zero lower bound. Instead, “fiscal policy is more effective in addressing the problems raised by secular stagnation...[However] the key for successful fiscal policy is that it must reduce the oversupply of savings and raise the natural rate of interest. Fiscal policy that instead

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increases desired savings, by, for example, reducing future disposable income through tax increases, can exacerbate secular stagnation.

Another recent paper considers escape from secular stagnation in the more complex context of an open international economy. In “*A Contagious Malady?*” Eggertsson, Mehrota, Singh, and Summers find that, “in a world with a low natural rate of interest, greater integration of financial markets transmits recessions across countries as opposed to lower interest rates. In a global secular stagnation, expansionary fiscal and other policies aimed at stimulating domestic demand carry positive spillovers for trading partners, implying gains from coordination, and fiscal policy is self-financing.” However, in the absence of coordinated fiscal stimulus across countries, because some of its benefits accrue to other nations, individual countries may be reluctant to commit to a sufficient level of stimulus.

“Expansionary monetary policy, by contrast, is beggar-thy-neighbor under global secular stagnation, with output gains in one country coming at the expense of others [which potentially argues for the use of capital controls under some circumstances]. Similarly, competitiveness policies, including structural labor market reforms [e.g., that increase wage flexibility] or neomercantilist trade policies [that encourage exports and discourage imports] are also beggar-thy-neighbor in a global secular stagnation” [which potentially argues for the use of tariffs and other trade barriers under some circumstances].

These papers imply that sustained recovery from the next downturn, which is likely to be both broad and deep, will require the following:

- Coordinated fiscal stimulus across countries that is focused on investment that will support higher growth, such as infrastructure, research & development, and improved education outcomes (although the US experience after 2008 with allegedly “shovel ready” infrastructure projects that were repeatedly blocked by various parties’ litigation makes one skeptical about the future effectiveness of fiscal stimulus);
- Agreement among countries to restrict the use of damaging monetary, structural, and trade policies;
- Initiatives to reduce income inequality, which may need to include initiatives to increase competition/reduce concentration in key sectors of the economy;

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- Initiatives to increase productivity growth, especially in those sectors where it has been chronically low (e.g., healthcare and education). Note, however, that achieving this will require accelerated deployment of productivity improving technologies like automation and artificial intelligence, as well as an increase in the number of employees who can apply them;
- Initiatives to increase the supply of housing and reduce its price;
- New initiatives (including regulatory initiatives) designed to minimize the employment impact from the deployment of productivity enhancing automation and artificial intelligence technologies (note that some of these will tie back to improved productivity in the education sector, e.g., around lifetime learning). For an excellent summary of what these initiatives might include, see Oren Cass' excellent new book, *"The Working Hypothesis"* and the summary of it in an article with the same title in *The American Interest*.

There are two points to be made about the initiatives on this list. First, they will be very difficult to implement. As Mian, Sufi, and Trebbi conclude in their paper, "Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crises", "countries become more politically polarized and fractionalized following financial crises, reducing the likelihood of major financial reforms precisely when they might have especially large benefits."

Second, while some or all of these reforms are very likely to be necessary, based on my experience in Latin America during the 1980s, I do not believe they will be collectively sufficient to restore higher productivity, increase growth, and produce a more equal distribution of income unless and until nations take on the "He Who Must Not Be Named" of the current crisis: Excessive Debt.

While I am far from the first to make this point, it remains a minority view. As far back as 2010, William White (formerly of the Chief Economist at the Bank for International Settlements, who I greatly admire for presciently predicting the 2008 crisis), warned that "We Need a Plan B to Curb the Debt Headwinds" (*Financial Times*, 3Mar10), noting that both monetary policy (because of the Zero Lower Bound) and fiscal policy (because of market resistance to higher sovereign debt levels) would eventually reach their limits and no longer be able to stimulate further growth. He also noted that

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two structural approaches to reducing excessive debt (prolonged austerity to pay it down, and improving productivity to grow out of it) would struggle to gain political acceptance, and even then would likely produce a less than hoped for reduction in debt.

White then turned to various means of directly reducing debt, through writedowns, conversion to equity, or outright repudiation, and the difficult choices and political conflicts they were likely to entail.

Based on my experience in the LDC debt crisis, I offer the following builds to White's conclusions:

- Extended austerity provokes political resistance, particularly in an environment of substantial income inequality, and easy social comparisons between the majority's reduced consumption and the elite minority's conspicuous consumption. Except over short periods, it is not sustainable.
- I have more confidence than White in the ability of higher growth to reduce the burden of debt, having seen this happen, for example, in Mexico and Chile. However, triggering that growth requires both fiscal stimulus and structural reform, including some level of debt relief.
- Inflating away debt only works under two circumstances: (a) when most of a nation's debt has been issued in its own currency, and (b) when the average maturity (or duration) of the debt is sufficiently long to enable a rise in inflation to produce a substantial reduction in its real value and burden. For example, many members of the Greatest Generation in the United States saw the real value of their 30-year, 5% mortgages dramatically cut during the high inflation of the late 1970s. Today, however, the median maturity of developed countries' central government debt is about seven years, so the potential benefit from high inflation would be much lower. Of course, this does not take into account the possibility of hyperinflation, which could be triggered if the monetization of large government fiscal deficits (along, one hopes, with other structural policies) fails to produce a substantial and sustained improvement in real aggregate growth, causing a collapse in confidence in the currency and a flight into real assets like gold, property, and timber.
- On balance, it is hard to escape the conclusion that at some point, significant debt reduction will be necessary if the United States and

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other nations are to escape secular stagnation and minimize the risk of future hyperinflation.

- The key question is whether such a reduction is possible in today's environment. Recent private and municipal bankruptcy experiences and sovereign debt restructurings do not fill one with hope. Too many have been marked by extended and contentious litigation by various classes of creditors that has drawn out the debt reduction process for extended periods of time. Put differently, it does not appear that private sector processes are equipped to handle the scale of the debt reduction that may be required in the future. Government action will be necessary. Unfortunately, whether today's polarized politics will allow that also remains doubtful.
- That said, there are some steps that would likely have a large positive impact. One would be the conversion of \$1.5 trillion in American student loan debt into equity. Such equity would require the payment to the government (collected through the tax system) of a fixed percentage of Adjusted Gross Income for a fixed period of time (not just until the loan was repaid). Any loan amount still outstanding after this period would be written off. This would likely have a large positive impact on spending by the 44 million borrowers who have outstanding student loans.
- With respect to the restructuring of private sector debt, the government could also change regulations to discourage the seizure and liquidation of collateral (which forces many companies to close) and make conversion of debt to equity and partial writedowns easier than they are today (an LDC debt crisis analogy to the latter was the creation of deeply discounted zero coupon Brady bonds which were used to guarantee principal repayment for restructured sovereign debts).

In addition to White's writing, the *Financial Times'* Martin Wolf and Bridgewater's Ray Dalio have also recently addressed the problem of excessive debt (broadly construed to also include off balance sheet liabilities for pensions and healthcare) relative to the economy's capacity to service it if aggregate growth remains weak.

In "*How the Debt Cycle Might End*" (FT 14May19), Wolf noted that the excessive debt end game could end in "fire" (high inflation to reduce debt's

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real value, ending in extended stagflation) or “ice” (an external shock that triggers uncontrolled debt defaults ending in deflation and depression).

In “*The Coming Paradigm Shift*” (17Jul19), Dalio states his belief that the need for substantial fiscal stimulus in the United States, as well as funding the nation’s “wave” of onrushing pension and healthcare liabilities, “monetization of the debt [i.e., the government issuing new debt that is purchased by the Federal Reserve] and currency depreciation will eventually pick up”, which will lead to higher inflation. There will also be “large tax increases...and increased conflict between the capitalist haves and the socialist have-nots.”

Dalio concludes by saying “so, the big question worth pondering at this time is which investments will perform well in a reflationary environment accompanied by large liabilities coming due and with significant internal conflict between capitalists and socialists as well as external conflict. It is also a good time to ask what will be the next-best currency or storehold of wealth to have when most reserve currency central bankers want to devalue their currencies in a fiat currency system.” Dalio’s initial answer is gold, while acknowledging that other asset classes may also perform well.

Scenarios

The following scenarios describe a range of possible outcomes once we enter the next downturn, as well as the key assumptions upon which the scenario depends. To develop them, we used the “pre-mortem” method. We assumed it is some point in the future, and specific scenarios have developed – most or all of which are significantly different from the recent past. We then worked backwards to identify the key drivers (our assumptions) that caused each scenario to develop. The pre-mortem method is particularly useful in highly uncertain situations with multiple interacting disruptive trends that are likely to produce non-linear effects. Under such circumstances, reliance on precedent and extrapolation of the past will almost certainly lead to substantial forecast errors.

The following table enables you to estimate the probability that each scenario will occur. This probability is the joint (multiplicative) probability of the assumptions you believe are very likely to be both individually necessary and collectively sufficient for the scenario to develop. Note also that the

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probability of the same assumption may be different under different scenarios.

Scenario Description	Key Assumptions (probability)
<p><i>A deep recession followed by a relatively quick recovery and higher aggregate demand growth thereafter. This scenario leads to escape from secular stagnation and interest rates above the Zero Lower Bound.</i></p>	<ol style="list-style-type: none"> 1. Coordinated fiscal stimulus across key countries focused on investments that increase potential growth (___%) 2. Structural changes that increase productivity growth (___%) 3. Structural changes that mitigate the employment impact of increasing use of productivity enhancing automation and AI technologies (___%) 4. Policy changes that significantly reduce income inequality (___%) 5. Structural changes that enable significant debt reduction (___%)
<p><i>A deep recession followed by a prolonged period of secular stagnation and deflation.</i></p>	<ol style="list-style-type: none"> 1. International conflicts limit effectiveness of fiscal stimulus (___%) 2. US housing prices (which have a 33% weight in the Consumer Price Index) decline for a prolonged period (___%) 3. Little or no reduction in income inequality (___%) 4. No significant increase in productivity growth (___%) 5. Inability to restructure debt in a timely manner and/or accelerating deployment of automation technology leads to spike in liquidations and sharp increase in unemployment (___%)
<p><i>A shallower recession followed by substantially increasing fiscal deficits</i></p>	<ol style="list-style-type: none"> 1. Fast, sharp increase in federal deficit spending focused on

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Scenario Description	Key Assumptions (probability)
<p><i>and their monetization, but with no escape from secular stagnation, which eventually leads to higher inflation (and possibly hyperinflation).</i></p>	<ul style="list-style-type: none"> transfer payments to limit reductions in consumption spending and the severity of recession (___%) 2. No significant increase in productivity growth (___%) 3. No significant debt reduction; instead "zombie companies" are kept alive through regulatory change (e.g., accounting changes, loan rollovers, etc.) (___%) 4. No reduction in income inequality (___%) 5. Supply shock triggers sharp jump in inflation (e.g., food crisis, worsening trade wars, oil price shock) that compounds as wage/transfer payment demands increase (___%)
<p><i>A deep recession that leads to continued secular stagnation, higher levels of global conflict and eventually to substantial political change (e.g., international conflict, changes of governments, etc.).</i></p>	<ul style="list-style-type: none"> 1. Increasing international conflict leads to more "beggar they neighbor" policies and trade conflicts (___%) 2. Rising fiscal deficits focused on maintaining consumption, not increasing future growth (___%) 3. Widespread cross-border litigation and conflict as debt servicing problems increase (___%) 4. No significant increase in productivity growth (___%) 5. Worsening economic conditions trigger existential regime crisis in China, Russia, Iran, or North Korea (___%)

Conclusion

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In our May 2019 issue, we focused on how different outcomes for key technological, economic, national security, social, and political issues could drive the global macro system towards our four regimes: Normal Times, High Uncertainty, Persistent Deflation, or High Inflation.

This month, we have more narrowly focused on how different the next downturn will be from those most of us have previously experienced, how deep it is likely to be, and how long it will last. We have summarized a range of possible outcomes using different scenarios, and highlighted the most important assumptions on which each one depends. In the interest of simplicity and greater focus, these scenarios have left out national security, social, and political uncertainties that could have significant impacts.

On the other hand, we have included our four high-level global macro system regimes, and what we believe is the most likely evolution from the current disordered/conflict regime to the ordered/conflict regime.

On balance, both our bottom-up and top-down processes lead us to conclude that the next downturn will likely be both deep and long, and more likely to produce persistent deflation, at least at first, before either escaping secular stagnation and returning to the normal regime or moving into the high inflation regime. Finally, if history is any guide, a deep and prolonged global downturn could also produce a transition to the ordered/conflict regime.

For investors, this raises the question posed by Ray Dalio: Which asset classes are likely to best preserve capital and ideally produce positive returns in the turbulent years that lie ahead? Looking out over a 36-month time horizon, our answers today include real return government bonds (both US and foreign, particularly those with a minimum value that cannot be reduced by deflation, e.g., TIP or WIP), gold (GLD), and Swiss Francs (FXF). In so far as you believe that the high inflation regime will eventually develop, then we would add domestic (VNQ) and foreign (VNQI) commercial property and timber (WY) to this list.

Finally, in terms of active bets, our preferences would be for global macro funds (as volatility and therefore opportunities for skilled managers are going to be high), consumer staples equities (VDC), and companies with the potential to scale-up cost-effective lifetime learning processes and technologies.