Ultra-Easy Money: Digging the Hole Deeper?

by

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[1] "The views expressed are solely those of the author and are not necessarily shared by any institution to which he is currently or has in the past been associated."

Abstract

The global situation we face today is arguably more fraught with danger than was the case when the crisis first began. By encouraging still more credit and debt expansion, monetary policy has "dug the hole deeper". The fundamental analytical mistake has been to model the economy as an understandable and controllable machine rather than as a complex, adaptive system. This mistake also implies that the suggestion that central banks should necessarily reduce the "financial rate of interest", in response to a presumed fall in the "natural rate", is overly simplistic. In practice, ultra-easy policy has not stimulated aggregate demand to the degree expected but has had other unexpected consequences. Not least, it poses a threat to financial stability and to potential growth going forward. Further, "exit" threatens to be delayed in many countries, underlining the dangerous fact that the global economy has no nominal anchor. Much better would be policies, introduced by other arms of government, that would recognize that the fundamental problem is not inadequate liquidity but excessive debt and possible insolvencies. The policy stakes are now very high.

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A. Introduction

Let me begin by saying that it is a great honor to have been awarded the Adam Smith prize. I am conscious of both the importance of the awarding body and the distinguished list of previous recipients. Perhaps even more important, I recognize that my policy views diverge significantly from what has, at least to date, been mainstream thinking about monetary policy. I thank you for your open mindedness and the opportunity to bring these views to a wider audience. There should be no monopoly on "truth" in this crucially important area, particularly given how frequently and radically views about the conduct of monetary policy have changed over the last fifty years or so.[2]

It is broadly agreed that the decline in US house prices late in 2005 was the initial phase of the subsequent economic and financial crisis in the United States. Since then all parts of the world economy have come to bear its imprint, with many harboring fears that the Second Great Contraction[3] is by no means over. The duration, scope and magnitude of what has happened cannot be explained by a process of contagion. Rather, there were credit driven "imbalances" accumulating in the complex, adaptive system we know as the global economy. The collapse of the subprime mortgage market in the United States, and the complex financial instruments based on such mortgages, was simply the trigger that revealed a prevailing systemic fragility.

[2] For a record of these changes, which have affected all aspects of the conduct of monetary policy, see White (2013).

[3] This was the term used by Ken Rogoff in his Adam Smith presentation to NABE in 2011. See Rogoff (2011)

In this presentation I will try to trace the origins of the crisis, and the particular contribution made by expansionary monetary policies before (unnaturally easy) and after (ultra-easy) the crisis broke. I will contend that the situation we face in late 2016, both in the advanced market economies (AMEs) and the emerging market economies (EMEs), is arguably more fraught with danger than was the case when the crisis first began. By encouraging still more credit and debt expansion, monetary policy has dug the hole still deeper. Accordingly, I will finish by suggesting some government policies that might be more effective in restoring the "strong, sustainable and balanced growth" desired by the leaders of the G20.

I am aware that the current consensus is that global economic prospects are likely to improve next year. I would remind you, however, that actual outturns have generally been weaker than predicted (as of the previous spring) in each of the last seven years. This is not surprising since the models underlying most forecasts (including those of the Fed, OECD and IMF) do not adequately recognize the vital importance of credit and the financial system. The fundamental ontological error has been to model the economy as a relatively simple machine, whose properties can thus be known and controlled by its policy operator. In reality, it is an evolving system, too complex to be either well understood or closely controlled. Moreover, it is a system in which stocks and "imbalances" build up over time in response to monetary stimulus. This reality makes future prospects totally path dependent, and we are on a bad path.

For the same reason, it is also overly simplistic to suggest that central banks should reduce the "financial rate" of interest in response to a presumed fall in the "natural rate" of interest (the expected rate of return on capital) since the crisis started[4]. If expected profits have collapsed as a side effect

[4] The underlying model is that of Wicksell (1936). He drew the distinction between the "natural rate "of interest and the "financial rate" of interest. The former is related to the expected rate of return on investments and the latter is a longer term rate of interest set by the financial system under the influence of the central bank. The latter is observable while the former is not. When the natural rate is below the financial rate, the result will be a decline in the price level and vice versa. In this model, a change in the price level is the only indicator of disequilibrium in the system.

of monetary policies followed in the past, this hardly seems a justification for maintaining such policies. A simple, single period model, stripped of all policy side effects except near-term inflation, is simply not adequate to deal with such dynamic processes. It will be argued below that other side effects, particularly those affecting supply potential and financial instability, demand much greater attention.

Looking at the individual regions in the global economic system also reveals potential weaknesses. The United States is furthest ahead in the recovery but faces declining labor participation rates and (like others) weak capital investment. With "potential" lower, the risks of inflation are higher. Europe faces its own idiosyncratic problems, not least a still weak banking system and potential fallout from the vote on Brexit. Japan is conducting an unprecedented experiment with "Abenomics", but inadequate results to date suggest even greater experimentation going forward. China must make a transition to a different growth model, based on internal consumption, but all transitions are difficult and carry significant risks.

Moreover, in our increasingly integrated global economy, problems anywhere will quickly become problems everywhere. As an example, think of the implications of China's slowdown for other emerging markets and beyond, particularly for commodity producers. Note too that the EME's have expanded markedly in recent decades and developments there are now likely to have a big effect on AME's. In sum, there are valid reasons for concern about the prospects for the global economy.

B. The Run Up to the Crisis of 2007

How did we get into this mess? I want to suggest that monetary policy, guided by flawed theory, has played a big role even if other agents also contributed materially[5]. The flawed theory is, essentially, that growth and

[5] As discussed briefly below, a wide variety of economic agents, both private and public, held "false beliefs" that led them to act imprudently. While this paper focusses on central banks, this should not be interpreted as indicating a wish to downplay the important role played by other agents.

job creation deemed to be inadequate are solely due to inadequate demand and that this can always be remedied with expansionary monetary policy. Moreover, it is assumed that such policies do not have significant undesirable side effects. They are, therefore, the proverbial "free lunch".[6]

This theory was first tested in the early 1960s, when people still believed there was a long-run tradeoff between unemployment and inflation. However, one significant side effect of monetary stimulus soon revealed itself. The expected "slight" increase in inflation turned into the massive inflationary pressures of the 1970s, as predicted by the theoretical insights of Friedman (1968) and Phelps (1968). The Volcker regime of the early 1980's dealt with this problem, but the tendency to turn to "easy money" as a cure-all soon reasserted itself.

The "Greenspan put" that followed the stock market crash of 1987 was followed by similar episodes of sharp monetary easing in 1991, 1998 and 2001. Moreover, periods of monetary easing were never matched by symmetric restraint when the economy was recovering. As a result, nominal interest rates ratcheted downwards over the years and debt levels, both public and private, ratcheted up[7]. These monetary policies were made possible by the persistent downward pressure on global inflation arising from the process of globalization and the return to the market economy of China, the countries of Central and Eastern Europe and many others.

The principal analytical mistake made by domestic policymakers in the AMEs was failing to recognize the importance of these positive, global supply side shocks[8]. Disinflationary pressures ought not to have been interpreted as indicating the need for ever increasing domestic credit expansion. On the one hand, this outcome was a byproduct of excessive

[6] My initial disagreements with this view were expressed many years ago. See Borio and White (2003), White (2006) and White (2012).

[7] It should be noted that fiscal policies in most AMEs erred in the same asymmetric way. Thus, government debt stocks ratcheted up, cycle after cycle, to essentially " unsustainable" levels in many countries.

[8] There was a vigorous debate about such supply side issues in the pre- War period. See Selgin (1997)

fears about the negative effects of deflation[9]. On the other hand, it reflected an underestimation of the costs associated with easy money, in particular the buildup of a host of other imbalances in the domestic economy. In the successive cycles noted above, monetary easing generated "rational exuberance" which then slowly and inconspicuously transformed itself into "irrational exuberance"; a boom and bust process. [10]. This set the scene for the next downturn, the perceived need for still more monetary easing, and the generation of still more imbalances. These imbalances are perhaps best treated by looking in more detail at the years just preceding the crisis.

The easing of AME monetary policy in 2001, in response to slowing growth and the stock market crash, was of unprecedented speed and magnitude. Taylor (2007) contends that, in the US, at least it far exceeded the requirements of a Taylor rule. Moreover, rates were also kept down much longer than such a rule would have suggested. This led to a whole host of imbalances, both real and financial, in many AME's. In the English-speaking countries, household saving rates fell to unprecedented levels and there was a further buildup of household debt. As the price of houses rose, investment in the housing stock also took off. Similar developments were occurring in peripheral Europe as sovereign credit spreads over German Bunds collapsed.

Financial institutions dramatically increased leverage as they increased loans, and the price of financial assets also rose to unprecedented highs. Given that increases in policy rates were being clearly telegraphed in advance, and Sharpe ratios raised accordingly, speculation on further increases was strongly encouraged. Finally, via the mechanism of semi fixed exchange rates (to which I will return), the EMEs actively contributed to an

[9] Careful historical analysis indicates that the Great Depression was essentially unique in their being an association between falling prices (CPI) and a shrinking economy. See Atkeson and Kehoe (2004) and Borio et al (2015).

[10] There is now a huge literature documenting earlier crises in which both the real and financial sectors have been affected. Common themes are some early piece of good news that justifies optimism, associated financial innovation, and a significant expansion of credit and debt. In addition to the classic reference, which is Kindelberger and Aliber (2005), also see Reinhart and Rogoff (2009) as well as Schularick and Taylor (2009).

explosion of global liquidity and imbalances in their own economies. In short, by 2007 the global economy was an accident waiting to happen and the policy makers all failed to see it coming. How could this have happened?

I would contend that all the relevant policy makers were seduced into inaction by a set of comforting beliefs, all of which we now see were false. Central bankers believed that, if inflation was under control, all was well. As a corollary, in the unlikely case that problems were to emerge, monetary policy could quickly clean up afterwards. Regulators believed that, if single institutions were all healthy, the system as a whole would stay healthy. Nor was the private sector without fault. Bankers and other lenders believed their large profits were due to talent (alpha) rather than risk-taking (beta), and so became ever more exuberant. Borrowers believed house prices and the prices of other financial assets were a one-way bet. Even governments were seduced. Buoyant tax revenues were believed to be "structural" rather than cyclical and were quickly spent.

C. Crisis in the AMEs and the Policy Responses

When the crisis hit, policymakers in the AMEs initially pulled out all the stops. They used a variety of polices to stabilize the situation and in a fundamental sense succeeded. However, each of these policies shared a major shortcoming. Their positive short-run effects were offset by negative longer-term effects. For example, most AMEs allowed their fiscal deficits to expand rapidly in 2009. However, this quickly led to a rapid increase in debt ratios and, in some cases (e.g. peripheral Europe), market pressure to reverse these developments soon developed.

Similarly, measures to support the financial system were needed and were initially successful. However, with the US arguably an exception[11], they did

[11] However, in both the US and the UK there was a marked increase in concentration in the banking system. Otherwise put, the "too big to fail" problem got worse. For an explicit recognition that this problem has not yet been adequately dealt with, see Financial Stability Board (2016).

not address the underlying problems of an over-extended financial sector and the need for debt write-offs. In effect, most AMEs have chosen the Japanese path rather than the Nordic path to restoring the financial system to good health. Finally, as the weakness of the economy became ever more apparent, the appetite for structural reforms to the real economy also faded.

In short, in the aftermath of the crisis, ultra-easy monetary policy soon became "the only game in town". Unfortunately, monetary policy shares the shortcoming of all the other policies. Its effectiveness decreases over time, while its negative side effects increase over time. Let me treat these two phenomena in turn. I will distinguish, however, between the undesired side effects in AMEs and those in EMEs. Finally in this section, I will make a few comments about global liquidity. The bottom line is that countries are increasingly interdependent but, sadly, we lack a global governance structure that recognizes this fact.

Why ultra-easy monetary policy might not stimulate demand

Central banks have resorted to unprecedented policies in response to the crisis. However, they have sometimes differed in their peculiarities, attesting to the highly experimental nature of these policies[12]. First, policy rates in most countries were lowered very quickly to almost the Zero Lower Bound. Subsequently, a number of countries even introduced negative rates on reserves held by financial institutions at central banks. Forward guidance, mostly implying policy rates would stay "low for long", was also used to lower the yields on medium term government securities. In addition, central banks massively increased the size of their balance sheets, generally in an effort to lower longer-term rates, while often altering their composition as well in order to affect credit spreads.

[12] For a description of the many differences between the policies of the Fed and the European Central Bank, see Fahr et al (2011).

These policies were first directed to restarting financial markets that seized up early in the crisis. With time, however, the focus of AME central banks shifted to emphasizing the need to stimulate aggregate demand[13]. The policy essentially succeeded in achieving the first objective, in that markets quickly began to operate more normally. Credit and term spreads also fell sharply from previously high levels, with over ten trillion dollars of government bonds carrying a negative interest rate by mid-2016. Some alternative hypotheses about the sustainability of these developments are addressed below.

However, the second objective of stimulating spending has been much harder to achieve, particularly in continental Europe and Japan. Inflation and inflationary expectations have also remained stubbornly below desired levels almost everywhere,[14] although the US is somewhat of an exception[15]. While many central bankers seem to have been surprised by the lack of response of spending to date, both economic history and the history of economic thought should have given ample warning.

In previous downturns after a credit bubble, at least in those cases where the financial sector itself had been weakened, history records that recovery can take a decade or longer[16]. Moreover, losses to the level of potential are commonly large and permanent. Evidently, to the extent that monetary policy contributed to the financial "boom" and the subsequent "bust", this conflicts with the conventional belief in the long run neutrality of money.

Turning to this particular crisis, a number of reasons can be suggested for the lack of monetary traction. It clearly has less to do with the signal not

[13] The Federal Reserve was the first and most enthusiastic advocate of such policies. The European Central Bank was much more reluctant, but eventually also subscribed. The Bank of Japan, under Governor Shirakawa, was also reluctant but, under the subsequently appointed Governor Kuroda, things changed dramatically. "Abenomics" subsequently included a massive increase in the size of the Bank of Japan's balance sheet as one of its three "arrows".

[14] A large part of this is due to weak prices for commodities, energy in particular. However, other measures of inflation and inflationary expectations have also been weak.

[15] Core inflation in the US is not much below 2 percent, and most estimates indicate the output gap is now quite small. Nevertheless, both market and survey based measures of inflationary expectations continue to decline.

[16] Reinhart and Reinhart (2010)

getting through (since yields and spreads fell and asset prices rose sharply) than with there being an unusually muted spending response[17]. Profound uncertainty about the future, not least the future stance of monetary and fiscal policies, might have suppressed "animal spirits". The experimental nature of current policies, suggesting "panic" to some, might also have worked in the same direction. It is particularly worrisome that corporate investment has been falling sharply, with the proceeds of record bond issues rather being used to buy back stock (or increase dividends) and/or hoarded as cash. I return to the supply-side implications of this below.

Perhaps most important, a lower discount rate works primarily by bringing spending forward from the future to today. In this process, debts are accumulated which constitute claims reducing future spending. As time passes, and the future becomes the present, the weight of these claims grows ever greater. Some part of the weakness of current investment might be due to corporations recognizing the importance of such "headwinds", particularly the overhang of consumer debt. Why increase productive potential when future demand is likely to be constrained? In short, easy monetary policies are likely to lose their effectiveness over time - and eight years seems rather a long time by anyone's standards.

These are not just theoretical considerations. The BIS Annual Report of 2014 sounded the alarm when it noted that the level of debt in the AMEs (sum of corporate, household and governments) was then significantly higher than it had been in 2007. Moreover, it has since risen further, to over 260 percent of GDP. This increase has prompted the question "Deleveraging? What deleveraging?"[18] This suggests that, by following polices that have actively discouraged deleveraging, we may instead have set ourselves up for an even more serious crisis in the future.

[17] For a fuller description of the various ways in which ultra-easy monetary policy might actually decrease consumption and investment, see White (2012).

[18] See Buttiglione et al (2014). For a similar analysis, see McKinsey Global Institute (2015).

As for the history of economic thought, Keynes himself said in Chapter 13 of the General Theory (1936) that monetary stimulus was likely to be ineffective; "If, however, we are tempted to assert that money is the drink that stimulates the system to activity, we must remind ourselves that there may be several slips between the cup and the lip". This conclusion marked a sharp change from the policy changes he had recommended in the Treatise on Money (1930). Hayek (1930, p21) went even further in suggesting that monetary easing would actually hold recovery back. "To combat the depression by a forced credit expansion is to attempt to cure the evil by the very means which brought it about".

Undesired side effects in AME's

There is a rich historical literature on this topic, only one strand of which might be described as "mainstream". That strand began with Wicksell (1907) who warned that setting the financial rate of interest below the natural rate of interest would culminate in inflation. There has not thus far been any indication of rising inflation in AMEs, though I will suggest a little later that there are still some grounds for concern. Other strands of thought that are decidedly not mainstream would include: the concerns of Hayek (1933) about real resource misallocations; Minsky's (1986) suggestion that financial stability breeds instability; Koo's (2003), observations about balance sheet recessions; and insights from economists at the BIS who have identified imbalances of various kinds that are spread internationally via global capital markets. It seems possible, even likely, that all of these undesired effects of ultra-easy money have been building up under the surface.

There are clearly grounds for believing that monetary policy, both before and since the crisis, has contributed to a reduction in the level of potential or even its growth rate. In fact, both seem to have declined sharply in AMEs in recent years[19]. As Schumpeter might have put it, without destruction

[19] For a general discussion of these issues, see Bank for international Settlements (2016). Also Borio et al. (2015)

there can be no creation. It is a fact that in many countries, the entry of new firms and the exit of old ones has been on a declining trend. Worse, if easy money actually lowers potential growth, and this induces still more easy money, the possibility of a vicious downward spiral is clear. In the end, rising inflation would bring this process to a halt, but a great deal of real economic damage might have been done in the interim.

As for the mechanisms, unnaturally easy monetary policy before the crisis contributed to the expansion of low productivity industries; in particular, construction, retail and banking[20]. As well, the interaction of easy financing conditions and management compensation (in some countries, including the US) significantly reduced the incentives to invest[21]. Since the crisis, these problems have become locked in and others added[22]. Very easy monetary conditions have encourage banks to evergreen loans to "zombie companies", which in turn prey on the otherwise healthy and lower their productivity. Furthermore, with banks preoccupied with managing old loans, the availability of credit to new firms (with innovative ideas but no physical collateral) can become particularly constrained. This is a serious problem in Europe.

Another set of concerns has to do with an inadvertent contribution of ultra-easy monetary policy to financial instability. One concern is that it has reduced the viability of financial institutions by severely squeezing term and credit spreads. Insurance companies and pension funds have been complaining about this added threat to their business models and even

[20] See Cecchetti and Kharroubi (2015) for a discussion of the effects on real growth of the expansion of the financial sector.

[21] Andrew Smithers has repeatedly and convincingly made the following argument. For a manager whose bonuses are linked to stock market performance, it pays to issue bonds at low rates to either buy equity or increase dividends. Cutting investment frees up more cash to the same end. In a similar vein, Mason (2015) provides empirical support for the argument that "Whereas firms once borrowed to invest and improve their long-term performance, they now borrow to enrich their investors in the short run" He attributes this change to the shareholder revolution of the 1980's.

[22] Borio et al (2015) provide estimates of the magnitude of these effects. They are not trivial, amounting to one quarter of a percentage point off growth (annually) in the upturn and double that in the subsequent downturn.

viability for some time[23]. This is not surprising since it comes on top of various other problems, not least demographic challenges. What is more surprising is how long it took for banks to complain about the effects of monetary policy, and thinner margins, on their overall profitability. Only quite recently, under the influence of the introduction of a negative policy rate in Europe and Japan, have they added monetary policy to regulatory policy as a source of concern[24].

Another financial side effect is that the functioning of financial markets seems to have changed for the worse since the crisis began. With monetary policy (especially that of the Fed) seen to be the crucial factor driving all markets, there has been a marked increase in the correlation of returns within and across asset classes. Moreover, as perceptions have changed as to whether monetary policy would be effective or not, market reactions have bifurcated. When the mood is positive, financing flows (Risk On) to more risky assets, and when the mood is negative the opposite occurs (Risk Off). This focus of RORO investors, essentially on tail risks, seriously reduces the longer-run benefits of diversification and of value investing. A similar set of outcomes will be produced by the recent, massive shift of investors into Exchange Traded Funds (ETF)[25]. These financial market trends cannot be good for economic growth over time. As well, the likelihood of sharp swings in the prices of financial assets would also seem enhanced.

Against the background of these swings in sentiment, the easy stance of monetary policy might also have contributed to financial market prices getting well ahead of "fundamentals". As occurred prior to the crisis,

[23] For example, see Hoffman (2013). Also the extensive discussion of these issues in Eurofi (2016). Of particular note, to the extent that low interest rates push up the deficits of corporate pension funds with defined benefits, the corporation must fill the gap. This will be a direct charge on cash flow and profits. It is hard to avoid the conclusion that this will discourage investment.

[24] The return on equity for institutions designated as Systemically Important Financial Institutions (SIFIs) has fallen dramatically in recent years. The irony is that, if public sector polices have rendered them unviable while leaving them still "too big to fail", the taxpayer will once again be on the hook.

[25] The insights of those managing active funds has been overwhelmed by these correlations and they have systematically underperformed ETFs. A recent survey indicates that passive funds now account for one third of all fund assets in the US. See Marriage M (2016) and the associated FTfm special report on Exchange Traded Funds which outlines the associated dangers.

"transparency" might also have contributed to this outcome by raising Sharpe ratios and encouraging speculation. As of mid-2016, we observed record high equity prices, record low (even negative) bond yields for "riskless" assets, high-yield spreads back down from February levels, record low costs of cover (e.g.: the Vix), the return of cov-lite and Payment in Kind (PIK) financing, and a general lowering of lending standards. Broadly speaking, the levels of prices in financial markets today look as stretched as they did in 2007 just before the crisis erupted.

Granted, private sector leverage in AMEs has been generally less in evidence since 2007. Nevertheless, in a number of countries (the Nordics, Canada, Australia, Israel and many others) where "healthy" banking systems allowed continued growth in mortgage credit, house prices and household debt continue to make new highs. In the US, where household debt exposure has improved, media attention has nevertheless focused recently on the marked expansion of sub-prime car loans, student loans, credit card lending and Securities Based Loans. Each has the potential for mischief. As noted already, US corporate leverage has also increased as bond issues have been used to buy in equity, pay out dividends and to finance M&A's. [26]

Further, with innovation constantly occurring, exposures to risk might have been growing in different and less evident ways than before. Recall that the full implications of the growth of the "shadow banking system" only became clear after the crisis began. There are signs of similar structural changes occurring today. In part, this is due to new regulatory initiatives, which are once inducing a migration out of the regulated financial system.

Perhaps most important has been a remarkable increase in the size of the asset management industry, which has become much more concentrated as well. Could this increase the threat of overshooting prices should losses

[26] See BCA Research (2016) which contends "the corporate releveraging cycle is far more advanced than widely believed" and "overall corporate health looks only mildly better excluding the troubled energy and materials sector". Also Authers (2016).

begin to cumulate? Although it is not the asset management firm that takes the losses, they must be concerned to protect their customers since relative performance is important. A related issue is the reaction of ultimate lenders who might be tempted to withdraw their funds, exacerbating the likelihood of fire sales. Finally, asset management companies and other funding houses are moving strongly into direct lending (especially to EMEs) to clients whose credit worthiness they might not be adequately equipped to assess.

The BIS Annual Report for 2016 also highlights a number of persistent market anomalies[27]. Not only do they indicate price distortions and potential misallocations but could also indicate underlying structural developments whose full implications for market liquidity are not yet obvious. Recall the plight of European banks in 2008 who had borrowed dollars from money market mutual funds in the US. When this source of funding dried up, the Federal Reserve was forced to reopen US dollar swap lines that it had closed only a few years earlier. All that can be said with certainty, is that we are in uncharted territory when it comes to market functioning[28].

And for the record, it should be noted that central bank policies might have had other downsides as well. First, with income distribution already a source of great concern (due mainly to changing technology and globalization) the recent stance of monetary policy has likely made it worse. The rich own most of the risky financial assets whose prices have increased the most. Conversely, the middle classes mainly hold the less

[27] See Box II.C in Bank for International Settlements (2016). Perhaps the most remarkable anomaly has been the persistent and significant violation of the Covered Interest Parity condition, for euro/dollar and especially for yen/dollar. Against the backdrop of an excess of dollar assets relative to on balance sheet liabilities, foreigners are finding that dollar financing has become increasingly difficult. Moreover, with strong pressure from the Japanese government on Japanese financial institutions to raise returns by investing abroad, and the incentive provided by negative risk free rates in Japan, this problem can only get worse. Other anomalies are the growing gap between corporate bond spreads in the Eurozone and CDS spreads, and the relative performance of the Nikkei and Topix in Japan. Both clearly reflect central bank asset purchases.

[28] At the end of July, the Bank of Japan announced an expansion of its US dollar funding facility for Japanese banks, allowing them to roll over dollar loans for as long as four years. Presumably this was done in recognition of potential dollar funding problems and with the agreement of the Federal Reserve.

risky interest-bearing assets whose yields are at record lows. While central banks seem increasingly aware of these effects[29], what can be done about them is another issue.

Second, much of what central banks have done, albeit largely in the pursuit of financial stability, constitutes a significant threat to their "independence" going forward. There can be no doubt that the institutional relationships of central banks with their governments and their internal governance will be actively debated topics in the coming years[30]. Many institutional changes have already been implemented, often hastily in the wake of the crisis. The wildly divergent nature of these changes across countries shows how much serious thinking about these institutional and governance matters still remains to be done.

Finally, and perhaps most importantly, what the central banks have done has encouraged governments to believe that the central banks have the economic situation under control. Governments desperately want to believe this since it absolves them from having to pursue other, politically difficult, policies that might in fact lead to stronger and more sustainable growth over time. I return to these alternative policies in the last part of this presentation.

Undesired side effects in EMEs

While again subject to swings in market sentiment (RORO behavior), EMEs generally saw their currencies strengthen post-crisis as monetary policy was eased in the AMEs. Such "push me" factors have been in evidence for decades. However, Shin (2012), Rey (2013) and others have described in more detail the changes in the international transmission mechanisms that

[29] Der Nederlandische Bank organized a conference on this issue in Amsterdam in November 2015. The Council on Economic Policies, a Zurich think tank, has also cosponsored a number of such conferences with central banks, including a number of regional Feds. For a quantitative analysis of the magnitude of these effects, see Domanski et al (2016)

[30] See the discussion in Group of Thirty (2015) for which I was the project director and draftsman. More recently, the Institute for New Economic Thinking (INET) and the Official Monetary and Financial Institutions Forum (OMFIF) have "proposed to work together to examine the roles, performance and governance of central banks".

have influenced how the “spillover” process currently works. The implication is that there is clearly an element of truth in the accusation that AMEs are engaged in “currency wars”. At the same time, many EMEs also seemed to have desirable “pull me” characteristics that provided further support for their exchange rates. Not least, many EMEs benefited from significant gains in their terms of trade as commodity prices rose.

The governments and central banks of EMEs resisted this upward appreciation for a variety of reasons, some less justifiable than others. One concern was a prospective loss of competitiveness, of particular political importance in countries with export-led growth strategies. This would seem less justifiable, particularly for countries (like China) with large current account surpluses. Another concern, perhaps more justifiable, is that currency appreciation might otherwise have become unreasonably large. It is now generally accepted that the law of Uncovered Interest Parity only applies over very long periods, with momentum trading and carry trades generally gaining lasting force prior to an eventual mean reversion.

The resistance to exchange rate appreciation took many forms. A few countries used capital controls while others turned to so called “macro prudential” policies with the same intent. More common was foreign exchange intervention, which was often reflected in a large expansion in the balance sheet of the central bank, and the pursuit of easier monetary policies than would otherwise have been the case. As a result, the rate of credit expansion in many EMEs shot up and the ratio of non-financial sector debt to GDP also expanded enormously. Further lending to those with foreign debts was also encouraged by exchange rate increases which tended to flatter their balance sheets.

The upshot of these policies was that inflation rose in a number of EMEs to uncomfortably high levels (between 5 and 10 percent for the BRIICS, as of early 2014). As well, many of the imbalances previously seem in the AMEs were imported, via semi-fixed exchange rates, into the EMEs as well. Not least, there was a sharp increase in property prices and growing evidence of

over building in a number of countries. Similarly, there was in many countries a massive increase in the capacity to produce raw commodities as well as the intermediate products required to support the building and construction industries This threatened overcapacity should demand weaken[31].

Credit "booms" are commonly followed by an economic "bust" and this has indeed been the case for a number of countries. There was a subsequent marked deceleration in the growth rates of many of the larger EMEs, with actual declines in recent years in Brazil, Russia and South Africa. In China, growth decelerated only moderately under the expansionary influence of still more credit creation. Inflation for some EME's fell to very low levels, although sharp depreciations of EME currencies against the dollar after mid-2014 led to higher inflation in a number of others. Commodity prices also fell sharply as did producer prices in many EMEs, indeed in China the latter fell for forty months in a row. Capital outflows accelerated and domestic asset prices fell accordingly.

In recent months, however, signs of economic stabilization in the EME's have led to renewed capital inflows. These flows have also been supported by the perception that monetary policy in the US might not tighten as quickly as earlier supposed. That said, many downside risks remain. Supportive "pull me" factors might yet reverse. Many EMEs are now seen to have deeper structural problems than was earlier appreciated, and opportunities for reform were missed. As well, the buildup of debt levels in EMEs inherently leads to strains, just as in the AMEs. At the same time, "push me" forces could also reverse. Stronger growth in AMEs could eventually lead to higher interest rates and provide such an incentive[32]. However, weaker growth in the AMEs could be even more disruptive. A

[31] China is a leading example, with the government now publically agreeing that there is significant overcapacity in many industries including steel, aluminium, cement, glass etc. Distribution networks, not least shipping, also suffer from overcapacity as indicated by the recent filing for bankruptcy by Hanjin Shipping in South Korea.

[32] Recall the "temper tantrum" of June 2013 when Chairman Bernanke merely hinted at the possibility of a "tapering" of QE purchases in September.

return to Risk Off behavior could follow, at the same time as exports from EMEs to AMEs were threatened.

Adding to concerns about prospective capital outflows from EME's must be the nature of the previous inflows. Whereas in earlier years they were mostly driven by cross border bank loans, the flows in recent years have been dominated (especially in South East Asia and Latin America) by off shore issues of EME corporate bonds purchased largely by asset management companies. Since most of these bonds have been denominated in dollars and euros, in response to low interest rates, this raises the specter of currency mismatch problems[33]of the sort seen in the South Eastern Asia crisis of 1997. The fact that many of the corporate borrowers have rather low credit ratings also raises serious concerns,[34] as does the maturity profile. About $340 billion of such debt matures between 2016 and 2018[35].

The problem of "global liquidity"

The interactions between AMEs and EMEs through financial markets have now grown profound. While the influence of AMEs on the financial markets of EMEs has been discussed above, the reverse effect of EMEs on AMEs is growing increasingly important. Not least, the reinvestment of foreign exchange reserves and the assets of Sovereign Wealth Funds (when they were rising) eased general credit conditions in AMEs as well. Beyond this, property prices in large "gateway" cities in AMEs have been increasingly influenced by private purchasers from EMEs. This implies that financial and property markets in AMEs might well be affected by changes in circumstances in EMEs. On the one hand, capital outflows from EMEs might result in a rundown of foreign exchange reserves that could help raise bond

[33] From 2009 to 2015 Q3, US dollar denominated debt owed by non-bank borrowers outside the US rose about 50 percent to $9.8 trillion. It doubled to nonbank borrowers in EMEs to $3.3 trillion. See Bank for International Settlements (2016) p.12-13.

[34] In August of 2016, the IMF's Article 4 review of China gave a stark warning about the quality of credit in China. See also Blundell-Wignall and Roulet (2014) who note that much of the EME borrowing has arisen in industrial sectors where the rate of return on capital has been falling in recent years.

[35] See Tarashev et al. (2016)

rates in AMEs. On the other hand, the capital outflows might be directly invested in property, raising prices still further.

Given these complex interactions, a whole new strand of literature is developing on the nature of global liquidity and international credit bubbles[36]. While it is still the case that the dollar, and the policies of the Federal Reserve, remain at the heart of the global financial system, there is an increased interest in global aggregates for credit, money and the prices of financial assets. This is very much to be welcomed. It recognizes the changing reality of globalization.

Less welcome, however, is the new focus it provides on the governance mechanisms for this changing global reality. On the one hand, to the degree the Fed still sets global monetary policy, there is a deficiency. The Fed's policies must, by law, be set with only American interests in mind. Others must then protect themselves as best they can, perhaps by rolling back open markets through intrusive capital controls and macroprudential policies. On the other hand, given the increased degree to which global financial conditions now depend on the collective behavior of a number of monetary authorities, there is no mechanism to control that behavior.

We clearly need to revisit the issue of the international monetary system and the rules that might govern it. We have no global anchor[37]. Today, absent any rules but domestic self-interest, virtually all central banks (and certainly all the major ones) have the monetary and credit spigots wide open in pursuit of their domestic interests. What this collective monetary experiment might eventually imply at the global level still remains to be seen.

[36] For example, see Bank for International Settlements (2011).
[37] See White (2015) for a discussion of the many shortcomings of the current "non-system"

D. The Need for "Exit" and Possible End Games

Simple uncertainty about the full effects (not only unexpected but potentially undesirable) of today's radical monetary policies might, in itself, seem to argue powerfully for their moderation What has been done is totally unprecedented and totally experimental[38]. But there is another no less powerful argument for eventual exit. If the effects on aggregate demand decline with time, while the undesired side effects cumulate with time, at some point these two functions must intersect. At that point monetary policy would have to be judged to be doing more harm than good. At this due date, "exit" would then be warranted. Finally, and more in keeping with the conventional wisdom, exit would be warranted if there signs of emerging inflationary pressures. This danger seems greater today in the US than elsewhere.

Why "exit" threatens to be delayed

Unfortunately, there are a whole host of reasons to expect "exit" to be delayed until well after its due date, even in the US where a marginal increase in the policy rate has already occurred. The first concern, reflecting the unprecedented character of the current policy setting, is uncertainty concerning the use of the instruments of policy,. The modalities of "exit" in the US are still subject to debate. Moreover, the jury is still out as to whether it is possible to raise policy rates significantly while maintaining a swollen central bank balance sheet? What side effects might follow new procedures to make this possible? In principle, what should be the order in which previous policies could be reversed? Is full transparency about the policymaker's intentions a good thing or a bad thing?

And to this uncertainty must be added the even greater uncertainty over the implications of tightening. What happens if exit is "too fast", say as in

[38] Central banks have embarked, full speed ahead, upon what is the biggest, global macroeconomic experiment of all time. Contrast this approach with that of scientists involved in genetic research, in particular gene splicing. There, enormous importance is given to the need to protect against "unintended consequences". Similarly, all new drugs in AME's must be tested, not just for their effectiveness, but also their side effects.

the US in 1937? Could sustainable growth also be threatened by exit being "too slow", as in the US in the early 1970's? In any event, what is the level of post-crisis "potential" in the United States, and what is the likely rate of growth of potential going forward[39]? Finally, to what extent, and through what channels, might international developments abroad feed back on US inflation and unemployment?[40] On all of these questions, reasonable people could easily propose different answers, with differences of views on committees (like the FOMC) a recipe for inaction.

Exit will also be delayed due to pressure from those benefiting from the status quo. As noted above, debtors are gaining at the expense of creditors, and governments are essentially the biggest debtors of all[41]. Indeed the sustainability of sovereign debt service for some countries would be highly questionable even if rates were to rise less than to the "old normal". Some return to the post-war period of financial repression might then be expected. Moreover, those currently speculating on "lower for longer" will lobby vigorously to ensure this policy continues. Not least, they will emphasize the dire results of raising policy rates for zombie banks and companies with high levels of leverage and debt respectively Finally, pressure to keep rates down has recently emerged from minority groups whose job prospects remain uncertain[42]. This predicament is increasingly referred to as "the debt trap". Raising rates is thought not to be an option, but leaving rates low only makes the underlying problem worse.

[39] A closely related question is whether recent developments are caused by "secular stagnation" or are rather the product of successive "boom-bust" cycles with the downside effects perhaps exacerbated by the effects of easy monetary policies on the supply side of the economy.

[40] Developments in China seemed to have exerted a significant influence on the FOMC's decision in September 2015 not to raise the policy rate. However, members of the FOMC at the time emphasized that this was not done in China's interests, but due to the associated knock on effects (perhaps aggravated by associated slowdowns elsewhere) on the United States itself. International concerns seemed off the table when the FOMC raised the policy rate in December, but seemed to return around the time of the Brexit vote in June of this year.

[41] Central banks are part of government. Therefore, when central banks buy longer term government debt with central bank liabilities, they are essentially replacing the government's longer term, fixed rate obligations with short term debt which tends to have a much lower rate of interest. Indeed, in some countries that rate is now negative. Accordingly, exit from QE will increase government deficits. So too will raising policy rates.

[42] Representatives of Fed Up, an activist group, met with an unprecedented number of senior Fed officials at Jackson Hole in late August.

To all this, we must add that central bankers too are human. They will worry about the capital losses they might have to record when credit conditions tighten. Losses could easily damage their reputation for "competence". As well, the possibility of a popular call for recapitalization, and the need to strike a political deal with their respective Treasuries, would be a further source of concern. Finally, if tightening did prove to be "too fast" and the economy then faltered, central banks are aware that the blame will fall totally on their shoulders. For these reasons, directly affecting the central bank's own interests, plus all the indirect pressures noted above, the bias seems likely to be that of exiting "too late". In effect, staying put will become the central banks' default option.

Possible end games

Given the enormous, remaining uncertainty as to what should be done by central bankers (an analytical issue), what could be done (a legal and regulatory issue) and what will be done (a political economy issue), the best I can do is suggest certain scenarios. In any event, one characteristic of complex systems is that precise forecasting is literally impossible. In the scenarios I sketch out, polices other than monetary policy are taken as given. I proceed from the most optimistic to the least optimistic outcomes.

A first scenario assumes a happy ending, though even that is not guaranteed. Suppose that significantly faster growth does reemerge in the global economy, and that bond markets react in an "orderly" way. Thus monetary policy could begin to tighten and low bond rates would move up only slowly. Ideally, they would rise less than the increased nominal growth rate, implying a gradual reduction in the burden of debt over time. In this assumed world, current high equity prices and tight risk spreads might seem generously valued, but they would be fundamentally justified by future growth prospects.

For this optimistic scenario to be realized, it must also be assumed that central banks, in spite of the "exit" bias referred to earlier, do not make any

significant mistakes with respect to controlling inflation. Were inflation and inflationary expectations to rise in this faster growth scenario, a belated monetary response might lead to recession, as has been common in the post-war period. The risk of such a policy mistake (exiting "too late") is not insignificant. Orphanides (2001) has documented how hard it is to calculate output "gaps" based on real time data. Borio et al (2013) show that it is even harder in the wake of a financial boom that gives a falsely high reading for potential looking forward.

There is also a second threat to this optimistic scenario of a return to faster global growth. Suppose that bond markets react in a "disorderly" way. That is, long rates rise faster than the projected increased rate of growth in the nominal economy implying that debt service burdens worsen rather than ease. There are various reasons why this might be expected.

First, if unconventional central bank actions had been successful in holding bond rates down, as suggested above, then the reversal of such policies should reverse these results. Momentum could develop quickly and overshoots in financial markets are common[43]. Second, private sector investors have also been encouraged by central banks to be long risk and short volatility. A rush to the exits could have significant effects on both. Third, trading of a stabilizing kind might also be impeded by the lack of collateral[44], now tied up in various ways due to both recent regulatory changes (e.g. exchange traded derivatives) and to the expansion of central bank balance sheets. Further, reflecting new capital charges, dealers' inventories of risky securities (corporate securities in particular) are now far below where they were prior to the crisis. Fourth, if what happens in

[43] One reason people are prepared to buy sovereign bonds at negative rates is that they expect even more negative rates, raising the possibility of future sales and a short term capital gain. However, the moment that doubts arise as to the central bank's resolve to facilitate this, the appetite for bond purchases will disappear. The unprecedented increase in JGB rates in a few days in early August might have been an example of such a phenomenon. The proximate cause was the BOJ announcing a bond buying program that was less generous than the market expected.

[44] Baranova et all (2016) suggest problems are less likely to arise from a shortage of collateral (in periods of stress) than from a reduction in dealer intermediation capacity. In effect, "collateral may be unable to reach those that wish to use it". This could result in fire sales and funding difficulties.

AME's leads to capital outflows from EMEs, sales from reserve managers would put still more downward pressure on bond prices in AMEs.

In this case, sharply higher bond rates and associated financial disruption could also abort the recovery in AMEs, even in the face of further central bank easing to avoid this outcome. Capital outflows from EMEs might lead to the same outcome in their case. Even assuming that inflation and inflationary expectations were not shocked upwards by ever more aggressive monetary easing, we could again face the possibility of a global slowdown given these negative feedback effects.

If there are risks to the optimistic scenario, there are even darker possibilities. The current, relatively slow pattern of global growth could continue or even weaken further. The secular factors suggested by Gordon (2016) could contribute to this, as could the accumulating headwinds of debt. In this case, both policy rates and longer-term risk-free rates would be expected to stay very low. However, in this environment, current equity prices and narrow risk spreads will be increasingly seen as unrealistic. Resulting sharp declines in the prices of such financial assets are likely to catch out many speculators and could, potentially, do further harm to banking systems in countries already affected by the crisis. Unaffected AMEs, where household debt and property prices have continued to rise since 2007, might be particularly badly hit. Banks everywhere will, in any event, be further weakened by slow growth that raises the number of non-performing loans. Both the demand for and the supply of credit will remain very subdued, as in Italy today.

In this scenario, the current low level of inflation (in the AMEs) seems likely to decelerate further. As noted above, while falling prices would exacerbate the real burden of debt service, the likelihood seems small that price decreases would be extrapolated into the future and spending held back in anticipation. Nevertheless, given the biases noted above (leading to "exit" being delayed), still more aggressive use of monetary policy would likely be

the chosen option to respond to this slow growth, with central bank balance sheets expanding still further.

On the one hand, further monetary expansion might finally succeed in promoting more spending and the expansion of the real economy. Deflationary expectations might then be avoided. Logically, the possibility cannot be ruled out that the tepid response of spending to the monetary stimulus to date has been simply due to the stimulus being too small. On the other hand, there is also the possibility that this process might get out of hand. Still more monetary expansion might cause inflationary expectations to finally ratchet sharply upward, leading to a sudden fall in the demand for both base money and broader stocks of money as well. While the demand for real assets would rise, the effects on current production of significantly higher levels of inflation are harder to predict but could well be negative.

A sudden speeding up of the inflationary process would be more likely in countries where both government deficits and debts were initially very large. Thus governments would have to borrow but could not get adequate private sector financing. This would raise expectations of "fiscal dominance" further eroding the private sector's demand for government paper. Bernholz (2006) has pointed out that such processes, potentially leading to hyperinflation, are not uncommon in history. Such outcomes would also be consistent with those described in the famous article by Sargent and Wallace (1981). At the moment, Japan is clearly the country to watch in this regard. Should the Bank of Japan opt for still more monetary stimulus, this danger would obviously increase.[45]

[45] In both Japan and the Eurozone, massive increases in the base money provided by central banks have not led to significant increases in broad money. This is because the central bank purchases of debt have largely come out of the portfolios of banks. A "tipping point" for expectations could possibly arise when nonbanks begin to sell bonds in exchange for central bank money and measures of broad money do finally begin to increase.

E. **A Better Way Forward Than "Digging the Hole Deeper"?**

The above scenarios are stories, not forecasts. Nevertheless, they indicate some of the profound risks we face in relying totally on central banks to restore strong growth. If it succeeds, which is doubtful, it seems unlikely to be either "balanced or sustainable". If it fails, the vaunted "credibility" of central banks will be destroyed. Indeed there are worrisome signs that this process has already begun.[46] Much better would be other policy measures which would begin by recognizing that the fundamental problem is one of excessive debt and possible insolvency. Such problems must be solved by governments, not central banks. Other policies, again in the realm of governments and not central banks, would also help materially. To the extent these alternative policies might threaten inflationary pressures, then reversing the current ultra-easy monetary policies should be the first line of defense as this would help minimize the imbalances problem as well.

First, debt restructuring and outright forgiveness must be used much more aggressively. As noted earlier by Reinhart and Rogoff (2013) "It is difficult to envision a resolution to the current five-year-old crisis that does not involve a greater role for explicit restructuring". A number of commentators have suggested debt for equity swaps, as a means of crisis resolution, and more use of risk sharing instruments to help prevent future crises[47]. Debt restructuring and forgiveness will in turn likely call for the recapitalization of banks and sometimes for the closure of financial institutions. The legal framework must be made ready for this. Banks will also have to cut costs materially to ensure future profitability.

Second, structural reforms should be aggressively pursued to promote growth, and the capacity to service debt, as well as to help resolve trade

[46] When the Fed raised rates in December, long rates did not rise but fell. This is more consistent with Risk-Off behaviour and market anticipations of slower growth not faster growth. Similarly, when the BOJ introduced negative policy rates in January of this year, the Yen rose (Risk Off) rather than fall. As a further sign of decreasing confidence, in only one week in August, the Financial Times had three major op ed pieces by respected observers (Amar Bhidé, Bill Gross and Eric Lonergan) all expressing views similar to those contained in this paper.

[47] For example, see Buiter (2009)

imbalances. Freeing up the services sector in many countries with large trade surpluses would be particularly helpful in achieving both objectives. Raising retirement ages everywhere should be a crucial part of broader pension reform. This will boost both potential supply and aggregate demand, and will take pressure off the fiscal framework (pension obligations) going forward[48]. Measures to raise wages and the wage share of factor incomes have recently, and deservedly, received more attention.

Third, major increases are required in public investment in infrastructure.[49] This will increase both demand and supply potential going forward. Both are required for "strong, sustainable and balanced growth". Efforts must be made to convince financial markets that an increase in government liabilities, matched by productive assets, is very different from an increase in liabilities alone. Hopefully, such action would help to stimulate private investment as well. In any event, we should identify why private investment levels in AMEs are so low and propose measures to raise them, including changes in compensation practices that effectively encourage asset stripping as described above.

Fourth, governments should use what measures they still have at their disposal to increase aggregate demand. A few still have fiscal room, and current account surpluses to match. Moreover, the available room for near term fiscal easing could be expanded by the communication of credible plans to get sovereign debt ratios on a declining path over time. As well, China should pursue vigorously its stated intention to increase consumption through ending financial repression, allowing more exchange rate appreciation and raising wages. Other countries that have used similar strategies to pursue export-led growth, and incidentally large trade

[48] Off-balance sheet sovereign obligations, implicit in current legislation, are huge relative to traditional measures of public debt. In a recent article, Mizon (2016) calculates the size of the "fiscal imbalance" (FI) in a number of countries. By FI is meant the present value of future expenses less the present value of future revenues all expressed as a percentage of the present value of projected future GDP. The FI for the US is 5.4% (Table 1, p24) and for France and Germany is 14.6% and 13.9% respectively.

[49] Given the inherent difficulties in choosing new projects and implimenting them properly, initial emphasis might be put on maintenance and enhancements of existing infrastructure.

surpluses, need to ask themselves whether such strategies are not harmful to hopes for global recovery. They too may have gone past their due date.

We should be under no illusions as to how hard it will be politically for governments to carry out the policies suggested here, even if the G20 provides an organizing framework for coordinated action. That is why they have come to rely so heavily on central bank stimulus in the first place. As suggested above, absent these government policies that could work, central banks are destined to "just keep digging". Moreover, as the hole deepens, still broader risks arise. Future economic setbacks tied to ultra-easy money could threaten social and political stability, particularly given the many signs of strain already evident worldwide[50]. In short, the policy stakes are now very high.

[50] See Funke et al (2015) who look at the political aftermath of past financial crises. Their database covers 20 AMEs over 140 years and the results of over 800 general elections. They argue in their Abstract that "Our key finding is that policy uncertainty rises strongly after financial crises as government majorities shrink and polarization rises. After a crisis, voters seem to be particularly attracted to the political rhetoric of the extreme right, which often attributes blame to minorities or foreigners". Normal business cycle downturns do not have the same political consequences.

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